Le Jardin de Mère Nature dans une Petite Planète

(Mother Nature's Garden on a Small Planet)

a SPECIES DISTRIBUTION LISTING for

TOWNSHIP 14 SOUTH, RANGE 13 EAST PIMA COUNTY, ARIZONA
Gila and Salt River Baseline and Meridian

August 31, 2010 Update

"An increasing need for careful husbandry of the earth's natural resources has renewed interest in the classification and mapping of ecosystems. The inventory of our remaining biotic entities is particularly urgent because the increased aspirations of a constantly growing world population are placing ever greater stress on these generous, but finite, living resources."

United States Department of Agriculture, Forest Service, General Technical Report RM-73

Cowboys line up for the early morning trials of the Slack Competition at the Tucson Rodeo.
William T. Kendall, February 21, 2006

"To know the desert involves an acquaintance with all its aspects, and all its physical features, as well as all of the animals and plants that have learned how to find in it a congenial place to live. The most significant lesson that the desert dweller can learn from a familiarity with its plant and animal life is to regard himself not as an exile from some better place, but as a man at home in an environment to which his life can be adjusted without physical or intellectual loss."

Forest Shreve, The Cactus and Its Home, found in *Discovering the Desert*, by William G. McGinnies

MAJOR CONTRIBUTORS AND SOURCES OF INFORMATION

Philip D. Jenkins, Assistant Curator of the University of Arizona Herbarium *PDJ*

Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum *MBJ (date of observation)*

William T. Kendall *WTK (date of observation)*

Arizona Daily Star *ADS (date of article)*

Arizona Game and Fish Department, Heritage Data Management System - Special Status Species Reports *8*

Southwest Environmental Information Network (SEINet) *85 (a date of a search for information on the species)*

Janice E. Bowers, notes titled "Plants listed by J.J. Thornber from Zones I and II of the Desert Laboratory Domain", dated June 21, 1989.

J.E. Bowers and R.M. Turner "A Revised Vascular Flora of Tumamoc Hill", Madrano, Vol. 32, No. 4, pp. 225-252, 20 December 1985 *16*

Kathryn Maus, Arid Lands Resource Sciences, University of Arizona, "Plants of the West Branch of the Santa Cruz River" 12 October 2001 *56* and 9 September 2002 Update *57*

Philip C. Rosen, "Biological Values of the West Branch of the Santa Cruz River, With an Outline for a Potential River Park or Reserve", 15 October 2001 *78*

J.J. Thornber, Professor of Botany in the Arizona Experiment Station, 1909, Vegetation Groups in the Desert Laboratory Domain *89*

E. Lendell Cockrum. 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution, The University of Arizona Press, Tucson, Arizona. This inclusion is based on the general distribution maps and statements. *118 (distribution note, map - Figure Number and Page Number)*

Charles H. Lowe. 1964. The Vertebrates of Arizona with Major Section on Arizona Habitats, The University of Arizona Press, Tucson, Arizona. *55*

SPECIES DISTRIBUTION LISTINGS

Species Distribution Listings are being developed to encourage and promote the conservation of local native animals and plants. The listings are developed for legally defined geographic areas, and larger bodies of water. The listings include species reported as having been observed in or reported from the described area. Exotic and non-local landscaped plants are not included in the listings unless they have become naturalized into the surrounding native environment. Neither "Man" nor our domesticated animals, except for feral animals, have been included in the listings of species; however, they have had an impact on all natural areas, the future degree of this impact must be managed in order to restore and provide for the continuation of the natural interrelationships between all species.

Due to the continuing addition of species, the listings should be considered works in progress. In the listings, and most often in the listing of animals, species have been included based on general distribution mapping and/or statements and not on an observation made in a specific location. It is recommended that we consider a species as being "confirmed" to a township or general listing area only after we have at least three recorded sightings, cited in the footnotes, with no more than one of those records being based on general distribution mapping for the species. Note that the Southwest Environmental Information Network (SEINet) *85* may have several collections recorded for a species within any given township or listing area, and that the date shown in parentheses is a date of the search of their records and not a date of recorded sighting. Note also that many of the individual species collection records found in SEINet include additional associated species. For assistance with the identification of a plant, contact the University of Arizona Herbarium (520-621-7243; FAX: 520-621-7186; P.O. Box 210036 Herring Hall, 1130 East South Campus Drive, Tucson, Arizona 85721).

Individual species records are presented alphabetically by division, class, family and genus within their kingdoms. Following the scientific name is the authority, common synonym(s), common name(s), a general description of the species, a general description of the habitat, the biotic communities in which it has reportedly been observed and footnotes. An attempt is being made to identify the range in mature (flowering/fruiting) heights reported for the plants. Wherever possible the flowering period is given as it has been reported and is inclusive to early month (1st-10th), mid-month (11th-20th) and late month (21st-end). The habitat description is provided in order to help you visualize the types of natural habitats a species is found in. Descriptions have been developed from and are based on herbarium records and general descriptions of habitat. The habitat description provided should not be considered as limiting as to the type of habitat that a plant might occupy. The terms "streambed", "creekbed", "riverbed" or "lakebed" refer to their dry aspects. Plants reported as occurring in recently burned areas were observed in the area within one year following a fire. The range in elevation has been rounded off to the nearest 100 feet up for the higher elevation, or down for the lower elevation. Species reported from within 0 to 100 feet as their lower elevation limit have been recorded as occurring "from sea level". The reporting of the ecological formations follows the mapping presented in the "Biotic Communities of the Southwest" by David E. Brown and Charles H. Lowe, August 1980, with the exception of the "wetlands" which are being reported as an ecological formation in the listings. Species not considered to be native to Arizona are shown as being EXOTIC, printed in red. Exotic plants are not recommended for use in landscaping or restoration projects. Plants that may be an attractive component of a restored native habitat are so noted. Plants reported as having been used by native peoples of North America and which might be investigated to determine their value as a home garden or commercial food, fodder, beverage, spice, fiber, and/or dye crop may be so noted; much of this information is based on the records of the Native American Ethnobotany website [University of Michigan - Dearborn], footnote *127*. Species once reported as having occurred within the described area, but that no longer occurs there, may be shown as

EXTIRPATED. Disjunct species, outliers and plants on the edge of the main population, as observed by the surveyor, may be noted as being PERIPHERAL. When describing the "native range" of plants in North America northwestern refers to Alaska, northern refers to northern Canada (the Yukon Territory, Northwest Territories and Nunavut), northeastern refers to Greenland, central refers to southern Canada (north-central: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Newfoundland and Labrador, New Brunswick, Nova Scotia and Prince Edward Island) and the United States (south-central), and southern refers to Mexico, below which is Central America and South America. In the footnotes, the source(s) used for the inclusion of the species in a listing is printed in either green ***00*** (indicating that the entry is based on an actual sighting) or blue ***00*** (indicating that the entry is based on a general distribution description and/or mapping). Plants listed in the book "Livestock-Poisoning Plants of Arizona" by Ervin M. Schmutz, Barry M. Freeman and Raymond E. Reed and published in 1968 (80) as being either "Major Poisonous Range Plants" or "Secondary Poisonous Range Plants" are further identified by their listing heading being printed in red in the footnotes; plants considered to be "Rarely Poisonous and Suspected Poisonous Range Plants" and "Poisonous Cropland and Garden Plants" have also been noted. In order to facilitate referencing to T.H. Kearney and R. H. Pebbles' "Arizona Flora" the corresponding page number(s) for the species has been provided in the footnote (*46 (Page #)*).

Local native plants are recommended for use in landscape and restoration projects. Once established many native species require little, if any, irrigation. The inclusion of a plant in the township listing does not necessarily mean that the plant is suitable for the site in which you want to plant it. Ideally restoration should include those species of plants that were native to the property. The source material, of plants and seed, used in the project should be as local as possible. In order to determine what plants were native try to locate photographs of the area prior to clearing or look for natural areas and remnant populations and plants adjacent to where the restoration is to take place. Plants should be planted in their approximate original habitat and density and taking into consideration the original local native site and elevation of occurrence.

The use of local native plants in landscape and restoration projects encourages native animals to remain in the area and helps us to retain the area's natural beauty and unique identity and heritage.

The Species Distribution Listings have been created and maintained by William T. Kendall. Any questions, concerns, corrections and/or comments, including the reporting of unrecorded species and information relating to historical distributions, may be sent to the following address: William T. Kendall, P.O. Box 86091, Tucson, Arizona 85754-6091

DISCLAIMER: The information presented under "Township Notes" has been obtained from large scale mapping and should be used only as a general guide. The listings are not meant to take the place of on-site surveys for species. Information used in the listings is accepted from biologists and individuals interested in helping to promote the conservation of our natural resources. Mistakes are made in the identification of species, the interpretation of data and in the recording of information, and changes in nomenclature occur. For these reasons I can not and do not warrant the accuracy of these listings. Attempts are made to keep the information contained in the Species Distribution Listings as accurate as possible; however, I disclaim any implied warranty or representation about its accuracy, completeness, or appropriateness for any particular purposes. Users of the information found in the listings assume full responsibility for their use of the information and understand that I not responsible or liable for any claim, loss, or damage resulting from its use.

CAUTION: Many native desert plants have sharp thorns and spines. Care should be given when handling these plants and consideration should be given to public safety at sites where they are to be planted.

Range plants having a known toxic or poisonous property may be so noted. Footnotes for plants whose sources may have cautionary statements, comments and information on rarely poisonous or suspected poisonous properties may be shown in red *00*. Many poisonous plants are similar in appearance to edible ones. No field collected plant should be eaten unless you know for a fact that it is safe for you to do so.

CONTENTS

TOWNSHIP NOTES

LOCATION: This township is located in east-central Pima County in south-central Arizona. Portions of the City of Tucson and the City of South Tucson are located in this township. This township is bounded on the north by the alignment for Grant Road and Ironwood Hills Drive, on the south by the alignment for Irvington Road, on the east by the alignment of 1st Avenue and on the west by the alignment for Camino de Oeste. Parks with large natural areas include Greasewood Park, Sentinal Peak Park, portions of the Santa Cruz River Park and Tucson Mountain County Park.

Historic Neighborhoods: Historic Neighborhoods include "A" Mountain, Armory Park, Barrio Anita, Barrio Blue Moon, Barrio Hollywood, Barrio Santa Rosa, Barrio Viejo, Dunbar Spring, El Presidio, Jollyville, Kroger Lane, Menlo Park, Sin Nombre, Sovaco and West University.

Historic Ranching Activities: Named historic ranches include the Davidson Ranch. Additional activities include the Tucson Rodeo "La Fiesta de los Vaqueros" (The Celebration of the Cowboys) and the Tucson Rodeo Parade.

Historic Mining Activities: A tungsten processing mill was operated in this township during World War II *ADS (August 30, 2006, Section A, Page 1).* A number of lime kilns were located along Silverbell Road *ADS (August 2, 2010, Section A, Page 6, Ruins of old lime kiln visible along Silverbell).* *

LANDMARKS: Foothills of the Tucson Mountains are located in the southwest half of the west half of this township. Named peaks include Sentinel Peak (A Mountain), Tumamoc Hill (Tohono O'odham for "Horned Toad Hill", also historically referred to as Flat Top Mountain), Twin Hills, and Cat Mountain (eastern portion). Named passes include Robles Pass. Named springs include the Santa Cruz Springs (at the base of Sentineal Peak). Named rivers and washes (possibly portions of) include the Ajo Wash, Anklam Wash, Arroyo Chico, Enchanted Hills Wash, Globeberry Wash, Greasewood Wash, Julian Wash, Maxwell Wash, Morado Wash, Oeste Wash, San Juan Wash, Silvercroft Wash, Speedway Wash, Tucson Park Wash, and the Santa Cruz River and West Branch of the Santa Cruz River.

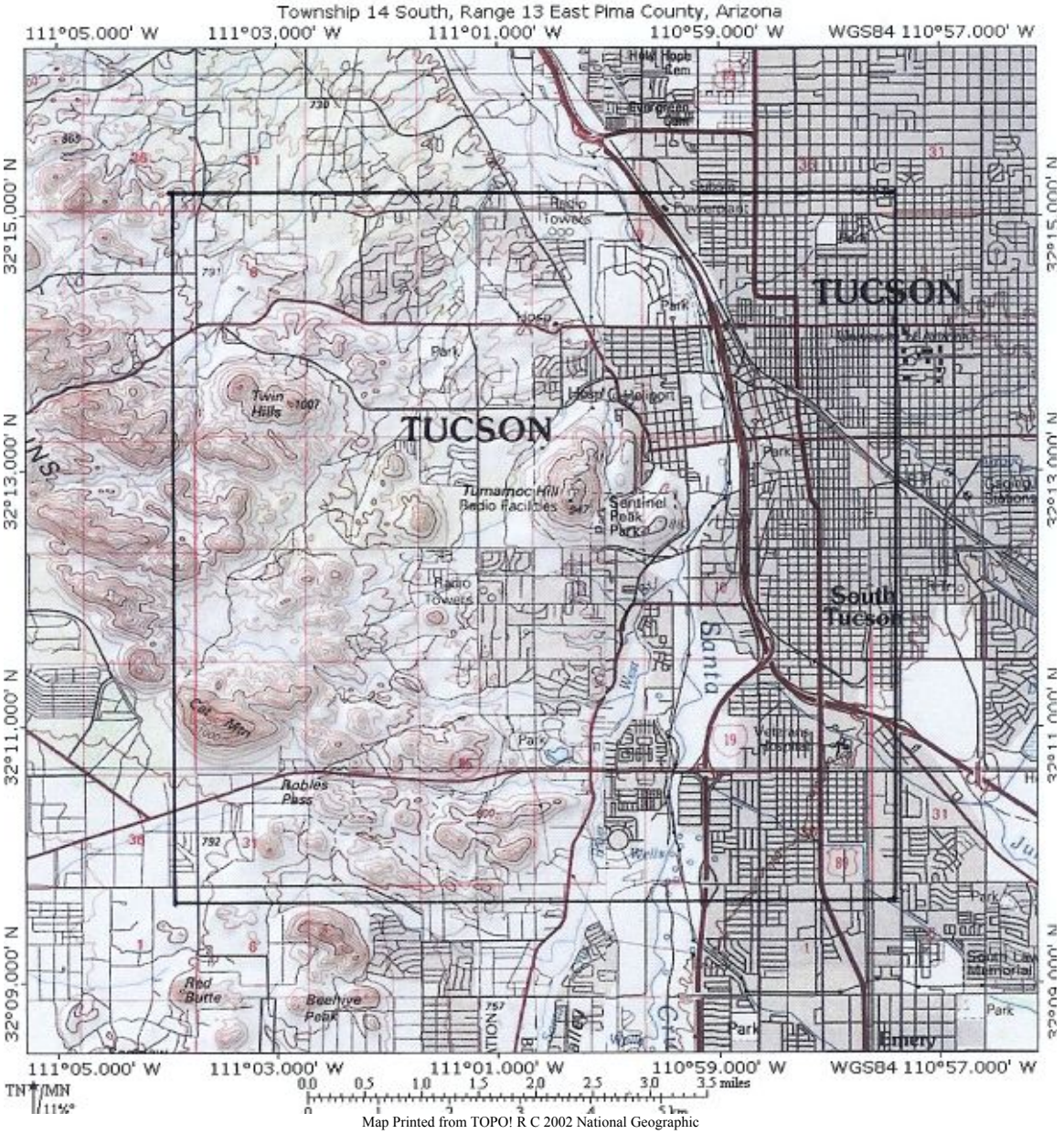
ELEVATION: Elevations range from approximately 2,300 feet at Grant Road and the Santa Cruz River to approximately 3,852 feet at Cat Mountain (1).

PHYSIOGRAPHIC PROVINCE: This township is located within the Sonoran Desert Section of the Basin and Range Physiographic Province (2).

SOILS: Soils have been described as being Thermic (hot) Arid Soils (soils with mean annual temperatures of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 5 to 10 inches (13 to 25 cm) mean annual precipitation) and/or Thermic (hot) Semiarid Soils (soils with mean annual temperatures

of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 10 to 16 inches (25 to 41 cm) mean annual precipitation) of the Grabe-Gila-Pima Association (deep soils of the floodplains), Pinaleno-Nickel-Palos Verdes Association (deep, arid, gravelly soils on deeply dissected uplands), Rillino-Latene-Cave Association (deep to very shallow, calcareous soils on uplands) and the Rock Outcrop-Lampshire -Cellar Association (rock outcrop and very shallow and shallow semiarid soils of the mountains and foothills) (3).

BIOTIC COMMUNITY: This township is located within the Arizona Upland Subdivision of the Sonoran Desertscrub Regional Formation of the Desertscrub Formation with associated Wetlands (4).



Map Printed from TOPO! R C 2002 National Geographic

Map of Township and Adjacent Sections

BELOW ARE A FEW OF THE NATIVE PLANTS REPORTED AS OCCURRING IN THIS TOWNSHIP THAT MIGHT BE CONSIDERED FOR USE IN LANDSCAPE AND RESTORATION PROJECTS

Trees and Large Shrubs (over 7 feet maximum height)

Fremont Cottonwood (*Populus fremontii* - 20" to 112')
Arizona Black Walnut (*Juglans major* - 7' to 66')
Velvet Ash (*Fraxinus velutina* - 40" to 65')
Saguaro (*Carnegiea gigantea* - 5' to 60')
Western Black Willow (*Salix gooddingii* - 4' to 60')
Velvet Mesquite (*Prosopis velutina* - 2' to 56')
Netleaf Hackberry (*Celtis laevigata* var. *reticulata* - 20' to 53')
Western Soapberry (*Sapindus saponaria* var. *drummondii* - 7' to 50')
Blue Paloverde (*Parkinsonia florida* - 40" to 40')
Desert Elderberry (*Sambucus nigra* subsp. *canadensis* - 7' to 36')
Desert Ironwood (*Olneya tesota* - 10' to 33')
Screwbean Mesquite (*Prosopis pubescens* - 7' to 33')
Desert Willow (*Chilopsis linearis* subsp. *arcuata* - 5' to 33')
Ocotillo (*Fouquieria splendens* - 5' to 33')
Common Cottonbush (*Cephalanthus occidentalis* - 3' to 33')
Coyote Willow (*Salix exigua* - 20" to 33')
Soaptree Yucca (*Yucca elata* - acaulescent to 30')
Foothill Paloverde (*Parkinsonia microphylla* - 40" to 26')
Prairie Acacia (*Acacia angustissima* var. *filicioides* - 20" to 26')
Catclaw Acacia (*Acacia greggii* var. *greggii* - 40" to 25')
Desert Olive (*Forestiera shrevei* - 40" to 25')
Desert Hackberry (*Celtis ehrenbergiana* - 3' to 20')
Rosary Babybonnets (*Coursetia glandulosa* - 3' to 20')
Whitethorn Acacia (*Acacia constricta* var. *constricta* - 1' to 20')
Whitethorn Acacia (*Acacia constricta* var. *paucispina* - 1' to 20')
Longleaf Joint-fir (*Ephedra trifurca* - 20" to 16½')
Chain-fruit Cholla (*Cylindropuntia fulgida* var. *fulgida* - 3' to 15')
Staghorn Cholla (*Cylindropuntia versicolor* - 3' to 15')
Seep Willow (*Baccharis salicifolia* - 32" to 15')
Desert Lavender (*Hyptis emoryi* - 8" to 15')
Prairie Acacia (*Acacia angustissima* var. *suffructescens* - 2' to 14')
Burrobrush (*Hymenoclea monogyra* - 3' to 13')
Southern Cattail (*Typha domingensis* - 3' to 13')
Greythorn (*Ziziphus obtusifolia* var. *canescens* - 3' to 13')
Creosote Bush (*Larrea tridentata* var. *tridentata* - 20" to 13')
Fremont Lycium (*Lycium fremontii* - 20" to 13')
Kearney Snakewood (*Condalia warnockii* var. *kearneyana* - 20" to 13')
Hoary Indian Mallow (*Abutilon incanum* - 8" to 13')
Jojoba (*Simmondsia chinensis* - 8" to 13')
Pencil Cholla (*Cylindropuntia arbuscula* - 20" to 12')
Fishhook Barrel Cactus (*Ferocactus wislizeni* - 2' to 11')
Desert Broom (*Baccharis sarothroides* - 3' to 10')

Torrey Lycium (*Lycium torreyi* - 3’ to 10’)
Arrowweed (*Pluchea sericea* - 3’ to 10’)
Berlandier Lycium (*Lycium berlandieri* - 20” to 10’)
Berlandier Lycium (*Lycium berlandieri* var. *longistylum* - 20” to 10’)
Arizona Desert-thorn (*Lycium exsertum* - 20” to 10’)
Cane Cholla (*Cylindropuntia spinosior* - 16” to 10’)
Anderson Lycium (*Lycium andersonii* - 1’ to 10’)
Wright Lycium (*Lycium andersonii* var. *wrightii* - 1’ to 10’)
Smooth Chain-fruit Cholla (*Cylindropuntia fulgida* var. *mamillata* -2’ to 9’)
Desert Honeysuckle (*Anisacanthus thurberi* - 3’ to 8’)
Fourwing Saltbush (*Atriplex canescens* var. *canescens* - 1’ to 8’)
Four-spined Klein’s Cholla (*Cylindropuntia* x *tetracantha* - 1’ to 8’)

Vines and Climbers

Canyon Grape (*Vitis arizonica*)
Drummond Clematis (*Clematis drummondii* - 10’ to 40’)
Fingerleaf Gourd (*Cucurbita digitata* - 3’ to 40’)
Fringed Twinevine (*Funastrum cynanchoides* subsp. *cynanchoides* - 8’ to 20’)
Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum* - 20” to 20’)
Virginia Creeper (*Parthenocissus quinquefolia*)
Schott Yellowhood (*Nissolia schottii* - 9’ to 16’)
Slimlobe Globeberry (*Ibervillea tenuisecta* - 6’ to 12’)
Redstar (*Ipomoea coccinea* - 3’ to 10’)
Slender Janusia (*Janusia gracilis* - 16” to 10’)
Little Snapdragon Vine (*Maurandella antirrhiniflora* - 1’ to 8’)
Tumamoc Globeberry (*Tumamoca macdougalii* - to 5’)
Watson Indian Root (*Aristolochia watsoni* - 8” to 40”)

Shrubs (2 to 7 feet maximum height)

Major Cholla (*Cylindropuntia acanthocarpa* var. *major* - 32” to 7’)
Canyon Ragweed (*Ambrosia ambrosioides* - 1’ to 7’)
Narrow-leaf Saltbush (*Atriplex canescens* var. *linearis* - 1’ to 7’)
California Brickellbush (*Brickellia californica* var. *californica* - 1’ to 7’)
Limberbush (*Jatropha cardiophylla* - 1’ to 7’)
Major Pricklypear Cactus (*Opuntia phaeacantha* - 1’ to 7’)
Desert Rosemallow (*Hibiscus coulteri* - 3” to 7’)
Wright Beebrush (*Aloysia wrightii* - 20” to 78”)
Desert Saltbush (*Atriplex polycarpa* - 12” to 78”)
Copper Globemallow (*Sphaeralcea angustifolia* - 12” to 78”)
Allthorn (*Koeberlinia spinosa* var. *spinosa* - 3’ to 6’)
Desert Pricklypear Cactus (*Opuntia engelmannii* var. *engelmannii* - 20” to 6’)
White Brittlebush (*Encelia farinosa* - 18” to 6’)
Desert Christmas Cactus (*Cylindropuntia leptocaulis* - 1’ to 6’)
American Threefold (*Trixis californica* - 10” to 6’)
Hybrid Cholla (*Cylindropuntia spinosior* x *Cylindropuntia versicolor* - 4’ to 5’)
White Rantany (*Krameria grayi* - 1’ to 5’)
Fairyduster (*Calliandra eriophylla* - 4” to 5’)

Turpentine Bush (*Ericameria laricifolia* - 10” to 50”)
Triangleleaf Bursage (*Ambrosia deltoidea* - 1’ to 4’)
Mariola (*Parthenium incanum* - 1’ to 4’)
Threadleaf Snakeweed (*Gutierrezia microcephala* - 8” to 4’)
White Bursage (*Ambrosia dumosa* - 7” to 40”)
Arizona Cockroach Plant (*Haplophyton crooksii* - 7” to 40”)
Burroweed (*Isocoma tenuisecta* - 6” to 40”)
Arizona Wrightwort (*Carlowrightia arizonica* - 4” to 40”)
Range Ratany (*Krameria erecta* - 2” to 40”)

Grasses

Common Reed (*Phragmites australis* - 40” to 20’)
Wright Sacaton (*Sporobolus wrightii* - 36” to 100”)
Spidergrass (*Aristida ternipes* var. *ternipes* - 16” to 79”)
California Brome (*Bromus carinatus* - 12” to 72”)
Cane Bluestem (*Bothriochloa barbinodis* - 24” to 60”)
Sourgrass (*Digitaria insularis* - 24” to 60”)
False Rhodes Grass (*Trichloris crinita* - 24” to 60”)
Spike Dropseed (*Sporobolus contractus* - 16” to 60”)
Alkali Sacaton (*Sporobolus airoides* - 14” to 60”)
Tanglehead (*Heteropogon contortus* - 8” to 60”)
Red Sprangletop (*Leptochloa panicea* subsp. *brachiata* - 4” to 60”)
Whiplash Pappusgrass (*Pappophorum vaginatum* - 16” to 52”)
Sideoats Grama (*Bouteloua curtipendula* - 3” to 52”)
Beardless Wildrye (*Leymus triticoides* - 16” to 50”)
Arizona Cottontop (*Digitaria californica* - 12” to 48”)
Plains Bristlegrass (*Setaria vulpiseta* - 12” to 48”)
Sand Dropseed (*Sporobolus cryptandrus* - 12” to 48”)
Mesa Dropseed (*Sporobolus flexuosus* - 12” to 48”)
Spidergrass (*Aristida ternipes* var. *gentilis* - 8” to 48”)
Streambed Bristlegrass (*Setaria leucopila* - 8” to 48”)
Grisebach’s Bristlegrass (*Setaria grisebachii* - 4” to 48”)
Bush Muhly (*Muhlenbergia porteri* - 10” to 44”)
Cotta Grass (*Cottea pappophoroides* - 10” to 40”)
Poverty Threeawn (*Aristida divaricata* - 7” to 40”)
Blue Threeawn (*Aristida purpurea* var. *nealleyi* - 6” to 40”)
Liebmann’s Bristlegrass (*Setaria liebmannii* - 6” to 40”)
Parish Threeawn (*Aristida purpurea* var. *parishii* - 4” to 40”)
Arizona Brome (*Bromus arizonicus* - 4” to 40”)
Littleseed Muhly (*Muhlenbergia microsperma* - 4” to 40”)
Sixweeks Threeawn (*Aristida adscensionis* - 1¼” to 40”)
Tobasa (*Pleuraphis mutica* - 12” to 36”)
Vine Mesquite Grass (*Panicum obtusum* - 6” to 32”)
Slender Grama (*Bouteloua repens* - 4” to 32”)
Rothrock Grama (*Bouteloua rothrockii* - 8” to 30”)
Fendler Threeawn (*Aristida purpurea* var. *longiseta* - 6” to 24”)
Desert Saltgrass (*Distichlis spicata* - 4” to 24”)
Knotgrass (*Paspalum distichum* - 2” to 24”)
Slim Tridens (*Tridens muticus* var. *muticus* - 8” to 20”)

Squirreltail (*Elymus elymoides* subsp. *elymoides* - 6” to 20”)
Spike Pappusgrass (*Enneapogon desvauxii* - 4” to 20”)
Sixweeks Fescue (*Vulpia octoflora* var. *hirtella* - 3” to 20”)
Sixweeks Fescue (*Vulpia octoflora* var. *octoflora* - 3” to 20”)
Bigelow Bluegrass (*Poa bigelovii* - 2” to 20”)
Sixweeks Grama (*Bouteloua barbata* - ½” to 18”)
Red Grama (*Bouteloua trifida* var. *trifida* - 2” to 16”)
Curly Mesquite (*Hilaria belangeri* var. *belangeri* - 2” to 14”)
Curly Mesquite (*Hilaria belangeri* var. *longifolia* - 2” to 12”)
Desert Fluffgrass (*Dasyochloa pulchella* - ½” to 6”)

Shrubs (under 2 feet maximum height), Subshrubs, Herbs and Small Succulents

Emory Globemallow (*Sphaeralcea emoryi* - 2¼” to 98”)
New Mexico Thistle (*Cirsium neomexicanum* - 16” to 8’)
Hoary Indian Mallow (*Abutilon incanum* - 8” to 13’)
Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus* - 1’ to 8’)
Southern Annual Saltmarsh Aster (*Symphyotrichum divaricatum* - 16” to 79”)
Shrubby Indian Mallow (*Abutilon abutiloides* - 1’to 6½’)
Sonoran Pricklypoppy (*Argemone gracilenta* - 1’ to 6’)
Coulter Globemallow (*Sphaeralcea coulteri* - 6” to 6’)
Parry Penstemon (*Penstemon parryi* - 2’ to 5’)
Yellow Monkeyflower (*Mimulus guttatus* - 2” to 5’)
Rock Hibiscus (*Hibiscus denudatus* - 10” to 56”)
Brownfoot (*Acourtia wrightii* - 12” to 52”)
Canaigre (*Rumex hymenosepalus* - 10” to 52”)
Fragrant Flatsedge (*Cyperus odoratus* - 2” to 52”)
Parry False Prairie-clover (*Marina parryi* - 8” to 50”)
Bluestem Pricklepoppy (*Argemone pleiacantha* subsp. *pleiacantha* - 20” to 4’)
Crested Pricklypoppy (*Argemone polyanthemos* - 16” to 4’)
Bladdermallow (*Herissantia crispa* - 8” to 4’)
Spreading Fanpetals (*Sida abutifolia* - prostrate 8” to 4’)
Parish Larkspur (*Delphinium parishii* var. *parishii* - 6½” to 4’)
Prairie Sunflower (*Helianthus petiolaris* - 6” to 4’)
Yellow Menodora (*Menodora scabra* - 6” to 4’)
American Germander (*Teucrium canadense* var. *canadense* - 26” to 40”)
Apricot Mallow (*Sphaeralcea ambigua* subsp. *ambigua* - 20” to 40”)
Violet Ruellia (*Ruellia nudiflora* var. *nudiflora* -12” to 40”)
Mesa Tansyaster (*Machaeranthera tagetina* - 8” to 40”)
Longflowered Tubetongue (*Siphonoglossa longiflora* - 8” to 40”)
Prairie Flax (*Linum lewisii* var. *lewisii* - 4” to 40”)
Purplestem Phacelia (*Phacelia crenulata* var. *ambigua* - 4” to 40”)
Sandyseed Clammyweed (*Polanisia dodecandra* subsp. *trachysperma* - 4” to 40”)
Distant Phacelia (*Phacelia distans* - 3” to 40”)
Arizona Wrightwort (*Carlowrightia arizonica* - 2” to 40”)
Rose Evening-primrose (*Oenothera rosea* - 3” to 39”)
Bluestem Pricklepoppy (*Argemone pleiacantha* subsp. *pleiacantha* - to 36”)
American Water-pimpernel (*Samolus valerandi* subsp. *parviflorus* - 4” to 34”)
Arizona Foldwing (*Dicliptera resupinata* - 12” to 32”)
Desert Senna (*Senna covesii* - 10” to 32”)

Texas Toadflax (*Nuttallanthus texanus* - 8” to 32”)
Texas Desertrue (*Thamnosma texana* - 6” to 32”)
Arizona Centaury (*Centaurium arizonicum* - 5” to 32”)
Whitestem Paperflower (*Psilostrophe cooperi* - 4” to 32”)
Abert Buckwheat (*Eriogonum abertianum* - 2” to 32”)
Covena (*Dichelostemma capitatum* subsp. *pauciflorum* - 16” to 30”)
Desert Marigold (*Baileya multiradiata* - 6” to 30”)
Tall Mountain Larkspur (*Delphinium scaposum* - 6” to 30”)
Caliche Globemallow (*Sphaeralcea laxa* - 12” to 28”)
Yellow Spiny Daisy (*Machaeranthera gracilis* - 4” to 28”)
Flaxflowered Ipomopsis (*Ipomopsis longiflora* subsp. *longiflora* - to 24”)
Mariola (*Parthenium incanum* - to 24”)
Hairyseed Bahia (*Bahia absinthifolia* - 10” to 24”)
Bearded Prairie Clover (*Dalea pogonathera* - 8” to 24”)
Goodding Mock Vervain (*Glandularia gooddingii* - 6” to 24”)
Rose Bladderpod (*Lesquerella purpurea* - 6” to 2’)
Hoary Tansyaster (*Machaeranthera canescens* subsp. *canescens* var. *incana* - 6” to 24”)
Mojave Milkweed (*Asclepias nyctaginifolia* - 4” to 24”)
Desert Mariposa Lily (*Calochortus kennedyi* - 4” to 24”)
Chia (*Salvia columbariae* var. *columbariae* - 4” to 24”)
Golden Dogweed (*Thymophylla pentachaeta* var. *pentachaeta* - 4” to 24”)
New Mexico Plumeseed (*Rafinesquia neomexicana* - 4” to 24”)
Twinleaf Senna (*Senna bauhinioides* - 4” to 24”)
Gordon Bladderpod (*Lesquerella gordonii* (var. *gordonii*) - 3” to 24”)
Flatcrown Buckwheat (*Eriogonum deflexum* var. *deflexum* - 2” to 24”)
Texas Stork’s Bill (*Erodium texanum* - 2” to 24”)
Mexican Gold Poppy (*Eschscholzia californica* subsp. *mexicana* - 1” to 24”)
Mojave Lupine (*Lupinus sparsiflorus* subsp. *mojavensis* - 8” to 20”)
Skyblue Phacelia (*Phacelia coerulea* - 6” to 20”)
Orange Flame Flower (*Phemeranthus aurantiacus* - 6” to 20”)
Desert Windflower (*Anemone tuberosa* var. *tuberosa* - 4” to 20”)
Desert Zinnia (*Zinnia acerosa* - 4” to 20”)
Dakota Mock Vervain (*Glandularia bipinnatifida* var. *ciliata* - 6” to 18”)
Arrowleaf Mallow (*Malvella sagittifolia* - 6” to 18”)
Bundle Hedgehog Cactus (*Echinocereus fasciculatus* - 4” to 18”)
Plains Flax (*Linum puberulum* - 4” to 18”)
Tansyleaf Tansyaster (*Machaeranthera tanacetifolia* - 4” to 18”)
Bajada Lupine (*Lupinus concinnus* - 3” to 18”)
Spiny Cliffbrake (*Pellaea truncata* - 3” to 16½”)
Hairyseed Bahia (*Bahia absinthifolia* - to 16”)
Covena (*Dichelostemma capitatum* subsp. *capitatum* - 10” to 16”)
Lacy Tansyaster (*Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida* - 6” to 16”)
Common Owl’s Clover (*Castilleja exserta* subsp. *exserta* - 4” to 16”)
Desert Broomrape (*Orobanche cooperi* - 4” to 16”)
Arizona Phacelia (*Phacelia arizonica* - 1” to 16”)
Beaded Lip Fern (*Cheilanthes wootonii* - 3” to 15½”)
Fairyswords (*Cheilanthes lindheimeri* - 3” to 13½”)
Star Cloakfern (*Notholaena standleyi* - 2” to 13”)
White Tackstem (*Calycoseris wrightii* - 10” to 12”)
Arizona Poppy (*Kallstroemia grandiflora* - 8” to 12” / to 4’ in length)
Desert Unicorn-plant (*Proboscidea althaeifolia* - 7 to 12”)

Desert Evening Primroase (*Camissonia chamaenerioides* 6” to 12”)
Indian Rushpea (*Hoffmannseggia glauca* - 4” to 12”)
Largeflower Onion (*Allium macropetalum* - 3” to 12”)
Cochise Scaly Cloakfern (*Astrolepis cochisensis* subsp. *cochisensis* - 3” to 12”)
Prairie Zinnia (*Zinnia grandiflora* - 3” to 12”)
Sand Bells (*Nama hispidum* - 2” to 12”)
Graham Pincushion Cactus (*Mammillaria grahamii* - 1” to 12”)
Mohave Desertstar (*Monoptilon bellioides* - 1” to 12”)
California Goldfields (*Lasthenia californica* subsp. *californica* - 3” to 10”)
Desert Holly (*Acourtia nana* - 2” to 10”)
Wright’s Lipfern (*Cheilanthes wrightii* - 1½” to 10”)
California Caltrop (*Kallstroemia californica* - to 8” / 36” in length)
Woolly Crinklemat (*Tiquilia canescens* var. *canescens* - 4” to 8”)
Arizona Blanketflower (*Gaillardia arizonica* - 4” to 8”)
Tufted Evening-primrose (*Oenothera caespitosa* subsp. *marginata* - 4” to 8”)
Miniature Woollystar (*Eriastrum diffusum* - 1½” to 8”)
Manybristle Chinchweed (*Pectis papposa* var. *papposa* - 1” to 8”)
Mexican Fireplant (*Euphorbia heterophylla*)
Pringle’s Lipfern (*Cheilanthes pringlei* - 1½” to 7”)
Yellow Desert Evening-primrose (*Oenothera primiveris* subsp. *primiveris* - to 4”)
Whitemargin Sandmat (*Chamaesyce albomarginata* - ½” to 3”)

CONSERVATION RELATED ORGANIZATIONS AND NURSERIES

Arizona Department of Agriculture
http://www.azda.gov/

Native Plant Crimes HOTLINE: 602-364-0907

The mission statement of the Arizona Department of Agriculture is to regulate and support Arizona agriculture in a manner that encourages farming, ranching, and agribusiness while protecting consumers and natural resources.

NOTICE OF INTENT TO CLEAR LAND

The Arizona Department of Agriculture enforces the sections of the Arizona Revised Statutes commonly referred to as the “Arizona Native Plant Law”. The statutes require, in part, that anyone who is clearing land notify the State of Arizona in advance of the clearing. Some land owners involved in the clearing of land allow for nurseries and people who are interested in salvaging plants to do so prior to the clearing. The Arizona Department of Agriculture posts these notifications in their county offices. You may also contact the Arizona Department of Agriculture and, for a fee, be put on a mailing list of people receiving copies of the Notices of Intent to Clear Land.

Contact Information: Arizona Department of Agriculture, 1688 West Adams Street, Phoenix, Arizona 85007. Telephone number: 602-542-4373.

Arizona Game and Fish Department
http://www.gf.state.az.us/

Operation GAME THIEF: 602-942-3000

The mission statement of the Arizona Game and Fish Department is to ~~conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations~~.

As part of their conservation program the Arizona Game and Fish Department provides ideas on how to learn to live with, and landscape for, wildlife:

LIVING WITH WILDLIFE
http://www.azgfd.gov/w_c/urban_wildlife.shtml

Contact Information: Arizona Game and Fish Department, 5000 West Carefree Highway, Phoenix, Arizona 85086-5000. Telephone number: 602-942-3000

Arizona Native Plant Society
http://aznps.org/

The Arizona Native Plant Society is a statewide nonprofit organization devoted to Arizona's native plants. Its mission is to promote knowledge, appreciation, conservation, and restoration of Arizona native plants and their habitats. They work with the Southwest Rare Plant Task Force to develop strategies for protecting rare species and their habitats; they keep abreast of conservation issues concerning native plants species and responds to those through their Conservation Committee; they promote the use of native species in residential and commercial landscapes; they publish the Plant Press, support the publication of scholarly works and maintains a website with information and links about native plant, and they host a series of statewide events that provide forums to learn from professionals. Member activities and benefits include chapter and statewide gatherings; field trips and educational presentations; conservation through education, outreach and restoration; habitat restoration projects; informative website, newsletters and journals, and interactions with plant experts and enthusiasts.

LISTING OF SOURCES FOR NATIVE PLANTS AND SEEDS

The Arizona Native Plant Society maintains a listing of Native Plant and Seed Sources at:
http://www.aznps.org/sources.html

Contact Information: Arizona Native Plant Society, PO Box 41206, Tucson, Arizona 85717.

Tucson Cactus and Succulent Society
http://www.tucsoncactus.org/

The Tucson Cactus and Succulent Society is a non-profit organization dedicated to educating, teaching and learning about cacti and succulent plants. Their monthly programs feature knowledgeable individuals who can educate you and help you understand more about these fascinating plants. They conduct and sponsor native cactus and succulent rescue operations, plant sales, field trips, nursery and garden visits, conventions and conferences as well as other activities throughout the year.

NATIVE PLANT RESCUE NOTICE

The Tucson Cactus and Succulent Society expends a tremendous amount of time and effort in the organizing and overseeing of their native plant rescue events. The native plant rescues carried out by the dedicated members of the Society provide an immeasurable service to our community.

Members of the Tucson Cactus and Succulent Society organize native plant rescues in areas being cleared for development. If interested in rescuing plants and/or obtaining local native plants for your landscaping or restoration project join the Society and become a rescue crew member.

Contact Information: Tucson Cactus and Succulent Society, PO Box 64759, Tucson, Arizona 85728-4759. Telephone number: 520-885-6367.

Desert Survivors Native Plant Nursery
http://www.desertsurvivors.org/nursery.asp

The Desert Survivors Native Plant Nursery sells many local native plants and is willing to consider growing any native plant for which there is a buyer.

Contact Information: Desert Survivors Native Plant Nursery, 1020 West Starr Pass Boulevard, Tucson, Arizona 85713. Telephone number: 520-791-9309.

Native Seeds/SEARCH
http://www.nativeseeds.org

The Native Seeds/SEARCH is a nonprofit conservation organization that seeks to preserve the crop seeds that connect the Native American cultures to their lands. The mission of the Native Seeds/SEARCH is to conserve, distribute and document the adapted and diverse varieties of agricultural seeds, their wild relatives and the role these seeds play in the cultures of the American Southwest and Northwest Mexico.

Contact Information: Native Seeds/SEARCH, 526 North Fourth Avenue, Tucson, Arizona 85705. Telephone number: 520-622-5561 or toll free at 866-622-5561; FAX 520-622-5561; e-mail: info@nativeseeds.org

LISTING OF PLANTS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S NATIVE PLANTS FROM COLLECTION, MUTILATION AND DESTRUCTION

Native Plant Crimes HOTLINE: 602-364-0907

Kingdom Plantae: The Plant Kingdom
Subkingdom Tracheobionta: The Vascular Plants
Superdivision Spermatophyta: The Seed Plants

Division Pteridophyta: The Ferns

CLASS FILICOPSIDA: The FERNS

Pteridaceae: The Maidenhair Fern Family

***Astrolepis cochisensis* (L.N. Goodding) D.M. Benham & M.D. Windham subsp. *cochisensis*: Cochise Scaly Cloakfern**

SYNONYMY: *Notholaena cochisensis* L.N. Goodding, *Notholaena sinuata* (M. Lagasca y Segura ex O. Swartz) G.F. Kaulfuss var. *cochisensis* (L.N. Goodding) C.A. Weatherby. COMMON NAMES: Cloak Fern, Cochise's Cloak Fern, Cochise Scaly Cloakfern, Helechillo (Hispanic), Jimmy Fern, Jimmyfern, Narrow Cloakfern, Scaly Cloak Fern, Scaly Star Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 12 inches in length); the leaf blades are olive green or green above and reddish-brown beneath with brown to reddish-brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; bouldery-sandy and rocky canyons; rocky and sandy canyon walls; talus slopes; bases of cliffs; crevices in rocks; buttes; rocky ledges; rocky and silty-loamy ridges; foothills; hills; rocky and gravelly-loamy hillsides; rocky, stony, gravelly-loamy and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; on boulders; flats; basins; valley floors; arroyos; rocky draws; along streams; in bouldery streambeds; in rocks along creeks; along and in sandy washes, and riparian areas growing in dry bouldery, bouldery-sandy, rocky, stony and sandy ground and gravelly loam, clayey loam and silty loam ground, occurring from 1,100 to 8,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Astrolepis cochisensis* subsp. *cochisensis* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Notholaena cochisensis* Goodding), **16** (recorded as *Notholaena cochisensis* Goodding), 28 (color photograph of *Notholaena cochisensis*), 43 (081009), 46 (recorded as *Notholaena sinuata* (Lag.) Kaulf. var. *cochisensis* (Goodding) Weatherby, Page 41), 51 (color photograph of *Notholaena cochisensis*), 63 (081009), 77 (recorded as *Notholaena cochisensis* Goodd.), 80 (*Notholaena sinuata* var. *cochisensis* is listed as a Secondary Poisonous Range Plant. "Apparently only the variety *cochisensis* is poisonous. The nature of the poison is unknown but it is excreted in the milk and is not destroyed by drying of the plant. Sheep are most susceptible, especially pregnant ewes, but goats and cattle may be poisoned. ... The danger is greatest from the middle of November through February when other forage is dry and the evergreen fern remains succulent and relatively palatable. ... Losses may be prevented by deferring infested ranges during the danger period or

by feeding supplements." See text for additional information.), **85** (081009 - color presentation of dried material), **89** (recorded as *Notholaena sinuata* (Sw.) Kaulf.), 115 (color presentation of species), 122*

***Cheilanthes lindheimeri* W.J. Hooker: Fairyswords**

COMMON NAMES: Canaguala, Fairy Sword, Fairy Swords, Fairy-swords, Fairyswords, Hierba de la Pena (Hispanic), Kalawala, Lindheimer Lip Fern, Lindheimer's Lip Fern, Lindheimer Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 13½ inches in length); the leaf blades are gray-green or light green above with a brown underside and black-brown, purplish-black or dark reddish-brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; bouldery, bouldery-rocky-gravelly and rocky mountainsides; rocky mesas; along rocky cliff; rock walls; rocky and gravelly-loamy canyons; rocky canyon walls; rocky canyon bottoms; talus slopes; along rocky bases of cliffs and rock walls; crevices in boulders and rocks; rocky buttes; rock ledges; under ledges; rocky ridges; ridgetops; foothills; rocky hills; bouldery-gravelly and rocky hilltops; bouldery, rocky, rocky-gravelly, rocky-sandy-loamy and gravelly hillsides; rocky slopes; rocky outcrops; amongst boulders and rocks; along bases of boulders and rocks; flats; along roadsides; gulches; springs; along streams; along rocky creeks; along and in creekbeds; along and in rocky washes; in rocky drainages; rocky edges of arroyos; rock shelves; around and in stock tanks, and rocky riparian areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-rocky-gravelly, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy and gravelly ground; rocky-sandy loam and gravelly loam ground, and clay ground, occurring from 600 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cheilanthes lindheimeri* is native to southwest-central and southern North America. *5, 6, 15 (color photograph Page 93 in habitat with associated species), 28 (color photograph), 43 (052610), 46 (Page 39), 51 (color photograph), 58, 63 (052610 - color presentation), 77, **85** (052610 - color presentation of dried material), 122*

Cheilanthes myriophylla (see footnote 89 under *Cheilanthes wootonii*)

***Cheilanthes pringlei* G.E. Davenport: Pringle's Lipfern**

SYNONYMY: *Cheilanthes sonorensis* L.N. Goodding. COMMON NAMES: Pringle Lip Fern, Pringle Lipfern, Pringle's Lip Fern, Pringle's Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 1½ to 7 inches in length); the leaf blades are bright green on both sides with red-brown stipes; sporulation generally take place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; cliffs; soil filled crevices in bedrock, boulders and rocks; rocky canyons, canyon walls; bouldery and rocky canyon bottoms; bases of cliffs; crevices in boulders and rocks; knolls; rocky ledges; under rock ledges; stony hills; rocky slopes; around rocks; bases of rocks; shaded rocky areas; seeps; along creekbeds; along rivers, and along washes growing in dry bouldery, rocky and stony ground often reported as growing in shaded areas, occurring from 300 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be confused with *Cheilanthes wrightii*; however, *C. pringlei* has scales on the pinnae. *Cheilanthes pringlei* is native to southwest-central and southern North America. *5, 6, **8**, 43 (081109), 46 (Page 40), 51 (color photograph), 63 (081109), 77, 85 (081109 - color presentation of dried material), 122*

Cheilanthes sonorensis (see *Cheilanthes pringlei*)

Cheilanthes standleyi (see *Notholaena standleyi*)

***Cheilanthes wootonii* W.R. Maxon: Beaded Lipfern**

COMMON NAMES: Beaded Lip Fern, Beaded Lipfern, Lip Fern, Wooton Lace Fern, Wooton Lipfern, Wooton's Lip Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to

15½ inches in length); the leaf blades are yellow-green (when young) or dark green (with age) with pale brown stipes; sporulation generally takes place between summer and fall. HABITAT: Within the range of this species it has been reported from mountains; cliffs; cliff faces; rocky walls; rocky canyons; along rocky canyon walls; bedrock and rocky canyon bottoms; gorges; bases of rock walls; crevices in boulders and rocks; rocky ledges; bouldery foothills; rocky hills; rocky hillsides; bouldery, rocky, gravelly, gravelly-loamy and silty-loamy slopes; bouldery bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; draws; gulches; along bedrock, bouldery-gravelly and rocky ravines; seeps; springs; along streams; bouldery streambeds; along and in creeks; along and in rocky washes; along and in bouldery drainages; rocky banks of streams and creeks; rock shelves; in and around stock tanks, and riparian areas growing in dry bouldery, bouldery-rocky-gravelly, bouldery-gravelly, rocky and gravelly ground; gravelly loam and silty loam ground, and on rotting logs often growing in shaded and sheltered areas, occurring from 1,300 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Cheilanthes wootonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (081109 - presents an alternate spelling: *Cheilanthes wootoni* Maxon), 46 (Page 39), 51 (color photograph), 58, 63 (081109 - color presentation), **77**, **85** (081109 - color presentation of dried material), **89** (recorded as *Cheilanthes myriophylla* Desv.), 122, 127*

***Cheilanthes wrightii* W.J. Hooker: Wright's Lipfern**

COMMON NAMES: Wright Lipfern, Wright's Lip Fern, Wright's Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 1½ to 10 inches in length); the leaf blades are green with brown to dark brown stipes; sporulation generally takes place between summer and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rock cliffs; canyons; rocky canyon walls; bouldery and rocky canyon bottoms; chasms; talus slopes; bases of cliffs; soil filled crevices in rocks; rocky ledges; rocky ridges; ridgetops; foothills; rocky hills; bouldery and rocky hillsides; along bouldery and rocky slopes; boulder and rock outcrops; amongst rocks; on boulders; bases of boulders and rocks; rocky nooks; within bedrock and rocky arroyos; draws; rocky ravines; along streams; within rocky washes; drainages; depressions; rocky shelves; bottomlands, and riparian areas growing in dry bouldery, rocky and gravelly ground; gravelly-sandy loam and sandy-clayey loam ground, and gravelly clay ground, occurring from 900 to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cheilanthes wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (081109), 46 (Page 40), 51 (color photograph), 58, 63 (081109 - color presentation), 77, **85** (081109 - color presentation of dried material), **89**, 122*

Notholaena cochisensis (see *Astrolepis cochisensis* subsp. *cochisensis*)

Notholaena hookeri (see footnote 89 under *Notholaena standleyi*)

Notholaena sinuata (see footnote 89 under *Astrolepis cochisensis* subsp. *cochisensis*)

Notholaena sinuata var. *cochisensis* (see *Astrolepis cochisensis* subsp. *cochisensis*)

Notholaena sinuata var. *cochisensis* (see *Astrolepis cochisensis* subsp. *cochisensis*)

***Notholaena standleyi* W.R. Maxon: Star Cloak Fern**

SYNONYMY: *Cheilanthes standleyi* (W.R. Maxon) J.T. Mickel. COMMON NAMES: Cloak-fern, Standley Cloak Fern, Standley's Cloak Fern, Star Cloak Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 2 to 13 inches in length with the star-shaped laminae being 1 to 4 inches

in width, a clump up to 8 inches in width was reported); the leaf blades are a shiny dark green above (with a cream-white, gold, silvery-yellow, yellow or yellow-green waxy-looking glandular exudate below) with brown or reddish-brown stipes; sporulation takes place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; rocky cliffs; bouldery and rocky canyons; canyon walls; bouldery canyon bottoms; rocky gorges; along bases of cliffs; along crevices in boulders and rocks; buttes; bouldery-gravelly knobs; rocky knolls; rocky and sandy ledges; under ledges; rocky ridges; foothills; hills; rocky hilltops; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-sandy-clayey-loamy, rocky-loamy-silty, sandy-loamy and loamy slopes; bajadas; boulder and rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; sandy lava flows; bouldery lava beds; shaded pockets; along rocky arroyos; within rocky draws; gulches; rocky ravines; creekbeds; in bouldery-sandy and sandy washes; drainages; rocky banks of washes, and riparian areas growing in dry bouldery, bouldery-gravelly, bouldery-sandy, rocky and sandy ground; rocky-sandy-clayey loam, gravelly loam, sandy loam, silty loam and loam ground, and rocky-loamy silty ground, occurring from 900 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is commonly found growing in clumps. *Notholaena standleyi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (081109), 46 (Page 42), 51 (color photograph), 58, 63 (081109 - color presentation), **85** (081109 - color presentation), **89** (recorded as *Notholaena hookeri* D.C. Eaton), 115 (color presentation)*

Pellaea longimucronata (see *Pellaea truncata*)

***Pellaea truncata* L.N. Goodding: Spiny Cliffbrake**

SYNONYMY: *Pellaea longimucronata* auct. non W.J. Hooker. COMMON NAMES: Cliff Brake; Cliff-brake Fern, Spiny Cliff-brake, Spiny Cliffbrake. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 3 to 16½ inches in length); the leaf blades are blue-green or gray-green with chestnut-brown, reddish or red-brown stipes; sporulation takes place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; crevices in cliffs; crags; bouldery and rocky canyons; along canyon walls; along canyon bottoms; rocky gorges; talus slopes; along bases of cliffs; crevices in rocks; sandy pockets of soil; rocky bluffs; rock ledges; under rocky ledges; ridgelines; foothills; rocky hills; bouldery-rocky and rocky hillsides; bouldery, bouldery-rocky, bouldery-gravelly, rocky, gravelly, gravelly-loamy and sandy-clayey-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; niches in rock cliffs; rocky arroyos; rocky draws; gulches; ravines; seeps; along streams; rocky and sandy streambeds; along creeks; along and in bouldery-sandy and sandy washes; within drainages; bog-like areas; gravelly swales; banks of creeks; edges of streambeds; sandy benches; silty-loamy terraces, and bouldery riparian areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; bouldery loam, bouldery-rocky loam, rocky loam, rocky-gravelly loam, gravelly-sandy loam and silty loam ground, and rocky clay ground, occurring from 600 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pellaea truncata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (081209), 46 (recorded as *Pellaea longimucronata* Hook., Page 38), 51 (color photograph), 63 (081209 - color presentation), 77, **85** (081209 - color presentation), **89** (recorded as *Pellaea wrightiana* Hook.), 115 (color presentation)*

Pellaea wrightiana (see footnote 89 under *Pellaea truncata*)

Division Coniferophyta: The Conifers

CLASS PINOPSIDA: The CONIFERS

Cupressaceae: The Cypress Family

***Cupressus sempervirens* C. Linnaeus: Italian Cypress**

COMMON NAMES: Ciprés Común (Spanish), Ciprés Italiano (Spanish), Common Cypress, Cyprès Commun (French), Cyprès D'Italie (French), Echte Zypresse (German), Graveyard Cypress, Italian Cypress, Italienische Zypresse (German), Mediterranean Cypress, Pencil Pine, Tuscan Cypress. DESCRIPTION: Terrestrial perennial evergreen tree (35 (commonly 40 - 60 feet) to 108 feet in height with a foliage diameter of 5 to 10 feet in width in "*C.s.* var. *sempervirens*" (the form commonly sold as nursery stock but not known in the wild), and 10 to 20 feet in width in "*C.s.* var. *horizontalis*" (the form found in the wild and generally not sold as nursery stock); the trunk bark is gray; the scale-like leaves are dark gray-green or dark green; the inconspicuous flowers appear in early spring; pollen is released in late winter; the mature fruiting cones (1 to 1½ inches in diameter) are brown. HABITAT: Within the range of this species it has been reported from mountains; along roadsides; arroyos; ditches, and disturbed areas growing in moist sandy loam ground, occurring from 500 to 2,500 feet in the elevation in the desertscrub ecological formation. NOTES: EXOTIC Plant. This plant may reportedly live to be over 1,000 years of age. *Cupressus sempervirens* is native to northern Africa; western Asia, and southeastern Europe. *5, 6, **16**, 18, 26 (color photograph), 43 (081209), 63 (081209 - color presentation), 85 (081209 - color presentation of dried material), 106 (081209 - color presentation), 131, 132*

Division Gnetophyta: The Gnetophytes

CLASS GNETOPSIDA: The GNETOPS

Ephedraceae: The Mormon-tea Family

***Ephedra trifurca* J. Torrey ex S. Watson: Longleaf Joint-fir**

COMMON NAMES: Brigham Young Tea, Canatilla, Desert Ephedra, Desert Joint-fir, Desert Jointfir, Itama Real, Kanutio (Yaqui), Long-leaf Jointfir, Long-leafed Joint-fir, Long-leaved Joint Fir, Long-leaved Jointfir, Longleaf Ephedra, Longleaf Joint-fir, Longleaf Jointfir, Longleaf Mormon Tea, Mexican Tea, Mexican-tea, Mormon Tea, Popotilla (Hispanic), Popotillo (Hispanic), Tepopote (Hispanic), Teposote (Hispanic). DESCRIPTION: Terrestrial perennial evergreen shrub (20 inches to 16½ feet in height with a crown 8 to 10 feet in width, one plant was described as being 3 feet in height with a crown 5 feet in width); the color of the stems has been described as being blue-green, green, olive-green or yellow-green; the tiny flowers are pale yellow with male and female flowers occurring on separate plants with the production of the tan-brown strobili (female and male cones) generally taking place between early February and late May (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; clayey ridges; foothills; gravelly hills; hilltops; rocky hillsides; knolls; rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy slopes; rocky-

sandy and gravelly-sandy alluvial fans; sandy bajadas; rocky outcrops; gravelly lava hills; sand hills; sand dunes; ridges of sand dunes; inter-dune swales; rocky, rocky-gravelly and sandy plains; rocky, gravelly and sandy flats; sandy basins; valley floors; along rocky, rocky-sandy, gravelly, gravelly-clayey-loamy and sandy roadsides; within sandy arroyos; riverbeds; along and in sandy and sandy-silty washes; within drainage ways; edges of swales; rocky, gravelly-sandy-loamy and sandy banks of arroyos, rivers and washes; edges of rivers; sandy margins of lakes; gravelly terraces; floodplains; along canals, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and gravelly-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be 50 years of age. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is valuable in binding soils. This plant is browsed by Bighorn Sheep. *Ephedra trifurca* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18, 28 (color photograph), 43 (081209), 46 (Page 61), 48 (genus), 58, 63 (081209 - color presentation), 77, **85** (081209 - color presentation), **89**, 91, 127*

Division Magnoliophyta: The Flowering Plants

CLASS LILIOPSIDA: The MONOCOTS

Agavaceae: The Century-plant Family

***Agave americana* C. Linnaeus: American Century Plant**

COMMON NAMES: Agave, American Agave, American Aloe, American-aloe, American Century Plant, Century-plant, Centuryplant, Galime (Hispanic), Garingboom (Afrikaans), L´gok (Tepehuán), Maguey, Maguey Amarillo (Hispanic). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (40 inches to 6½ feet in height and 6½ to 13 feet in diameter with a flowering stem 5 to 40 feet in height, one plant was described as being 4 feet in height and 4 feet in width); the leaves are gray, gray-green, grayish-blue-green, bright green or green-blue; the flowers are greenish, greenish-yellow or yellow; flowering generally takes place between early June and early August (additional records: one for mid-February and one for late September). HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky and sandy slopes; rocky-sandy alluvial fans; flats; bottoms of arroyos; along and in washes; along sandy banks of streams, and disturbed areas growing in dry bouldery, rocky, rocky-sandy and sandy ground and rocky clay ground, occurring from 1,200 to 5,100 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop. The flowers are visited by hummingbirds. *Agave americana* is native to southwest-central and southern North America. *5, 6, **16**, 17, 18, 26 (color photograph), 30, 43 (081209), 63 (042108), **85** (081209), 97 (Avoid letting the sap come into contact with your skin or eyes.), 127*

***Agave americana* C. Linnaeus subsp. *americana* var. *expansa* (G.A. von Jacobi) H.S. Gentry: American Century Plant**

SYNONYMY: *Agave americana* C. Linnaeus var. *expansa* (G.A. von Jacobi) H.S. Gentry, *Agave expansa* G.A. von Jacobi. COMMON NAMES: Agave, American Agave, American Aloe, American-aloe, American Century Plant, Century-plant, Galime (Hispanic), Garingboom (Afrikaans), L´gok (Tepehuán), Maguey, Maguey Amarillo (Hispanic). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (to 6 feet in height and to 10 to 13 feet in diameter with a flowering stem 15 to 40 feet in height); the color of the leaves is bluish gray-green; the flowers are yellow; flowering generally takes place between June and August. HABITAT: Within the range of this species it has been reported from rocky slopes; flats, and along washes in rocky ground, occurring from 2,400 to 2,500 feet in elevation in the grassland and desertscrub ecological formation. NOTES: EXOTIC Plant. The species, *Agave americana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop. The flowers are visited by hummingbirds. *Agave americana* subsp. *americana* var. *expansa* may be native to southwest-central and southern North America. *5, 6, 17 (recorded as *Agave expansa* Jacobi), 18, 26 (color photograph of species), 30 (species), 43 (081209), 63 (081209), 77 (recorded as *Agave americana* L. var. *expansa* (Jacobi) Gentry), 85, (081209), 97 (Avoid letting the sap come into contact with your skin or eyes.), 127 (species)*

Agave americana var. *expansa* (see *Agave americana* subsp. *americana* var. *expansa*)

Agave expansa (see *Agave americana* subsp. *americana* var. *expansa*)

***Yucca elata* (G. Engelmann) G. Engelmann: Soaptree Yucca**

SYNONYMY: *Yucca elata* (G. Engelmann) G. Engelmann var. *elata*, *Yucca elata* (G. Engelmann) G. Engelmann var. *utahensis* (S.A. McKelvey) J.L. Reveal, *Yucca elata* (G. Engelmann) G. Engelmann var. *verdiensis* (S.A. McKelvey) J.L. Reveal, *Yucca utahensis* S.A. McKelvey, *Yucca verdiensis* S.A. McKelvey. COMMON NAMES: Amole (a common name given to the roots), Datil, Palmella, Palmilla (Spanish, meaning “small palm”), Palmlilja Jukka, Palmilla, Palmella, Seifen-palmlilie (German), Soap-tree Yucca, Soaptree, Soaptree Yucca, Soap Weed, Soapweed, Soap-weed Yucca, Soapweed, Soapweed Yucca, Spanish Bayonet, Takui (Tohono O’odham), Utah Yucca, Verde Yucca. DESCRIPTION: Terrestrial perennial evergreen leaf-succulent shrub or tree (acaulescent to 30 feet in height and 8 to 10 feet in diameter with a flowering stalk reaching 2 to 8 feet in height); the narrow leaves may be gray-green, pale green or green with dried leaves adhering to the stem; the bell-shaped flowers are cream, creamish-white, greenish-white, white or yellowish-white; flowering generally takes place between mid-April and early August (additional records: two for late February, one for late August, one for mid-September and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy-clayey-loamy and sandy mesas; plateaus; canyons; meadows; rocky foothills; hills; rocky and gravelly hillsides; along rocky, rocky-sandy-clayey-loamy, shaley-gravelly-sandy, and sandy slopes; sandy bajadas; sand dunes; prairies; sandy plains; shaley esplanades; gravelly, sandy and sandy-loamy flats; basins; gravelly-silty-loamy and sandy valley floors; along rocky-sandy, gravelly gravelly-sandy-clayey-loamy, sandy and sandy-loamy roadsides; along clayey arroyos; rocky draws; along creeks; along rivers; along and in gravelly and sandy washes; within drainages; within drainage ways; inter-dune swales; edges of rivers; benches; terraces; floodplains, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly-sandy, gravelly and sandy ground; rocky-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and silty clay and clay ground, occurring from 900 to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used in toys or in games, as ceremonial drug or medication, as a decoration and as a commodity used in personal hygiene. The growth rate of wild growing plants is about 1 inch in height

each year with taller plants being 200 to 300 years of age. *Yucca elata* is native to southwest-central and southern North America. *5, 6, 13 (color photograph, placed in the Liliaceae), 15, **16**, 18, 26 (color photograph), 28, 43 (081309), 45 (color photograph), 46 (recorded as *Yucca elata* Engelm., Page 188; *Yucca utahensis* McKelvey, Page 188, and *Yucca verdiensis* McKelvey, Page 188, genus *Yucca* placed in the Liliaceae), 48 (genus), 52 (color photograph, placed in the Liliaceae), 53 (placed in the Liliaceae), 58, 63 (081309 - color presentation), **77**, **85** (081309 - color presentation), **89**, 115 (color presentation), 127*

Yucca elata var. *elata* (see *Yucca elata*)

Yucca elata var. *utahensis* (see *Yucca elata*)

Yucca elata var. *verdiensis* (see *Yucca elata*)

Yucca utahensis (see *Yucca elata*)

Yucca verdiensis (see *Yucca elata*)

Aloeaceae: The Aloe Family

Aloe barbadensis - note authority (see *Aloe vera*)

***Aloe vera* (C. Linnaeus) N.L. Burman: Barbados Aloe**

SYNONYMY: *Aloe barbadensis* P. Miller. COMMON NAMES: Aloe Vera, Barbados Aloe; Curacao Aloe; Humpetskinci (Maya), Maguey Morado (Hispanic), Medicinal Aloe, Sábila (Hispanic), Sávila (Hispanic), True Aloe, Zábila (Hispanic), Unguentine Cactus, Zats (Oax). DESCRIPTION: Terrestrial perennial leaf- and stem-succulent forb/herb (12 to 32 inches in height and 3 to 4 feet in width, the flowering stems are 40 inches to 5 feet in height); the leaves (12 to 18 inches in length) are green with white markings; the flowers are orange & yellow, pink-orange, yellow or yellowish; flowering generally takes place in winter, spring and/or summer (flowering record: one for late March, there may be several flowering periods). HABITAT: Within the range of this species it has been reported from plateaus; hammocks; flats; coastal plains; roadsides; along washes; edges of streams, and disturbed areas growing in moist and dry rocky and sandy ground, occurring from sea level to 4,300 feet in elevation in the forest, woodland and desertscrub ecological formations. NOTES: EXOTIC Plant. *Aloe vera* is native to the Canary Islands in the North Atlantic Ocean. *5, 6, 18, 26 (color photographs), 30, 43 (080210 - *Aloe vera* (L.) Burm.f.), 63 (080210 - color presentation), 85 (080210), **HR***

Cyperaceae: The Sedge Family

Bolboschoenus maritimus (see *Schoenoplectus maritimus*)

Cyperus alternifolius (see *Cyperus involucratus*)

Cyperus aristatus (see *Cyperus squarrosus*)

***Cyperus esculentus* C. Linnaeus: Yellow Nutsedge**

COMMON NAMES: Amande de Terre (French), Bebollin, Cebollín (Spanish), Choufa (French), Chufa (Portuguese), Chufa Flatsedge, Coquillo (Hispanic), Coquillo Amarillo (Hispanic), Earth-almond, Erdmandel (German), Juncia Avellanada (Spanish), Northern Nut Grass, Sai´ (Hispanic), Souchet Comestible (French), Tigernut, Tiririca (Portuguese), Tiririca-amarela (Portuguese), Tiririca-mansa

(Portuguese), Water-grass, Yellow Nut Grass, Yellow Nut-grass, Yellow Nutgrass, Yellow Nut Sedge, Yellow Nutsedge, Zacate (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (4 to 40 inches in height); the leaves are yellow-green or bright green above and whitish below; the spikelets may be golden-brown, golden-tan, reddish, yellow-brown or yellowish; flowering generally takes place between mid-June and early November (additional records: two for early May, two for late May, one for early November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy pockets of soils on top of cliffs; canyons; rocky, rocky-sandy, gravelly and sandy canyon bottoms; bluffs; clayey meadows; foothills; bouldery hillsides; rocky, sandy and clayey slopes; bouldery and rocky outcrops; amongst boulders and rocks; plains; rocky, gravelly and clayey flats; basins; silty valley bottoms; along rocky and gravelly-loamy roadsides; arroyos; sandy arroyo bottoms; seeps; along streams; along and in sandy streambeds; along sandy creeks; creekbeds; along rivers; sandy riverbeds; along and in clayey washes; drainages; along drainage ways; palm oases; sandy-loamy ephemeral ponds; playas; bogs; marshes; sandy depressions; along sandy-silty banks of streams, creeks, rivers and washes; sandy and muddy edges of rivers, pools, ponds, lakes and playas; gravel bars; sandy benches; rock shelves; sandy-loamy sinks; sandy floodplains; around stock tanks (charcos); dikes of reservoirs; along canals; along and in ditches; cobbly and gravelly riparian areas, and disturbed areas growing in wet, moist or damp bouldery, rocky, rocky-sandy, cobbly, gravelly and sandy ground; gravelly loam, sandy loam and humus-clayey loam ground; clay ground, and sandy silty and silty ground, occurring from 100 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Cyperus esculentus* has been reported as both a native plant, a plant of worldwide distribution and as a plant that is native to the Old World, the status of *Cyperus esculentus* in Arizona is unknown. *5, 6, 15, 30, 43 (081309), 46 (Page 150), 58, 63 (081309 - color presentation), 68, 77, **85** (081309 - color presentation), **89**, 101 (color photograph), 127*

***Cyperus esculentus* C. Linnaeus var. *esculentus* C. Linnaeus [excluded]: Yellow Nutsedge**

COMMON NAMES: Bebollin, Cebollin (Hispanic), Chufa, Chufa Flatsedge, Coquillo (Hispanic), Coquillo Amarillo (Hispanic), Northern Nut Grass, Sai´ (Hispanic), Yellow Nut Grass, Yellow Nutgrass, Yellow Nut Sedge, Yellow Nutsedge, Zacate (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (6 to 30 inches in height); the leaves are yellow-green; the spikelets may be golden-brown, reddish, yellow-brown or yellowish; flowering generally takes place between mid-July and early November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; gravelly and sandy canyon bottoms; meadows; bouldery hillsides; rocky and sandy slopes; boulder outcrops; flats; silty valley bottoms; roadsides; sandy bottoms of arroyos; seeps; along streams; along and in sandy streambeds; along sandy creeks; along rivers; within sandy riverbeds; along and in clayey washes; along drainage ways; marshes; edges of pools and lakes; playas; sandy-silty banks of streams and washes, rock shelves; floodplains; around stock tanks (charcos); along ditches; gravelly riparian areas, and disturbed areas growing in wet, moist or damp bouldery, rocky, gravelly and sandy ground; sandy loam and humusy-clayey loam soils; clay ground, and sandy silty and silty ground, occurring from 100 to 9,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? The species, *Cyperus esculentus*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. The species, *Cyperus esculentus*, has been reported as both a native plant, a plant of worldwide distribution and as a plant that is native to the Old World, the status of *Cyperus esculentus* var. *esculentus* in Arizona is unknown. *5, 6, 15, 30 (species), 43 (081309), 46 (species, Page 150), **56**, **57**, 58, 63 (081309), 68, 77, 85 (081309), 101 (color photograph of species), 127 (species)*

Cyperus ferax (see footnote 89 under *Cyperus odoratus*)

***Cyperus involucratus* C.F. Rottbøll: Umbrella Plant**

SYNONYMY: *Cyperus alternifolius* auct. non C. Linnaeus. COMMON NAMES: ʻAhuʻawa haole (Hawaiian), Alternate-leaf Flat Sedge, Dwarf Papyrus Grass, Galingale, Juncia de Estanque (Spanish), Puʻukaʻa Haole (Hawaiian), Quitasol Chino (Spanish), Sedge, Souchet à Feuilles Alternes (French), Umbrella Flatsedge, Umbrella Palm, Umbrella Plant, Umbrella-plant, Umbrella Sedge. DESCRIPTION: Terrestrial or semi-aquatic perennial graminoid (1 to 6½ feet in height and spreading to an indefinite width); the tiny flowers are pale green, greenish-brown or yellowish; flowering generally takes place between early February and early October (additional records: four for early January, two for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; bouldery-rocky-sandy and bouldery-gravelly-sandy canyon bottoms; gorges; meadows; foothills; hills; along rocky, sandy and clayey slopes; alluvial fans; amongst rocks, sandy and clayey flats; basins; valley floors; coastal dunes; railroad right-of-ways; roadsides; arroyos; bottoms of arroyos; seeps; muddy springs; along streams; along sandy streambeds; rocky-gravelly-sandy soil along creeks; sandy riverbeds; along sandy washes; along drainage ways; ponds; marsh lands; gravelly-sandy banks of streams and rivers; edges of streams; sandy benches; floodplains; along canals; along ditches; banks of canals; muddy riparian areas, and disturbed areas usually reported as growing in shallow water and wet, moist and damp areas and less often in dry areas in bouldery-rocky-sandy, rocky-gravelly-sandy, rocky-sandy, gravelly-sandy and sandy ground; clay ground, and silty ground, occurring from sea level to 3,700 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Cyperus involucratus* is native to Africa and southwestern Asia. *5, 6, **16** (recorded as *Cyperus alternifolius* L.), 18, 26 (color photograph), 43 (081309), 63 (081309), **77** (recorded as *Cyperus alternifolius* L.), **85** (081309 - color presentation of dried material), 132*

***Cyperus odoratus* C. Linnaeus: Fragrant Flatsedge**

COMMON NAMES: Calingale, Fragrant Flatsedge, Large Head Flat Sedge, Rusty Flat Sedge, Rusty Flatsedge. DESCRIPTION: Terrestrial annual or perennial graminoid (2 to 52 inches in height, plants were observed that were 10 inches in height and 8 inches in width); the foliage is yellow-green; the spikelets may be green, red-brown, yellow-brown or yellow-green; flowering generally takes place between mid-May and late November (additional records: four for mid-January, one for late January, one for early February, eight for mid-March, two for late March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; gravelly canyons; sandy canyon bottoms; foothills; rocky and clayey slopes; amongst rocks; sandy and clayey flats; valley bottoms; along arroyos; draws; bottoms of gullies; around springs; along streams; gravelly streambeds; along creeks; along sandy creekbeds; along rivers; along sandy and sandy-loamy riverbeds; sandy washes; drainages; along sandy drainage ways; around pools and lakes; cienegas; marshes; silty swamps; along sandy, clayey, silty and silty-clayey banks of streams, creeks, rivers and lakes; along sandy and silty-clayey edges of rivers; pools, poolbeds, ponds, lakes and lagoons; margins of ponds and lakes; shores of rivers and ponds; mudflats; sandbanks; gravel and sand bars; beaches; sandy benches; terraces; sandy floodplains; around sandy-silty tanks; around sandy-silty reservoirs; banks of levees; canal banks; along ditches; ditch banks; gravelly, sandy and muddy riparian areas, and disturbed areas growing in shallow water; muddy, and wet and moist rocky, stony, gravelly and sandy ground; sandy loam and silty-clayey loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it forms large dense bunches. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Ducks use this plant for cover and feed on the seeds, shoots and roots. *Cyperus odoratus* is native to several islands in the Pacific Ocean; Australia; southern Asia; Africa; several Caribbean islands; northeast-central, south-central and southern North America; Central America,

and South America. *5, 6, 43 (081309), 46 (Page 149), 58, 63 (081309 - color presentation), **85** (081409 - color presentation), **89** (recorded as *Cyperus ferax* Rich.), 127*

***Cyperus rotundus* C. Linnaeus: Nutgrass**

COMMON NAMES: Alho-bravo (Portuguese), Almendra de Tierra (Spanish), Balisanga (Ilocano), Boto-botonis (Bicolano), Capim-alho (Portuguese), Capim-dandá (Portuguese), Castañuela (Spanish), Cebollín (Spanish), Chaguan Humatag (Chamorro), Chufa (Spanish), Coco (Spanish), Coco-grass, Cocograss, Coquillo Purpura (Spanish), Coquito (Spanish), Cortadera (Spanish), Hamasuge (Japanese), Herbe à Oignons (French), Ivako (Fijian), Juncia Real (Spanish), Kili‘o‘Opu (Hawaiian), Kili’o’Opu, Mala-apulid (Pampangan), Malanga (Fijian), Matie ‘ōniāni (Maori), Mauku ‘ōniāni (Maori), Mau‘u Mokae (Hawaiian), Mot Ha (Fijian), Mumuta (Samoan and Tokelauan), Mutha (Tagalog), Nut Grass, Nut-grass, Nutgrass, Nut Sedge, ‘ōniāni Lau (Maori), ‘ōniāni Rau (Maori), ‘ōniāni Tita (Maori), Pakopako (Tongan), Purple Nutgrass, Purple Nut Sedge, Purple Nut-sedge, Purple Nutsedge, Red Nut Sedge, Sedge, Souchet Rond (French), Soranakambani (Fijian), Soro ni Kabani (Fijian), Soronakambani (Fijian), Souchet à Tubercules (French), Souchet d'Asie (French), Souchet en Forme d'Olive (French), Souchet Rond (French), Suo Cao (transcribed Chinese), Sur-sur (Pampangan), Tamanengi (Palauan), Te Mumute (I-Kiribati), Tiririca (Portuguese), Tiririca-vermelha (Portuguese), Tuteoneon (Marshallese), Vucesa (Fijian), Vuthesa (Fijian), Xiang Fu Zi (transcribed Chinese), Yellow Nutgrass. DESCRIPTION: Terrestrial perennial graminoid (4 to 24 inches in height); the spikelets may be dark brown-purple, purplish, reddish or reddish-brown; flowering generally takes place between mid-May and late November (additional records: two for early March, fourfor mid-March and one for late April). HABITAT: Within the range of this species it has been reported from slopes; dunes; sandy flats; valley floors; along shorelines; railroad right-of-ways; along gravelly-sandy-clayey roadsides; clayey creekbeds; along rivers; sandy riverbeds; along banks of streams and rivers; gravelly and sandy shores; benches; canal banks; ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in shallow water and wet and moist gravelly, gravelly-sandy and sandy ground and gravelly-sandy clay ground, occurring from sea level to 6,000 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Nutgrass (*Cyperus rotundus*) is generally acknowledged as being the world’s worst weed. *Cyperus rotundus* is native to the Old World. *5, 6, 43 (081409), 46 (Page 150), 63 (081409 - color presentation), 68, 77, **85** (081409 - color presentation of dried material), 101 (color photograph), 127, 132*

***Cyperus squarrosus* C. Linnaeus: Bearded Flatsedge**

SYNONYMY: *Cyperus aristatus* C.F. Rottbøll. COMMON NAMES: Awned Cyperus, Awned Flat Sedge, Bearded Flat Sedge, Bearded Flatsedge, Bearded Nutgrass, Dwarf Sedge, Umbrella Sedge. DESCRIPTION: Terrestrial annual graminoid (1 to 4 inches in height); the spikelets are yellow-green; flowering generally takes place between late June and late October (additional records: one for late May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountain summits; mountainsides; mesas; rocky crags; canyons; along rocky-sandy and gravelly canyon bottoms; sand-filled crevices; shallow pockets of soil; ridgetops; clayey meadows; rocky hillsides; rocky, rocky-loamy and sandy-loamy slopes; rocky outcrops; amongst boulders; sandy prairies; salty flats; bedrock basins; bouldery-silty valley floors; along gravelly roadsides; arroyos; rocky draws; seeps; springs; along spring seeps; along seeping streams; along sandy streams; along sandy streambeds; along creeks; silty creekbeds; along rivers; gravelly riverbeds; within rocky and sandy washes; drainages; along bedrock and sandy drainage ways; waterholes; playas; bogs; cienegas; marshes; sandy depressions; sandy swales; along sandy and silty banks of streams, creeks, rivers and washes; edges of rivers; puddles, lakes, playas and marshes; margins of washes, depressions and lakes; along pebbly-sandy and sandy shores of lakes; mudflats; gravel and sand bars; rock shelves; bottomlands; sandy-clayey floodplains; around and in stock tanks; along canal banks; riparian areas, and disturbed areas growing in wet, moist and damp bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky

loam, rocky-stony loam and sandy loam ground; sandy clay and clay ground, and bouldery silty, gravelly silty and silty ground, occurring from 100 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Cyperus squarrosus* is native to Africa; Southern Asia; Australia, central and southern North America; Central America, and South America. *5, 6, 43 (081409), 46 (recorded as *Cyperus aristatus* Rottb., Page 149), **57**, 58, 63 (081409 - color presentation), 77, 85 (081509 - color presentation), **89** (recorded as *Cyperus aristatus* Rottb.), 127*

***Schoenoplectus maritimus* (C. Linnaeus) K.A. Lye: Cosmopolitan Bulrush**

SYNONYMY: *Bolboschoenus maritimus* (C. Linnaeus) E. Palla, *Scirpus maritimus* C. Linnaeus var. *paludosus* (A. Nelson) G. Kükenthal, *Scirpus paludosus* A. Nelson. COMMON NAMES: Alkali Bulrush, Bayonet Grass, Bayonet-grass, Cosmopolitan Bulrush, Junco-da-praia, Prairie Bulrush, Prairie Rush, Purua Grass, River Bulrush, Salt-marsh Bulrush, Saltmarsh Bulrush, Saltmarsh Club-rush, Scirpe Maritime, Sea Club-rush, Seacoast Bulrush, Seaside Bulrush, Vak Fide (Pima). DESCRIPTION: Semi-aquatic or terrestrial perennial graminoid (18 inches to 6 feet in height); the foliage may be bright green; flowering generally takes place between late March and early December (additional records: two for early January, one for late January, two for early February and two for late December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; meadows; sandy slopes; prairies; bouldery-gravelly-sandy and silty flats; basins; valley floors; coastal marshes; along roadsides; springs; along and in clayey streams; clayey streambeds; along creeks; creekbeds; in sand along rivers; sandy-silty and clayey riverbeds; along sandy washes; rocky-clayey drainages; around shallow vernal pools; in poolbeds; ponds; bogs; freshwater and saltwater marshes; clayey and silty depressions; sloughs; sandy banks of streams, creeks and rivers; muddy edges of creeks, rivers, ponds, lakes, marshes and sloughs; along muddy margins of rivers, drainage ways and ponds; along sandy shores of ponds and lakes; mudflats; sandy beaches; sandy benches; bottomlands; sandy floodplains; edges of reservoirs; silty canals; along ditches; ditch banks; sandy riparian areas, and disturbed areas growing in shallow water or wet and moist bouldery-gravelly-sandy and sandy ground; rocky clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. This plant may be useful in erosion control and soil stabilization, the restoration of riparian and wetland areas and providing wildlife food and cover. This is reported to be a valuable food plant for ducks. *Schoenoplectus maritimus* is native to Europe; Asia; Africa; northwestern, northern, central and southern North America, and South America. *5, 6, **16** (*Scirpus maritimus* L. var. *paludosus* (A. Nels.) Kükenthal), 43 (081509), 46 (*Scirpus paludosus* A. Nels., Page 152), 63 (081509 - color presentation), **77** (*Scirpus maritimus* L. var. *paludosus* (A. Nels.) Koyama), **85** (081509 - color presentation of dried material), 127*

Scirpus americanus (see *Schoenoplectus americanus*)

Scirpus maritimus var. *paludosus* (see *Schoenoplectus maritimus*)

Scirpus paludosus (see *Schoenoplectus maritimus*)

Liliaceae: The Lily Family

***Allium macropetalum* P.A. Rydberg: Largeflower Onion**

COMMON NAMES: Arizona Onion, Cebollin, Desert Onion, Largeflower Onion, Largeflower Wild Onion, Large-petal Onion, Wild Onion. DESCRIPTION: Terrestrial perennial forb/herb (3 inches to

1 foot in height); 1 to 5 bulbs growing without basal bulbets; the leaves are green; the flowers may be cream with maroon midribs, lavender-pink, magenta, orchid-pink, pink, pink-lavender, pink-purple, pink-white, rose-white, white with green-violet, white-purple with dark purple veins or white with red-brown midribs in umbels of 10 to 20 flowers; flowering generally takes place between late February and mid-June (additional records: two for mid-August and one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky, stony-sandy-clayey, gravelly-sandy, sandy and loamy mesas; rocky plateaus; along rocky canyons; sandy canyonsides; sandy canyon bottoms; clayey bases of buttes; sandy pockets of soil in rock; buttes; along sandy ridges; rocky ridgetops; meadows; gravelly-sandy-clayey-loamy and sandy foothills; rocky, rocky-gravelly, shaley-gravelly, shaley-clayey, gravelly, gravelly-sandy, sandy and clayey-loamy hills; cobbly-sandy-loamy hilltops; rocky, rocky-gravelly-clayey-loamy and stony hillsides; rocky, rocky-gravelly, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, sandy and clayey slopes; shaley alluvial fans; gravelly bajadas; rock outcrops; amongst rocks; clayey outwash fans; sandy lava flows; prairies; gravelly, sandy and loamy flats; grassy valley floors; valley bottoms; rocky, along gravelly-sandy-loamy and gravelly-loamy roadsides; along and in arroyos; bottoms of draws; along bottoms of gullies; along creeks; along and in cobbly and sandy washes; along drainages; clayey swales; rocky and sandy benches; bouldery-gravelly-silty-clayey and gravelly terraces; clayey floodplains, and riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, cobbly, cobbly-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; bouldery-gravelly-silty clay, shaley clay, stony-sandy clay, sandy clay and clay ground, and sandy silty ground, occurring from 900 to 11,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Allium macropetalum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (081509), 46 (Page 179), 58, 63 (081509 - color presentation), 77 (color photograph #54), **85** (081509 - color presentation of dried material), **89** (recorded as *Allium reticulatum* Don.), 127*

Allium reticulatum (see footnote 89 under *Allium macropetalum*)

Brodiea capitata (see footnote 85 under *Dichelostemma capitatum*)

Brodiaea capitata (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella var. *pauciflora* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

***Calochortus kennedyi* Porter: Desert Mariposa Lily**

COMMON NAMES: Desert Mariposa, Desert Mariposa Lily, Desert Mariposa Tulip, Mariposa Lily, Red Mariposa Lily. DESCRIPTION: Terrestrial perennial forb/herb (4 inches to 2 feet in height); the leaves (4 to 8 inches in length) are grayish-green; the bell-shaped flowers (1 to 2 inches in diameter) may be golden, bright orange, orange, dark orange, orange-red, orange-yellow, reddish, reddish-orange, vermilion, light yellow or yellow; flowering generally takes place between early March and mid-June. HABITAT: Within the range of this species it has been reported from mountains; boulder mesas; rocky and gravelly canyons; rocky canyon bottoms; rocky ledges; rocky ridges; rocky ridgetops; foothills; rocky hills; hilltops; rocky and rocky-clayey hillsides; rocky, sandy and clayey slopes; bajadas; amongst rocks; rocky, rocky-sandy and gravelly-sandy flats; basins; valley floors; along rocky roadsides; along creeks; benches, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky clay, gravelly clay and clay ground, occurring from 1,300 to 5,900 feet in

elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calochortus kennedyi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (081509), 46 (Page 185), 48 (genus), 63 (081509 - color presentation), 77 (color photograph #55), **85** (081509 - color presentation), 86 (color photograph), **89**, 106 (081509), 115 (color presentation)*

***Dichelostemma capitatum* (G. Bentham) A. Wood subsp. *capitatum*: Bluedicks**

SYNONYMY: *Brodiaea capitata* G. Bentham, *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene, *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller, *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *capitatum* (G. Bentham) J.L. Reveal. COMMON NAMES: Blue Dicks, Bluedicks, Brodiaea, Covena, Covenna, Coveria, Crow Poison, Desert Hyacinth, Few-flowered Covena, Fool's Onion, Fool's-onion, Grass Nuts, Grass-nuts, Hahd (Pima), Indian Hyacinth, Papago Lily, Purplehead, Wild Hyacinth. DESCRIPTION: Terrestrial perennial forb/herb (10 to 40 inches in height); the leaves are dark green; the flowers may be light blue, blue, dark blue, blue-purple, lavender, dark lavender, pink, pale purple, purple, dark purple, purple-blue, violet or white; flowering generally takes place between early February and late May (additional record: one for mid-July, one for late August, flowering beginning as early as December and ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; gravelly plateaus; along canyon rims; canyons; canyon walls; gravelly-sandy canyon bottoms; talus; sandy pockets of soil on rocky banks; bluffs; rocky ridges; ridgetops; meadows; rocky foothills; cobbly-sandy-loamy hills; rocky hilltops; bouldery, rocky, rocky-sandy, gravelly-clayey-loamy and sandy hillsides; rocky, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-loamy slopes; bajadas; bouldery and rocky outcrops; amongst rocks; rocky banks; rocky, rocky-clayey-loamy, gravelly and sandy-loamy flats; valley floors; along rocky and rocky-clayey roadsides; gravelly streambeds; creek beds; along and in stony-gravelly and sandy washes; depressions; sandy banks of rivers; sandy benches; sandy terraces; riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground; rocky clay, stony clay and clay ground, and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dichelostemma capitatum* subsp. *capitatum* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Dichelostemma pulchellum* (Salisb.) Heller), 28 (recorded as *Dichelostemma pulchellum*, color photograph), 43 (081609), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, Page 182), 63 (081609 - color presentation), **85** (081609 - color presentation), **89** (recorded as *Brodiea capitata* Benth.), 115 (color presentation of the species)*

***Dichelostemma capitatum* (G. Bentham) A. Wood subsp. *pauciflorum* (J. Torrey) G. Keator: Bluedicks**

SYNONYMY: *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene var. *pauciflora* (J. Torrey) C.V. Morton, *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *pauciflorum* (J. Torrey) R.F. Hoover. COMMON NAMES: Blue Dicks, Bluedicks, Brodiaea, Covena, Covenna, Coveria, Crow Poison, Desert Hyacinth, Few-flowered Covena, Fool's Onion, Fool's-onion, Grass Nuts, Grass-nuts, Hahd (Pima), Indian Hyacinth, Papago Lily, Purplehead, Wild Hyacinth. DESCRIPTION: Terrestrial perennial forb/herb (16 to 30 inches in height); the leaves are dark green; the flowers may be pale blue, blue, blue-lavender-purple, blue-purple, bluish-lavender, lavender, pink, pink-purple, purple or white; flowering generally takes place between late January and mid-June (additional records: one record for early January, one record for mid-July, one record for mid-September and one record for early November) HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; gravelly and sandy mesas; plateaus; rocky canyons; rocky canyon bottoms; buttes; gravelly ridges; rocky ridgetops; foothills; rocky hills; sandy hilltops; rocky, gravelly hillsides; rocky and sandy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; prairies; plains; gravelly,

gravelly-loamy and sandy flats; basins; sandy valley floors; along roadsides; rocky arroyos; along draws; gulches; ravines; along streams; silty creekbeds; rivers; along and in rocky and sandy washes; sandy beaches; gravelly terraces; sandy lowlands; ditches; around stock tanks; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, cindery, gravelly and sandy ground; cobbly-silty loam, gravelly loam and sandy loam ground; rocky clay, stony clay and clay ground, and silty ground, occurring from 900 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. *Dichelostemma capitatum* subsp. *pauciflorum* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Dichelostemma pulchellum*, color photograph), 43 (081609), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller var. *pauciflorum* (Torr.) Hoover, Page 182), 58, 63 (081609 - color presentation), **77** (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, color photograph #56 and #103 labeled *Dichelostemma pulchellum*), **85** (081609 - color presentation), 86 (note, *Dichelostemma pulchellum*), 115 (color presentation of the species)*

Dichelostemma pulchellum (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *capitatum* (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *pauciflorum* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

Najadaceae: The Waternymph Family

Najas major (see *Najas marina*)

***Najas marina* C. Linnaeus: Spiny Naiad**

SYNONYMY: *Najas major* C. Allioni. COMMON NAMES: Holly-leaf Naiad, Holly-leaf Water Naiad, Holly-leaf Waternymph, Holly-leaved Water Nymph, Marine Naiad, Spiny Naiad, Spiny-leaf Naiad. DESCRIPTION: Aquatic annual forb/herb (2 to 18 inches in length); the herbage is bright green; the male and female flowers are born on separate plants; flowering generally takes place between early January and late October (based on two flowering records: one for early January, one for late April, one for mid-July and one for late October). HABITAT: Within the range of this species it has been reported from springs; streams; rivers; ponds; lakes; lagoons; sloughs; swamps; edges of springs; along shores of lakes; mudflats; reservoirs, and ditches growing either as a submerged aquatic or on wet mud in sandy loam ground, occurring from sea level to 5,100 feet in elevation in wetland ecological formations within the grassland and desertscrub ecological formations. NOTES: The stems, leaves, flowers and seeds are fed on by ducks. *Najas marina* is nearly cosmopolitan. *5, 6, 43 (081609), 46 (Page 67), 63 (081609 - color presentation), **85** (081709 - color presentation of dried material)*

Poaceae (Gramineae): The Grass Family

Agrostis semiverticillata (see *Polypogon viridis*)

Agrostis verticillata (see footnote 89 under *Polypogon viridis*)

Andropogon barbinodis (see *Bothriochloa barbinodis*)

Andropogon contortus (see *Heteropogon contortus*)

Andropogon torreyanus (see footnote 89 under *Bothriochloa barbinodis*)

***Aristida* C. Linnaeus: Threeawn**

COMMON NAMES: Three Awn Grass, Threeawn. *33 (Pages 231-245), 43 (092909), 46 (Pages 118-121), 63 (042608), **89***

***Aristida adscensionis* C. Linnaeus: Sixweeks Threeawn**

COMMON NAMES: Annual Bristle Grass, Flechilla (Spanish), Plumilla (Spanish), Six Weeks Three Awn Grass, Six-weeks Threeawn, Six-weeks Three-awn, Six-weeks Three-awn Grass, Sixweeks Threeawn, Three-awn, Zacate Cola de Zorra, Zacate Tres Barbas. DESCRIPTION: Terrestrial annual tufted graminoid (erect culms 1¼ to 40 inches in height); the color of the foliage has been described as being bright green, purple or yellow curing to straw; the florets may be purple or red-purple; flowering generally takes place between early August and late June; the seed heads may be purple. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; bedrock, rocky-sandy-loamy, gravelly-sandy-clayey and sandy mesas; plateaus; escarpments; rocky canyons; rocky and sandy canyon bottoms; rocky gorges; sandy bases of escarpments; talus slopes; crevices in rocks; shallow pockets of soil; buttes; rocky ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky and sandy hills; rocky-gravelly hilltops; rocky hillsides; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-clayey, stony, stony-clayey, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-clayey-loamy and sandy-silty slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sandy dunes; sandy-loamy prairies; gravelly-sandy, sandy and clayey-loamy plains; rocky-sandy, sandy, sandy-loamy and sandy-clayey-loamy flats; valley bottoms; along rocky railroad right-of-ways; along roadbeds; along rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-loamy and sandy-loamy roadsides; along sandy arroyos; rocky draws; ravines; silty springs; along streams; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; drainages; within rocky drainage ways; silty depressions; swales; banks of draws; along rocky edges of washes; along margins of washes; mudflats; sandy benches; shelves; terraces; bottomlands; floodplains; ditches; gravelly-sandy riparian areas; sandy waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, stony, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and silty loam ground; rocky clay, stony clay, gravelly clay, gravelly-sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be confused with *Aristida purpurea* var. *parishii*. *Aristida adscensionis* is native to south-central and southern North America; Central America; South America (south to Argentina), and other tropic, sub-tropic and warm-temperate regions of the world. *5, 6, 15, **16**, 33 (Page 242), 43 (080109), 46 (Page 120), 58, 63 (081709 - color presentation), 77, **85** (081709 - color presentation of dried material), **89** (recorded as *Aristida americana* (Kunth) Griseb.), 105*

Aristida americana (see footnote 89 under *Aristida adscensionis*)

***Aristida divaricata* F.W. von Humboldt & A.J. Bonpland ex C.L. von Wildenow: Poverty Threeawn**

COMMON NAMES: Poverty Three-awn, Poverty Threeawn. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with 7 to 40 inches in height, one plant was described as being 40 inches in height and 4 inches in width at the base); the foliage is dark green curing to straw; flowering generally takes place between early June and late October (flowering records: one for early June, one for mid-June, two for late August, one for early September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy and sandy mesas; cliffs;

canyons; rocky canyon walls; crevices in rocks; knolls; ridges; ridgetops; meadows; foothills; rocky hills; sandy hilltops; rocky hillsides; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; sandy bajadas; rocky outcrops; cindery sides of craters; bouldery-cindery lava flows; gravelly-sandy and sandy plains; llanos; rocky flats; valley floors; valley bottoms; along gravelly and gravelly-loamy roadsides; rocky draws; along streams; creekbeds; riverbeds; in washes; sink-holes; clayey banks of washes; along gravelly-sandy edges of ponds and lakes; cobbly-clayey, sandy and clayey benches; terraces, and disturbed areas growing in dry bouldery-cindery, rocky, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam and loam ground, and rocky-gravelly clay, cobbly clay and clay ground, occurring from 400 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is closely related to *Aristida barbata*. *Aristida divaricata* is native to southwest-central and southern North America and Central America. *5, 6, 30, 33 (Page 236), 43 (081709), 46 (Page 120), 63 (081709), 85 (081709 - color presentation of dried material), **89** (recorded as *Aristida humboldtiana* Trin. & Rupr.), 105, 127*

Aristida divergens (see footnote 89 under *Aristida ternipes*)

Aristida glauca (see *Aristida purpurea* var. *nealleyi*)

Aristida hamulosa (see *Aristida ternipes* var. *gentilis*)

Aristida humboldtiana (see footnote 89 under *Aristida divaricata*)

Aristida longiseta (see *Aristida purpurea* var. *longiseta*)

Aristida parishii (see *Aristida purpurea* var. *parishii*)

***Aristida purpurea* T. Nuttall: Purple Threeawn**

COMMON NAMES: Blue Threeawn, Democrat Grass, Nealley Three-awn, Perennial Three-awn, Purple Needle-grass, Purple Three-awn, Purple Threeawn, Red Threeawn, Reverchon Three-awn, Reverchon Threeawn, Three Awn, Three-awn, Threeawn, Tres Barbas, Tres Barbas Purpurea, Wiregrass. DESCRIPTION: Terrestrial annual or perennial graminoid (a bunchgrass (clumpgrass) with erect culms 4 to 40 inches in height and up 4 to 12 inches in width at the base, plants 8 to 12 inches in height and 4 to 6 inches in width at the base were reported, plants 14 inches in height and 2 to 6 inches in width at the base were reported); the foliage is light to dark green curing to gray or straw; the inflorescence is green, purplish or dark red-purple; the awns are purple; flowering generally takes place between early January and mid-August; however, flowering may occur throughout the year under favorable conditions (additional records, including varieties: one for early January, one for early September, six for mid-September, one for late September, four for early October, three for late October, two for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky summits; gravelly-sandy, sandy and clayey-loamy mesas; plateaus; along canyon rims; rocky cliffs; chutes; rocky canyons; rocky canyonsides; along bouldery-rocky-cobbly, rocky, rocky-gravelly, gravelly-sandy and sandy canyon bottoms; scree; talus slopes; sandy bases of escarpments; crevices in boulders and rocks; gravelly bluffs; buttes; rocky knolls; ledges; bouldery and rocky, gravelly-sandy-clayey and sandy ridges; ridgetops; silty ridgelines; rocky openings in forests; along meadows; foothills; rocky, gravelly, sandy, loamy and clayey hills; rocky, rocky-gravelly and gravelly hillsides; bedrock, bouldery, rocky, rocky-cobbly, rocky-sandy, rocky-sandy-loamy, shaley, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, sandy, loamy, clayey-loamy and silty-clayey slopes; sandy alluvial fans; rocky, rocky-gravelly, gravelly and sandy bajadas; bedrock, bouldery,

rocky and shaley outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sand dunes; in blow sand; breaks; rocky-sandy and sandy steppes; rocky, sandy, sandy-clayey, clayey and clayey-loamy prairies; bouldery-rocky, rocky, gravelly, gravelly-sandy and sandy plains; rocky, rocky-sandy, cindery, gravelly, gravelly-loamy, sandy, loamy, clayey-loamy and silty-clayey flats; rocky, gravelly-sandy and sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; along and in rocky, gravelly, sandy and clayey-loamy arroyos; along sandy bottoms of arroyos; along and in sandy draws; gulches; gravelly-sandy bottoms of gulches; rocky gullies; rocky-gravelly ravines; springs; in rocks along streams; bouldery streambeds; along creeks; along and in creekbeds; riverbeds; along and in bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in bedrock, rocky, gravelly-sandy and sandy drainages; bouldery-rocky, rocky and pebbly drainage ways; sandy lakebeds; swamps; depressions; rocky, gravelly and sandy banks of washes; sandy edges of rivers and washes; gravelly margins of washes; mudflats; gravel bars; sandy beaches; rocky-clayey, gravelly and sandy benches; gravelly terraces; bottomlands; gravelly and sandy floodplains; mesquite bosques; along ditches; recently burned areas; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-cobbly, bouldery-cobbly-sandy, bouldery-cindery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-sandy clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be grazed by Black-tailed Prairie Dogs (*Cynomys ludovicianus*) and White-tailed Jackrabbits (*Lepus townsendii*). *Aristida purpurea* is native to central and southern North America. *5, 6, 15, 33 (Page 244), 43 (081709), 46 (Page 120), 48, 58, 63 (081709 - color presentation), 85 (092709 - color presentation of dried material), **89**, 105*

Aristida purpurea var. *glauca* (see *Aristida purpurea* var. *nealleyi*)

***Aristida purpurea* T. Nuttall var. *longiseta* (E.G. von Steudel) G. Vasey: Fendler Threeawn**

SYNONYMY: *Aristida longiseta* E.G. von Steudel. COMMON NAMES: Dog Town Grass, Dogtown Grass, Fendler Threeawn, Long-awned Aristida, Long-awned Three-awn, Red Three-awn, Red Threeawn, Three-awn Grass, Wire Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 6 to 24 inches in height and 4 to 8 inches in width at the base); the foliage is green curing to tan with older growth remaining on the plant for the prior growing season giving it a grayish-green color; the awns are purple or red-purple; the inflorescence is purple, red or red-purple; flowering generally takes place between early May and mid-July (flowering records: two for early May, one for mid-May, two for early June, one for mid-July, one for early September and one for late September, flowering beginning as early as April and ending as late as October has been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy, sandy and clayey-loamy mesas; along canyon rims; rocky cliffs; canyons; along rocky-gravelly canyon bottoms; talus; buttes; knolls; gravelly-sandy-clayey and sandy ridges; silty ridgelines; rocky openings in forests; along meadows; foothills; rocky, gravelly, sandy and loamy hills; rocky and gravelly hillsides; rocky, shaley, gravelly, gravelly-sandy-loamy, gravelly-sandy-clayey, sandy, sandy-loamy, loamy and silty-clayey slopes; sandy bajadas; rocky and shaley outcrops; amongst boulders and rocks; sand hills; sand dunes; breaks; sandy steppes; rocky, sandy, sandy-clayey, clayey and clayey-loamy prairies; gravelly and sandy plains; rocky, rocky-sandy, gravelly, loamy, clayey-loamy and silty-clayey flats; sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; clayey-loamy arroyos; sandy bottoms of arroyos; in sandy draws; gravelly-sandy bottoms of gulches; rocky gullies; along streams; streambeds; along creeks; in sandy washes; along

bedrock and sandy drainages; drainage ways; gravelly banks of washes; sandy edges of rivers; gravelly margins of washes; gravelly benches; terraces; bottomlands; sandy floodplains; ditches; recently burned areas; clayey-loamy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clay loam, sandy loam, clayey loam, humusy loam and loam ground; rocky clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from 700 to 9,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Fendler Threeawn is a preferred grass for the Bison (*Bos bison*). *Aristida purpurea* var. *longiseta* is native to central and southern North America. *5, 6, 33 (recorded as *Aristida longiseta* Steud., Page 243), 43 (081809), 46 (recorded as *Aristida longiseta* Steud., Page 120), 48 (species), **56**, **57**, 58 (recorded as *Aristida longiseta* Steud.), 63 (081809), **77**, **85** (092709 - color presentation of dried material), 105 (recorded as *Aristida longiseta* Steud.)*

***Aristida purpurea* T. Nuttall var. *nealleyi* (G. Vasey) K.W. Allred: Blue Threeawn**

SYNONYMY: *Aristida glauca* (C.G. Nees von Esenbeck) W.G. Walpers, *Aristida purpurea* T. Nuttall var. *glauca* (C.G. Nees von Esenbeck) A.H. Holmgren & N.H. Holmgren. COMMON NAMES: Blue Threeawn, Nealley Three-awn, Nealley's Threeawn, Reverchon Three-awn, Reverchon Threeawn, Tres Barbas, Tres Barbas Purpurea. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 6 to 40 inches in height with clumps being reported that were up to 4 to 12 inches in width at the base); the inflorescence is purple; the awns are purple; flowering generally takes place between early January and mid-August; however, flowering may occur throughout the year under favorable conditions (additional records: two for mid-September and two for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; chutes; rocky canyons; rocky canyonsides; along bouldery-rocky-cobbly, rocky and gravelly-sandy canyon bottoms; scree; talus slopes; rocky bases of cliffs; crevices in boulders and rocks; knolls; ledges; gravelly-sandy-clayey ridges; ridgetops; foothills; clayey hills; rocky and rocky-gravelly hillsides; bedrock, bouldery, rocky, rocky-cobbly, rocky-sandy, rocky-sandy-loamy, shaley, gravelly, gravelly-sandy, gravelly-sandy-clayey, sandy and loamy slopes; alluvial fans; rocky, rocky-gravelly and gravelly bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; plains; sandy flats; rocky valley floors; along gravelly-loamy and sandy roadsides; along and in rocky, gravelly and sandy arroyos; along draws; rocky gullies; rocky-gravelly ravines; springs; along and in creekbeds; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; within drainages; bouldery-rocky drainage ways; sandy lakebeds; rocky banks; edges of washes; mudflats; gravel bars; sandy beaches; sandy benches; gravelly terraces; floodplains; along ditches; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-cobbly, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; rocky-sandy clay, gravelly-sandy clay and clay ground, and sandy silty ground, occurring from 800 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it reportedly has a "feathery" appearance. *Aristida purpurea* var. *nealleyi* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Aristida glauca* (Nees) Walp.), **16** (recorded as *Aristida purpurea* Nutt. var. *glauca* (Nees) A. Holmgren & N. Holmgren), 33 (recorded as *Aristida glauca* (Nees) Walp., Page 243), 43 (081809), 46 (recorded as *Aristida glauca* (Nees) Walp., Page 120), 48 (species), **56**, **57**, 63 (081809), 77, **85** (092709 - color presentation of dried material), 105 (species)*

***Aristida purpurea* T. Nuttall var. *parishii* (A.S. Hitchcock) K.W. Allred: Parish's Threeawn**

SYNONYMY: *Aristida parishii* A.S. Hitchcock. COMMON NAMES: Arizona Three-awn, Parish Threeawn, Parish's Three-awn, Parish's Threeawn, Threeawn. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass 4 to 40 inches in height); the spikelets are reddish-purple;

flowering generally takes place between mid-February and mid-May (flowering records: one for early March, four for mid-March, two for early April, one for mid-April, four for early May, one for mid-May, one for mid-June, one for early July, one for mid-September, three for late October and one for mid-November). HABITAT: Within the range of this species it has been range reported from mountains; rocky cliffs; canyons; rocky canyon bottoms; crevices in rocks; ridges; ridgelines; foothills; rocky hills, hillsides; rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders; sandy plains; gravelly and sandy flats; valley floors; along roadsides; arroyos; draws; springs; along streambeds; along and in bouldery, bouldery-cobbly-sandy, rocky and sandy washes; along and in rocky drainages; beaches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clay loam and gravelly-sandy loam ground, and clay ground, occurring from 500 to 4,800 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida purpurea* var. *parishii* is native to southwest-central North America. *5, 6, **16** (recorded as *Aristida parishii* Hitchc.), 33 (recorded as *Aristida parishii* Hitchc., Page 240), 43 (081809), 46 (recorded as *Aristida parishii* Hitchc., Page 121), 48 (species), 63 (081809), 77 (recorded as *Aristida parishii* A.S. Hitch.), **85** (092709 - color presentation of dried material), 105 (species)*

Aristida scheidiana (see footnote 89 under *Aristida ternipes*)

***Aristida ternipes* A.J. Cavanilles: Spidergrass**

COMMON NAMES: Aristida Grass, Spider Grass, Spidergrass, Spider Threeawn, Three Awn, Three-awn, Threeawn, Zacate Arana. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 10 to 79 inches in height, one plant was described as being 4 inches in diameter at the base and 52 inches in height); flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; bouldery-cobbly mesas; plateaus; rock cliffs; rocky canyons; rocky canyon walls; along rocky canyon bottoms; rocky talus; crevices in rocks; rock ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky, rocky-gravelly, gravelly-sandy, gravelly-clayey-loamy and sandy hills; rocky hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, gravelly, sandy, sandy-loamy and sandy-clayey slopes; alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; gravelly plains; bouldery-sandy, rocky-loamy, gravelly, sandy and silty flats; valley floors; coastal plains; railroad right-of-ways; along bouldery-rocky and gravelly roadsides; along arroyos; along draws; ravines; along streams; streambeds; along bouldery creeks; rocky creekbeds; along rivers; along and in rocky and sandy washes; within drainages; banks of creeks; along edges of washes; sandy beaches; benches; rocky terraces; sandy floodplains; mesquite bosques; along fencelines; stock tanks (charcos or repressos); ditches; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and humus loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 6,800 feet in elevation in the forest (woodland transition), woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 15, **16**, 33 (Page 238), 43 (092709), 46 (Page 119), 58, 63 (092709), 77, **85** (092709 - color presentation of dried material), **89** (recorded as *Aristida divergens* Vasey and *Aristida scheidiana* Trin. & Rupr.)*

***Aristida ternipes* A.J. Cavanilles var. *gentilis* (J.T. Henrard) K.W. Allred: Spidergrass**

SYNONYMY: *Aristida hamulosa* J.T. Henrard, *Aristida ternipes* A.J. Cavanilles var. *hamulosa* (J.T. Henrard) J.S. Trent, *Aristida ternipes* A.J. Cavanilles var. *minor* (G. Vasey) A.S. Hitchcock. COMMON NAMES: Arizona Threeawn, Hook Threeawn, Mesa Threeawn, Poverty Threeawn, Spidergrass, Three Awn, Threeawn Spider Grass, Three-awn, Three-awn Grass, Threeawn, Wild Oat, Zacate Arana de Tres. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass)

8 inches to 4 feet in height); the flowers are maroon-red; flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rock cliffs; canyons; rocky canyon bottoms; crevices in boulders; rocky and rocky-clayey ridges; foothills; rocky, gravelly-sandy, gravelly-clayey-loamy and sandy hills; hillsides; piedmonts; rocky and sandy slopes; bajadas; amongst rocks; sandy hills; sandy prairies; gravelly and sandy plains; sandy and silty flats; rocky valley floors; railroad right-of-ways; along gravelly-loamy, sandy and clayey-loamy roadsides; shallow draws; along streambeds; along creeks; along and in sandy washes; drainages; within drainages; sandy and sandy-clayey-loamy swales; sandy beaches; benches; terraces; floodplains; mesquite bosques; along fencelines; stock tanks (charcos or repressos); ditches; riparian areas, and disturbed areas growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy-clayey loam and clayey loam ground, and silty ground, occurring from 600 to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* var. *gentilis* is native to southwest-central and southern North America and Central America. *5, 6, 15 (recorded as *Aristida hamulosa* Henr.), 33 (recorded as *Aristida hamulosa* Henr., Page 239), 43 (092709), 46 (recorded as *Aristida hamulosa* Henr., Page 120), **56**, **57**, 58 (recorded as *Aristida hamulosa* Henr.), 63 (092709), 77 (recorded as *Aristida hamulosa* Henr.), 85 (092709 - color presentation of dried material), 105 (note on page 15)*

Aristida ternipes var. *hamulosa* (see *Aristida ternipes* var. *gentilis*)

Aristida ternipes var. *minor* (see *Aristida ternipes* var. *gentilis*)

***Aristida ternipes* A.J. Cavanilles var. *ternipes*: Spidergrass**

COMMON NAMES: Spider Grass, Spidergrass, Three Awn, Three-awn, Threeawn, Zacate Arana. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 16 to 79 inches in height, plants were observed that were 6½ feet in height and 8 inches in width at the base); flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rocky canyon walls; along rocky canyon bottoms; rocky talus; crevices in rocks; foothills; rocky, rocky-gravelly, gravelly-sandy and gravelly-clayey-loamy hills; hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, gravelly and sandy slopes; gravelly and sandy bajadas; rocky outcrops; amongst boulders; plains; gravelly and sandy flats; rocky valley floors; along bouldery-rocky and gravelly roadsides; along draws; along streams; along creeks; along and in sandy washes; within drainages; terraces; sandy floodplains; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam and gravelly-clayey loam ground; rocky-gravelly clay ground, and sandy silty ground, occurring from 200 to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* var. *ternipes* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 33 (species, Page 238), 43 (092709), 46 (species, Page 119), **56**, **57**, 63 (092709), **85** (092709)*

***Arundo donax* C. Linnaeus: Giant Reed**

COMMON NAMES: Arundo Grass, Caña (Hispanic), Caña Común (Spanish), Caña de Castilla (Spanish), Cana Brava, Caña Hueca (Hispanic), Cana-do-brejo (Portuguese), Cana-do-reino (Portuguese), Cañaveral (Hispanic), Canne de Provence (French), Canno-do-reino (Portuguese), Canuto (Hispanic), Capim-plumoso (Portuguese), Carricillo (Hispanic), Carrizo (Hispanic), Carrizo de la Selva (Hispanic), Donax, Elephant Grass, Giant Cane, Giant Reed, Giant-reed, Grand Roseau (French), Gubaguih (Hispanic), Halal (Hispanic), Pakaab (Hispanic), Pfahlrohr (German), Spaanse-riet, Spanish-reed, Tarro (Hispanic), Tekhalal (Hispanic). DESCRIPTION: Terrestrial perennial graminoid, subshrub or shrub

(erect culms 6 to 33 feet in height); the flowers are in cream or whitish plumes; flowering may take place throughout the year, but mostly between early spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky canyon bottoms; rocky slopes; plains; valleys; coastal basins; along sandy roadsides; arroyos; seeps; along seepage streams; springs; along streams; in sandy soils along creeks; along and in rivers; along and in sandy riverbeds; along sandy washes; along drainages; waterholes; along lakes; along sandy banks of streams, creeks and rivers; edges of rivers; margins of lakes; sandy terraces; floodplains; along canal banks; along culverts; along and in ditches; ditch banks; sandy riparian areas, and disturbed areas growing in water, and wet, moist and occasionally dry rocky, gravelly and sandy ground and sandy clay and clay ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for making tools, musical instruments, ceremonial items and a yellow dye. Giant Reed was intentionally introduced into the Los Angeles, California area in the early 1800's; its clonal root masses (to over 3 feet thick) may extend to several acres. Giant Reed Grass may be confused with the native Common Reed Grass, so proper identification must be assured prior to implementing control measures. *Arundo donax* is native to eastern Asia. *5, 6, 15, **16**, 33 (Page 166), 43 (092709), 46 (Page 100), **56**, **57**, 63 (092709 - color presentation of seed), 68, 77, **85** (092709 - color presentation), **89**, 101 (color photograph), 127, **WTK** (August 2, 2010)*

***Avena fatua* C. Linnaeus: Wild Oat**

COMMON NAMES: Aveia-brava (Portuguese), Aveia-fátua (Portuguese), Aveia-selvagem (Portuguese), Avena Loca (Spanish), Avena Silvestre (Spanish), Avoine Folle (French), Flaxgrass, Flughafer (German), Folle Avoine (French), Oat Grass, Oatgrass, Spring Wild Oat, Wheat Oats, Wild Oat, Windhafer (German). DESCRIPTION: Terrestrial annual graminoid (erect culms 3 to 79 inches in height); the foliage is green; the flowers are green; flowering generally takes place between early February and early July (additional records: two for mid-January, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky and rocky-sandy canyons; canyon bottoms; pockets of soil in rocks; bluffs; ridgetops; openings in woodlands; meadows; hills; rocky, cobbly-sandy-loamy and clayey hillsides; rocky, rocky-loamy, rocky-clayey, sandy, loamy, loamy-clayey and clayey slopes; sandy bajadas; rocky outcrops; plains; sandy, clayey and clayey-loamy flats; basins; valley floors; coastal flats; coastal hills; along railroad right-of-ways; along rocky, rocky-gravelly-loamy, gravelly, gravelly-loamy and clayey-loamy roadsides; seeps; springs; along streams; sandy streambeds; along and in rocky-cobbly creeks; creekbeds; along rivers; along and in gravelly and sandy washes; drainages; freshwater marshes; depressions; swales; rocky banks of streams, rivers, riverbeds and washes; rocky edges of ponds and lakes; margins of washes; benches; terraces; bottomlands; floodplains; lowlands; stock tanks; canals; canal banks; ditches; silty ditch banks; bouldery and sandy riparian areas; waste places and disturbed areas growing in moist and dry bouldery, rocky, rocky-cobbly, rocky-sandy, gravelly and sandy ground; rocky loam, rocky-gravelly loam, cobbly-sandy loam, gravelly loam, clayey loam, silty loam and loam ground; bouldery clay, rocky clay, loamy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Seed can remain dormant in soil for as long as 10 years. *Avena fatua* is native to Europe; Asia, and northern Africa. *5, 6, 15, **16**, 33 (Page 166), 43 (092709), 46 (Page 100), **56**, **57**, 63 (092709 - color presentation of seed), 68, 77, **85** (092709 - color presentation), **89**, 101 (color photograph), 127*

***Bothriochloa barbinodis* (M. Lagasca y Segura) W.G. Herter: Cane Bluestem**

SYNONYMY: *Andropogon barbinodis* M. Lagasca y Segura. COMMON NAMES: Algodonero, Beard-grass, Bristlejoint Bluestem, Cane Beard Grass, Cane Beardgrass, Cane Bluestem, Feather

Bluestem, Feather Grass, Palmer's Cane Bluestem, Perforated Bluestem, Pinhole Beardgrass, Pinhole Bluestem, Pitted Beardgrass, Plains Beardgrass, Popotillo, Silver Beardgrass; Ya-jewel-g-ute (Havasupai), Zacate Popotillo, Zacatón (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 2 to 5 feet in height, one plant was reported to be 4 inches in width at the base); the foliage is bluish-green or yellow-green curing to a dull red, reddish-brown or yellow; the spikelets are tawny-green or tan; the silvery-white inflorescences are oblong to fan-shaped; flowering generally takes place between late March and early December (additional records: one for early February and one for mid-February). HABITAT: Within the range of this species it has been reported from rocky mountains; gravelly mesas; plateaus; along cliff faces; rocky and gravelly-loamy canyons; along bedrock, bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; rocky chasms; rocky bases of cliffs; crevices in bedrock, boulders and rocks; buttes; rocky and sandy-loamy ridges; rocky ridgetops; clearings in woodlands; meadows; rocky foothills; rocky hills; rocky and gravelly hillsides; escarpments; rocky, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and clayey loam slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy plains; gravelly and clayey flats; rocky valley floors; railroad right-of-ways; clayey roadbeds; along gravelly, gravelly-loamy, sandy and silty-clayey-loamy roadsides; along rocky, stony and sandy arroyos; sandy bottoms of arroyos; draws; gullies; ravines; seeps; springs; along sandy streams; along and in bouldery streambeds; along creeks; along and in creekbeds; along rivers; in bouldery-cobbly-sandy riverbeds; along and in rocky, rocky-gravelly, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within gravelly-sandy-loamy drainages; within rocky drainage ways; swales; rock tanks; along sandy banks of creeks, rivers, washes and lakes; sandy edges of creeks; bouldery-sandy and sandy beaches; benches; rocky and gravelly terraces; floodplains; mesquite bosques; stock tanks; along and in ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas, and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and silty ground, occurring from 100 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is extremely drought-resistant and tolerant of coastal conditions. Pronghorn (*Antilocapra americana*) browse this plant. *Bothriochloa barbinodis* is native to southwest-central and southern North America; Central America, and South America. *5, 6, 15, **16**, 30, 33 (recorded as *Andropogon barbinodis* Lag., Page 306), 43 (092709), 46 (recorded as *Andropogon barbinodis* Lag., Page 142), 48, 58, 63 (092709 - color presentation), 77, **85** (092809 - color presentation of dried material), **89** (recorded as *Andropogon torreyanus* Steud.), 105 (recorded as *Andropogon barbinodis* Lag.)*

***Bouteloua aristidoides* (K.S. Kunth) A.H. Grisebach: Needle Grama**

COMMON NAMES: Aceitilla, Navajita, Needle Grama, Pasto Cabra (Hispanic), Six Weeks Grama Grass, Six-weeks Needle Grama, Tochite (Hispanic), Zacate Saitillo. DESCRIPTION: Terrestrial annual tufted graminoid (2 to 24 inches in height); the foliage is light green or purple curing to straw; the flowers are purplish; flowering generally takes place between mid-August and late October (additional records: two for early January, one for late January, one for early February, one for early March, one for mid-March, five for early April, one for late April, one for mid-July, one for mid-November, two for late November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy mesas; cliffs; rocky canyons; canyon bottoms; chasms; ridges; meadows; rocky hills; rocky-gravelly hilltops; rocky hillsides; sandy bases of escarpments; rocky, rocky-gravelly, gravelly, gravelly-sandy, sandy, sandy-silty and clayey-loamy slopes; gravelly bajadas; rocky coves; sand hills; sand dunes; sand hummocks; sand dunes; blow-sand deposits; edges of dune fields; plains; gravelly and sandy flats, basins; clayey valley floors; loamy valley bottoms; coastal dunes; gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; in arroyos; bottoms of arroyos; stony-sandy draws, seeps; springs; along streams; streambeds; creekbeds; along rivers; sandy riverbeds;

along and in rocky, gravelly, gravelly-sandy, sandy, clayey and silty-clayey washes; within drainages; depressions; sandy-loamy banks of washes; margins of washes; rocky-sandy shores of lakes; benches; sandy terraces; loamy bottomlands; sandy floodplains; clayey lowlands; sandy mesquite bosques; waste places, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty ground, occurring from sea level to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Bouteloua aristidoides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 33 (Page 141), 43 (092809), 46 (Page 128), **56**, **57**, 58, 63 (052809 - color presentation), 68, 77, **85** (052809 - color presentation of dried material), **89**, 105, **WTK** (October 23, 2009)*

***Bouteloua barbata* M. Lagasca y Segura: Sixweeks Grama**

SYNONYMY: *Bouteloua barbata* M. Lagasca y Segura var. *barbata*. COMMON NAMES: Navajita Annual, Six Weeks Grama, Six-weeks Grama, Sixweeks Grama, Six-weeks Grass, Zacate Liebrero. DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass with spreading culms ½ to 18 inches in height); the foliage is light green or dark violet curing to straw; the spikelets are purplish, red-green or reddish; flowering may take place throughout the year, but occurs mostly between late July and late November (additional records: one for mid-January, one for early February, one for early March, one for mid-March, one for late March, one for late April, one for early July, two for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly mountainsides; gravelly and sandy mesas; rocky canyons; canyon bottoms; talus; sandy bases of cliffs; buttes; ledges; rocky ridgetops; meadows; bouldery, rocky, rocky-sandy, gravelly and sandy hills; rocky-gravelly hilltops; rocky hillsides; sandy bases of escarpments; rocky, rocky-gravelly, gravelly, gravelly-sandy-clayey, sandy and sandy-loamy slopes; rocky and gravelly alluvial fans; sandy bajadas; amongst rocks; sandy lava flows; sand hills; sand dunes; sand hummocks; margins of dunes; in blow-sand deposits; prairies; sandy plains; rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey flats; basins; sandy and sandy-clayey valley floors; valley bottoms; beach dunes; sandy coastal plains; shell mounds; along railroad right-of-ways; rocky-gravelly roadbeds; along rocky-gravelly, cobbly, gravelly, sandy and sandy-clayey-loamy roadsides; along and in sandy arroyos; bottoms of arroyos; draws; gullies; along streams; streambeds; along sandy creeks; sandy riverbeds; along and in rocky, gravelly, sandy and silty-clayey washes; along and in sandy drainages; pebbly-sandy waterholes; oases; sandy and silty lakebeds; sandy playas; depressions; swales; along gravelly banks of rivers and washes; edges of washes and lakebeds; rocky-sandy shores of lakes; mudflats; sand bars; sandy-clayey-loamy beaches; benches; gravelly debris fans; gravelly terraces; bottomlands; sandy floodplains; mesquite bosques; stock tanks (charcos or repressos); silty ditches; sandy ditch banks; sandy riparian areas; gravelly waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, sandy loam and sandy-clayey loam ground; gravelly-sandy clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Sixweeks Grama (annual) may be confused with the short-lived perennial Rothrock Grama (*Bouteloua rothrockii*). *Bouteloua barbata* is native to southwest-central and southern North Americasouthwest-central and southern North America. *5, 6, 15, **16** (recorded as *Bouteloua barbata* Lag. var. *barbata*), 33 (Page 153), 43 (092909), 46 (Page 127), **57**, 58, 63 (092809 - color presentation), 68, 77, **85** (092909 - color presentation of dried material), **89** (recorded as *Boutloua polystachya* (Benth.) Torr.), 105*

Bouteloua barbata var. *barbata* (see *Bouteloua barbata*)

Bouteloua barbata var. *rothrockii* (see *Bouteloua rothrockii*)

Bouteloua bromoides (see footnote 89 under *Bouteloua repens*)

***Bouteloua curtipendula* (A. Michaux) J. Torrey: Sideoats Grama**

COMMON NAMES: Avenilla (Hispanic), Banderilla (Hispanic), Banderita (Hispanic), Grama-azul (Portuguese), Grama del Cerro (Hispanic), Navajita Banderilla (Spanish), Qm-u-se'-a (Havasupai), Side Oats Grama, Side-oats Grama, Sideoats Grama, Side-oats Grama Grass, Side-oats Grama-grass, Sideoats Grama Grass, Tall Grama, Tall Grama Grass, Uitsaku Juatarhu (Purépecha). DESCRIPTION: Terrestrial perennial usually tufted graminoid (a bunchgrass (clumpgrass) with erect culms 3 to 52 inches in height and up to 2 feet in width at the base, one plant was reported to be 12 to 16 inches in height and 16 inches in width at the base, one plant was reported to be 28 inches in height and 4 inches in width at the base); the foliage is bluish-green or purple-green curing to reddish-brown or straw; the flowers are bright purple; the anthers are orange, purple, red, yellow or dark yellow; flowering generally takes place between late April and mid-November (additional records: one for early April, one for early December); the mature fruits are red-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery, pebbly-sandy and clayey-loamy mesas; plateaus; cliffs; rocky and sandy canyon rims; along rocky canyons; along canyon walls; along sandy canyon bottoms; rocky gorges; sandy bases of cliffs; sandy crevices in rocks; buttes; rocky and sandy ledges; rocky ridges; openings in forests and woodlands; meadows; rocky and clayey-loamy foothills; rocky and rocky-gravelly hills; sandy hilltops; rocky hillsides; sandy bases of escarpments; along bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey-loamy and clayey slopes; bajadas; rocky outcrops; amongst boulders, rocks and cobbles; sandy lava flows; sand hills; sand dunes; prairies; sandy plains; shale barrens; sandy and clayey flats; sandy valley floors; along gravelly and sandy roadsides; along and in bedrock arroyos; along draws; along ravines; seeps; along springs; around streams; along streambeds; along creeks; rocky creekbeds; along rivers; along and in rocky, rocky-gravelly and sandy washes; within drainage ways; marshes; in low swales with Desert Willow; along banks of draws, streams, rivers and washes; along rocky edges of ravines, springs and washes; shores of lakes; gravel bars; benches; rock shelves; gravelly terraces; sandy floodplains; mesquite bosques; along fencelines; rocky riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery-rocky-sandy, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery-gravelly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, silty-clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and rocky silty and sandy silty ground, occurring from 300 to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber or fodder crop; it was also noted as having been used as a decoration. Sideoats Grama may be useful in controlling erosion. Stems may occur singly or in small clusters from creeping rhizomes (var. *curtipendula*), or form into large clumps from a common root crown (var. *caespitosa*). In areas where it occurs naturally, consider including Sideoats Grama seed in reseeding mixtures. This plant is a larval food plant for the Orange Skipperling (*Copaeodes aurantiacus*). *Bouteloua curtipendula* is native to central and southern North America; Central America, and South America. *5, 6, 15, **16**, 18, 30, 33 (Page 143, "One of the most important range grasses in the Southwest, highly palatable and a vigorous grower."), 43 (092909), 46 (Page 129), 48, 58, 63 (092909 - color presentation), 77, 82, **85** (093009 - color presentation of dried material), **89**, 105 ("This is one of our most important range grasses. ... It cures well and maintains a fairly high feeding value throughout the year. ... Sideoats is a normal component of most Arizona grassland ranges, and these ranges are not in excellent condition without an abundance of the grass. It lengthens the grazing season and increases forage production, in addition to providing variety in the feed."), 106 (061407), 127*

Bouteloua filiformis (see *Bouteloua repens*)

Boutloua polystachya (see footnote 89 under *Bouteloua barbata*)

***Bouteloua repens* (K.S. Kunth) F.L. Scribner & E.D. Merrill: Slender Grama**

SYNONYMY: *Bouteloua filiformis* (E.P. Fournier) D. Griffiths). COMMON NAMES: Navajta Rastrera, Large Mesquite Grama, Slender Grama, Zacate Sabanilla. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 4 to 32 inches in height and up to 4 inches in width at the base); the leaves are bright green (purple and yellow forms were also reported) curing to gray or yellow; the spikelets (flowers) are reddish-purple; the anthers are orange, red, purple or yellow; flowering generally takes place between late August and early November (additional records: two for early January, three for late February, one for mid-June and two for early August, flowering beginning as early as June and July and ending as late as December has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; gravelly mesas; cliff faces; rocky canyons; along gravelly-sandy canyon bottoms; talus slopes; bases of cliffs; crevices in rocks; pockets of soil in rocks; rocky buttes; rocky ledges; ridges; ridgetops; openings in forests; rocky and gravelly-loamy foothills; rocky hills; hilltops; rocky and rocky-clayey hillsides; along rocky, rocky-gravelly, rocky-clayey, rocky-sandy-loamy, gravelly, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; bedrock and rocky outcrops; amongst rocks; prairies; llanos; rocky, cobbly and sandy plains; sandy and clayey flats; bedrock valley floors; railroad right-of-ways; along rocky roadbeds; along gravelly and sandy roadsides; along rocky arroyos; rocky draws; bottoms of draws; gulches; ravines; along streams; along and in rocky streambeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along and in bedrock drainages; within drainage ways; rocky-clayey swales; gravelly-loamy banks of washes; edges of arroyos; sandy shores of oceans; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slender Grama holds up well under heavy grazing pressure. *Bouteloua repens* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 15, **16**, 33 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 145), 43 (093009), 46 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 129), 48, 58, 63 (093009 - color presentation), 77, **85** (093009 - color presentation of dried material, also recorded as *Bouteloua repens* var. *repens*), **89** (recorded as *Bouteloua bromoides* (H.B.K.) Lag.), 105 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths)*

Bouteloua repens var. *repens* (see footnote 85 under *Bouteloua repens*)

***Bouteloua rothrockii* G. Vasey: Rothrock's Grama**

SYNONYMY: *Bouteloua barbata* M. Lagasca y Segura var. *rothrockii* (G. Vasey) F.W. Gould. COMMON NAMES: Navajita Liebrero, Rothrock Grama, Rothrock's Grama. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 8 to 30 inches in height); the foliage is green curing to straw; the flowers may be brownish-red, pale green, green, orange or reddish; the anthers are pink or white; flowering generally takes place between late July and late September (additional records: one for early March, one for mid-May, one for late May, one for late October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky-gravelly mountainsides; gravelly and sandy mesas; canyons; sandy canyon bottoms; rocky and rocky-gravelly and gravelly-loamy foothills; rocky and rocky-sandy hills; rocky, gravelly and gravelly-sandy-loamy hillsides; rocky, rocky-gravelly, gravelly, sandy, sandy-loamy and clayey slopes; rocky alluvial fans; gravelly and sandy bajadas; prairies; along cobbly and sandy plains; bouldery-sandy, gravelly and sandy flats; basins; gravelly-loamy valley floors; valley bottoms; along gravelly and sandy roadsides; sandy draws; sandy bottoms of gulches; streambeds; sandy riverbeds; along

washes; rocky drainages; within drainages; swales; edges of washes; along margins of cienegas; benches; terraces; sandy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground, and clay ground, occurring from 1,100 to 5,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This short-lived perennial may be an attractive component of a restored native habitat, it has been described as being hardy and drought-resistant. Rothrock Grama (perennial) may be confused with the annual Sixweeks Grama (*Bouteloua barbata*). *Bouteloua rothrockii* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Bouteloua barbata* Lag. var. *rothrockii* (Vasey) Gould), 33 (Page 151), 43 (093009), 46 (Page 128), 48, **56**, **57**, 58, 63 (093009 - color presentation), **77**, **85** (100109 - color presentation of dried material), **89**, 105*

***Bouteloua trifida* G. Thurber (var. *trifida* is the variety reported as occurring in Arizona): Red Grama**

COMMON NAMES: China, Navajita, Navajita Roja, Red Grama, Red Gramma, Three-awn Grama. DESCRIPTION: Terrestrial perennial tufted graminoid (2 to 16 inches in height); the foliage may be purple; the spikelets (flowers) are reddish-purple; the anthers are yellow; flowering generally takes place between mid-March and late May (additional records: one for early August, two for mid-August, one for early September and two for late October). HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; rocky cliffs; rocky canyons; along canyon walls; gorges; talus slopes; crevices in rocks; pockets of soil in bedrock; bluffs; rocky ledges; bouldery ridges; foothills; bouldery, rocky, rocky-gravelly, stony-gravelly and loamy hills; bouldery and rocky hillsides; bouldery-rocky, rocky, gravelly, sandy and sandy-loamy slopes; bajadas; rocky outcrops; clayey prairies; plains; gravelly flats; basins; valley floors; roadbeds; along rocky, gravelly-sandy and clayey roadsides; sandy arroyos; gulches; springs; along streams; along and in bedrock, cobbly-gravelly-sandy and gravelly-sandy washes; within rocky drainages; within drainage ways; around pools; depressions; rocky banks of arroyos; floodplains; ditches, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, rocky-cobbly-gravelly-sandy, rocky-gravelly, stony, stony-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, occurring from 700 to 5,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is drought resistant and may form patches or rings, and it is sometimes mistaken for an *Aristida* spp. because of the three-awned spikelets. *Bouteloua trifida* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 151), 43 (100109), 46 (Page 128), 63 (100109), 77, **85** (100109), **89***

Brachiaria arizonica (see *Urochloa arizonica*)

Brachiaria fasciculata (see *Urochloa fusca*)

***Bromus arizonicus* (C.L. Shear) G.L. Stebbins: Arizona Brome**

SYNONYMY: *Bromus carinatus* W.J. Hooker & G.W. Arnott var. *arizonicus* C.L. Shear. COMMON NAMES: Arizona Brome. DESCRIPTION: Terrestrial annual graminoid (4 to 40 inches in height); the flowers are burgundy; flowering generally takes place between early February and early September (additional records: two for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; sandy canyon bottoms; talus slopes; bluffs; ledges; ridges; openings in woodlands; sandy meadows; foothills; hills; rocky hillsides; rocky, gravelly and sandy-loamy slopes; bouldery outcrops; amongst boulders and rocks; sand dunes; sandy plains; gravelly and sandy flats; sandy-clayey-loamy valley bottoms; coastal bluffs; coastal dunes; sandy coastal flats; along gravelly and sandy roadsides; within arroyos; bottoms of arroyos; gulches; around springs; around seeping streams; in sand along streams; streambeds; along creeks; creekbeds; along

rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, gravelly-loamy and sandy washes; within drainages; marshy areas; along rocky banks of streams, rivers and washes; rocky, gravelly-sandy and sandy edges of washes; along shores of lakes; gravel and sand bars; sandy beaches; sandy benches; bottomlands; sandy floodplains; along ditches; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-sandy, rocky, rocky-sandy, shaley, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loamy ground; clay ground, and gravelly-sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bromus arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 44), 43 (100109), 46 (Page 77), 58, 63 (100109), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (100209 - color presentation of dried material), **89** (recorded as *Bromus carinatus* H. & A. var. *arizonicus* Shear)*

***Bromus carinatus* W.J. Hooker & G.W. Arnott: California Brome**

COMMON NAMES: Basiawari (Hispanic), Basicuáare (Hispanic), Bromo de California (Hispanic), California Brome, Camaloti (Hispanic), Grama (Hispanic), Masiyague (Hispanic), Mountain Brome, Mountain Bromegrass, Pipillo (Hispanic), Pipilo (Hispanic), Sweet Brome, Tigrillo (Hispanic), Tupikua (Purépecha), Zacate (Hispanic), Zacate Bromo (Hispanic). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) 1 to 6 feet in height and up to 4 to 12 inches in width at the base); the foliage may be reddish or yellow-green; the flowers may be dull green, green, purplish or purplish-red; the anthers are cream-yellow or pale yellow; flowering generally takes place between late March and early October (additional records: one for late February, one for early March, two for late October and one for late December). HABITAT: Within the range of this species it has been reported from mountains; bedrock-shaley-clayey mountaintops; mesas; rock walls; along bouldery and gravelly-loamy canyons; along rocky and gravelly canyon bottoms; chasms; rocky talus; rocky bases of cliffs; crevices in rocks; along bluffs; buttes; bouldery ridges; ridgetops; along ridgelines; openings in forests and woodlands; meadows; foothills; rocky and loamy hills; rocky hillsides; bouldery, hummocks; bouldery, rocky, shaley-clayey-loamy, stony-gravelly, sandy, sandy-loamy, loamy and clayey slopes; rocky-sandy-loamy alluvial fans; sandy bajadas; bouldery and rocky outcrops; amongst rocks; lava flows; sand dunes; pebbly and sandy plains; gravelly, sandy and silty-loamy flats; basins; gravelly-silty valley floors; coastal dunes; sandy coastal flats; along coasts; railroad right-of-ways; along gravelly, sandy, sandy-loamy and loamy roadsides; along and in arroyos; sandy-loamy bottoms of arroyos; along bouldery-rocky and sandy draws; gulches; gullies; sandy-loamy ravines; seeps; springs; edges of springs; along streams; along streambeds; along creeks; along sandy creekbeds; along rivers; riverbeds; along and in rocky-sandy, rocky-silty, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within gravelly drainages; along and in drainage ways; among and in pools; rocky-clayey lakebeds; cienegas; marshes; swamps; gravelly depressions; along rocky-silty and sandy banks of arroyos, streams, creeks, rivers, washes and pools; edges of springs and drainages; margins of seeps, streams, rivers and washes; shores of lakes; sandy benches; rocky strands; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; along canals; along ditches; bouldery and gravelly-loamy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, shaley-clayey loam, gravelly

loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, shaley-clayey and clay ground; rocky silty, gravelly-silty, gravelly-sandy silty and silty ground, and humusy ground, occurring from sea level to 11,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Bromus carinatus* is native to west-central and southern North America and Central America. *5, 6, 15, 30, 33 (Page 45), 43 (100209), 46 (Page 77), **56**, **57**, 58, 63 (100209 - color presentation), 77, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (100209 - color presentation of dried material, also recorded as *Bromus carinatus* var. *carinatus* Hook. & Arn.), 101 (color photograph), 127*

Bromus carinatus var. *arizonicus* (see *Bromus arizonicus*)

Bromus carinatus var. *carinatus* (see footnote 85 under *Bromus carinatus*)

***Bromus catharticus* M.H. Vahl: Rescuegrass**

SYNONYMY: *Bromus unioloides* K.S. Kunth, *Bromus willdenowii* K.S. Kunth. COMMON NAMES: Rescue Brome, Rescue Grass, Rescuegrass, Schraders-grass. DESCRIPTION: Terrestrial annual or perennial graminoid (10 inches to 4 feet in height); the foliage is light green or green; the florets are green; flowering generally takes place between mid-March and early July (additional records: one for early January (in the Southern Hemisphere), two for mid-February, one for late February, one for late July, one for mid-August, one for mid-September, two for early October, one for mid-October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyon rims; canyons; gravelly and sandy canyon bottoms; rock walls; meadows; foothills; rocky hills; sandy-loamy, sandy-clayey and silty slopes; bajadas; sand hills; sandy-loamy prairies; sandy flats; sandy-loamy basins; valley floors; clayey valley bottoms; coastal dunes; railroad right-of-ways; along sandy roadsides; draws; along bottoms of draws; seeps; springs; along streams; streambeds; along rivers; riverbeds; along and in cobbly washes; sandy drainages; drainage ways; in rocks around ponds; freshwater marshes; along loamy banks of rivers and lakes; edges of springs, streams; rivers and marshes; along margins of springs, washes and cienegas; shores of rivers and lakes; sandy beaches; sandy benches; sandy floodplains; mesquite bosques; margins of stock tanks; canals; along canal banks; ditches; along ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, cobbly, gravelly and sandy ground; gravelly loam, sandy loam and loam ground; sandy clay and clay ground; silty ground, and chalky ground, occurring from sea level to 12,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fodder. *Bromus catharticus* is native to South America. *5, 6, 15, **16** (recorded as *Bromus willdenowii* Kunth), 33 (Page 44), 43 (100309), 46 (Page 77), **56**, **57**, 58, 63 (100309 - color presentation), 68, **77**, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten.

Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information. Rescuegrass, *Bromus willdenowii* (confused with *Bromus catharticus*) is also listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This introduced annual grass has been reported to develop toxic concentrations of nitrate."), **85** (100309 - color presentation of dried material, also recorded as *Bromus catharticus* var. *catharticus*), **89** (recorded as *Bromus unioloides* H.B.K.), 101 (color photograph), 127*

Bromus catharticus var. *catharticus* (see footnote 85 under *Bromus catharticus*)

***Bromus diandrus* A.W. Roth subsp. *rigidus* (A.W. Roth) J.M. Lainz Ribalaygua: Ripgut Brome**

SYNONYMY: *Bromus diandrus* A.W. Roth var. *rigidus* (A.W. Roth) F. Sales, *Bromus rigidus* A.W. Roth. COMMON NAMES: Ripgut Brome, Ripgut Grass. DESCRIPTION: Terrestrial annual or perennial graminoid (1 to 3 feet in height); flowering for the species generally takes place between late February and early July. HABITAT: Within the range of this species it has been reported from mountains; bouldery-rocky and rocky canyons; canyon bottoms; rocky talus; meadows; hillsides; bouldery, gravelly-sandy-loamy slopes; bouldery-gravelly-sandy alluvial fans; rocky outcrops; amongst boulders; bases of boulders; sand dunes; valley floors; along railroad right-of-ways; along roadsides; arroyos; along streams; along creeks; along rivers; sandy washes; along sloughs; along sandy banks of creeks and rivers; edges of lakes; along margins of creeks; sandy beaches; sandy benches; terraces; loamy bottomlands; bouldery-gravelly-sandy, sandy, sandy-silty and loamy floodplains; mesquite bosques; dams; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky and sandy ground; gravelly-sandy loam and loam ground, and sandy silty ground, occurring from 1,100 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Bromus diandrus* is native to middle and southern Europe; western Asia, and northern Africa. *5, 6, 33 (species, recorded as *Bromus rigidus* Roth, Page 50), 43 (100309 - *Bromus diandrus* Roth subsp. *rigidus* (Roth) O. Bolòs, Masalles & Vigo), 46 (species, recorded as *Bromus rigidus* Roth, Page 78), 63 (100309 - color presentation), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), 85 (100309), **89** (recorded as *Bromus maximus* Desf. var. *gussoni* Parl.), 101 (color photograph, *Bromus rigidus* Roth), 133 (recorded as *Bromus diandrus* Roth var. *rigidus* (Roth) Sales)*

Bromus diandrus var. *rigidus* (see *Bromus diandrus* subsp.*rigidus*)

Bromus madritensis subsp. *rubens* (see *Bromus rubens*)

Bromus maximus var. *gussoni* (see footnote 89 under *Bromus diandrus* var. *rigidus*)

Bromus rigidus (see *Bromus diandrus* subsp.*rigidus*)

***Bromus rubens* C. Linnaeus: Red Brome**

SYNONYMY: *Bromus madritensis* C. Linnaeus subsp. *rubens* (C. Linnaeus) Duvin [orthographic error]. COMMON NAMES: Bromo, Bromo Rojo, Foxtail Brome, Foxtail Chess, Red Brome. DESCRIPTION: Terrestrial annual graminoid (3 inches to 2 feet in height); the foliage is light green curing to a light straw yellow; the spikelets (flowers) may be purple, red-brown, reddish or reddish-purple; the awns are reddish; flowering generally takes place between late January and early June (additional records: one for late June, one for early July and one for late August); the seedheads are red, reddish-brown or purplish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-silty mesas; cliffs; rocky-pebbly cliffsides; rocky and stony canyons; rocky and clayey canyon bottoms; talus; bases of cliffs; pockets of sandy soil in bedrock, boulders and rocks; bluffs; buttes; rocky and rocky-stony ledges; rocky promontory; along rocky and silty-loamy ridges; ridgetops; sandy meadows; sandy edges of meadows; cinder cones; rocky foothills; bouldery, rocky, sandy, loamy and silty-loamy hills; sandy-clayey and clayey hilltops; rocky and clayey hillsides; bedrock, bouldery, bouldery-rocky, rocky, rocky-sandy, rocky-clayey, rocky-clayey-loamy, rocky-loamy, cobbly-sandy-loamy, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy and loamy slopes; rocky alluvial fans; rocky, gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; plains; rocky, rocky-sandy-clayey, cindery, gravelly and loamy flats; cindery valley floors; valley bottoms; coastal bluffs; coastal flats; along railroad right-of-ways; along gravelly roadbeds; along sandy-loamy roadsides; within rocky arroyos; draws; along rocky gullies; rocky and gravelly ravines; seeps; springs; around seeping streams; rocky-sandy streambeds; along and in creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; within rocky and sandy drainages; rocky and sandy drainage ways; pondbeds; gravelly-clayey soils around lakes; sandy, sandy-silty and silty lakebeds; saltwater marshlands; depressions; swales; gravelly-sandy, sandy and loamy banks of streams, rivers and washes; along sandy edges of washes, lakes and freshwater and saltwater marshes; margins of washes; beaches; sandy benches; rocky-silty, gravelly and sandy terraces; sandy, sandy-loamy and loamy bottomlands; rocky, sandy and loamy floodplains; mesquite bosques; stock tanks; around reservoirs; canal banks; recently burned areas of scrub; bouldery and sandy riparian areas; sandy waste places, and disturbed areas growing in wet, moist, damp or dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-pebbly, rocky-sandy, shaley, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, sandy loam, clayey loam and loam ground; rocky-sandy clay, rocky clay, gravelly clay, sandy clay and clay ground, and rocky silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Bromus rubens* is native to southern Europe; middle and western Asia, and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Page 50), 43 (100309 - no record for *Bromus madritensis* subsp. *rubens*), 46 (Page 78), **56**, **57**, 58, 63 (100409 - color presentation), 68, 77, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. “Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*).” See text for additional information.), **85** (100409 - color presentation of dried material), **89**, 105*

***Bromus tectorum* C. Linnaeus: Cheatgrass**

SYNONYMY: *Bromus tectorum* C. Linnaeus var. *glabratus* F.C. Spenner, *Bromus tectorum* C. Linnaeus var. *tectorum*. COMMON NAMES: Brome des Toits (French), Brome Grass, Bromo Velloso (Spanish), Bromo-felpudo (Portuguese), Bromo-pendente (Portuguese), Broncograss, Bronco Grass, Capim-cevadinha (Portuguese), Cheat Brome, Cheat Grass, Cheatgrass, Cheatgrass Brome, Dachtrespe (German), Downy Brome, Downy Chess, Drooping Brome, Drooping Brome-grass, Early Chess, Espiguilla Colgante (Spanish), June Grass, Military Grass, Slender Chess, Soft Chess, Thatch Bromegrass, Wild Oats. DESCRIPTION: Terrestrial annual graminoid (mostly erect culms 1 inch to 3 feet in height); the foliage is light green aging to purple or purple-green at maturity and curing to a straw-yellow; spikelets (flowers) may be purplish-tinged; flowering generally takes place between mid-March and early July (additional records: one for late January and one for mid-August). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly-loamy mountainsides; shaley-clayey and sandy mesas; cracks in cliffs; along shaley-clayey, gravelly and sandy canyons; clayey canyon bottoms; talus; knolls; rocky ledges; ridges; ridgetops; clearings in forests; along gravelly-loamy and clayey meadows; bouldery and loamy hills; clayey hilltops; clayey hillsides; bedrock, bouldery, rocky, rocky-loamy, rocky-clayey, stony, cobbly-sandy-loamy, cobbly-loamy, cindery, gravelly-loamy, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey and silty-clayey slopes; rocky outcrops; amongst rocks; sand dunes; blow-sand deposits; steppes; prairies; sandy plains; rocky, sandy and loamy flats; basins; sandy and sandy-clayey valley floors; sandy valley bottoms; along railroad right-of-ways; along rocky-gravelly-loamy, gravelly, sandy-loamy and sandy-silty roadsides; along and in arroyos; bottoms of arroyos, gulches; seeps; springs; along streams; sandy soils along creeks; along sandy creekbeds; sandy soils along rivers; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; along and in cindery drainages; within drainage ways; boggy areas; marshes; depressions; clayey swales; banks of rivers; sandy edges of arroyos, washes and lakes; margins of streambeds; shores of lakes; gravel bars; sandy beaches; sandy benches; sandy terraces; bottomlands; gravelly floodplains; silty mesquite bosques; along ditches; sandy ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-sandy, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-loam, cobbly-sandy loam, cobbly loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, shaley clay, sandy clay, silty clay and clay ground; and gravelly silty, sandy silty and silty ground, occurring from sea level to over 13,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder, fiber and as a ceremonial medicine. Cheatgrass often forms pure stands with some monocultures reportedly covering thousands of acres, density may range between 1 and 1,400 plants per square foot. *Bromus tectorum* is native to Europe; southwestern Asia, and northern Africa. *5, 6, 15, 33 (Page 52), 43 (100409), 46 (Page 78), 63 (100409 - color presentation), 68, **77**, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. “Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*).” See text for additional information.), **85** (100509 - color presentation of dried material, also recorded as *Bromus tectorum* C. Linnaeus var. *tectorum* and *Bromus tectorum* C. Linnaeus var. *glabratus* Spenner), 101 (color photograph), 105, 106 (100409 - color presentation), 127*

Bromus tectorum var. *glabratus* (see *Bromus tectorum*)

Bromus tectorum var. *tectorum* (see footnote 85 under *Bromus tectorum*)

Bromus unioloides (see *Bromus catharticus*)

Bromus willdenowii (see *Bromus catharticus*)

Cenchrus ciliaris (see *Pennisetum ciliare*)

Chaetochloa leucopila (see *Setaria leucopila*)

Chloris crinita (see *Trichloris crinita*)

Chloris elegans (see *Chloris virgata*)

***Chloris virgata* O. Swartz: Feather Fingergrass**

SYNONYMY: *Chloris elegans* K.S. Kunth. COMMON NAMES: Barbas de Indio (Hispanic), Cola de Zorra, Plumerito (Hispanic), Feather Finger Grass, Feather Fingergrass, Feather Windmill Grass; Feather Windmill-grass; Feathered Chloris, Feathertop Rhodes Grass, Feathery Rhodes Grass, Finger Grass, Klossiegras (Afrikaans), Oldland Grass, Showy Chloris, Sweet Grass, Verdillo (Hispanic), Verdillo Plumerito (Spanish), Zacate de Cola de Zorra (Hispanic), Zacate Lagunero (Hispanic), Zacate Pluma (Spanish). DESCRIPTION: Terrestrial annual graminoid (a bunchgrass with usually decumbent culms ½ to 40 inches in height); the foliage is light green curing to light straw; the flowers are greenish; flowering generally takes place between early May and late November (flowering records: one for late January, (one for early May, three for mid-May, two for mid-July, one for late July, one for early August, four for mid-August, two for late August, five for early September, fifteen for mid-September, four for late September, three for early October, one for mid-October, two for late October, one for mid-November, two for late November; flowering beginning as early as April was reported). HABITAT: Within the range of this species it has been reported from mountains; clayey-loamy mesas; canyons; bases of cliffs; ridges; meadows; rocky foothills; amongst hills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy slopes; gravelly bajadas; amongst boulders and rocks; sand dunes; sandy prairies; gravelly and loamy flats; clayey valley floors; along rocky-gravelly-clayey, gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; sandy bottoms of arroyos; draws; bottoms of draws; seeps; along streams; rocky streambeds; along creeks; creekbeds; along and in rocky, gravelly, sandy and clayey washes; within drainages; within drainage ways; around ponds; cienegas; freshwater marshes; silty depressions; swales; along banks of rivers; sandy and sandy-clayey edges of washes; rocky-sandy shores of lakes; clayey mudflats; gravel bars; sandy beaches; sandy benches; rocky shoals; terraces; loamy bottomlands; floodplains; mesquite bosques; along fencelines; clayey-loamy stock tanks (repressos); around reservoirs; ditches; ditch banks; bouldery-cobbly-sandy and sandy riparian areas; gravelly waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, clayey loam, clayey-humusy loam and loam ground; rocky clay, rocky-gravelly clay, sandy clay and clay ground, and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Chloris virgata* is native to southern Asia; Africa; south-central and southern North America; Central America, and northern, western and southern South America. *5, 6, 15, **16**, 30, 33 (Page 130), 43 (100509), 46 (Page 126), **57**, 58, 63 (100509 - color presentation), 68, 77, **85** (100509 - color presentation of dried material), **89** (recorded as *Chloris elegans* H.B.K.), 105*

***Cortaderia selloana* (J.A. Schultes & J.H. Schultes) P.F. Ascherson & K.O. Graebner: Uruguayan Pampus Grass**

COMMON NAMES: Cana-dos-pampas (Portuguese), Capim-dos-pampas (Portuguese), Capim-penacho (Portuguese), Cortadeira (Portuguese), Little Pampus Grass, Paina (Portuguese), Pampasgras

(Afrikaans), Pampus Grass, Penacho (Portuguese), Pluma (Portuguese), Silver Pampus Grass, Silwergras (Afrikaans), Uruguayan Pampus Grass, Uruguayan Pampusgrass. DESCRIPTION: Terrestrial perennial evergreen graminoid (a bunchgrass (clumpgrass) up to 6 to 20 feet in height and to about the same in width, one clump was observed and described as being 8 feet in height and 7 feet in width, clumps 10 feet in height and 10 feet in width were reported, two plants were observed and described as being 12 feet in height and 10 feet in width); the foliage is bluish-green, green or silvery-gray curing to straw; the flowers are lavender, pink or white; based on few records located, flowering generally takes place between late July and mid-October (flowering records: one for mid-March, one for late July, two for early September, three for mid-September, one for early October, three for mid-October, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from canyons; loamy canyonsides; canyon bottoms; hillsides; cobbly-sandy slopes; bouldery outcrops; amongst boulders; sandy flats; coastal dunes; coastal saltmarshes; along roadsides; bottoms of arroyos; gullies; springs; in sandy soils along streams; creeks; rivers; saltwater marshes; along banks of streams; edges of marshes; bouldery floodplains; ditches; riparian areas, and disturbed areas growing in moist and dry bouldery, cobbly-sandy, gravelly and sandy ground and loam ground, occurring from sea level to 6,000 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. *Cortaderia selloana* is native to central and southern South America. *5, 6, **16**, 22 (color photograph and note under Giant Reed), 26 (color photograph), 33 (no record of species), 43 (100509), 63 (100509 - color presentation), **77**, **85** (100509), 106 (050908)*

***Cottea pappophoroides* K.S. Kunth: Cotta Grass**

COMMON NAME: Cotta Grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (10 to 40 inches in height); the inflorescence is purple; flowering generally takes place between August and late October (flowering records: one for early February, four for early September, two for late September and three for late October). HABITAT: Within the range of this species it has been reported from along mountains; cliffs; rocky canyons; rocky talus; bases of cliffs; rocky buttes; ledges; ridges; foothills; hills; hilltops; rocky hillsides; rocky and sandy slopes; sandy bajadas; amongst rocks; sandy and sandy-loamy plains; gravelly flats; valley floors; along rocky-sandy roadsides; sandy banks of arroyos; along and in draws; along rocky and sandy washes; within drainages; along sandy and loamy banks of washes; benches; rocky shelves; terraces; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, gravelly and sandy ground and sandy loam and loam ground, occurring from 900 to 4,800 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cottea pappophoroides* is native to southwest-central and southern North America and western and southern South America. *5, 6, 15, **16**, 33 (Page 100), 43 (100509), 46 (Page 91), 58, 63 (100509 - color presentation), 77, **85** (100509 - color presentation of dried material), **89***

***Cynodon dactylon* (C. Linnaeus) C.H. Persoon: Bermudagrass**

COMMON NAMES: Acabacahuiztle (Hispanic), Acacahuitzli (Nahuatl), Bermuda Grass, Bermudagrass, Bramilla (Hispanic), Canzuuc (Maya), Chiendent Pied-de-poule, Common Bermudagrass, Devil Grass, Devilgrass, European Bermuda Grass, Gallitos (Hispanic), Gewonekweek (Afrikaans), Grama (Hispanic), Grama de la Costa (Hispanic), Grama-seda, Gramilla (Hispanic), Grana (Hispanic), Guix-biguiñi (Zapoteco), Lan-suuk (Maya), Manienie, Motie Molulu, Pasto Bermuda (Hispanic), Pasto Estrella (Hispanic), Pata de Gallo (Hispanic), Pata de Perdiz (Hispanic), Pata de Pollo (Hispanic), Tsakam Toom (Hispanic), Zacate (Hispanic), Zacate Bermuda (Hispanic), Zacate Borrego (Hispanic), Zacate Chino (Hispanic), Zacate del Conejo (Hispanic), Zacate Inglés (Hispanic), Zacate Pilillo (Hispanic), Zaruue (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (a sodgrass with usually stoloniferous and creeping culms 2 to 24 inches in height); the foliage is green or yellow-green curing to straw after a frost; the color of the florets has been described as being purple; flowering generally takes place between mid-February and late November (additional records: one for early January and one for

mid-December). HABITAT: Within the range of this species it has been reported from mountains; canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; pockets of sandy soil in boulders; buttes; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly, sandy and clayey slopes; rocky outcrops; sand hummocks; prairies; plains; gravelly, sandy and clayey flats; valley floors; clayey valley bottoms; along railroad right-of-ways; along gravelly, gravelly-clayey-loamy and sandy roadsides; sandy bottoms of arroyos; seeps; springs; about streams; along streambeds; along creeks; along sandy creekbeds; along rivers; riverbeds; along and in rocky and sandy washes; within drainages; within rocky drainage ways; in clayey soils around ponds; cienegas; freshwater marshes; clayey marshlands; sandy depressions; along sandy banks of draws, streams, creeks, rivers and washes; sandy edges of rivers, ponds, lagoons, bogs and marshes; shores of lakes; gravel bars; sandy beaches; sandy benches; loamy bottomlands; floodplains; mesquite bosques; in and around clayey-loamy stock tanks; edges of canals; along canal banks; along ditch banks; bouldery and sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; clay ground, and bouldery-gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a veterinary aid. Bermuda Grass is sometimes confused with another exotic species, Large Crabgrass (*Digitaria sanguinalis*) a species of similar general appearance. Bermuda Grass goes dormant when nighttime temperatures drop below freezing or average daytime temperatures are below 50 degrees Fahrenheit. Vigorous growth is achieved when nighttime temperatures are above 60 degrees Fahrenheit and daytime temperatures are above 85 degrees Fahrenheit. *Cynodon dactylon* is native to Africa. *5, 6, 15, **16**, 18, 22 (color photograph), 30, 33 (Page 129), 43 (100509), 46 (Page 124), **56**, **57**, 58, 63 (053109 - color presentation), 68, 77, 80 (Bermudagrass is listed as a Poisonous Cropland and Garden Plant. “Cattle grazing on Bermudagrass pasture may develop photosensitization, paralysis or a nervous syndrome.”), **85** (053109 - color presentation of dried materials), **89**, 101 (color photograph), 105, 109, 127, **WTK** (October 28, 2009)*

***Dactyloctenium aegyptium* (C. Linnaeus) C.L. von Wildenow: Egyptian Grass**

COMMON NAMES: Coast Button Grass, Comb Fringe Grass, Crowfoot Grass, Crowfootgrass, Duck Grass, Durban Crowfoot, Durban Crowfootgrass, Durban Crowfoot Grass, Durban’s Crow-foot Grass, Egyptian Grass, Egyptian Crowfootgrass, Estrela (Portuguese), Finger Comb Grass, Grama-de-dedo-egipica (Portuguese), Grama Egipica (Portuguese), Makri (India), Mão-de-sapo (Portuguese), Três-dedos (Portuguese). DESCRIPTION: Terrestrial annual graminoid (decumbent culms 2 to 40 inches in height); the foliage is green; the florets are maroon with pale yellow anthers; flowering generally takes place between late July and late November (flowering records: one for mid-March, one for late July, one for early August, four for mid-August, one for late August, two for early September, three for mid-September, one for early October, four for mid-October, one for late October, one for early November, two for mid-November, one for late November and three for late December). HABITAT: Within the range of this species it has been reported from canyon bottoms; rocky bluffs; hills; hillsides; rocky slopes; along dunes; sandy-loamy plains; flats; basins; valley floors; along coastal dunes; coastal plains; coastal beaches; along coastlines; along gravelly roadsides; along gravelly bottoms of arroyos; along streams; in gravelly soils along rivers; sandy riverbeds; along and in sandy washes; along banks of rivers; sandy beaches; floodplains, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and sandy loam ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Dactyloctenium aegyptium* is native to southern Asia and Africa. *5, 6, 33 (Pages 127-128), 43 (100509), 46 (*Dactyloctenium aegyptium* (C. Linnaeus) H.E. Richter, Page 124), **56**, **57**, 63 (100509 - color presentation), **85** (100509 - color presentation of dried material)*

***Dasyochloa pulchella* (K.S. Kunth) C.L. von Wildenow ex P.A. Rydberg: Low Woollygrass**

SYNONYMY: *Erioneuron pulchellum* (K.S. Kunth) T. Tateoka, *Tridens pulchellus* (K.S. Kunth) A.S. Hitchcock, *Triodia pulchella* K.S. Kunth. COMMON NAMES: Desert Fluffgrass, Fluff Grass, Fluff-grass, Fluffgrass, Low Woollygrass, Oerennuak Grass, Zacate Borreguero. DESCRIPTION: Terrestrial perennial (often appearing to be an annual and has also been described as being a short-lived perennial) tufted graminoid (a bunchgrass (clumpgrass) ½ to 6 inches in height, plants were observed that were 2 to 4 inches in height and 2 to 4 inches in width, plants were observed that were 4 inches in height and 12 inches in width); the foliage is bluish-green curing to a gray-white; the flowers are green, silvery or white; flowering generally takes place between late March and late October (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy, gravelly, sandy-loamy and clayey mesas; rocky, gravelly and sandy canyons; gravelly-sandy canyon bottoms; rocky talus slopes; sandy soils in crevices in rocks and rock slabs; knolls; rocky and gravelly ridges; clayey ridgetops; ridgelines; meadows; foothills; rocky, gravelly and sandy hills; rocky, rocky-sandy and gravelly hillsides; sandy bases of escarpments; sandy edges of escarpments; bouldery, rocky, rocky-gravelly, stony, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy and sandy slopes; rocky alluvial fans; rocky-sandy, gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; rocky-sandy coves; lava rincons; sand hills; sand dunes; breaks; gravelly steppes; sandy and clayey plains; rocky, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; valley floors; along railroad right-of-ways; along bouldery-rocky, rocky, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; sandy bottoms of arroyos; gravelly draws; rocky gullies; streambeds; creekbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; playas; marshes; clayey depressions; along banks of washes; edges of washes; rocky-sandy shores of lakes; benches; gravelly and sandy terraces; rocky-sandy and loamy bottomlands; floodplains; rocky lowlands; sandy riparian areas, and disturbed areas growing in moist or dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, cindery clay, gravelly-sandy clay and clay ground, and sandy silty ground, occurring from 100 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This low, densely tufted perennial may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is browsed by the Desert Bighorn Sheep (*Ovis canadensis mexicana*); however, it has been reported that this plant is generally avoided by grazing animals. *Dasyochloa pulchella* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), **16** (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 33 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 97), 43 (071309), 46 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 90), 58 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 63 (100609 - color presentation), 77 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), **85** (100609 - color presentation of dried material), **89** (recorded as *Triodia pulchella* H.B.K.), 105 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc.), 127, **WTK** (October 28, 2009)*

***Digitaria californica* (G. Bentham) J.T. Henrard: Arizona Cottontop**

SYNONYMY: *Trichachne californica* (G. Bentham) M.A. Chase. COMMON NAMES: Arizona Cotton Grass, Arizona Cottongrass, Arizona Cottontop, California Cottontop, Cotton Grass, Cottongrass, Cotton-top, Cottontop, Punta Blanca (Spanish), Zacate Punta Blanca. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect culms 1 to 4 feet in height); the foliage may be dark bluish-green, gray-green, green or yellow-green curing to gray or straw; spikelets (flowers) are purplish-pink, flowering generally takes place between early August and early December (additional records: one for early May and one for early July); the cottony seedheads are covered by silky hairs. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops;

sandy-loamy mesas; shaded rocky cliffs; rocky and gravelly-loamy canyons; rocky canyon walls; canyon bottoms; bouldery and rocky talus slopes; bases of cliffs; crevices in rocks; rock buttes; knobs; ledges; rocky ridges; foothills; bouldery and rocky hills; rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, rocky, rocky-gravelly, gravelly and clayey-loamy slopes; alluvial fans; bajadas; bouldery outcrops; amongst boulders and rocks; silty plains; rocky and gravelly flats; hollows; valley floors; along gravelly and sandy roadsides; arroyos; rocky draws; gulches; ravines; springs; along creeks; riverbeds; along and in sandy and silty-clayey washes; within drainage ways; marshes; along the rocky and sandy banks of arroyos, streams and washes; gravel bars; along benches; terraces; clayey bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, gravelly, pebbly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy-clayey, clayey loam and loam ground; gravelly clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 200 to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Digitaria californica* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 15, **16**, 33 (recorded as *Trichachne californica* (Benth.) Chase, Page 296), 43 (100609), 46 (recorded as *Trichachne californica* (Benth.) Chase, Page 132), 48, 58, 63 (100609 - color presentation), 77, **85** (100609 - color presentation), **89** (recorded as *Panicum saccharatum* Buckl.), 105 (recorded as *Trichachne californica* (Benth.) Chase)*

***Digitaria insularis* (C. Linnaeus) C.C. Mez ex E.L. Ekman: Sourgrass**

SYNONYMY: *Trichachne insularis* (C. Linnaeus) C.G. Nees von Esenbeck. COMMON NAMES: Barba de Indio (Spanish), Cotton Grass, Feather Grass, Plumerillo Café (Hispanic), Rabo de Zorra (Spanish), Sour Grass, Sourgrass, Zacate Mano Punta Café (Hispanic), Zacate Taiwan (Hispanic). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 2 to 5 feet in height); the foliage is green; the inflorescence is pale green; based on very few flowering records, flowering generally takes place between late June and early September (flowering records: one for late June, one for early August and one for early September, flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; canyon bottoms; bases of cliffs; foothills; hills; rocky hilltops; rocky-clayey hillsides; rocky slopes; gravelly plains; bouldery-sandy and rocky flats; along clayey-loamy roadsides; arroyos; draws; within rocky drainages; drainage ways; rocky and sandy floodplains; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, gravelly and sandy ground; sandy clay and clayey loam ground, and rocky clay ground, occurring from sea level to 7,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Digitaria insularis* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 30, 33 (recorded as *Trichachne insularis* (L.) Nees., Pages 296-297), 43 (100609), 46 (recorded as *Trichachne insularis* (L.) Nees., Page 131), **56**, **57**, 58, 63 (100609), 77, **85** (100609 - color presentation of dried material)*

***Digitaria sanguinalis* (C. Linnaeus) J.A. Scopoli: Hairy Crabgrass**

COMMON NAMES: Bluthirse (German), Common Crabgrass, Crab Finger Grass, Crab Grass, Crabgrass, Garrachuelo (Spanish), Hairy Crab Grass, Hairy Crabgrass, Large Crabgrass, Manne Terrestre (French), Panic Sanguin (French), Purple Crabgrass, Redhair Crabgrass. DESCRIPTION: Terrestrial annual graminoid (spreading and decumbent culms 6 to 52 inches in height); flowering generally takes place between late June and late October (additional records: two for late May and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky walls; rocky canyons; sandy canyon bottoms; ridges; meadows; foothills; gravelly hills; hillsides; bouldery, rocky, sandy, loamy and clayey slopes; amongst rocks; sandy flats; valley floors; valley bottoms; coastal dunes; along gravelly, gravelly-sandy and sandy roadsides; arroyos; draws; seeps;

springs; along streams; rocky and sandy streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in sandy washes; within drainages; drainage ways; sandy-loamy soils along ponds; saltwater marshes; swales; sandy and silty banks of streams, creeks, washes and drainages; edges of saltmarshes and depressions and lakes; sandy benches; rocky shelves; sandy bottomlands; sandy floodplains; seeps along canals; sandy edges of canals; along and in ditches; edges of ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. Large Crabgrass is sometimes confused with another exotic species, Bermudagrass, *Cynodon dactylon*, a species of similar general appearance. *Digitaria sanguinalis* is native to eastern and southern Europe; central and southern Asia, and northern Africa. *5, 6, 15, 33 (Page 295), 43 (100609), 46 (Page 132), 58, 63 (100609 - color presentation), 68, 85 (100709 - color presentation of dried material), **89**, 101 (color photograph)*

***Distichlis spicata* (C. Linnaeus) E.L. Greene: Saltgrass**

SYNONYMY: *Distichlis spicata* (C. Linnaeus) E.L. Greene var. *stricta* (J. Torrey) F. Lamson-Scribner, *Distichlis stricta* (J. Torrey) P.A. Rydberg. COMMON NAMES: Coastal Saltgrass, Desert Saltgrass, Inland Saltgrass, XoKásxK (Seri), Marsh Spikegrass, Salt Grass, Saltgrass, Sea-shore Saltgrass, Seashore Saltgrass, Spicate Saltgrass, Spike Grass. DESCRIPTION: Terrestrial perennial graminoid (a low-growing sodgrass with mostly decumbent culms 4 inches to 2 feet in height); the foliage may be blue-green, gray-green, green or yellow-green; the flowers are pale green or green, sometimes tinged reddish-purple, flowering generally takes place between late March and early October (additional records: two for late October). HABITAT: Within the range of this species it has been reported from crevices in boulders; bouldery-sandy, rocky, sandy and silty-loamy canyon bottoms; sandy bluffs; rocky ridges; rocky-sandy and sandy-loamy meadows; foothills; hillsides; rocky, gravelly and gypsum slopes; alluvial fans; sand hills; dunes; prairies; sandy and clayey flats; basins; clayey and silty-loamy valley floors; valley bottoms; coastal dunes; sandy coastal beaches; coastal saltmarshes; tidal saltmarshes; along cindery railroad right-of-ways; sandy roadbeds; along gravelly and silty roadsides; stony arroyos; bottoms of arroyos; draws; gulches; sandy gullies; around seeps; in mud around springs; sandy soils along streams; along streambeds; along creeks; creekbeds; along rivers; sandy, sandy-clayey and clayey riverbeds; along and in bouldery washes; along and in drainages; around pools; sandy-loamy playas; cienegas; sandy freshwater and saltwater marshes; depressions; pozos in salt flats; clay pans; along sandy and clayey banks of streams, rivers, washes and lakes; along gravelly, sandy and muddy edges of springs, streams, rivers, washes, marshes and sloughs; sandy margins of washes and lakes; gravelly-sandy, sandy and silty shores of rivers, ponds and lakes; along sandy beaches; benches; sandy-loamy and clayey terraces; clayey bottomlands; sandy floodplains; mesquite bosques; dikes; around reservoirs; sandy edges of reservoirs; along canals; banks of canals; in clayey ditches; along sandy and sandy-loamy ditch banks; muddy, sandy and clayey-loamy riparian areas, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clay loam, silty loam and loam ground; sandy clay and clay ground; silty ground; clayey muck, and peat, occurring from below sea level (-282 feet) to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, spice, and/or fiber crop; it was also noted as having been used as a drug or medication. Individual plants are either male or female with populations often growing in female- or male-majority populations. *Distichlis spicata* is native to central and southern North America; Central America and coastal islands in the Caribbean Sea, and western and southern South America. *5, 6, 33 (recorded as *Distichlis spicata* (L.) Greene var. *stricta* (Gray) Beetle, Pages 89-91), 43 (100709), 46 (recorded as *Distichlis stricta* (Torr.) Rydb., Page 88), 48, 63 (100709 - color presentation), 68 (recorded as *Distichlis stricta* (Torr.) Rydb.)*,

85 (100709 - color presentation), **89**, 101 (color photograph), 105 (recorded as *Distichlis stricta* (Torr.) Rydb.), 127*

Distichlis spicata var. *stricta* (see *Distichlis spicata*)

Distichlis stricta (see *Distichlis spicata*)

***Echinochloa colona* (C. Linnaeus) J.H. Link: Jungle Rice**

SYNONYMY: *Echinocloa colonum* (C. Linnaeus) J.H. Link. COMMON NAMES: Armilá;n (Spanish), Arroz del Monte (Hispanic), Awnless Barnyard Grass, Blé du Dekkan (French), Capim-arroz (Portuguese), Capim-da-colônia (Portuguese), Capituva (Portuguese), Corn Panic Grass; Deccan Grass, Junglegrass, Jungle Rice, Jungle-rice, Junglerice, Jungle Ricegrass, Leopard Grass, Millet-rice, Pasto del Arroz (Spanish), Schamahirse (German), Shama Millet, Tiger Grass; Watergrass, Zacate Pinto, Zacate Rayado, Zacate Tigre, Zancaraña (Spanish). DESCRIPTION: Terrestrial annual graminoid (4 to 40 inches in height); the foliage is blue-green, green or yellow-green and may be mottled with purple; the stems may be colored with purple, the leaves may be banded with purple; the spikelets (flowers) are pale green or green; flowering generally takes place between late July and mid-November (additional records: one for mid-January, one for late March, one for early June, one for early July and one for mid-December); the fruits may be green, maroon and/or red. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; canyon bottoms; meadows; rocky hills; rocky hillsides; pockets of soil on rocky outcrops; sandy slopes; amongst cobbles; cobbly and sandy plains; plains; gravelly-silty and silty flats; valley floors; valley bottoms; coastal flats; along roadsides; along and in gravelly arroyos; along bottoms of arroyos; gulches; seeps; springs; sandy streambeds; along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in bouldery, rocky, gravelly, sandy and silty-clayey washes; along and in drainages; around pools; muddy ponds; in pondbeds; along lakes; marshes; silty-muddy swamps; in sandy depressions; swales, along sandy and sandy-silty banks of arroyos, rivers, washes and drainages; sandy-loamy edges of rivers, riverbeds and pools; muddy margins of ravines, rivers and pools; along shores of lakes; along beaches; sandy benches; loamy bottomland; rocky and sandy floodplains; dams; around and in sandy and silty stock tanks (repressos); shores of reservoirs; in ditches; along ditch banks; rocky and sandy-clayey-loamy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, cobbly, gravelly and sandy ground; sandy-clayey loam, humusy-clayey loam and loam ground; sandy clay and silty clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Echinochloa colona* may be native to Europe; however, the origin of this species is obscure. *5, 6, 15, **16** (recorded as *Echinocloa colonum* (L.) Link), 30, 33 (recorded as *Echinocloa colonum* (L.) Link, Pages 275-276), 43 (100809), 46 (recorded as *Echinocloa colonum* (L.) Link, Page 138), **56** (recorded as *Echinocloa colonum* (L.) Link), **57** (recorded as *Echinocloa colonum* (L.) Link), 63 (100809 - color presentation), 68 (recorded as *Echinocloa colonum* (L.) Link), 77 (recorded as *Echinocloa colonum* (L.) Link), **85** (100809 - color presentation of dried materials), **89** (also recorded as *Echinochloa colona* (L.) Link), 101 (color photograph), 127*

Echinochloa colona var. *zonale* (see footnote 89 under *Echinochloa colona*)

Echinochloa colonum (see *Echinochloa colona*)

***Echinochloa crus-galli* (C. Linnaeus) A.M. Palisot de Beauvois: Barnyardgrass**

COMMON NAMES: Arrocillo (Spanish), Barnyard Grass, Barnyardgrass, Cockspur, Cockspur Grass, Common Barnyard Grass, Echinochloa Pied-de-coq (French), Gewöhnliche Hühnerhirse

(German), Grama Morada (Hispanic), Hühnerhirse (German), Japanese Millet, Large Barnyard Grass, Mexican Barnyard Grass, Pasto Alemán (Hispanic), Pasto Mijillo (Hispanic), Pata de Gallo (Spanish), Pie de Gallina (Spanish), Pied-de-coq (French), Sanwak (India), Watergrass, Zacate de Agua (Spanish), Zacate de Corral (Hispanic). DESCRIPTION: Terrestrial annual graminoid (4 to 83 inches in height, one plant was described as being 4 feet in height an 40 inches in diameter at the base); the foliage may be gray-green or yellow-green; the leaves may have purple bands; flowering generally takes place between mid-May and early November; however, flowering year round has been reported (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy and sandy mesas; gravelly-sandy plateaus; escarpments; rocky and gravelly-loamy canyons; rocky, rocky-sandy and sandy canyon bottoms; bases of cliffs; pockets of soil; ridges; ridgetops; openings in woodlands; loamy meadows; rocky, gravelly, sandy and clayey slopes; amongst cobbles; gravelly-sandy plains; sandy flats; valleys; coastal plains; along sandy-loamy roadbeds; along gravelly-loamy, gravelly-clayey-loamy, sandy and sandy-loamy roadsides; arroyos; along draws; gullies; bottoms of gullies; ravines; sandy and clayey seeps; springs; along banks of springs; along and in sandy streams; along and in rocky-sandy and sandy streambeds; along creeks; within rocky creekbeds; along and in rivers; cobbly-sandy and sandy riverbeds; along and in rocky and sandy washes; in drainages; along and in ponds; muddy pondbeds; clayey lakebeds; bogs; cienegas; clayey freshwater marshes; swamps; clayey-muddy depressions; muddy sloughs; swales; along gravelly-sandy, sandy-loamy and sandy banks of springs, streams, creeks, rivers, washes, ponds and lakes; rocky and sandy edges of streams, creeks, rivers, watercourses, ponds, lakes and sloughs; along sandy and clayey margins of creeks and ponds; along sandy-loamy shores of ponds and lakes; mudflats; sand bars; sandy beaches; sandy benches; terraces; sandy bottomlands; sandy floodplains; dams; levees; in mud around stock tanks (charcos, repressos); edges of reservoirs; along canals; muddy canal banks; along sandy-clayey ditches; along clayey-loamy ditch banks; cobbly-sandy riparian areas; waste places, and disturbed areas growing in shallow water and moist and dry bouldery, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clay loam, silty loam, humus-clayey loam and loam ground, and sandy clay and clay ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Echinochloa crus-galli* is native to Europe. *Echinochloa crus-galli* is native to Europe. *5, 6, 30, 33, 43 (100809), 46, 58, 63 (100809 - color presentation), 68, 80 (Barnyard Grass is listed as a Rarely Poisonous and Suspected Poisonous Range Plant "This annual grass has been reported to develop toxic levels of nitrate."), **85** (051405 - color presentation of dried material, also recorded as *Echinochloa crus-galli* (L.) Beauv. var. *crus-galli*), **89**, 101 (color photograph), 127*

***Elymus elymoides* (C.S. Rafinesque-Schmaltz) G.D. Swezey: Squirreltail**

COMMON NAMES: Alkali Rye, Barb Goatgrass, Beardless Wild Rye, Bottle Brush, Bottle Brush Grass, Bottlebrush Squirreltail, Bottlebrush Squirrel Tail, Creeping Wild Rye, Porcupine Grass, Squaw Grass, Squirrel Tail, Squirreltail, Western Bottle-brush Grass, Zee'iilwo'ii Ntsaaigii (Navajo). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 3 to 40 inches in height, plants were reported that were 12 inches in height and 6 inches in width at the base, plants were reported that were 20 inches in height and 2 inches in width at the base); the foliage is green; the spikelets (flowers) are gray-green or green; flowering generally takes place between mid-March and mid-September (additional records: one for early October and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky and gravelly mountaintops; rocky fell-fields; sandy-clayey-loamy mesas; rocky plateaus; canyon rims; bouldery and rocky canyons; gravelly-sandy canyon bottoms; rocky gorges; rocky and clayey scree; rocky talus slopes; bases of cliffs; crevices; clayey buttes; stony knolls; rocky ledges; ridges; rocky and sandy ridgetops; ridgelines; clearings in forests; rocky-silty, sandy and loamy meadows; foothills; rocky and clayey hills; sandy hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, rocky-clayey-loamy, shaley,

gravelly, gravelly-loamy, sandy, sandy-loamy, clayey-loamy, clayey-silty and silty-clayey slopes; gravelly bajadas; gravelly mudslopes; bouldery and rocky outcrops; amongst boulders, rocks and gravels; bases of rocks; sandy alcoves; sandy lava flows; lava beds; sand dunes; sandy hummocks; blow-sand deposits; loamy steppes; sandy prairies; pebbly and sandy plains; rocky, gravelly, sandy, sandy-clayey, clayey, silty-loamy and silty-clayey flats; rocky basins; sandy and sandy-silty valley floors; clayey valley bottoms; along clayey railroad right-of-ways; along rocky-gravelly-silty, cindery and clayey roadsides; within arroyos; draws; gulches; rocky and sandy gullies; seeps; springs; along streams; streambeds; along creeks; rocky creekbeds; along rivers; along and in rocky, rocky-sandy and sandy washes; within cobbly-gravelly drainages; within rocky drainage ways; playas; depressions; along gravelly and sandy banks of rivers; along edges of washes; margins of playas; rocky-sandy benches; gravelly and clayey terraces; bottomlands; along sandy and sandy-clayey floodplains; mesquite bosques; around stock tanks; fencelines; along ditches; sandy riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-gravelly loam, rocky-clayey loam, rocky loam, stony-clayey loam, gravelly-sandy-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, shaley clay, sandy clay, silty clay and clay ground, and rocky-gravelly-silty, rocky silty, sandy silty, clayey silty and silty ground sometimes in the protection or shade of bushes, shrubs or trees, occurring from 1,500 to 11,600 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop. *Elymus elymoides* is native to west-central and southern North America. *5, 6, 15, 33 (*Elymus elymoides* (Raf.) Swezey (*Sitanion hystrix* J.G. Smith) subsp. *elymoides*, Pages 115-117), 43 (100809), 46 (subsp. *elymoides* - *Sitanion hystrix* J.G. Smith, "The mature awns penetrate the flesh of grazing animals, causing inflammation.", Page 96), 48, 63 (100809 - color presentation), 68, 77, **85** (100909 - color presentation of dried material), 127*

***Elymus elymoides* (C.S. Rafinesque-Schmaltz) G.D. Swezey subsp. *elymoides*: Squirreltail**

SYNONYMY: *Sitanion hystrix* (T. Nuttall) J.G. Smith. COMMON NAMES: Alkali Rye, Beardless Wild Rye, Bottlebrush Squirreltail, Common Squirreltail, Creeping Wild Rye, Porcupine Grass, Squaw Grass, Squirreltail. DESCRIPTION: Terrestrial perennial graminoid (6 to 20 inches in height); flowering generally takes place between early April and mid-September (additional record: one for early October). HABITAT: Within the range of this species it has been reported from mountains; gravelly mountaintops; shaley-clayey and clayey-loamy mesas; plateaus; sandy rims of mesas; cliffs; rocky gorges; canyons; canyon bottoms; crevices; stony knolls; rocky ridges; shaley ridgetops; meadows; clayey hills; hilltops; rocky hillsides; bouldery, rocky, rocky-clayey, gravelly, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-silty-loamy, loamy and clayey-loamy slopes; gravelly bajadas; gravelly mudslopes; rocky outcrops; bases of rocks; sandy lava flows; lava beds; sand dunes; plains; gravelly, sandy, sandy-clayey, clayey and silty-clayey flats; basins; clayey valley bottoms; along clayey railroad right-of-ways; along gravelly roadsides; within arroyos; gullies; ravines; springs; streambeds; along rivers; gravelly washes; drainages; along banks of rivers; edges of cienegas; benches; bottomlands; along sandy-clayey floodplains; around stock tanks; riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry desert pavement; bouldery, rocky, rocky-sandy, shaley, cindery, gravelly and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-silty loam, clayey loam and loam ground, and rocky clay, shaley clay, sandy clay, silty clay and clay ground, occurring from 2,200 to 11,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Elymus elymoides*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop. *Elymus elymoides* subsp. *elymoides* is native to west-central and southern North America. *5, 6, **16**

(recorded as *Sitanion hystrix* (Nutt.) J.G. Smith), 33 (Pages 115-117), 43 (100809), 46 (recorded as *Sitanion hystrix* (Nutt.) J.G. Smith, "The mature awns penetrate the flesh of grazing animals, causing inflammation.", Page 96), 58 (recorded as *Sitanion hystrix* (Nutt.) J.G. Smith), 63 (100909 - color presentation), 85 (100909), 127 (species)*

Elymus triticoides (see *Leymus triticoides*)

***Enneapogon desvauxii* N.A. Desvaux ex A.M. Palisot de Beauvois: Nineawn Pappusgrass**

COMMON NAMES: Feather Pappus Grass, Feather Pappusgrass, Kalkgras (Afrikaans), Nine-awn Pappus Grass, Nineawn Pappusgrass, Nine-awned Pappus Grass, Purple Grass, Purple-grass, Spike Pappus Grass, Spike Pappusgrass, Wondergras (Afrikaans), Wright Pappusgrass, Zacate Ladera, Zacate Lobero. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 4 to 20 inches in height); the foliage may be grayish-green or light green; the flowers are grayish, grayish-green or purplish; flowering generally takes place in summer and fall between early August and early November (additional records: two for late January, one for early July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; bedrock and sandy mesas; plateaus; cliffs; sandy rims of canyons; bouldery, rocky and clayey canyons; sandy canyon bottoms; talus slopes; crevices; along bases of cliffs; knolls; bouldery and rocky ledges; ridges, ridgetops; rocky foothills; rocky, gravelly and clayey hills; gravelly hilltops; rocky hillsides; escarpments; rocky, rocky-gravelly, rocky-loamy, gravelly, sandy and sandy-loamy slopes; bedrock and gravelly bajadas; rocky outcrops; amongst rocks; sandy lava flows; lava fields; debris fans; plains; gravelly flats, basins; rocky valley floors; rocky valley bottoms; along rocky, rocky-gravelly, gravelly and sandy roadsides; rocky bottoms of arroyos; gulches; gullies; ravines; along streambeds; gravelly-loamy creekbeds; in rocky and gravelly washes; along drainages; drainage ways; depressions; edges of ravines; sand bars; benches; terraces; bottomlands; floodplains; stock tanks; ditches; riparian areas; waste areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-cindery-sandy, rocky-sandy, gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and rocky-gravelly silty ground, occurring from 900 to 7,300 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using in a mix with other grasses when over-seeding. *Enneapogon desvauxii* is native to central and southern Asia; Africa; southwest-central and southern North America, and west-central and southern South America. *5, 6, 15, **16**, 33 (Pages 102-103), 43 (100909 - *Enneapogon desvauxii* P. Beauv.), 46 (Page 91), 58, 63 (100909 - color presentation), 77, **85** (101009 - color presentation of dried material), **89** (recorded as *Pappophorum wrightii* Wats.), 105 ("This grass seems to be rather short-lived for a perennial. However, it is a prolific seeder and re-establishes rapidly and abundantly during seasons of good rainfall"), 106 (053109)*

Eragrostis arida (see *Eragrostis pectinacea* var. *miserrima*)

***Eragrostis barrelieri* J.A. Daveau: Mediterranean Lovegrass**

COMMON NAME: Mediterranean Love Grass, Mediterranean Lovegrass, Pitted Love Grass, Pitted Lovegrass. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent at the base, with prostrate to erect culms 2 to 24 inches in height); the spikelets (flowers) may be grayish, greenish, lead-green or reddish-purple; flowering generally takes place between mid-March and late November (flowering records: one for mid-March, two for early April, one for late May, one for mid-June, one for late June, one for mid-July, one for late July, two for mid-August, one for late August, two for early September, one for late September, two for early October, one for late October, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; pockets of sandy soil; gravelly buttes; rocky, gravelly, sandy and clayey hills; rocky, rocky-gravelly and gravelly slopes; rock outcrops; sandy flats; railroad yards; along

gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy and silty-loamy roadsides; sandy-silty roadways; rocky gullies; along streams; along creeks; along rivers; sandy riverbeds; in washes; pebbly drainage ways; banks of rivers; edges of streams and playas; sand bars; sandy benches; bottomlands; sandy floodplains; in ditches; riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-gravelly, gravelly, pebbly and sandy ground; gravelly loam, gravelly-clayey loam and silty loam ground; clayey soils, and sandy silty ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis barrelieri* is native to southern Europe; southern and western Asia, and northern and western Africa. *5, 6, **16**, 33 (Page 82), 43 (101009), 46 (Page 86), 63 (101009), **77**, **85** (101009 - color presentation of dried material)*

***Eragrostis cilianensis* (C. Allioni) F. Vignolo-Lutati ex E.E. Janchen: Stinkgrass**

SYNONYMY: *Eragrostis megastachya* (G.L. Koeler) J.H. Link. COMMON NAMES: Amoresco (Hispanic), Candy Grass, Candy-grass, Candygrass, Éragrostide Fétide, Graminha (Portuguese), Großes Liebesgras (German), Gray Love Grass, Lovegrass, Stink Grass, Stinkgrass, Stinking Lovegrass, Strong-scented Lovegrass, Strongscented Lovegrass, Watergrass, Zacate Apestoso (Hispanic), Zacate Apestoso (Hispanic), Zacate Borreguero (Hispanic), Zacate de Amor Hediondo (Hispanic), Zacate Estepario (Hispanic). DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass with prostrate to erect culms 3 to 36 inches in height); the foliage is gray-green or light green; the spikelets (flowers) are greenish, white or whitish with green veins turning tawny with age, the anthers are yellow; flowering generally takes place between late July and late October (additional records: one for mid-March, one for late March, one for mid-May, one for late May, one for early June, three for early July, one for mid-November, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; gravelly and sandy canyons; sandy canyon bottoms; sandy bases of cliffs; bluffs; knolls; ledges; sandy meadows; bouldery foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-gravelly, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and clayey slopes; rocky outcrops; amongst rocks; coves; plains; sandy and sandy-silty flats; valley floors; valley bottoms; along gravelly, gravelly-loamy and sandy roadsides; arroyos; bottoms of arroyos; draws; gulches; gullies; gravelly-sandy seeps; springs; along streams; along and in cobbly-sandy streambeds; along creeks; creekbeds; sandy riverbeds; along and in gravelly, sandy and silty-clayey washes; within drainage ways; clayey lakebeds; cienegas; marshes; bedrock depressions; silty swales; along rocky-sandy, sandy and sandy-loamy banks of creeks, rivers, washes and drainages; sandy edges of streams, ponds, lakes and marshes; sand bars; sandy benches; gravelly-loamy terraces; loamy bottomlands; sandy and clayey floodplains; sandy mesquite bosques; around and in stock tanks (charcos, repressos); sandy ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-humusy loam and loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis cilianensis* is native to middle, eastern and southern Europe; western, eastern and southern Asia, and Africa. *5, 6, 15, **16**, 30, 33 (recorded as *Eragrostis megastachya* (Koel.) Link, Pages 82-83), 43 (101009), 46 (Page 86), **56**, **57**, 58, 63 (101009 - color presentation of seed), 68, 77, 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual grass was reported to cause poisoning in horses when fed in large quantities over a long period of time."), **85** (101009 - color presentation of sried material), **89** (recorded as *Eragrostis megastachya* (Koeler) Link), 101 (color photograph), 105 (recorded as *Eragrostis megastachya* (Koel.) Link)*

***Eragrostis echinochloidea* O. Stapf: African Lovegrass**

COMMON NAME: African Lovegrass, Bosluisgras (Afrikaans), Lovegrass, Tick Grass, Tickgrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 12 to 40 inches

in height); the spikelets flowers) are greenish to lead with yellowish anthers; flowering generally takes place between early and late October (flowering records: one for mid-April; two for early October, and one for late October, flowering beginning as early as July, August and September has been reported). HABITAT: Within the range of this species it has been reported from mountains; bedrock canyon bottoms; crevices in rocks; foothills; hillsides; rocky slopes; sandy plains; flats; along sandy roadsides; sandy streambeds; along washes; swales; sandy banks of washes and drainage ways; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist, damp and dry rocky, gravelly and sandy ground, occurring from 1,500 to 4,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis echinochloidea* is native to southern Africa. *5, 6, 15, **16**, 33 (no record of this species), 43 (101009 - no record), 46 (Page 87, note beneath *Eragrostis lehmanniana*), 58, 63 (101009 - color presentation), 77, **85** (101009 - color presentation of dried material)*

***Eragrostis lehmanniana* C.G. Nees von Esenbeck: Lehmann Lovegrass**

COMMON NAMES: Lehman Lovegrass, Lehmann Lovegrass, Lehmann's Love Grass, Lehmann's Lovegrass, Lovegrass, Zacate Africano, Zacate de Amor. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending or erect culms 8 to 48 inches in height); the foliage is bright green or yellow-green curing to a dull yellow; the spikelets (flowers) are grayish-green, lead or straw colored with yellowish anthers; flowering generally takes place between late July and early November (flowering records: one for early March, one for mid-March, one for early May, one for mid-May, one for early June, two for early July, two for late July, one for early August, three for mid-August, three for late August, one for early September, two for mid-September, one for late September, three for early October, two for mid-October, two for late October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; canyons; along canyon bottoms; gravelly ridges; meadows; rocky foothills; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-loamy slopes; gravelly bajadas; rock outcrops; amongst boulders; dunes; gravelly plains; gravelly, sandy and clayey flats; clayey valleys; roadbeds; along sandy and clayey roadsides; along arroyos; springs; along and in streambeds; along creeks; along and in creekbeds; along rivers; sandy riverbeds; along gravelly and sandy washes; drainages; depressions; along banks of rivers; shores of lakes; sandy beaches; cobbly-sandy benches; travertine clefts; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground, and clay ground, occurring from 500 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Eragrostis lehmanniana* is native to southern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Page 79), 43 (101009), 46 (Page 87), **56**, **57**, 58, 63 (101009 - color presentation of seeds), 77, **85** (101009 - color presentation of dried material), 105*

Eragrostis megastachya (see *Eragrostis cilianensis*)

***Eragrostis mexicana* (J.W. Hornemann) J.H. Link subsp. *mexicana*: Mexican Lovegrass**

SYNONYMY: *Eragrostis neomexicana* G. Vasey ex L.H. Dewey. COMMON NAMES: Mexican Love Grass, Mexican Lovegrass, New Mexican Lovegrass New Mexico Lovegrass. DESCRIPTION: Terrestrial annual graminoid (decumbent, ascending or erect culms 1 to 4 feet in height), the foliage is yellow-green; the spikelets (flowers) are grayish-green with purplish anthers; based on few flowering records flowering generally takes place between mid-May and late November (flowering records: two for mid-May, one for late June, one for mid-July, one for mid-August, one for late August, three for early September, one for late September, two for early November, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy canyons; bases of cliffs; pockets of soil in rocks; rocky ledges; ridges; foothills; hills; clayey and

clayey-loamy slopes; rocky outcrops; amongst rocks; clayey flats; along roadsides; arroyos; rocky-sandy bottoms of arroyos; draws; gulches; springs; streambeds; rocky creekbeds; along rivers; in sandy washes; rocky-gravelly banks of arroyos; terraces; floodplains; mesquite bosques; around edges of charcos; rocky riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-gravelly, rocky-sandy and sandy ground; gravelly loam and clayey loam ground, and clay ground sometimes reported as occurring in the shade of shrubs, trees and rock faces, occurring from 2,400 to 8,500 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Eragrostis mexicana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Eragrostis mexicana* subsp. *mexicana* is native to central and southern North America; Central America; central and southern South America; north-central Pacific (Hawaii), and Australia. *5, 6, 33 (recorded as *Eragrostis neomexicana* Vasey, Page 84), 43 (101009), 46 (recorded as *Eragrostis neomexicana* Vasey, Page 87), 63 (101009), 85 (101009), **89** (recorded as *Eragrostis neo-mexicana* Vasey), 127 (species)*

Eragrostis neomexicana (see *Eragrostis mexicana* subsp. *mexicana*)

***Eragrostis pectinacea* (A. Michaux) C.G. Nees von Esenbeck ex E.G. von Steudel: Tufted Lovegrass**

COMMON NAMES: Carolina Love Grass, Carolina Lovegrass, Éragrostide Pectinée, Ihta Zaa (Mixteco), Pasto de Semillas de Pajarito (Hispanic), Purple Love Grass, Purple Lovegrass, Spreading Lovegrass, Tufted Love Grass, Tufted Lovegrass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) with erect or spreading culms 4 to 40 inches in height); the spikelets (flowers) may be green, lead-green, dark reddish-purple, grayish-green or yellowish-brown; the anthers are purplish; flowering generally takes place between early August and mid-November (additional records: one for mid-February, two for early March, two for mid-March, one for late March, one for mid-May, one for early June, one for early July and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; sandy canyon bottoms; gravelly bases of cliffs; along talus slopes; crevices in rocks; foothills; rocky hills; hillsides; bouldery-rocky, rocky, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy-loamy and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders; sandy flats; basins; valley floors; valley bottoms; coastal plains; along sandy railroad right-of-ways; gravelly roadbeds; along sandy and clayey roadsides; arroyos; sandy-silty bottoms of arroyos; draws; gulches; sandy ravines; springs; along streams; along and in sandy streambeds; along gravelly-sandy creeks; creekbeds; gravelly soils along rivers; sandy riverbeds; along and in bouldery-sandy, gravelly and sandy washes; within sandy, sandy silty and silty drainage ways; dry ephemeral pools; lakebeds; playas; cienegas; marshes; sandy-silty and silty depressions; clayey swales; along sandy and sandy-loamy banks of streams, creeks and washes; sandy edges of arroyos, ponds, marshes, rivers and washes; margins of ponds; along shores of pools and lakes; gravel bars and cobbly sand bars; sandy beaches; sandy benches; gravelly terraces; bottomlands; sandy floodplains; mesquite bosques; in stock ponds; sandy edges of tanks and reservoirs; in ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in wet, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, clayey loam and humusy-clayey loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eragrostis pectinacea* is native to northeast-central, south-central and southern North America; Central America, and South America. *5, 6, 15, **16**, 30, 33 (Page 87), 43 (101009), 46 (Page 86), 58, 63 (101009), **77**, **85** (101009 - color presentation of dried material)*

***Eragrostis pectinacea* (A. Michaux) C.G. Nees von Esenbeck ex E.G. von Steudel var. *miserrima* (E.P. Fournier) J.R. Reeder: Desert Lovegrass**

SYNONYMY: *Eragrostis arida* A.S. Hitchcock, *Eragrostis tephrosanthos* J.A. Schultes. COMMON NAMES: Desert Lovegrass, Gulf Lovegrass. DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass (clumpgrass) with ascending or erect culms 4 to 28 inches in height); flowering

generally takes place between early August and late October (additional records: one for late May, one for late June and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; bouldery canyons; sandy ridgetops; clearings in forests; meadows; foothills; hills; clayey hillsides; escarpments; bouldery-rocky, rocky, gravelly, gravelly-sandy-loamy, sandy-loamy and silty-loamy slopes; llanos; Tobosa flats; valley floors; along roadsides; arroyos; along streams; streambeds; along creeks; sandy soils along rivers; along and in gravelly and sandy washes; clayey lakebeds; playas; cienegas; depressions; swales; edges of washes and pools; swales; gravelly terraces; bottomlands; sandy floodplains; mesquite bosques; banks of stock tanks; along sandy ditches; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, stony, gravelly and sandy ground; gravelly-sandy loam, sandy loam, silty loam and humusy-clayey loam ground, and clay ground, occurring from 800 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetlands ecological formations. NOTE: *Eragrostis pectinacea* var. *miserrima* is native to south-central and southern North America; Central America, and northern South America. *5, 6, 30 (species), 33 (recorded as *Eragrostis arida* Hitchc., Pages 84-85, *Eragrostis tephrosanthos* Schult., Pages 86-87), 43 (101009), 46 (recorded as *Eragrostis arida* Hitchc., Page 87), 63 (101009), **85** (101009 - color presentation of dried material)*

***Eragrostis pilosa* (C. Linnaeus) A.M. Palisot de Beauvois: Indian Lovegrass**

COMMON NAMES: Barba de Indio (Spanish), Behaartes Liebesgras (German), Capim-barbicha-de-alemão (Portuguese), Capim-mimoso (Portuguese), Capim-orvalho (Portuguese), Capim-peludo (Portuguese), Éragrostide Poilue, Hairy Love Grass, India Love Grass, India Lovegrass, Indian Love Grass, Indian Lovegrass, Panasco (Portuguese), Pâturin Poilu (French), Perplexed Lovegrass. DESCRIPTION: Terrestrial annual graminoid (3 to 28 inches in height); the foliage is yellow-green; the anthers are purplish; based on few records examined flowering generally takes place between early July and late October (flowering records: two for early July, one for mid-August, three for mid-September, one for late September, one for early October and one for late October). HABITAT: Within the range of this species it has been reported from canyons; hillsides; slopes; prairies; sandy flats; valley floors; along cindery railroad right-of-ways; along gravelly, gravelly-sandy and sandy roadsides; rocky-sandy and sandy creekbeds; along rivers; washes; sandy edges of swamps; along sandy shores of lakes; along sandy beaches; sandy benches; floodplains; along canals; along ditches; riparian areas; waste places, and disturbed areas growing in wet and dry rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Eragrostis pilosa* is native to eastern, middle and southern Europe; Asia, and Africa. *5, 6, 33 (Page 88), 43 (101009), 46 (Page 86), 63 (101009 - color presentation), 85 (101009 - color presentation of dried material), **89***

Eragrostis tephrosanthos (see *Eragrostis pectinacea* var. *miserrima*)

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth: Tapertip Cupgrass**

COMMON NAMES: Cupgrass, Southwestern Cup Grass, Southwestern Cupgrass, Tapertip Cup Grass, Tapertip Cupgrass. DESCRIPTION: Terrestrial annual graminoid (6 inches to 4 feet in height); the foliage may be bright green or yellow-green; flowering generally takes place between August and October (flowering records: three for late August). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; bedrock canyon bottoms; talus slopes; in pockets of soils on bedrock; sandy meadows; foothills; hills; rocky hillsides; rocky, rocky-gravelly, gravelly, sandy, rocky-loamy, loamy and clayey slopes; bedrock outcrops; amongst boulders; plains; gravelly, sandy and loamy flats; valley floors; along gravelly-loamy roadsides; arroyos; bottoms of arroyos; draws; gulches; seeps; along streams; sandy riverbeds; along and in gravelly and sandy washes; rocky drainages; pools; depressions; swales; along banks of rivers and drainage ways; edges of ponds; benches; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; along margins of stock tanks; along canals; along and in clayey ditches; sandy riparian areas, and disturbed areas growing in

moist and dry rocky, rocky-gravelly, gravelly and sandy ground; rocky loam, gravelly-loam, sandy-loam, humus-clayey loam and loam ground, and sandy-clay and clay ground, occurring from 100 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* is native to south-central and southern North America. *5, 6, 33 (recorded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould., Pages 273-274), 43 (101109), 46 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc., Page 133), 58, 63 (101109), 68 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc.), **77**, **85** (101109 - color presentation of dried material), 101 (color photograph, *Eriochloa gracilis* (Fourn.) A.S. Hitchc.)*

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth var. *acuminata*: Tapertip Cupgrass**

SYNONYMY: *Eriochloa gracilis* (E.P. Fournier) A.S. Hitchcock, *Eriochloa lemmonii* G. Vasey & F.L. Scribner var. *gracilis* (E.P. Fournier) F.W. Gould. COMMON NAMES: Cupgrass, Southwestern Cupgrass, Tapertip Cupgrass. DESCRIPTION: Terrestrial annual graminoid (6 inches to 4 feet in height); the foliage may be bright green or yellow-green; flowering generally takes place between August and October (flowering record: one for late August). HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; rocky and loamy slopes; bedrock outcrops; amongst boulders; sand hills; flats; valley floorss; along roadsides; arroyos; bottoms of arroyos; draws; seeps; along streams; along and in gravelly and sandy washes; rocky drainages; pools; depressions; swales; banks of rivers; edges of ponds; terraces; sandy floodplains; mesquite bosques; along and in clayey ditches; sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, gravelly and sandy ground; rocky loam, humus-clayey loam and loam ground, and sandy clay and clay ground, occurring from 100 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* var. *acuminata* is native to south-central and southern North America. *5, 6, 15 (recorded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould.), **16** (recorded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould), 33 (recorded as *Eriochloa lemmoni* Vasey & Scribn. var. *gracilis* (Fourn.) Gould., Pages 273-274), 43 (101109), 46 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc., Page 133), **56**, **57**, 63 (101109), 68 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc.), **85** (101109 - color presentation of dried material), 101 (color photograph, recorded as *Eriochloa gracilis* (Fourn.) A.S. Hitchc.)*

***Eriochloa acuminata* (J.S. Presl) K.S. Kunth var. *minor* (G. Vasey) R.B. Shaw: Tapertip Cupgrass**

SYNONYMY: *Eriochloa gracilis* (E.P. Fournier) A.S. Hitchcock var. *minor* (G. Vasey) A.S. Hitchcock, *Eriochloa punctata* (C. Linnaeus) N.A. Desvaux & W. Hamilton var. *minor* G. Vasey. COMMON NAME: Tapertip Cupgrass. DESCRIPTION: Terrestrial annual graminoid (6 inches to 4 feet in height); the foliage may be bright green or yellow-green; flowering generally takes place between August and October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; ridges; foothills; bases of hills; rocky slopes; flats; valley floors; gravelly-loamy roadsides; draws; along streams; gravelly and sandy washes; drainages; depressions; sink-holes; benches; terraces; floodplains; along margins of stock tanks; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and gravelly loam ground, occurring from sea level to 6,100 feet in elevation in the woodland, grassland and wetland ecological formations. NOTES: Alternate spellings of *lemmonii* were presented: *lemmonii* and *lemmoni*. *Eriochloa acuminata* var. *minor* is native to southwest-central and southern North America. *33 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc. var. *minor* (Vasey) Hitch. presented as a synonym for *Eriochloa lemmoni* Vasey & Scribn., Page 273), 43 (101109), 46 (recorded as *Eriochloa gracilis* (Fourn.) Hitchc. var. *minor* (Vasey) Hitch., Page 133), 63 (101109), 85 (060210 - color presentation of dried material), **89** (recorded as *Eriochloa punctata* (L.) W. Hamilt.?)*

***Eriochloa aristata* G. Vasey: Bearded Cupgrass**

SYNONYMY: *Eriochloa aristata* G. Vasey var. *aristata*. COMMON NAMES: Awned Cup Grass, Bearded Cup Grass, Bearded Cupgrass, Zacate Taza Aristida. DESCRIPTION: Terrestrial annual graminoid (often with decumbent and spreading culms 12 to 40 inches in height); flowering generally takes place between early September and mid-October (flowering records: one for late April, one for early September, one for late September, three for early October and two for mid-October, flowering beginning as early as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyon bottoms; sandy plains; sandy and sandy-silty flats; valley bottoms; along roadsides; along streams; streambeds; along creeks; along rivers; along and in sandy washes; along drainages; poolbeds; swampy areas; depressions; swales; silty-muddy swampy areas; sandy edges of arroyos and washes; along banks of streams and rivers; sandy edges of washes; margins of sloughs; terraces; amongst mesquites in bottomlands; sandy floodplains; around and in stock tanks (charcos, repressos); along ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, gravelly and sandy ground; sandy loam ground, and silty ground, occurring from sea level to 4,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriochloa aristata* is native to southwest-central and southern North America and Central America. *5, 6, 15, 33 (Page 275), 43 (101109), 46 (Page 133), **57**, 63 (101109), **85** (101209 - color presentation of dried material)*

Eriochloa aristata var. *aristata* (see *Eriochloa aristata*)

Eriochloa gracilis (see *Eriochloa acuminata* var. *acuminata*)

Eriochloa gracilis var. *minor* (see *Eriochloa acuminata* var. *minor*)

Eriochloa lemmonii var. *gracilis* (see *Eriochloa acuminata* var. *acuminata*)

Erioneuron pulchellum (see *Dasyochloa pulchella*)

***Eriochloa punctata* (C. Linnaeus) N.A. Desvaux ex W. Hamilton: Louisiana Cupgrass**

COMMON NAMES: Louisiana Cup Grass Louisiana Cupgrass. DESCRIPTION: Terrestrial annual or perennial graminoid (12 to 60 inches in height). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; meadows; valley floors; coastal plains; coastal marshes; along watercourses; coastal marshlands; swales; ditches; riparian areas, and disturbed areas growing in muddy and wet, moist and damp ground, occurring at sea level in the wetland ecological formation. NOTES: EXOTIC Plant; however, this species is not known to occur in Arizona. *Eriochloa punctata* is native to south-central and southern North America; Central America, and South America. *33 (recorded as *Eriochloa punctata* var. *minor* Vasey presented as a synonym for *Eriochloa lemmoni* Vasey & Scribn., Page 322), 43 (101209), 46 (no record of species), 63 (102909 - color presentation), 85 (101209), **89** (recorded as *Eriochloa punctata* (L.) W. Hamilt., possibly *Eriochloa acuminata* var. *minor*?), 95 (Personal Communication 052206)*

Eriochloa punctata var. *minor* (see *Eriochloa acuminata* var. *minor*)

Festuca megalura (see *Vulpia myuros*)

Festuca myuros (see *Vulpia myuros*)

Festuca myuros var. *hirsuta* (see *Vulpia myuros*)

Festuca octoflora (see *Vulpia octoflora* var. *octoflora*)

Festuca octoflora subsp. *hirtella* (see *Vulpia octoflora* var. *hirtella*)

Festuca octoflora var. *hirtella* (see *Vulpia octoflora* var. *hirtella*)

***Heteropogon contortus* (C. Linnaeus) A.M. Palisot de Beauvois ex J.J. Roemer & J.A. Schultes: Tanglehead**

SYNONYMY: *Andropogon contortus* C. Linnaeus. COMMON NAMES: Barba Negra, Black Spear Grass, Bunch Spear Grass, Common Tangleweed, Hierba Torcida (Spanish), Piligrass (Hawaii), Tangle Grass, Tangle-head, Tanglehead, Tanglehead Grass, Retorcido Moreno, Spear Grass, Speergras (German), Zacate Colorado. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 8 to 60 inches in height); the foliage is bright green curing to orange-brown; the spikelets (flowers) may be brown or purple; flowering generally takes place between early January and late May and again between early August and early December (flowering records: one for early January, one for late January, one for late February, one for mid-March, one for early May, one for late May, three for early August, five for late August, three for early September, four for mid-September, three for late September, one for mid-October, four for early November, one for mid-November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; cliff faces; along rocky canyons; along canyon walls; along bouldery and gravelly canyon bottoms; bases of cliffs; crevices in rocks; ledges; rocky ridges; bouldery ridgetops; foothills; rocky hills; rocky and gravelly-clayey hillsides; rocky, gravelly, gravelly-sandy and sandy slopes; rocky outcrops; amongst boulders and rocks; lava flows; rocky and sandy plains; gravelly flats; valley floors; along sandy roadsides; along and in rocky arroyos; rocky-sandy bottoms of arroyos; along draws; within gullies; ravines; around seeping streams; streambeds; creekbeds; along and in rocky, rocky-sandy, cobbly, gravelly-sandy and sandy washes; within gravelly-sandy-loamy drainages; within rocky and sandy drainage ways; bedrock tinajas; around pools; silty banks of streams and rainwater basins; edges of washes; sandy beaches; terraces; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; gravelly clay ground, and silty ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Heteropogon contortus* is native to south-central and southern North America and possibly to other tropic sub-tropic and warm-temperate regions of the world. *5, 6, 15, **16**, 33 (Page 302), 43 (101209), 46 (Page 144), 48, **56**, **57**, 58, 63 (101209 - color presentation), 77, **85** (101209 - color presentation), **89** (recorded as *Andropogon contortus*), 105 (Reports that Tanglehead Grass "is one of the easiest grasses to establish under conditions of low rainfall.")*

***Hilaria belangeri* (E.G. von Steudel) G.V. Nash: Curly-mesquite**

COMMON NAMES: Common Curlymesquite, Creeping Curly-mesquite, Curly Mesquite, Curly-mesquite, Curlymesquite, Curly Mesquite Grass, Curlymesquite Grass, Mesquite-grass, Southwestern Buffalo Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass 2 to 14 inches in height, plants to 4 inches in width at the base have been reported); the foliage is bluish-green curing to white; inflorescences are green, dark red-purple or purplish; the awns are purple; flowering generally takes place between early August and early November (additional records: one for mid-February, one for early March, one for mid-March and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky canyon bottoms; knolls; gravelly-sandy-clayey ridges; ridgelines; ridgetops; meadows; foothills; rocky and gravelly-clayey-loamy hills; hilltops; rocky hillsides; rocky, rocky-gravelly-sandy, stony, gravelly, gravelly-sandy-clayey and clayey slopes; gravelly bajadas; boulder and rock outcrops; amongst boulders, rocks and gravels; prairies; sandy plains; gravelly and sandy flats; grassy valley floors; along roadsides; along arroyos; along streams; streambeds; along creeks; along and in gravelly washes; within drainage ways; depressions; swales; banks of washes; benches and riparian areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, rocky-

gravelly-sandy, rocky-sandy, stony, gravelly and sandy ground; bouldery-gravelly loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground, and gravelly-sandy clay and clay ground, occurring from 1,100 to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may not be overly drought resistant or shade tolerant. In native stands most of the rapid growth is shown after the beginning of the summer rains. Depending upon the variety, this plant may be soloniferous (var. *belangeri*) or may not be soloniferous (var. *longifolia*). Curlymesquite is grazed by pronghorn and deer. *Hilaria belangeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 158), 43 (101209), 46 (Pages 158-160), 48, 58, 63 (101209), **85** (101209 - color presentation of dried material), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.)*

***Hilaria belangeri* (E.G. von Steudel) G.V. Nash var. *belangeri*: Curly-mesquite**

COMMON NAMES: Common Curlymesquite, Creeping Curly-mesquite, Curly Mesquite, Curly-mesquite, Curlymesquite, Curly Mesquite Grass, Curlymesquite Grass, Southwestern Buffalo Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass 2 to 14 inches in height, plants to 4 inches in width at the base have been reported); the foliage is bluish-green curing to white; inflorescences are green, dark red-purple or purplish; the awns are purple; flowering generally takes place between early August and early November (additional records: one for mid-February, one for early March and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky canyon bottoms; gravelly-sandy-clayey ridges; ridgelines; ridgetops; meadows; foothills; rocky hills; hilltops; rocky hillsides; rocky, rocky-gravelly-sandy, gravelly and gravelly-sandy-clayey slopes; gravelly bajadas; boulder and rock outcrops; amongst boulders, rocks and gravels; sandy plains; gravelly and sandy flats; along grassy roadsides; along arroyos; along streams; along creeks; along and in gravelly washes; within drainage ways; depressions; swales; banks of washes; benches, and riparian areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly-sandy, gravelly and sandy ground; bouldery-gravelly loam, gravelly loam, sandy loam and clayey loam ground, and gravelly-sandy clay and clay ground, occurring from 1,500 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may not be overly drought resistant or shade tolerant. Variety *belangeri* is stoloniferous. In native stands most of the rapid growth is shown after the beginning of the summer rains. *Hilaria belangeri* var. *belangeri* was the dominant grass species of the Texas shortgrass prairies. Curlymesquite is grazed by pronghorn and deer. *Hilaria belangeri* var. *belangeri* is native to southwest-central and southern North America. *5, 6, 15, 33 (species, Pages 158-159), 43 (101209), 46 (species, Page 122), 48, 58, 63 (101209), **85** (101209), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.)*

***Hilaria belangeri* (E.G. von Steudel) G.V. Nash var. *longifolia* (G. Vasey) A.S. Hitchcock: Longleaf Curly-mesquite**

SYNONYMY: *Hilaria cenchroides* K.S. Kunth var. *longifolia* G. Vasey. COMMON NAMES: Longleaf Curly-mesquite, Curly Mesquite, Curly Mesquite Grass. DESCRIPTION: Terrestrial perennial tufted graminoid (a sodgrass 2 to 12 inches in height); the foliage is bluish-green curing to white; flowering generally takes place between early August and early November and sometimes in the spring. HABITAT: Within the range of this species it has been reported from mountains; rocky hills, and rocky slopes growing in dry rocky ground, occurring from 1,100 to 4,800 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, this variety does not produce stolons. *Hilaria belangeri* var. *longifolia* is native to

southwest-central and southern North America. *5, 6, 15, 33 (Pages 159-160), 43 (101209), 46 (Page 122), 48, 58, 63 (101209), 85 (101209), **89** (recorded as *Hilaria cenchroides* H.B.K. var. *longifolia* Vasey), 105 (Curly Mesquite, a palatable and nutritious grass, may be used as an indicator plant of range conditions. Where Curly Mesquite is abundant in comparison to other high-volume production grasses the stocking load should be reduced, sound range management is indicated where high-volume production grasses are abundant or increasing.)*

Hilaria cenchroides var. *longifolia* (see *Hilaria belangeri* var. *longifolia*)

Hilaria mutica (see *Pleuraphis mutica*)

Hopia obtusa (see *Panicum obtusum*)

Hordeum leporinum (see *Hordeum murinum* subsp. *leporinum*)

***Hordeum murinum* C. Linnaeus: Mouse Barley**

COMMON NAMES: Barley, Bulbous Barley, Cevada-de-ponche-verde (Portuguese), Cevada-dos-ratos (Portuguese), False Barley, Mouse Barley, Mugi-kusa (transcribed Japanese), Wall Barley, Wild Barley. DESCRIPTION: Terrestrial annual graminoid (6 to 44 inches in height); the spikes are greenish or reddish; the anthers are gray to yellow sometimes spotted with purple; flowering generally takes place between late February and late May (additional records: one for early July, flowering as late as October has been reported). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mountainsides; mesas; plateaus; sandy soils on cliffs; gravelly canyons; rocky, rocky-gravelly and sandy canyon bottoms; bases of cliffs; bluffs; buttes; pebbly ridgetops; meadows; rocky hills; rocky hillsides; rocky, rocky-loamy, cobbly-gravelly-loamy, gravelly, loamy, clayey and silty slopes; sandy bajadas; boulder outcrops; sand dunes; pebbly plains; gravelly, pebbly and clayey flats; valley floors; valley bottoms; along railroad right-of-ways; along gravelly, sandy and clayey roadsides; gulches; within gullies; springs; along streams; along creeks; loamy creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; rocky-sandy bases of waterfalls; waterholes; sandy-silty lakebeds; silty playas; cienegas; clayey freshwater marshes; clayey depressions; swales; sandy banks of arroyos, rivers and washes; sandy edges of seeps, creekbeds, rivers, poolbeds and ponds; shores of rivers and lakes; mudflats; channel bars; along sandy and silty floodplains; around stock tanks; along silty ditches; banks of ditches; rocky-sandy, gravelly and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, cobbly-gravelly loam, gravelly loam, sandy-clayey loam and loam ground; bouldery-cobbly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication (*H.m.* subsp. *glaucum*). *Hordeum murinum* is native to Europe; western, central and southern Asia, and northern Africa. *5, 6, **16**, 33 (note under *Hordeum leporinum*, Page 107), 43 (101309), 63 (101309 - color presentation), 85 (101309 - color presentation of dried material), **89**, 127*

***Hordeum murinum* C. Linnaeus subsp. *glaucum* (E.G. von Steudel) N.N. Tzvelev: Smooth Barley**

SYNONYMY: *Hordeum stebbinsii* G. Covas. COMMON NAMES: Barley, Smooth Barley, Wild Barley, -ya-jewel-g-ute- (Hairs Kills Horses - Supai). DESCRIPTION: Terrestrial annual graminoid (4 to 16 inches in height); the florets are green; flowering generally takes place between early March and early June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; gravelly canyons; rocky-gravelly and sandy canyon bottoms; bases of cliffs; sandy bluffs; buttes; meadows; foothills; hills; rocky and sandy hillsides; rocky,

cobbly-gravelly-loamy and loamy slopes; sandy bajadas; boulder outcrops; sand dunes; sandy flats; valley floors; along railroad right-of-ways; along sandy roadsides; arroyos; draws; gulches; springs; along streams; along creeks; loamy creekbeds; along and in rocky and gravelly-sandy washes; rocky drainage ways; pools; lakebeds; cienegas; depressions; banks of arroyos and rivers; edges of seeps, creekbeds and rivers, margins of playas; channel bars; along sandy and silty floodplains; around stock tanks; along canal banks; along ditches; banks of ditches; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam and loam ground; clayey ground, and silty ground, occurring from 100 to 9,100 feet in elevations in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Hordeum murinum* subsp. *glaucum* is native to southwestern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, 43 (101309), 46 (recorded as *Hordeum stebbinsii* Covas, Page 97), **56**, **57**, 58, 63 (101309 - color presentation), 77, **85** (101309 - color presentation of dried material), 127*

***Hordeum pusillum* T. Nuttall: Little Barley**

SYNONYMY: *Hordeum pusillum* T. Nuttall var. *pubens* A.S. Hitchock. COMMON NAMES: Little Barley, Little Wildbarley, Mouse Barley. DESCRIPTION: Terrestrial annual graminoid (geniculate or erect culms 4 to 24 inches in height); the foliage is gray-green turning yellow-green; the spikelets (flowers) are pale green; flowering generally takes place between mid-March and early June. HABITAT: Within the range of this species it has been reported from mountains; clayey-loamy mesas; plateaus; canyon rims; rocky canyons; canyon bottoms; bases of cliffs; rocky ridgetops; sandy and clayey meadows; rocky and sandy hills; rocky hillsides; rocky, clayey-loamy and clayey slopes; sandy alcoves; sandy steppes; sandy and clayey-loamy prairies; plains; gravelly and sandy flats; valley floors; along railroad right-of-ways; along gravelly, sandy-loamy and sandy-clayey-loamy roadsides; draws; gulches; ravines; seeps; around springs; streambeds; along creeks; clayey-loamy creekbeds; along rivers; sandy riverbeds; along and in clayey washes; among and in pools; in rocks around ponds; cienegas; clayey depressions; clayey swales; edges of marshes; margins of lakes; shores of lakes; sandy benches; sandy terraces; clayey bottomlands; floodplains; along fencelines; around stock tanks; ditches; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, gravelly and sandy ground; sandy loam, sandy-clayey loam and clayey loam ground; rocky clay and clay ground, and gravelly silty and silty ground, occurring from sea level to 8,100 in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Hordeum pusillum* is native to west-central and southeast-central and southern North America. *5, 6, 15, **16**, 33 (Page 107), 43 (101309), 46 (Page 97), **56**, **57**, 58, 64 (101309 - color presentation), 77, **85** (101309 - color presentation of dried material), **89***

Hordeum pusillum var. *pubens* (see *Hordeum pusillum*)

Hordeum stebbinsii (see *Hordeum murinum* subsp. *glaucum*)

***Hordeum vulgare* C. Linnaeus: Common Barley**

COMMON NAMES: Barley, Cereal Barley, Common Barley, Little Barley, Orge, Orge Vulgaire, Siivayu (Pima). DESCRIPTION: Terrestrial annual graminoid (to 60 inches in height); the spikes are green to black or purplish; the anthers are yellowish; flowering generally takes place between late March and late May (flowering records: one for late March, one for mid-April, one for early May, three for mid-May, one for late May and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hillsides; sandy slopes; sandy bajadas; prairies; sandy flats; along gravelly roadsides; springs; in riverbeds; gravelly washes; in drainages; in drainage ways; depressions; sandy banks of rivers; edges of creeks; floodplains; shores of reservoirs; around ditches; riparian areas; waste places, and disturbed areas growing in damp gravelly and sandy ground; loam ground, and clay ground, occurring from 900 to 9,900 feet in elevation in the forest, woodland, scrub,

grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Hordeum vulgare* is the species of barley that is commonly cultivated. *Hordeum vulgare* is native to southeastern Europe; central and southern Asia, and northern Africa. *5, 6, 15, 33 (note under *Hordeum*, Page 105), 43 (101309), 46 (note under *Hordeum*, Page 96 and Supplement Page 1041), **56**, **57**, 63 (101309 - color presentation), 80 (This plant is listed as a Poisonous Cropland and Garden Plant. "Barley infected with the fungus *Giberella* (scabby barley) has poisoned hogs, but ruminants appear immune. Also plants accumulate toxic levels of nitrate."), **85** (101409 - color presentation of dried material), 127*

***Lamarckia aurea* (C. Linnaeus) C. Moench: Goldentop Grass**

COMMON NAMES: Golden Top, Golden-top, Goldentop, Goldentop Grass. DESCRIPTION: Terrestrial annual graminoid (2 to 16 inches in height); the foliage is pale green; the inflorescences are golden-yellow, purplish, straw or yellow; flowering generally takes place between late February and late May (additional records: one for early January and one for early February). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; rocky mesas; plateaus; rocky canyons; rocky canyon bottoms; chasms; crevices in boulders and rocks; sandy-humusy pockets of soil; bluffs; buttes; ridges; ridgetops; sandy meadows; foothills; rocky hills; rocky and sandy-loamy hilltops; bouldery and rocky hillsides; bouldery, rocky, rocky-clayey and sandy slopes; rocky-sandy-loamy alluvial fans; amongst rocks; sand dunes; flats; valley floors; coastal plains; along rocky roadsides; arroyos; bottoms of arroyos; rocky draws; sandy seeps; along streams; streambeds; creeks; rocky and sandy creekbeds; riverbeds; along and in sandy washes; drainages; pools; freshwater and saltwater marshes; sandy edges of creeks; rocky-sandy bases of waterfalls; beaches; rocky-loamy benches; bottomlands; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy and sandy ground; rocky loam, rocky-sandy loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy humus ground, occurring from sea level to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lamarckia aurea* is native to southern Europe; western Asia, and northern Africa. *5, 6, 33 (Page 93), 43 (101409), 46 (Page 88), 63 (101409 - color presentation), 77, 85 (101409 - color presentation of dried material), **89**, 127*

Leptochloa fascicularis (see *Leptochloa fusca* subsp. *fascicularis*)

Leptochloa filiformis (see *Leptochloa panicea* subsp. *brachiata*)

***Leptochloa fusca* (C. Linnaeus) K.S. Kunth subsp. *fascicularis* (J.B. de Lamarck) N. Snow: Bearded Sprangletop**

SYNONYMY: *Leptochloa fascicularis* (J.B. de Lamarck) A. Gray. COMMON NAMES: Bearded Sprangletop, Salt Meadow Grass, Salt Meadowgrass, Salt Sprangletop, Sprangletop. DESCRIPTION: Terrestrial annual graminoid (erect culms 2 to 60 inches in height); the foliage is bluish-green; the inflorescence is pale green; the spikelets (flowers) becoming bluish, grayish or violet; flowering generally takes place between late June and mid-October (flowering records: two for late June, one for early September, one for mid September, one for mid-October and one for mid-December, flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; rocky slopes; lava flows; flats; basins; valley floors; along cindery railroad right-of-ways; along loamy-clayey roadsides; bedrock arroyos; seeps; springs; along and in sandy streams; streambeds; along creeks; along muddy and clayey creekbeds; along sandy rivers; within drainage ways; around pools; around ponds; around lakes; playas; cienegas; in marshes; depressions; mud puddles; sloughs; swales; along banks of rivers; edges of ponds, lakes, playas, marshes and sloughs; along muddy shores of springs, creeks and lakes; mudflat; sand bars;

sandy beaches; floodplains; mesquite bosques; along fencelines; around and in stock tanks (charcos); around and in reservoirs; along canal banks; along and in ditches; ditch banks; riparian areas; waste places and disturbed areas growing in shallow water and wet, moist and dry rocky, cindery and sandy ground; sandy loam and humusy-clayey loam ground; sandy clay, loamy clay and clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Leptochloa fusca* subsp. *fascicularis* is native to central and southern North America, Central America, and southern South America. *5, 6, **16** (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 33 (recorded as *Leptochloa fascicularis* (Lam.) A. Gray, Page 137), 43 (101409), 46 (recorded as *Leptochloa fascicularis* (Lam.) Gray, Page 123), **56**, **57**, 63 (101409), 68 (recorded as *Leptochloa fascicularis* (Lam.) Gray), **77** (recorded as *Leptochloa fascicularis* (Lam.) A. Gray), **85** (101409 - color presentation of dried material)*

***Leptochloa fusca* (C. Linnaeus) K.S. Kunth subsp. *uninervia* (J.S. Presl) A.S. Hitchcock & M.A. Chase: Mexican Sprangletop**

SYNONYMY: *Leptochloa uninervia* (J.S. Presl) A.S. Hitchcock & M.A. Chase. COMMON NAMES: Mexican Sprangletop, Sprangletop. DESCRIPTION: Terrestrial annual or perennial graminoid (erect culms 6 to 44 inches in height and up to 20 inches in width at the base); the foliage is blue-green or gray-green; the inflorescence is gray-green; the spikelets (flowers) are the color of lead turning dark blue, dark gray or dark violet, flowering generally takes place between early March and late November (additional records: one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; bluffs; buttes; foothills; hillsides; cobbly-sandy alluvial fans; bouldery, rocky, sandy and clayey slopes; bouldery and rocky flats; valley floors; along roadsides; seeps; springs; along streams; sandy and sandy-clayey streambeds; sandy creekbeds; along rivers; sandy riverbeds; sandy washes; clayey lakebeds; clayey freshwater marshes; along muddy, sandy and silty banks of streams, creeks, rivers, pools and sand tanks; sandy edges of rivers, lakes and lagoons; margins of lakes and freshwater marshes; shores of lakes; mudflats; sandy beaches; sandy benches; loamy bottomlands; sandy floodplains; edges of canals; along and in ditches; along ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and damp bouldery, rocky, rocky-cobbly-sandy, cobbly-sandy and sandy ground; loam ground; gravelly-sandy clay, sandy clay and clay ground, and gravelly-sandy silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Leptochloa fusca* subsp. *uninervia* is native to south-central and southern North America, Central America, and South America. *5, 6, 33 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, Pages 137-138), 43 (101409), 46 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, Page 123), 63 (101409), 68 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase), 77 (recorded as *Leptochloa uninervia* (Presl) A.S. Hitchc.), **85** (101409 - color presentation of dried material), **89** (recorded as *Leptochloa imbricata* Thurb.), 101 (recorded as *Leptochloa uninervia* (Presl) Hitchc. & Chase, color photograph)*

Leptochloa imbricata (see footnote 89 under *Leptochloa fusca* subsp. *uninervia*)

Leptochloa mucronata (see *Leptochloa panicea* subsp. *mucronata*)

***Leptochloa panicea* (A.J. Retzius) J. Ohwi subsp. *brachiata* (E.G. von Steudel) N. Snow: Mucronate Sprangletop**

SYNONYMY: *Leptochloa filiformis* (J.B. de Lamarck) A.M. Palisot de Beauvpis. COMMON NAMES: Mucronate Sprangletop, Red Sprangletop. DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and spreading at the base or erect culms less than 4 to 60 inches in height); the foliage is magenta, purplish or reddish; the spikelets (flowers) are tinged with purple or red; flowering generally takes place between late August and late September (additional records: one for mid-March, two for mid-October, two for early November, one for mid-November and one for mid-December, flowering beginning as early as May has been reported). HABITAT: Within the range of this species it

has been reported from mountains; mountaintops; mesas; rocky canyons; canyon bottoms; rocky talus slopes; shallow pockets of soil in bedrock; buttes; ridgetops; meadows; hills; rocky hillsides; rocky, gravelly, gravelly-loamy and clayey slopes; bajadas; bouldery and rocky outcrops; silty lava flows; rocky plains; flats; valley floors; along rocky and sandy roadsides; within arroyos; within draws; springs; along streams; along cobbly-sandy streambeds; along creeks; bouldery-cobbly-sandy riverbeds; along and in gravelly, gravelly-sandy, sandy, sandy-loamy and silty washes; drainages; within clayey drainage ways; playas; rocky banks of rivers and washes; edges of ponds; gravel bars; loamy bottomlands; sandy floodplains; around stock tanks; edges of canals; along and in ditches; along ditch banks; riparian areas, and disturbed areas growing in wet, damp and dry bouldery, bouldery-cobbly-sandy, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Leptochloa panicea* subsp. *brachiata* is native to south-central and southern North America; Central America, and central and southern South America. *5, 6, 15 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), **16** (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 33 (recorded as *Leptochloa filiformis* (Lam.) Beauv., Page 135), 43 (101509), 46 (recorded as *Leptochloa filiformis* (Lam.) Beauv., Page 123), 58 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 63 (101509), 68 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), 77 (recorded as *Leptochloa filiformis* (Lam.) Beauv.), **85** (101509 - color presentation of dried material), **89** (recorded as *Leptochloa filiformis* (Lam.) Beauv.)*

***Leptochloa panicea* (A.J. Retzius) J. Ohwi subsp. *mucronata* (A. Michaux) R. Nowack: Mucronate Sprangletop**

SYNONYMY: *Leptochloa mucronata* (A. Michaux) H.B. Kunth. COMMON NAMES: Desparramo Rojo, Mississippi Sprangletop, Mucronate Sprangletop, Slendergrass. DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and spreading at the base or erect culms less than 4 to 44 inches in height); the inflorescence is green; flowering generally takes place between mid-July and mid-October (flowering records: one for mid-March, one for mid-July, three for mid-August, one for early September, one for mid-September, two for early October, two for mid-October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; gravelly canyons; canyon bottoms; chasms; ledges; rocky ridgetops; foothills; rocky and clayey hills; rocky hillsides; rocky and rocky-clayey slopes; rocky lava slopes; llanos; sandy-silty flats; valley bottoms; roadbeds; along gravelly roadsides; along arroyos; bottoms of arroyos; along streams; sandy streambeds; along creeks; in sandy soil along rivers; sandy riverbeds; along and in rocky, gravelly-sandy, gravelly-sandy-silty, sandy and silty washes; along drainages; playas; silty-muddy swampy areas; sandy-silty and silty depressions; banks of streams and rivers; sandy edges of ponds and playas; margins of arroyos and waterholes; benches; bottomlands; sandy floodplains; along fencelines; along ditches; banks of ditches; around stock tanks (charcos, repressos); gravelly riparian areas, and disturbed areas growing in wet, moist and dry rocky, gravelly, gravelly-sandy and sandy ground; rocky clay, gravelly clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 5,600 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an Exotic. *Leptochloa panicea* subsp. *mucronata* is native to south-central and southern North America. *5, 6, 33 (recorded as *Leptochloa mucronata pulchella* Scribn., brief note on page 135), 43 (101509), 46 (no record), 63 (101509), **85** (101509), 89 (includes a record for *Leptochloa filiformis* (Lamb.) Beauv. var. *not recorded* (= *Leptochloa mucronata* (Michx.) Kunth))*

Leptochloa uninervia (see *Leptochloa fusca* subsp. *uninervia*)

***Leptochloa viscida* (F.L. Scribner) W.J. Beal: Sticky Sprangletop**

COMMON NAMES: Sonoran Sprangletop, Sticky Sprangletop, Zacate Salado Pagajoso. DESCRIPTION: Terrestrial annual graminoid (decumbent or geniculate spreading culms 1 to 24 inches in

height); the spikelets (flowers) are green or magenta; the florets may be reddish; based on few flowering records found, flowering generally takes place between late August and late October (flowering records: one for mid-January, one for August, one for early September, four for mid-September and one for late October, flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; rocky slopes; llanos; gravelly-sandy plains; flats; valley floors; along roadsides; arroyos; bottoms of arroyos; springs; rivulets; streams; along sandy streambeds; sandy riverbeds; in bouldery and sandy washes; along and in muddy and sandy drainages; within sandy drainage ways; muddy waterholes; poolbeds; around ponds; powdery playas; cienegas; marshes; silty-muddy swampy areas; clayey depressions; muddy and clayey-loamy swales; muddy and sandy edges of riverbeds, pools, ponds, cienegas and playas; along sandy margins of washes, ponds; playas and drying swales; mudflats; loamy bottomlands; floodplains; clayey mesquite bosques; around and in stock tanks (charcos, repressos); in ditches; riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground; clay ground; silty ground, and powdery ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Leptochloa viscida* is native to southwest-central and southern North America. *5, 6, 33 (Page 137), 46 (Page 123), **56**, **57**, 63 (101509), **85** (101509 - color presentation of dried material), **89***

***Leymus triticoides* (S.B. Buckley) R.K. Pilger: Beardless Wildrye**

SYNONYMY: *Elymus triticoides* S.B. Buckley. COMMON NAMES: Beardless Lyme Grass, Beardless Wild Rye, Beardless Wild-rye, Beardless Wildrye, Creeping Wild Rye, Creeping Wildrye. DESCRIPTION: Terrestrial perennial graminoid (erect culms 16 to 50 inches in height); the foliage is green; flowering generally takes place between early May and mid-September (additional records: one for early October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery mountainsides; plateaus; cliffs; canyon rims; canyons; canyon bottoms; talus; rocky ledges; ridges; loamy and clayey meadows; bouldery and rocky hills; sandy-silty and clayey hillsides; rocky, clayey and silty-clayey slopes; rocky outcrops; amongst rocks; flats; valley floors; coastal dunes; coastal freshwater and saltwater marshes; clayey roadsides; within arroyos; draws; seeps; springs; in sandy soil along streams; along sandy and clayey streambeds; along creeks; along creekbeds; sandy-loamy riverbeds; along sandy and clayey washes; within sandy drainages; cienegas; freshwater and saltwater marshes; clayey swales; along sandy, sandy-loamy and sandy-clayey banks of creeks, rivers and washes; edges of streams, washes, cienegas and freshwater marshes; margins of ponds, lakes and lakebeds; shores of ponds and lakes; sand bars; beaches; sandy benches; terraces; floodplains; in sandy and loamy ditches, and sandy and sandy-clayey riparian areas growing in wet, moist, damp and dry bouldery, rocky, gravelly and sandy ground; sandy loam and loam ground; sandy clay, silty clay and clay ground, and sandy-silty ground, occurring from sea level to 11,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop. *Leymus triticoides* is native to west-central and southern (Baja Norte) North America. *5, 6, 33 (recorded as *Elymus triticoides* Buckl., Page 123), 43 (061010), 46 (recorded as *Elymus triticoides* Buckl., Page 95), 58 (recorded as *Elymus triticoides* Buckl.), 63 (101509 - color presentation), 85 (101509 - color presentation of dried material), **89** (recorded as *Elymus triticoides* Buckley), 127*

***Lolium temulentum* C. Linnaeus (subsp. *temulentum* is the subspecies reported as occurring in Arizona): Darnel Ryegrass**

COMMON NAMES: Bearded Darnel, Bearded Ryegrass, Darnel, Darnel Ryegrass, Ivraie Enivrante (French), Joio (Portuguese), Poison Darnel, Ssizânia (Portuguese), Taumellolch (German). DESCRIPTION: Terrestrial annual graminoid (erect culms 1 to 4 feet in height); based of few records of

observation located flowering generally takes place between mid April and late June (flowering records: three for mid-April, two for mid-June and two for late June). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; canyons; hillsides; amongst boulders; valley floors; along roadsides; seeps; riverbeds; banks of streams; dams; along ditches; ditch banks, and disturbed areas growing in moist bouldery and sandy ground, occurring from 100 to 4,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This species, *Lolium temulentum*, was reported to have been utilized by native peoples of North America; it was noted as having been used for food. For subspecies *temulentum*, the use of "forma" and variety were also observed. *Lolium temulentum* is native to Europe and the Mediterranean area. *5, 6, 33 (Page 125), 43 (101609 - *Lolium temulentum*), 46 (Page 97), 63 (101609 - color presentation), 80 (This species has been listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This grass has "been suspected of being toxic to man and livestock, directly or through fungus contamination, but evidence is not conclusive."), 85 (101609 - color presentation of dried material), **89**, 127*

***Melinis repens* (C.L. von Willdenow) G. Zizka: Rose Natal Grass**

SYNONYMY: *Rhynchelytrum repens* (C.L. von Willdenow) C.E. Hubbard, *Rhynchelytrum roseum* (C.G. Nees von Esenbeck) O. Stapf & C.E. Hubbard ex J.W. Bews. COMMON NAMES: Creeping Molasses Grass, Natal Grass, Natal Red-top, Natal Redtop, Pasto (Hispanic), Red Natal Grass, Rose Natal Grass, Yerba del Natal (Spanish), Zacate Natal (Hispanic), Zacate Rosado (Hispanic). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (8 to 60 inches in height), the inflorescence has been described as being brownish-pink, pink, deep pink, darkish purple, purplish-pink, reddish, rose or white; the (spikelets) flowers are red or dark rose with long silky purplish-pink hairs and orange or orange-brown anthers; flowering generally takes place between late January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; rocky canyon walls; along gravelly canyon bottoms; bases of cliffs; crevices in boulders and rocks; rocky bluffs; ledges; rocky ridges; rocky ridgetops; meadows; foothills; hills; rocky hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly, sandy and clayey slopes; rocky outcrops; amongst boulders and rocks; fumaroles; sand dunes; cobbly-sandy and clayey flats; basins; valley floors; coastal plains; coastal flats; railroad right-of-ways; along sandy roadsides; along streams; rocky streambeds; along creeks; creekbeds; along and in rocky, stony and sandy washes; drainages; drainage ways; swamps; depressions; sloughs; bouldery swales; banks of streams and drainage ways; terraces; lowlands; sandy floodplains; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam ground, and clay ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Melinis repens* is native to southern Asia and Africa. *5, 6, 15 (*Rhynchelytrum repens* (Willd.) C.E. Hubb.), 18, 22 (color photograph), 30, 33 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Pages 271-272), 43 (101609), 46 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Page 138), **56**, **57**, 63 (101609 - color presentation), 77 (recorded as *Rhynchelytrum repens* (Willd.) C.E. Hubb.), **85** (101609 - color presentation of dried material)*

***Muhlenbergia microsperma* (A.P. de Candolle) C.B. von Trinius: Littleseed Muhly**

COMMON NAMES: Liendrilla Chica (Hispanic), Liendrilla Fina y Liendrilla Chica (Hispanic), Little-seed Muhly, Littleseed Muhly. DESCRIPTION: Terrestrial annual graminoid (spreading or erect culms 4 to 40 inches in height/length); the foliage may be purplish turning red with age; the inflorescence is tinged with purple; the spikelets (flowers) are dark pink or purplish with purplish anthers; flowering generally takes place between late January and mid-June (additional records: one for early January, one for early September, one for mid-September, one for late September, one for mid-October, one for late October, one for early November, three for mid-November, three for mid-December and two for late December); the caryopsis (fruit) is reddish-brown. HABITAT: Within the range of this species it has been

reported from mountains; mountaintops; rocky mountainsides; mesas; rocky cliffs; bouldery, bouldery-rocky-sandy, rocky and sandy canyons; rocky canyon walls; rocky, rocky-silty, sandy and sandy-loamy canyon bottoms; scree; talus slopes; along bases of cliffs; crevices in rocks; bluffs; buttes; rocky ledges, rocky and cobbly-sandy-loamy ridges; clayey ridgetops; margins of meadows; foothills; rocky and rocky-sandy hills; rocky, rocky-cobbly, rocky-gravelly and gravelly hillsides; bouldery, bouldery-sandy, bouldery-loamy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy-clayey, rocky-clayey, gravelly, sandy, loamy, loamy-clayey and clayey slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava bluffs; lava slopes; along lava slides; dunes; sandy plains; bouldery, rocky-sandy, gravelly and sandy flats; rocky-gravelly coastal slopes; coastal plains; sandy coastal flats; gravelly valley floors; along railroad right-of-ways; bouldery-gravelly-loamy and sandy roadsides; arroyos; in the shade of mesquite trees in the bottoms of arroyos; gulches; rocky-sandy ravines; springs; along streams in the partial shade of Mexican Blue Oaks; rocky and rocky-sandy streambeds; along creeks; along rivers; along and in rocky, rocky-silty, gravelly, gravelly-sandy and sandy washes; silty-clayey drainages; drainage ways; gravelly-sandy tinajas; depressions; along rocky, gravelly-sandy and sandy banks of arroyos, streams, washes and drainages; edges of gullies; margins of riverbeds; benches; bottomlands; sandy floodplains; mesquite bosques; around stock tanks (charcos); rocky margins of reservoirs; along and in ditches; sandy riparian areas and disturbed areas growing in wet, moist and dry gravelly desert pavement; bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, bouldery-gravelly loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam and loam ground; rocky clay, rocky-loamy clay, loamy clay, silty clay and clay ground, and rocky silty ground, occurring from sea level to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This grass sometimes forms dense mound-like colonies. *Muhlenbergia microsperma* is native to southwest-central and southern North America; North-central Pacific Islands; Central America, and northern and western South America. *5, 6, 15, **16**, 30, 33 (Pages 195-196), 43 (101609), 46 (Page 109), 63 (101609 - color presentation), 77, **85** (101709 - color presentation of dried material), **89***

***Muhlenbergia porteri* F.L. Scribner ex W.J. Beal: Bush Muhly**

COMMON NAMES: Bakú (Tarahumara), Bush-grass, Bush Muhly, Hoe Grass, Hoegrass, Liendrilla Amacollada (Hispanic), Mesquite Grass, Mesquitegrass, Porter's Muhlenbergia, Telaraña (Hispanic), Zacate Aparejo (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with geniculate culms 10 to 44 inches in height/length and 18 inches to 10 feet in width, several plants were described as being 3 feet in height and 10 feet in width); the stems are dull green; the leaves are green, purplish-green or yellow-green curing to buff; the panicles (compound inflorescences) are usually purple; the spikelets (flowers) are green becoming purple when mature; anthers are purple to yellow; flowering generally takes place between late February and late October (additional records: one for late November and one for early December); the caryopsis (fruit) is yellowish-brown the aggregate of which covers the plants in a misty shroud. HABITAT: Within the range of this species it has been reported from mountains; rocky and stony-sandy mountainsides; mesas; rocky cliffs; bouldery and rocky canyons; rocky canyonsides; rocky-sandy and gravelly canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; along sandy-silty and silty ledges; rocky ridge tops; foothills; rocky and sandy hills; bouldery-sandy and rocky hillsides; rocky escarpments; along bouldery, bouldery-rocky, rocky, rocky-loamy, gravelly, gravelly-loamy, sandy and sandy-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; alcoves; sandy lava flows; lava fields; sand dunes; dune-like areas of fine blow-sand deposits; gravelly plains; rocky, gravelly-sandy, sandy and sandy loamy flats; open sandy ground amongst Ephedra and Larrea; basins; sandy valley floors; valley bottoms; along rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy roadsides; rocky arroyos; clefts in rocky hillsides; within draws; gulches; ravines; springs; bouldery streambeds; along rivers; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; bouldery-cobbly and rocky drainage ways; around ponds; gravelly-sandy banks; margins of washes; sandy-silty and silty benches; gravelly terraces;

sandy floodplains; sandy mesquite bosques; riparian areas, and disturbed areas often growing in the protection of shrubs and trees in damp and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and cobbly-sandy silty, sandy silty and silty ground, occurring from 700 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. In areas where it occurs naturally, consider including Bush Muhly seed in reseeding mixtures. According to the USDA Forest Service Fire Effects Information System, Bush Muhly germinates best when temperatures are at 86 degrees Fahrenheit (30 degrees Centigrade). When re-vegetating desert washes consider planting Bush Muhly along with Whitethorn Acacia (*Acacia constricta*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Limberbush (*Jatropha cardiophylla*), Triangleleaf Bursage (*Ambrosia deltoidea*) and White Bursage (*Ambrosia dumosa*). Bush Muhly is browsed by the Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Muhlenbergia porteri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 33 ("Bush Muhly originally existed in extensive stands on the open range lands of southern Arizona but now occurs for the most part in the protection of shrubs and subshrubs and is seldom locally abundant. It is highly palatable and well liked by livestock despite the wiry culms.", Pages 201-202), 43 (101709), 46 (Page 111), 48, 58, 63 (101709 - color presentation), 77, **85** (101709 - color presentation), **89**, 105 ("This was formerly one of the most abundant and important grasses of southern Arizona, but is found now largely as individual plants under the protection of shrubs. ... Where possible this grass should be allowed to set a full crop of seed during the summer growing season at least every second or third year. Deferment of grazing during July and August every year is recommended on run-down ranges."), **WTK** (August 12, 2005)*

***Panicum* C. Linnaeus: Panicgrass**

COMMON NAME: Panicgrass *33 (Pages 277-292), 43 (051710), 46 (Pages 134-137), 63 (051610 - color presentation), **89***

***Panicum antidotale* A.J. Retzius: Blue Panicum**

COMMON NAMES: Blue Panic, Blue Panic Grass, Blue Panicgrass, Blue Panicum, Giant Panic, Giant Panic Grass, Giant Panicum, Panic Bleu (French), Pánico Azul (Spanish). DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 20 inches to 10 feet in height and to 40 inches in width at the base, one plant was described as being 5 feet in height and 40 inches in width at the base); the foliage is bluish-green to pale green; the spikelets (flowers) are purplish or reddish with yellow anthers; based on very few flowering records observed, flowering generally takes place between late August and late September (flowering records: one for mid-January, one for early June, one for late August, two for early September and two for late September). HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky slopes; flats; valley floors; along gravelly roadsides; arroyos; along rivers; riverbeds; along sandy washes; depressions; along banks of rivers, riverbeds and washes; edges of washes; margins of arroyos; sandy benches; sandy terraces; floodplains; fencerows; sandy riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground and loam ground, occurring from 1,000 to 4,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Panicum antidotale* is native to western and southern Asia. *5, 6, 22 (color photograph bottom of page 25), 33 (Page 292), 43 (101709), 46 (Page 137), **56**, **57**, 58, 63 (101709 - color presentation of seed), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning. This plant is also listed as a Poisonous Cropland and Garden Plant, severe losses from pulmonary emphysema and edema have been reported in Texas from grazing fertilized and irrigated pastures of this introduced, perennial grass, but no losses have been reported from it in Arizona.), **85** (101709 - color presentation of dried material), 105*

Panicum arizonicum (see *Urochloa arizonica*)

***Panicum capillare* C. Linnaeus: Witchgrass**

SYNONYMY: *Panicum capillare* C. Linnaeus var. *brevifolium* G. Vasey ex P.A. Rydberg & C.L. Shear, *Panicum capillare* C. Linnaeus var. *occidentale* P.A. Rydberg. COMMON NAMES: Annual Witchgrass, Capim Mimoso (Portuguese), Capim-mimoso, Common Panic Grass, Common Witchgrass, Old Witch Grass (a tumbleweed), Old-witch Grass, Panic Capillaire (French), Panicgrass, Pânico-capilare (Portuguese), Ticklegrass, Tumble Panic, Tumbleweed Grass, Witches Hair, Witchgrass. DESCRIPTION: Terrestrial annual graminoid (decumbent-spreading or erect culms 6 to 60 inches in height, plants were observed and described as being 30 inches in height and width); the foliage is bluish, purplish or yellow-green; the spikeletes (flowers may be green, green-purple, purple, reddish-purple or whitish; flowering generally takes place between early June and late October (additional records: one for early May and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; clayey mountainsides; moist cliffs; gravelly-loamy canyons; rocky and sandy canyon bottoms; chasms; crevices in rocks; rocky ledges; openings in forests; along meadows; foothills; hills; clayey hillsides; rocky, gravelly, sandy-loamy, loamy and clayey-loamy slopes; rocky outcrops; amongst boulders; lava flows; prairies; sandy plains; rocky and sandy flats; clayey valley floors; gravelly, sandy and clayey roadsides; bottoms of arroyos; sandy draws; gulches; along seeps; around and in springs; along streams; gravelly and sandy streambeds; gravelly-loamy soils along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in sandy washes; rocky drainage ways; around and in pondbeds; clayey lakebeds; playas; along freshwater marshes; swamps; clayey depressions; along sloughs; along bedrock, cobbly and sandy banks of streams, creeks and rivers; along sandy edges of seeps, creeks and rivers; along margins of hot springs and creeks; along rocky and sandy-loamy shores of ponds and lakes; mudflats; sand bars; sandy beaches; sandy benches; sandy-loamy terraces; sandy bottomlands; sandy floodplains; shorelines of reservoirs; along and in ditches; clayey ditch banks; stony, cobbly and sandy riparian areas; waste places, and disturbed areas growing in shallow water and wet, moist and dry bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; clay ground, and sandy-silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber (used in making brooms) crop; it was also noted as having been used as a drug or medication. *Panicum capillare* is native to central and southern North America and possibly, sporadically in South America. *5, 6, 15, 33 (Page 282), 43 (072309), 46 (recorded as *Panicum capillare* L. var. *occidentale* Rydb., Page 136), 63 (101709 - color presentation), 68, 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), 85 (101709 - color presentation of dried material), **89**, 101 (color photograph), 127*

Panicum capillare var. *occidentale* (see *Panicum capillare*)

Panicum capillare var. *stramineum* (see *Panicum hirticaule* var. *stramineum*)

Panicum fasciculatum (see *Urochloa fusca*)

Panicum fasciculatum var. *reticulatum* (see *Urochloa fusca*)

Panicum fuscum (see footnote 89 under *Urochloa fusca*)

***Panicum hirticaule* C.B. Presl: Mexican Panicgrass**

COMMON NAMES: Mexican Panicgrass, Panizo Cauchin (Spanish), Rough-stalk Witchgrass, Roughstalk Witchgrass, Roughstalked Witchgrass, Witchgrass, Woodland Panic. DESCRIPTION: Terrestrial annual graminoid (erect-spreading culms 2 to 44 inches in height); the spikelets (flowers) may be reddish-brown; flowering generally takes place between early August and early November (additional records: one for mid-May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; rocky and gravelly canyons; gravelly, gravelly-sandy and sandy canyon bottoms; bases of cliffs; soil pockets in bedrock and rocks; rocky ridgetops; meadows; rocky foothills; rocky and rocky-loam hills; hilltops; bedrock, rocky, rocky-gravelly, rocky-clayey and gravelly hillsides; bouldery-rocky, rocky, cindery, gravelly, gravelly-loamy and sandy slopes; alluvial fans; bajadas; amongst boulders and rocks; bases of boulders and rocks; sand hills; dunes; rocky and sandy plains; rocky, sandy-loamy, clayey and sandy-silty flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-loamy, sandy and silty roadsides; bottoms of arroyos; within sandy draws; ravines; along seepages; along streams; along bouldery-sandy and gravelly-sandy streambeds; along creeks; creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy, clayey, silty and silty-clayey washes; drainages; within sandy and clayey drainage ways; oases; clayey depressions; sink-holes; clayey-loamy and silty swales; rocky-sandy banks of washes, drainages and drainage ways; along bouldery margins of creeks, washes and sloughs; sand bars; benches; rocky shelves; gravelly lowlands amongst Creosote Bushes; along gravelly-sandy and sandy floodplains; mesquite bosques; around stock tanks; in ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* is native to southwest-central and southern North America; Central America, and South America. *5, 6, 15, **16**, 30, 33 (recorded as *Panicum capillare* L. var. *hirticaule* (Presl) Gould, Page 283; *Panicum capillare* L. var. *pampinsonum* (Hitchc. & Chase) Gould, Page 284; *Panicum capillare* L. var. *stramineum* (Hitchc. & Chase) Gould, Page 283, and *Panicum sonorum* Beal, Page 282), 43 (101809), 46 (Page 136), 58, 63 (101809 - recorded as *Panicum hirticaule* J. Presl - color presentation of seed), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (101809 - recorded as *Panicum hirticaule* J. Presl - color presentation of dried material), **89** (recorded as *Panicum hirticaulum* Presl), 127*

***Panicum hirticaule* C.B. Presl var. *stramineum* (A.S. Hitchcock & M.A. Chase) A.A. Beetle: Sonoran Panicgrass**

SYNONYMY: *Panicum capillare* C. Linnaeus var. *stramineum* (A.S. Hitchcock & M.A. Chase) F.W. Gould, *Panicum stramineum* A.S. Hitchcock & M.A. Chase. COMMON NAMES: Capim Lanudo (Portuguese), Sonoran Panicgrass, Witchgrass. DESCRIPTION: Terrestrial annual graminoid (erect culms 6 to 36 inches in height); flowering generally takes place between August and October (flowering record: one for early October). HABITAT: Within the range of this species it has been reported from slopes; sandy plains; clayey flats; valley floors; along railroad right-of-ways; roadsides; rivers; along clayey washes; pondbeds; clayey depressions; margins of sloughs; bottomlands; mesquite bosques; ditches, and disturbed areas growing in moist and dry sandy ground and clay ground, occurring from sea level to 4,700 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: The species, *Panicum hirticaule*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* var. *stramineum* is native to southwest-central and southern North America. *5, 6, 30 (species), 33 (recorded as *Panicum capillare* L. var. *stramineum* (Hitchc. & Chase) Gould, Page 283), 43 (101809),

46 (recorded as *Panicum stramineum* Hitchc. & Chase, Page 136), **56**, **57**, 58, 63 (101809 - *Panicum hirticaule* J. Presl var. *stramineum*), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (101809, *Panicum hirticaule* var. *stramineum* (A.S. Hitch. & Chase) Beetle), 127 (species)*

Panicum hirticaulum (see footnote 89 under *Panicum hirticaule*)

***Panicum obtusum* K.S. Kunth: Vine Mesquite**

SYNONYMY: *Hopia obtusa* (K.S. Kunth) F.O. Zuloaga & O. Morrone. COMMON NAMES: Grapevine Mesquite, Panic Grass, Vine Mesquite, Vine-mesquite, Vine Mesquite Grass, Vine-mesquite Grass, Wiregrass. DESCRIPTION: Terrestrial perennial graminoid (a sodgrass 6 to 32 inches in height or length that produces long stolons (1 to 10 feet in length) and short rhizomes); the foliage is light bluish-green or yellow-green curing to reddish-straw and then gray-tan; the flowers are purple; the anthers are maroon or purple; flowering generally takes place between mid-July and late August (flowering records: one for mid-September, one for late September, two for late October; flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly-sandy mesas; rocky canyons; canyon bottoms; clayey bluffs; gravelly buttes; knolls; ledges; along gravelly ridges; sandy meadows; foothills; hills; hillsides; shaley-sandy, gravelly, sandy-loamy, loamy, clayey and silty-clayey slopes; sandy dunes; sandy prairies; gravelly-sandy, sandy-loamy and clayey-loamy plains; rocky and sandy-loamy flats; rocky basins; valley floors; sandy-silty valley bottoms; along rocky, gravelly, gravelly-loamy and sandy roadsides; arroyos; rocky and loamy draws; silty bottoms of draws; gullies; ravines; seeps; springs; along streams; along streambeds; creeks; sandy soil along rivers; along sandy riverbeds; along and in rocky and sandy washes; within sandy and clayey-loamy drainages; along rocky drainage ways; pondbeds; playas; boggy areas; cienegas; marsh lands; swampy areas; silty-clayey depressions; clayey and silty swales; sandy and sandy-silty banks of arroyos, streams, rivers and washes; edges of springs and rivers; shores of lakes; mudflats; sand bars; benches; cobbly-sandy-silty terraces; bottomlands; floodplains; mesquite bosques; sandy margins of stock tanks (charcos); along and in ditches; sandy riparian areas, and disturbed areas growing in seasonally wet and moist and dry rocky, rocky-gravelly, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; sandy clay, silty clay and clay ground, and cobbly-sandy silty, sandy silty and silty ground, occurring from 1,000 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fodder crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. This plant is useful in binding soils and controlling erosion. The foliage is browsed by Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), ground squirrels, jackrabbits, prairie dogs, Pronghorn (*Antilocapra americana*) and some small mammals; Gambel's Quail (*Callipepla gambelii*), Northern Bobwhite (*Colinus virginianus*), Mourning Dove (*Zenaida macroura*) and Scaled Quail (*Callipepla squamata*) feed on the seed, and the dense stands of Vine-mesquite Grass provide cover for rodents and upland game birds. *Panicum obtusum* is native to south-central and southern North America. *5, 6, 33 (Page 287), 43 (101809), 46 (Page 137), 48, **57**, 58, 63 (101809 - color presentation), 77, 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), **85** (101809 - color presentation), **89**, 105, 127*

Panicum saccharatum (see footnote 89 under *Digitaria californica*)

Panicum stramineum (see *Panicum hirticaule* var. *stramineum*)

Pappophorum apertum (see *Pappophorum vaginatum*)

Pappophorum mucronulatum (see *Pappophorum vaginatum*)

***Pappophorum vaginatum* S.B. Buckley: Whiplash Pappusgrass**

SYNONYMY: *Pappophorum apertum* W. Munro ex F. Lamson-Scribner, *Pappophorum mucronulatum* auct. non C.G. Nees von Esenbeck. COMMON NAMES: Mucronulate Pappusgrass, Pappusgrass, Pima Pappusgrass, Whiplash Pappusgrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 16 to 52 inches in height); the foliage is gray-green or light green; the inflorescences may be tinged with purple; based on few flowering records available, flowering generally takes place between late March and late October (flowering records: two for late March, one for late April, one for early July, one for late August, three for early September, one for mid-September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; bases of cliffs; ridgetops; foothills; rocky hillsides; rocky, sandy and clayey slopes; bajadas; rocky plains; gravelly and sandy-silty flats; basins; valley floors; valley bottoms; coastal dunes; sandy coastal flats; along railroad right-of-ways; along stony and sandy roadsides, along sandy gullies; along creeks; along and in gravelly washes; along drainage ways; depressions; banks of washes; along edges of washes; marbins of washes; floodplains; dams; in sandy ditches, and disturbed areas growing in moist and dry rocky, stony, gravelly and sandy ground; clayey loam ground, clay ground, and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pappophorum vaginatum* is native to southwest-central and southern North America and southern South America. *5, 6, 15, **16**, 33 (recorded as *Pappophorum mucronulatum* Nees., Page 103), 43 (101809), 46 (recorded as *Pappophorum mucronulatum* Nees., Page 91), 48, **56**, **57**, 63 (101809 - color presentation), 77, **85** (101809 - color presentation of dried material), **89** (recorded as *Pappophorum apertum* Munro), 105 (recorded as *Pappophorum mucronulatum* Nees.)*

Pappophorum wrightii (see footnote 89 under *Enneapogon desvauxii*)

***Paspalum distichum* C. Linnaeus: Knotgrass**

COMMON NAMES: Capim-arame (Portuguese), Couch Paspalum, Ditch Grass, Eternity Grass, Grama Colorada (Spanish), Grama-braba (Portuguese), Grama-da-praia (Portuguese), Grama-doce (Portuguese), Grama-rasteira-da-praia (Portuguese), Gramilla Blanca (Spanish), Jointgrass, Ft. Thompsongrass, Ginger Grass, Grama-de-Joanópolis (Portuguese), Joint Grass, Knotgrass, Knotgrass Knotroot Pspalum, Paspalum, Salt Jointgrass, Seashore Paspalum, Seaside Millet, Thompson Grass, Thompsongrass, Turfgrass, Water Couch. DESCRIPTION: Terrestrial (and semi-aquatic) perennial graminoid (erect culms 2 inches to 2 feet in height, one report of stems reaching 10 to 12 feet in length); the foliage is blue-green or dark green with a bluish cast; the leaf sheaths may be purple; the spikelets (flowers) are green or green and partially purple with black or dark purple stigmas and black or dark purple anthers; flowering generally takes place between mid-June and early October (additional records: one for early November and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; meadows; foothills; gravelly hills; hillsides; sandy, sandy-loamy and clayey-loamy slopes; dunes; prairies; clayey-loamy flats; muddy basins; valley floors; coastal saltmarshes; coastal shorelines; gravelly roadsides; arroyos; bottoms of draws; seeps; around and in gravelly, gravelly-sandy, sandy and sandy-loamy springs; along and in streams; along and in gravelly, gravelly-sandy and sandy streambeds; along and in creeks; along and in rivers; sandy, sandy-loamy, silty-clayey and clayey riverbeds; sandy washes; sandy waterholes; around and in pools; around and in ponds; around and in lakes; lakebeds; cienegas; along and in freshwater and saltwater marshes; depressions; along muddy and sandy banks of streams and rivers; along gravelly and sandy edges of springs, streams, streambeds, creeks, rivers, washes, waterholes, pools, ponds, lakes and

lagoons; sandy margins of streams, creeks, ponds and lagoons; sandy shores of ponds and lakes; mudflats; beaches; sandy benches; coves; terraces; sandy bottomlands; sandy floodplains; around stock tanks (repressos); around reservoirs; along and in ditches; sandy and sandy-loamy riparian areas, and disturbed areas growing in shallow water; mucky; muddy, and wet and moist rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and clayey loam ground; silty clay and clay ground, and mucky ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Investigate to determine the possibly of using Knotgrass in the place of Bermudagrass as an irrigated lawn; it forms dense mats, and may be useful as a soil binder. This grass is used for food by ducks and Whitetail Deer. *Paspalum distichum* is native to south-central and southern North America; Central America, and South America. *5, 6, 33 (Pages 292-294), 43 (101809), 46 (Page 134), 58, 63 (101809 - color presentation), **85** (101909 - color presentation of dried material), **89***

***Pennisetum ciliare* (C. Linnaeus) J.H. Link: Buffelgrass**

SYNONYMY: *Cenchrus ciliaris* C. Linnaeus. COMMON NAMES: African Foxtail, African Foxtail Grass, Anjangrass, Buffel Grass, Büffelgras (German), Buffelgrass, Bufle, Cadillo Buffel (Hispanic), Cenchrus Cilié (French), Dhaman (India), Huizapol (Hispanic), Pasto Buffel (Spanish), Sandbur, Zacate Buffle (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) 4 inches to 5 feet in height); the leaves are green; the spikelets are reddish turning a golden-brown when dry; flowering may take place several times a year when sufficient moisture is available (flowering records: one for mid-February, one for early April, one for mid-April, one for mid-August, one for late September, one for early October, one for mid-October, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; along rocky and sandy canyons; canyon bottoms; bases of cliffs; rocky-gravelly-clayey bluffs; buttes; ridges; ridgetops; foothills; rocky hillsides; rocky slopes; bajadas; rocky and rocky-gravelly outcrops; sandy plains; sandy flats; valley floors; along rocky roadsides; along and in arroyos; within draws; ravines; springs; cobbly creekbeds; rocky, rocky-cobbly-sandy and cobbly riverbeds; along and in gravelly-sandy washes; oases; marshes; depressions; rocky-sandy banks of washes; edges of arroyos and washes; sandy beaches; floodplains; lowlands; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cobbly, gravelly-sandy and sandy ground; loam ground; rocky-gravelly clay ground, and sandy-silty (loess) ground, occurring from sea level to 7,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum ciliare* is native to southeastern Europe; western and southern Asia, and Africa. *5, 6, **16**, 22 (color photograph), 30, 33 (Page 266), 43 (101909), 46 (Supplement Page 1041), **56**, **57**, 63 (101909 - color presentation), 77, **85** (101909 - color presentation of dried material), **ADS** (July 30, 2008, Section B, Pages 1&2), **KOLD** (July 29, 2008, News at 5), **WTK** (October 28, 2009)*

Pennisetum ruppelii (see *Pennisetum setaceum*)

***Pennisetum setaceum* (P. Forsskål) E. Chiovenda: Crimson Fountaingrass**

SYNONYMY: *Pennisetum ruppelii* E.G. von Steudel. COMMON NAMES: African Fountain Grass, Annual Fountain Grass, Crimson Fountaingrass, Fountain Grass, Fountain-grass, Fountaingrass, Plumitas, Pronkgras (Afrikaans), Purple Fountain Grass, Tender Fountain Grass, Tender Fountaingrass, Zacate de la Fuente. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 1 to 5 feet in height, one clump was noted as being 5 feet in height by 5 feet in width); the leaves are green; the inflorescences are purplish; flowering generally takes place from early March to mid-December (additional record: one for early February); the fruits are purplish. HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon walls; rocky and rocky-sandy and sandy canyon bottoms; bases of cliffs; crevices in rocks; ridges; swards; rocky foothills; rocky hills; hilltops; rocky hillsides; bouldery, bouldery-sandy, rocky and loam slopes; rocky-sandy-loamy alluvial fans;

bajadas; amongst boulders and rocks, rocks cobbles and gravels; flats; coastal dunes; rocky coastal beaches; railroad right-of-ways; along rocky-clayey roadsides; draws; along streams; along and in creeks; riverbeds; along and in rocky and sandy washes; drainages; drainage ways; banks of drainages; along pebbly-sandy and sandy edges of creeks and lakes; margins of washes, pools and ponds; lake shores; sand bars; rocky strands; mesquite bosques; rocky edges of reservoirs; canals; culverts; ditches; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly, cobbly-gravelly, gravelly, pebbly-sandy and sandy ground; rocky-sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum setaceum* is native to western and southern Asia and northern, eastern and southern Africa. *5, 6, **16**, 22 (color photograph), 26 (color photograph), 33 (recorded as *Pennisetum ruppelii* Steud., Page 266), 43 (101909), 46 (Page 140), 63 (101909), 77, **85** (102009 - color presentation), 109, **WTK** (October 28, 2009)*

***Phalaris caroliniana* T. Walter: Carolina Canarygrass**

COMMON NAMES: Canary Grass, Carolina Canary Grass, Carolina Canarygrass, May Grass, Southern Canarygrass. DESCRIPTION: Terrestrial annual graminoid (10 to 60 inches in height); the foliage is blue-green or green; flowering generally takes place between February and August (flowering records: one for early April and two for mid-April). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; slopes; flats; valley floors; along roadsides; bottoms of draws; along seeps; springs; in sand along streams; sandy streambeds; creeks; along rivers; sandy and sandy-clayey riverbeds; along gravelly and sandy washes; drainage ways; along watercourses; in pools; marshes; swampy areas; muddy swales; along sandy-clayey edges of streams, creeks, washes, ponds, playas and swamps; mudflats; shoals; bottomlands; sandy-silty and silty floodplains; silty lowlands; around stock tanks; loamy canals; along and in ditches; ditch banks; riparian areas; waste areas, and disturbed areas growing in wet, moist, damp and dry gravelly and sandy ground; sandy loam and loam ground; sandy clay ground, and sandy silty and silty ground, occurring from 100 to 6,100 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Canary grass has been reported to be grazed by Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Phalaris caroliniana* is native to south-central and southern North America. *5, 6, 15, 33 (Page 263), 43 (102009), 46 (Page 131), **56**, 57, 58, 63 (102009 - color presentation), **85** (102009 - color presentation of dried material), **89**, 127*

***Phalaris minor* A.J. Retzius: Littleseed Canarygrass**

COMMON NAMES: Alfarino (Portuguese), Alpisillo, Alpiste Silvestre, Alpiste Vahillo (Spanish), Canarygrass, Kleines Glanzgras (German), Lesser Canary Grass, Lesser Canarygrass, Little-seed Canary Grass, Littleseed Canary Grass, Littleseed Canarygrass, Pasto Romano (Spanish), Pasto-romano (Portuguese), Phalaris Mineur (French), Small Canary Grass, Small-seeded Canary Grass, Talaceiro (Portuguese). DESCRIPTION: Terrestrial annual graminoid (decumbent, geniculate, ascending or erect culms 4 inches to 6 feet in height); flowering generally takes place between early March and early June. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; sandy canyon bottoms; bases of cliffs; rocky hills; rocky, rocky-loamy-clayey and rocky-clayey slopes; amongst rocks; sand dunes; plains; clayey flats; sandy basins; sandy valley floors; along sandy and gravelly-loamy roadsides; along sandy bottoms of arroyos; within gullies; seeps; along streams; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainage ways; around poolbeds; lakebeds; depressions; sandy banks of rivers; along margins of washes, pools and ponds; mudflats; sandy terraces; loamy bottomlands; sandy floodplains; edges of stock tanks; reservoirs; along canals; along ditches; banks of ditches; sandy riparian areas, and disturbed areas growing in moist, damp and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam and loam ground, and rocky-loamy clay, rocky clay, clay ground, occurring from sea level to 5,900 feet in elevation in the

woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Phalaris minor* is native to southern Europe; western and southern Asia, and northern Africa. *5, 6, **16**, 33 (Page 263), 43 (102009), 46 (Page 131), 63 (102009 - color presentation of seed), 77, **85** (102009 - color presentation), 101 (color photograph), 127*

***Phragmites australis* (A.J. Cavanilles) C.B. von Trinius ex E.G. von Steudel: Common Reed**

SYNONYMY: *Phragmites communis* C.B. Trinius. COMMON NAMES: Caniço (Portuguese), Carrizo (Mexico), Carrizo Común (Spanish), Common Reed, Danube Grass, Ditch Reed, Giant Reed Grass, Phragmite Commun (French), Phragmites, Reed Grass, Roseau Commun (French), Roseau Grass, Schilf (German), Schilfrohr (German). DESCRIPTION: Terrestrial (semi-aquatic) perennial graminoid subshrub or shrub (40 inches to 20 feet in height); the foliage is green; the panicles (compound inflorescences) are purplish when young maturing to straw; the anthers are purplish; flowering generally takes place between mid-January and mid-May and early August and early December (additional records: one for mid-January, one for late January, one for early February, one for early March, one for late March, one for early May, two for mid-May and one for late December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; rocky canyons; canyon bottoms; bases of cliffs; meadows; hills; alcoves; along sandy flats; basins; valley bottoms; along coastlines; railroad right-of-ways; roadsides; along seeps; around springs; along streams; sandy streambeds; along creeks; along creekbeds; rivers; along sandy riverbeds; in rocky washes; drainage ways; along waterways; waterholes; pools; around ponds; around lakes; loamy playas; cienegas; freshwater and saltwater marshes; swampy areas; depressions; sloughs; swales; along the bouldery, gravelly and sandy banks of streams, streambeds, creeks, rivers and sloughs; along edges of springs, rivers, lagoons, marshes and swampy areas; margins of creeks, lakes and saltmarshes; along shores of lakes; mudflats; sand bars; sandy-clayey beaches; rocky-silty-loamy and silty-loamy terraces; sandy river flats; floodplains; lowlands; shores of reservoirs; along canals; canal banks; along ditches; along ditch banks; riparian areas, and disturbed areas usually growing in shallow water; muddy, and wet, moist and damp bouldery, rocky, rocky-sandy, gravelly and sandy ground; rocky-silty loam, sandy loam and silty loam ground; sandy clay and clay ground; silty ground, or occasionally forming floating mats or rafts, occurring from below sea level (50 feet below) to 7,700 feet in elevation in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This tall and graceful grass may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food or fiber crop; it was also noted as having been used as a tool, for jewelry, as a musical instrument, as a toy or in games, as a drug or medication, as a decoration and as a ceremonial item. The common Reed may be useful in controlling erosion, and it was noted that one strain may be invasive while other strains are not. Clones may live for more than 1,000 years; however, no portion of a clone lives for more than 8 years (USDA Forest Service Fire Effects Information System). The Common Reed provides shelter, nesting cover and food for many species of crustaceans, birds; fishes, aquatic insects and mammals. *Phragmites australis* is native to northern, central and southern North America; Central America; northern, western and southern South America; Australia; Europe; Asia, and Africa. *5, 6, **16**, 30, 33 (recorded as *Phragmites communis* Trin., Page 93), 43 (102009), 46 (recorded as *Phragmites communis* Trin., Page 89), 63 (102009 - color presentation), **77**, **85** (102009 - color presentation of dried material), 127*

Phragmites communis (see *Phragmites australis*)

***Pleuraphis mutica* S.B. Buckley: Tobosagrass**

SYNONYMY: *Hilaria mutica* (S.B. Buckley) G. Bentham. COMMON NAMES: Tobosa, Tobosa Grass, Tobosagrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass 12 to 36 inches in height); the foliage is dull bluish-green or gray-green curing to gray; the inflorescence is purplish, straw or white; the spikelets (flowers) are greenish-tan or tinged with pink; flowering generally

takes place between May and October; however, under favorable conditions, flowering may take place throughout the year (flowering records: one for early April, one for mid-April, one for early July, three for mid-August, one for late August, three for mid-September, one for mid-October, one for late October and two for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery and gravelly-sandy mesas; canyons; buttes; gravelly-sandy-clayey ridges; ridgetops; foothills; rocky and sandy-loamy hills; rocky hilltops; rocky and sandy hillsides; across bouldery, bouldery-rocky-clayey, rocky, rocky-clayey, cobbly-clayey, gravelly-sandy-clayey, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocky-gravels; lava hills; lava fields; prairies; gravelly plains; sandy, sandy-clayey, sandy-silty, loamy and clayey flats; basins; rocky and sandy valley floors; valley bottoms; along gravelly-sandy roadsides; arroyos; gullies; along creeks; along and in bedrock, rocky and sandy washes; drainages; along drainage ways; clayey depressions; swales; along margins of washes; benches; terraces; floodplains; lowlands; mesquite bosques, and ditches growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, rocky-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; bouldery-rocky clay, rocky clay, cobbly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and rocky-gravelly silty and silty ground, occurring from 1,100 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pleuraphis mutica* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Hilaria mutica* (Buckl.) Benth.), 33 (recorded as *Hilaria mutica* (Buckl.) Benth., Page 161), 43 (102009, *Hilaria mutica* Benth.), 46 (recorded as *Hilaria mutica* (Buckl.) Benth., Page 122), 48, 63 (102009 - color presentation), 77 (recorded as *Hilaria mutica* (Buckl.) Benth.), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Tobosa (*Hilaria mutica*) can be a host of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information. Tobosa is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This perennial grass "may become infected with Ergot (Claviceps) and cause Ergot poisoning of livestock."), **85** (102009 - color presentation of dried material), **89** (recorded as *Hilaria mutica* (Buckl.) Benth.), 105 (recorded as *Hilaria mutica* (Buckl.) Benth.)*

***Poa annua* C. Linnaeus: Annual Bluegrass**

COMMON NAMES: Annual Blue Grass, Annual Bluegrass, Annual Meadow Grass, Dwarf Meadowgrass, Einjähriges Rispengras (German), Espiguilla (Spanish), Hierba de Punta (Spanish), Low Speargrass, Pâturin Annuel (French), Walkgrass. DESCRIPTION: Terrestrial annual graminoid (2 to 12 inches in height); the leaves are dull or bright green; the inflorexcences are green; the flowers are whitish with white stigmas and yellow anthers; flowering generally takes place between early February and mid-August (additional records: one for mid-January, one for late September, one for early October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; gravelly canyons; rocky and sandy canyon bottoms; chasms; clayey meadows; amongst rocks; rocky outcrops; rocky, sandy and silty slopes; sandy and silty flats; basins; bouldery valley floors; along coasts; along gravelly and gravelly-sandy roadsides; sandy and clayey seeps; springs; along streams; streambeds; in sand soils along creeks; rivers; sandy riverbeds; drainages; ponds; cienegas; freshwater marshes; swales; banks of streams and rivers; sandy edges of washes and saltmarshes; margins of lakes; mucky shores of lagoons and lakes; sand bars; gravelly beaches; lowlands; around stock tanks; around reservoirs; along canals; along muddy ditches; banks of ditches; riparian areas; waste places, and disturbed areas growing in mucky and wet, moist, damp and dry bouldery, rocky, gravelly, gravelly-sandy

and sandy ground; rocky-clayey loam, clayey loam and silty loam ground; clay ground, and bouldery-gravelly-sandy silty and silty ground, occurring from sea level to 12,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Poa annua* is probably native to Europe and Asia. *5, 6, 15, 18, 33 (Page 65), 43 (102009), 46 (Page 84), 58, 63 (102009 - color presentation), 68, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Bluegrasses of the genus *Poa* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), 85 (102009 - color presentation of dried material), **89**, 101 (color photograph)*

***Poa bigelovii* G. Vasey & F.L. Scribner: Bigelow's Bluegrass**

COMMON NAMES: Bigelow Bluegrass, Bigelow's Blue Grass, Bigelow's Bluegrass, Zacate Azule Nativo. DESCRIPTION: Terrestrial annual graminoid (2 to 20 inches in height); the inflorescences are greenish or silvery; flowering generally takes place between late February and early May (additional records: two for early February). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy cliffs; rocky and gravelly-sandy canyons; bouldery, rocky and sandy canyon bottoms; along talus slopes; bases of cliffs; crevices in rocks; rocky ledges; ridges; meadows; gravelly-sandy foothills; hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-clayey-loamy, gravelly, gravelly-loamy and sandy slopes; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; steppes; sandy plains; gravelly and sandy flats; basins; rocky valley floors; valley bottoms; along gravelly roadsides; rocky, gravelly and sandy arroyos; rocky draws; bottoms of draws; ravines; seeps; around seeping streams; bouldery and sandy springs; along streams; streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; drainages; within drainage ways; edges of washes; along sandy banks of arroyos, streams and washes; shore of lakes; river channel bars; beach talus; benches; coves; terraces; loamy bottomlands; sandy floodplains; rocky-sandy catchments; rocky margins of reservoirs; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and loam ground, and clay ground, occurring from 500 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Poa bigelovii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Page 64), 43 (102009), 46 (Page 83), 48 (gen.), **56**, **57**, 58, 63 (102009), 77, 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Bluegrasses of the genus *Poa* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (102109 - color presentation), **89***

***Polypogon monspeliensis* (C. Linnaeus) R.L. Desfontaines: Annual Rabbitsfoot Grass**

COMMON NAMES: Annual Beardgrass, Annual Rabbit's-foot Grass, Annual Rabbitsfoot Grass, Ban Bai (Pima), Beard Grass, Rabbit-foot Grass, Rabbitfoot Beardgrass, Rabbit-foot Grass, Rabbitfoot Beardgrass, Rabbitfoot Grass, Rabbitfoot Polypogon, Rabbitfootgrass, Rabbit'sfootgrass. DESCRIPTION: Terrestrial annual graminoid (usually decumbent at the base and geniculate culms 2 to 40 inches in height); the flowers are pale green, green, white or white-green; flowering generally takes place between early March and mid-August (additional records: two for early February, two for late September, three for early October, one for mid-October, one for late October, one for early November, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; plateaus; cliff faces; escarpments; rocky canyons; along bouldery-gravelly-sandy, rocky, rocky-sandy and sandy canyon bottoms; talus; crevices in rocks; bluffs; clayey-loamy ridgetops; sandy, loamy and clayey meadows; foothills; rocky and sandy hills; rocky hillsides; sandy, loamy and clayey slopes; bedrock and rocky outcrops; lava beds; amongst rocks; along rocky, sandy and loamy flats; basins; boggy hollows; valley floors; valley bottoms; coastal marshes; sandy-clayey roadbeds; along gravelly, gravelly-sandy and sandy roadsides; within arroyos; muddy and sandy-loamy draws; bottoms of draws; gulches; gullies; sandy bottoms of gullies; muddy, rocky and sandy seeps; sandy seep springs; along and in gravelly, clayey and loamy springs; around silty seeping springs; around seeping streams; in gravelly-sandy, sandy and sandy-clayey soils along streams; along rocky, rocky-sandy and sandy streambeds; along and in creeks; along rocky, stony and sandy creekbeds; in clayey soils along rivers; rocky, rocky-silty, gravelly-sandy and sandy riverbeds; along and in bouldery-sandy, gravelly and sandy washes; within drainages; drainage ways; poolbeds; ponds; silty lakebeds; playas; boggy areas; cienegas; in cindery and clayey freshwater and saltwater marshes; sandy swamps; depressions; sink holes; swales; along muddy, muddy-sandy-silty, cobbly-silty, sandy, sandy-loamy and clayey banks of streams, creeks, rivers, washes, ponds and lakes; muddy, rocky, gravelly-sandy and sandy edges of springs, streams, creeks, rivers, washes, pools, ponds, pozos; lakes, lagoons and saltmarshes; along margins of creeks and freshwater marshes; sandy shores of ponds and lakes; sand bars; rocky beaches; sandy benches; terraces; cobbly, cobbly-loamy and loamy bottomlands; along rocky-cobbly floodplains; lowlands; mesquite bosques; along fencelines; dams; around stock tanks; around reservoirs; along canals; along canal banks; along mucky-sandy, sandy-clayey and clayey ditches; along silty-clayey ditch banks; muddy, rocky-sandy, gravelly-sandy, gravelly-loamy and sandy riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-stony clay, sandy clay, silty clay and clay ground, and rocky silty, cobbly silty, sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a drug or medication and as a soap to wash figurines before painting them. *Polypogon monspeliensis* is native to northern, eastern and southern Europe; Asia, and northern Africa. *5, 6, 15, **16**, 33 (Pages 182-183), 43 (102109), 46 (Page 104), 58, 63 (102109 - color presentation), 68, **77**, **85** (102109 - color presentation), **89**, 101 (color photograph), 127*

***Polypogon viridis* (A. Gouan) M.A. Breistroffer: Beardless Rabbitsfoot Grass**

SYNONYMY: *Agrostis semiverticillata* (P. Forsskål) C.F. Christensen. COMMON NAMES: Beardless Rabbitsfoot Grass, Beardless Rabbit'sfootgrass, Cola de Ardilla (Hispanic), Cola de Zorra (Hispanic), Cola de Zorrillo (Hispanic), Water Bent, Water Bent Grass, Water Bentgrass, Water Polypogon. DESCRIPTION: Terrestrial perennial graminoid (usually geniculate or decumbent culms 4 to 36 inches in height); the foliage is bluish-green; the panicle (compound inflorescence) is pale green, green, purplish or reddish; flowering generally takes place between mid-May and early July (flowering records: one for early January, one for early April, two for mid-May, two for late May, one for early June, four for mid-June, one for late June, two for early July, one for early August, one for late August and one

for early October). HABITAT: Within the range of this species it has been reported from mountains; along rocky and rocky-gravelly canyons; along bottoms of canyons; chasms; crevices in rocks; meadows; foothills; hillsides; sandy, sandy-loamy, clayey and clayey-loamy slopes; amongst cobbles; clayey and clayey-loamy flats; roadsides; arroyos; draws; gulches; sandy-clayey gullies; along sandy seeps; around and in gravelly, sandy-loamy and sandy-silty springs; stony ground along streams; along rocky and sandy streambeds; along and in bouldery and sandy creeks; along and in rocky, stony and gravelly creekbeds; in sandy, sandy-clayey and clayey soils along rivers; sandy riverbeds; within cobbly washes; along drainages; along and in sandy and sandy-loamy drainage ways; along watercourses; around ponds; boggy areas; marshy areas; muddy-clayey and sandy banks of springs, streams, creeks, rivers and ponds; along edges of streams; margins of ponds; shores of lakes; sandy beaches; sandy benches; sandy terraces; bottomlands; sandy, sandy-clayey and clayey floodplains; dams; reservoirs; canal banks; along ditches; ditch banks; riparian areas and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, stony, cobbly, gravelly and sandy ground; gravelly loam, sandy loam and loam ground, and sandy clay and clay ground, occurring from sea level to 12,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Polypogon viridis* is native to central, eastern and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, 30, 33 (recorded as *Agrostis semiverticillata* (Forsk.) Christ., Pages 177-178), 43 (102209), 46 (recorded as *Agrostis semiverticillata* (Forsk.) C. Chr., Page 103), 63 (102209 - color presentation), 80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Agrostis* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (102209 - color presentation of dried material), **89** (recorded as *Agrostis verticillata* Vill.)*

Rhynchelytrum repens (see *Melinis repens*)

Rhynchelytrum roseum (see *Melinis repens*)

***Schismus arabicus* C.G. Nees von Esenbeck: Arabian Schismus**

COMMON NAMES: Arabian Grass, Arabiangrass, Arabian Schismus, Camel Grass, Zacate Arabe. DESCRIPTION: Terrestrial annual tufted graminoid (1 to 12 inches in height); the foliage is green; based on few flowering records examined, flowering generally takes place between early April and late May (flowering records: two for late January, one for early February, one for mid-February, five for early April, two for mid-April and three for early May, two for mid-May and one for late May). HABITAT: Within the range of this species it has been reported from mountains; gravelly mountaintops; mesas; rocky and sandy canyons; bouldery canyon bottoms; bouldery talus slopes; bases of cliffs; crevices of boulders; buttes; gravelly ridges; sandy foothills; rocky, gravelly-shaley and sandy hills; rocky hilltops; rocky, rocky-gravelly-loamy, gravelly and sandy slopes; rocky-sandy and sandy bajadas; rock outcrops; sandy lava flows; sandy dunes; plains; gravelly, sandy and sandy-clayey flats; basins; basin bottoms; valley floors; railroad right-of-ways; along gravelly and sandy roadsides; rocky draws; sandy springs; along streams; along and in sandy streambeds; gravelly-sandy and sandy riverbeds; along and in bouldery, gravelly, gravelly-sandy, sandy and sandy-silty washes; drainages; sandy drainage ways; rocky-sandy edges of washes and drainage ways; along banks of arroyos; sandy benches; sandy floodplains; mesquite bosques; stock tanks; ditches; along ditch tops; sandy riparian areas, and disturbed areas growing in dry gravelly desert pavement; bouldery, bouldery-rocky-gravelly, rocky, shaley, gravelly,

gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-silty-clayey loam and loam ground; sandy clay ground, and sandy silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Schismus arabicus* is native to southeastern Europe; Asia; northern Africa, and Australia. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 173-174), 43 (102209), 46 (Page 98), 63 (102209 - color presentation), 68, 77, **85** (102209 - color presentation of dried material)*

***Schismus barbatus* (P. Loefling ex C. Linnaeus) A. Thellung: Common Mediterranean Grass**

COMMON NAMES: Common Mediterranean Grass, Kelch-grass, Mediterranean Grass, Mediterraneangrass, Zacate Mediterrane Comun. DESCRIPTION: Terrestrial annual tufted graminoid (1 to 14 inches in height); the foliage is green; the inflorescence is greenish-purple; the spikelets (flowers) may be purple tinged; flowering generally takes place between early January and early June (additional records: one for mid-October and one for late October, flowering beginning as early as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy and sandy-silty mesas; rocky cliffs; rocky and clayey canyons; sandy canyon bottoms; rocky talus; bluffs; rocky ridges; ridgetops; ridgelines; rocky, sandy-loamy and clayey hills; hilltops; rocky hillsides; along rocky, rocky-gravelly-loamy, rocky-loamy-clayey, gravelly, gravelly-sandy, sandy, sandy-loamy, loamy and clayey slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; sand dunes; blow-sand deposits; gravelly-sandy plains; gravelly, gravelly-sandy, sandy and silty flats; sandy valley floors; around wharves; roadbeds; along gravelly and sandy roadsides; springs; in sandy soils along streams; along gravelly-sandy and sandy creekbeds; along rivers; along rocky, gravelly and clayey-loamy riverbeds; along and in rocky-sandy, rocky-silty, gravelly-sandy and sandy washes; drainages; sandy and silty lakebeds; depressions; sandy banks of streams; sandy edges of streambeds and lakes; margins of washes; sandy benches; shelves; gravelly and sandy terraces; floodplains; canal banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and rocky silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Schismus barbatus* is native to southwestern Europe; western, central and southern Asia, and northern and southern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 172-173), 43 (102209), 46 (Page 98), 58, 63 (102209 - color presentation of seeds), 68, 77, **85** (102209 - color presentation of dried material)*

***Setaria adhaerens* (P. Forsskål) E. Chiovenda: Bur Bristlegrass**

COMMON NAME: Adherent Bristle Grass, Bur Bristle Grass, Bur Bristlegrass, Burr Bristlegrass, Trans-pecos Bristle Grass, Tropical Barbed Bristle Grass, Tropical Barbed Bristlegrass. DESCRIPTION: Terrestrial annual graminoid (10 to 24 inches in height); the panicles (compound inflorescences) are green to purple; based on few flowering records observed, flowering generally takes place between late April and late November (flowering records: one for late April, two for mid-May, one for late May, one for late June, one for mid-July, one for late July, one for early August, one for late August, one for late September, two for late October, one for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; along rock walls; bases of cliffs; hills; rocky and rocky-sandy slopes; gravelly flats; roadsides; in washes; along banks of rivers; sandy terraces; floodplains; mesquite bosques; edges of and in ditches; riparian areas, and disturbed areas growing in muddy and wet and dry rocky, rocky-sandy, gravelly and sandy ground; loam ground, and clay ground, occurring from sea level to 4,800 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Setaria adhaerens* may be native to the Mediterranean area. *5, 6, 33 (no record), 43

(102209), 46 (no record), 63 (102209 - color presentation), **77**, **85** (102309 - color presentation of dried material), 106 (102209)*

Setaria composita (see footnote 89 under *Setaria vulpiseta*)

***Setaria grisebachii* E.P. Fournier: Grisebach's Bristlegrass**

COMMON NAMES: Grisebach Bristlegrass, Grisebach's Bristle Grass, Grisebach's Bristlegrass, Ola de Zorra. DESCRIPTION: Terrestrial annual graminoid (often with geniculate-spreading culms 4 inches to 4 feet in height); the panicles (compound inflorescences) are purple; the flowers are yellow with purple spots; flowering generally takes place between early August and mid-October (flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; gorges; rocky bases of cliffs; talus slopes; crevices; rocky ledges; along meadows; foothills; rocky hills; rocky, rocky-silty and gravelly-clayey hillsides; rocky, rocky-stony, gravelly, gravelly-clayey and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; clayey-loamy flats; valley floors; along railroad right-of-ways; along sandy roadsides; along and in arroyos; draws; bottoms of draws; rocky gulches; gravelly-sandy seeps; springs; along streams; along and in rocky-gravelly and gravelly streambeds; creeks; creekbeds; along sandy rivers; along and in sandy and clayey washes; along and in bouldery drainage ways; banks of washes; sandy benches; sandy floodplains; mesquite bosques; along ditches; sandy riparian areas; waste areas, and disturbed areas growing in moist, damp and dry rocky, rocky-stony, rocky-gravelly, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam and clayey loam ground, and rocky silty and sandy silty ground, occurring from 1,200 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria grisebachii* is native to southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 15, 33 (Page 269), 43 (102209), 46 (Page 139), 58, 63 (102209 - color presentation), 77, 85 (102309 - color presentation of dried material), **89***

***Setaria leucopila* (F.L. Scribner & E.D. Merrill) K.M. Schumann: Streambed Bristlegrass**

SYNONYMY: *Chaetochloa leucopila* F.L. Scribner & E.D. Merrill. COMMON NAMES: Bristlegrass, Plains Bristle Grass, Plains Bristlegrass, Streambed Bristle Grass, Streambed Bristlegrass, White-haired Bristlegrass, Yellow Bristlegrass, Yellow Foxtail, Zacate Tempranero. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending, geniculate or erect culms 8 inches to 4 feet in height with plants up to 12 to 20 inches in width at the base observed and reported); the foliage is green; the spike-like panicles (compound inflorescence) are pale green; based on few records located, flowering generally takes place between early July and early November (additional records: one for early March, three for mid-March, one for late April, two for mid-June and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rock walls; canyons; sandy canyon bottoms; gorges; talus slopes; bases of cliffs and rock walls; crevices in rocks; buttes; crests of rocky buttes; ridges; ridgetops; foothills; rocky, gravelly and gravelly-sandy hills; rocky and rocky-sandy hillsides; escarpments; sandy bases of escarpments; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy and sandy-loamy slopes; bases of slopes; alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; rocky and sandy lava flows; sand dunes; sandy steppes; sandy plains; gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-silty flats; basins; valley floors; valley bottoms; coastal sand dunes; coastal flats; coastal beaches; railroad right-of-ways; roadbeds; along rocky, gravelly and sandy-loamy roadsides; along and in rocky-gravelly arroyos; bottoms of arroyos; rocky and gravelly-sandy-loamy draws; gulches; within rocky ravines; seeps; in sand around streams; bouldery streambeds; along creeks; in rocky and gravelly creekbeds; in sand along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; within drainage ways; along sandy-loamy banks of draws, streams, rivers and washes; edges of arroyos, springs, washes, pools and marshes; sand bars; rocky benches; terraces; sandy-loamy bottomlands;

floodplains; lowlands; mesquite bosques; sandy mottes; along and in ditches; clayey-loamy water tanks; gravelly and sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky clay and clay ground, and rocky silty and sandy silty ground often reported as growing at the base or under shrubby mesquites and other protected areas, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria leucopila* is native to southwest-central and southern North America. *5, 6, 33 (no record of species), 43 (061110), 46 (included under *S. macrostachya* in the "First edition", Page 139, and Supplement Page 1041), 48, 63 (061110 - color presentation), 77, **85** (061110 - color presentation of dried material)*

***Setaria liebmannii* E.P. Fournier: Liebmann's Bristlegrass**

COMMON NAMES: Bristlegrass, Liebmann Bristlegrass, Liebmann's Bristlegrass. DESCRIPTION: Terrestrial annual graminoid (6 to 40 inches in height); the inflorescence may be greenish-red; flowering generally takes place between mid-August and mid-October (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky mesas; rocky cliffs; bouldery-rocky and rocky canyons; canyon bottoms; rocky talus slopes; bases of cliffs; sandy openings in forests; rocky hills; hilltops; hillsides; rocky slopes; amongst rocks; llanos; plains; flats; growing in the shade of mesquites; beach dunes; along roadbeds; along roadsides; arroyos; along washes; within rocky drainages; marshy areas; rocky banks of arroyos; edges of arroyos; along ditches; riparian areas, and disturbed areas growing in wet and dry bouldery-rocky, rocky and sandy ground, occurring from sea level to 3,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria liebmannii* is native to southwest-central and southern North America and Central America. *5, 6, **16**, 33 (Pages 269-270), 43 (102309), 46 (*Setaria liebmanni* Fourn., Page 139), 63 (102309), 77, **85** (102409)*

Setaria macrostachya (see NOTES and related footnotes 33, 46, 85, 89 and 105 under *Setaria vulpiseta*)

***Setaria vulpiseta* (J.B. de Lamarck) J.J. Roemer & J.A. Schultes: Plains Bristlegrass**

COMMON NAMES: Assaak, Plains Bristlegrass, Xikkaa Kiix, Zacate Tempranero, Zacate Temprano. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with somewhat geniculate culms 1 to 4 feet in height, one plant was described as being 2 inches in width at the base, several plants were described as being 8 to 16 inches in width at the base); the stems and leaves are pale to bright green sometimes with a bluish tinge curing to an orange-brown; the flowers may be orange and purple; flowering generally takes place between late April and mid-October (additional records: one for early March and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; rocky canyonsides; canyon bottoms; canyonettes; rocky talus; bases of cliffs; crevices in rocks; amongst rocky buttes; crests of buttes; rocky ledges; ridges; openings in woodlands; foothills; hills; hilltops; hillsides; rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy dunes; sandy mesquite hummocks; plains; gravelly flats; valley floors; along gravelly roadsides; arroyos; gravelly-sandy-loamy draws; streambeds; sandy creeks; along and in gravelly washes; within drainages; drainage ways; depressions; gravelly-sandy banks of streambeds, sandy riverbeds; creeks and washes; rocky edges of streambeds and washes; benches; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; stock tanks; riparian areas, and disturbed areas growing in muddy and moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and sandy loam ground; sandy clay and clay ground, and cobbly-sandy silty ground sometimes in the partial shade of shrubs and trees, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Setaria vulpiseta*, the Plains Bristlegrass has been recorded in many texts as *Setaria*

macrostachya; however, it has been reported that *Setaria macrostachya*, with the common name Large-spike Bristlegrass is an EXOTIC species that may also be found in Arizona. There appears to be some confusion as to what's what with this species with regard to its taxonomy. The native Plains Bristlegrass may be an attractive component of a restored native habitat, and the plant is reportedly a good soil binder. Plains Bristlegrass is an important forage grass with a high palatability; however, it is often selectively grazed over other range grasses and does not stand up well to heavy grazing. *Setaria vulpiseta* is native to south-central (again, some say that it is native and some say that it isn't) and southern North America; Central America, and South America. *5, 6, 15 (recorded as *Setaria macrostachya* H.B.K.), **16** (recorded as *Setaria macrostachya* H.B.K.), 33 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass,, Page 270), 43 (102409), 46 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass, Page 139), 48 (recorded as *Setaria macrostachya*), **56** (recorded as *Setaria macrostachya* H.B.K.), **57** (recorded as *Setaria macrostachya* H.B.K.), 58 (recorded as *Setaria macrostachya* H.B.K.), 63 (102409 - color presentation of seed), 77 (recorded as *Setaria macrostachya* H.B.K.), 85 (102409 - *Setaria macrostachya* Kunth and *Setaria vulpiseta* (Lam.) Roemer & J.A. Schultes), **89** (recorded as *Setaria composita* H.B.K.), 105 (recorded as *Setaria macrostachya* H.B.K.)*

Sitanion hystrix (see *Elymus elymoides* subsp. *elymoides*)

***Sorghum bicolor* (C. Linnaeus) C. Moench: Sorghum**

COMMON NAMES: Black Amber, Broom-corn, Broomcorn (*S.b.* subsp. *bicolor*), Chicken Corn, Chicken-corn (*S.b.* nothosubsp. *drummondii*), Common Wild Sorghum (*S.b.* subsp. *verticilliflorum*), Cultivated Sorghum, Daza (Spanish, *S.b.* subsp. *bicolor*), Durra (*S.b.* subsp. *bicolor*), Feterita (*S.b.* subsp. *bicolor*), Forage Sorghum (*S.b.* subsp. *bicolor*), Gewöhnliche Mohrenhirse (German, *S.b.* subsp. *bicolor*), Grain Sorghum (*S.b.* subsp. *bicolor*), Great Millet (*S.b.* and subsp. *bicolor*), Gros Mil (French, *S.b.* subsp. *bicolor*), Jowar (Gujarati), Kaffir-corn (*S.b.* subsp. *bicolor*), Kenike (Bamanankan), Mabele (Setswana), Mtama (Swahili), Milo (*S.b.* subsp. *bicolor*), Morokoshi (Japanese Rōmaji, *S.b.* subsp. *bicolor*), Muvya (Kikamba), Nickende Mohrenhirse (German, *S.b.* subsp. *bicolor*), Pasto Sudán (Spanish, *S.b.* nothosubsp. *drummondii*), Shallu (*S.b.* subsp. *bicolor*), Shatter Cane, Shattercane (*S.b.* nothosubsp. *drummondii*), Sordan (*S.b.* nothosubsp. *drummondii*), Sorgho (French, *S.b.* subsp. *bicolor*), Sorgho du Soudan (French, *S.b.* nothosubsp. *drummondii*), Sorgho Menu (French, *S.b.* nothosubsp. *drummondii*), Sorghum (*S.b.* subsp. *bicolor*), Sorghum-sudangrass (*S.b.* nothosubsp. *drummondii*), Sorgo (Portuguese & Spanish, *S.b.* subsp. *bicolor*), Sorgo Forrajero (Spanish, *S.b.* subsp. *bicolor*), Sudan Grass (*S.b.* nothosubsp. *drummondii*), Sudangras (German, *S.b.* nothosubsp. *drummondii*), Sweet Sorghum (*S.b.* subsp. *bicolor*), Wild Cane, Zuckerhirse (German, *S.b.* subsp. *bicolor*). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent or erect culms 20 inches to 16½ feet in height); the flowers are greenish (young) to reddish; based on few records located, flowering generally take place between early August and late November (flowering records: one for early August, three for early September, one for early October, one for mid-October and one for late November); yellow fruits blacken as they mature. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; meadows; rocky hills; rocky slopes; alluvial fans; plains; flats; valley floors; clayish valley bottoms; along sandy roadsides; springs; sandy riverbeds; silty pondbeds; clayey lakebeds; marshes; benches; edges of canals; ditches; riparian areas; recently burned areas, and disturbed areas growing in muddy and moist and dry rocky and sandy ground and clay ground, and silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Sorghum bicolor* is native to Africa. *5, 6, 33 (genus, no record of this species, Pages 310-313), 43 (061110), 46 (recorded as *Sorghum sudanense* (Piper) Stapf. a synonym for *Sorghum bicolor* subsp. *drummondii*, Page 143), 63 (061110 - color presentation of seed), **85** (0611110 - color presentation of dried material, unable to access species information), 101 (note), 106 (071610 - color presentation)*

***Sorghum halepense* (C. Linnaeus) C.H. Persoon: Johnsongrass**

COMMON NAMES: Aleppo Grass, Aleppohirse (German), Aleppo Milletgrass, Cañota (Spanish), Herbe d'Alep (French), Herbe de Cuba, Hierba Johnson (Spanish), Johnson Grass, Johnsongras (Afrikaans), Johnsongrass, Means Grass, Sorgho d'Alep (French), Sorgo de Alepo, Sorgo de Aleppo (Spanish), Wilde Mohrenhirse (German), Zacate Johnson. DESCRIPTION: Terrestrial perennial graminoid (20 inches to 8 feet in height); the foliage is green; the flowers are cream-purple, greenish-purple, dark red-purple or purplish; flowering may take place year-round. HABITAT: Within the range of this species it has been reported from mountains; canyons; sandy canyon bottoms; bluffs; meadows; foothills; hills; hillsides; sandy, sandy-loamy and sandy-silty slopes; amongst boulders and rocks; sand hummocks; rocky mudflows; sandy steppes; prairies; plains; sandy and loamy flats; valley floorss; coastal prairies; along cindery railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; gulches; springs; rocky-sandy soil along streams; along and in streambeds; along and in rocky and rocky-gravelly-sandy creeks; along creekbeds; in sandy soil along and in rivers; along and in sandy riverbeds; in rocky and sandy washes; drainages; cienegas; freshwater marshes; sandy banks of creeks, rivers and washes; edges of streams; gravel and sand bars; cobbly-sandy and sandy benches; sandy terraces; sandy, loamy and silty bottomlands; sandy and sandy-loamy floodplains; silty-clayey stock tanks; along canals; along canal banks; along and in sandy-loamy ditches; along clayey and clayey-loamy ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist and damp bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam, silty-clayey loam and loam ground; silty clay and clay soils, and sandy-silty and silty ground, occurring from sea level to 7,500 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a fodder and as a toy or in games (children used stems and leaves to make whistles). Johnsongrass was introduced into the United States around 1830. *Sorghum halepense* readily hybridizes with *Sorghum bicolor* (Sorghum) which is also an exotic. *Sorghum halepense* is native to western, middle and southern Asia and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 33 (Pages 310-313), 43 (102409), 46 (Page 143), **56**, **57**, 58, 63 (102409 - color presentation), 68 ("Johnsongrass ordinarily is good feed, but sometimes the plant, particularly the leaves, contain hydrocyanic (prussic) acid, a cyanide type of poisoning. Any factor which interrupts normal growth may cause the release of HCN within plants. Rapid growth of new leaves, wilting due to drought, frost, freezing, cutting, or trampling are the most dangerous events." See text for additional information), 77, 80 (Johnsongrass is Listed as a Major Poisonous Range Plant. "Most losses from Johnsongrass are due to hydrocyanic-acid poisoning, but plants also accumulate dangerous levels of nitrate. Danger from HCN poisoning is greatest when soils are high in available nitrogen and low in phosphorus, when plants have been exposed to drouth or disease which results in slow or stunted growth, and when plants are making rapid regrowth or have been frosted. Leaves are more toxic than stems, and young plants are more toxic than mature ones.... Management to defer pastures during dangerous periods of growth, and feeding of animals before turning them on pastures containing Johnsongrass are the best preventive measures. " See text for additional information.), **85** (102409 - color presentation), **89**, 101 (color photograph), 105, 127*

***Sporobolus airoides* (J. Torrey) J. Torrey: Alkali Sacaton**

COMMON NAMES: Alkali Sacaton, Alkali-sacaton, Sacaton, Tava'i (Yaqui), Tl'oh Dahikalii (Navajo), Zacaton, Zacaton Alcalino. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with mostly erect branches 14 inches to 7 feet in height developing clonal rings 3 to 7 feet in width); the color of the foliage has been described as grayish-green; the spikelets (flowers) are brownish or lead-colored; the florets are pale green; flowering generally takes place between mid-April and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly-sandy and sandy-loamy mesas; sandy plateaus; canyon rims; rocky canyons; sandy canyon bottoms; rocky bluffs; sandy knolls; sandy and clayey ridges; meadows; foothills; sandy hills; gravelly-silty hilltops; sandy hillocks; along hillsides; escarpments; bouldery-clayey, rocky, rocky-

gravelly, rocky-sandy, shaley-sandy, sandy, sandy-loamy, clayey and powdery-loamy slopes; gravelly alluvial fans; gravelly outcrops; sand dunes; sandy hummocks; sandy steppes; sandy, clayey, silty-loamy-clayey and silty-clayey prairies; gravelly-sandy and sandy plains; rocky, shaley, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; cobbly and sandy basins; basin bottoms; sandy, clayey and silty-loamy valley floors; along railroad right-of-ways; along gravelly, sandy, sandy-loamy and clayey roadsides; within gravelly and clayey-loamy arroyos; bottoms of arroyos; along draws; shaley-sandy gulches; rocky gullies; around seeps; around springs; around seeping springs; along streambeds; along creeks; creekbeds; loamy soils along rivers; riverbeds; along and in gravelly and sandy washes; sandy drainages; within gravelly, sandy and sandy-clayey drainage ways; pools; lakebeds; sandy-loamy and clayey playas, cienegas; swampy areas; gravelly-sandy, sandy and sandy-loamy depressions; sloughs; clayey swales; sandy banks of creeks, rivers and ponds; sandy margins of draws, washes, pools, lakes and marshes; sandy beaches; clayey benches; sandy terraces; sandy bottomlands; along sandy floodplains; lowlands; mesquite bosques; in clayey soils around stock tanks; sandy ditch banks; clayey-loamy riparian areas, and disturbed areas growing occasionally in water and in wet, moist, damp and dry rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, silty loam, powdery loam and loam ground; bouldery-clayey, sandy clay, silty clay, silty-loamy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (utilized as food during times of famine) crop; it was also noted as having been used as a as a tool (moist grass laid on hot stones to keep steam from escaping). It is useful in stabilizing soils in disturbed areas and slowing erosion. The establishment of seedlings may require frequent irrigations, but once established it is tolerant of both drought and flooding. It grows best where it receives 12 to 18 inches of mean annual precipitation. Earl F. Aldon (Aldon, Earl F. 1975. Establishing alkali sacaton on harsh sites in the Southwest. Journal of Range Management. 28(2): 129-132. [2872], found in the United State Department of Agriculture Forest Service, Fire Effects Information System) developed the following guidelines for establishing alkali sacaton from seed on harsh sites: plant when soil moisture is at least 14% or higher; plant when probabilities for weekly precipitation are greatest and soil temperatures will be near 86° Fahrenheit (30° Centigrade); use large seeds at least 1 year old; saturate the planting site just prior to planting; cover seed with about ½ inch (13 mm) of mulch to keep conditions moist and dark, and if rainwater does not deposit at least 6 mm of rain within the first 5 days, rewater to bring the soil to saturation. Alkali Sacaton may be browsed by Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Pronghorn (*Antilocapra americana*), small mammals and birds. *Sporobolus airoides* is native to northwest-central, south-central and southern North America. *5, 6, 18, 33 (Pages 228-229), 43 (102409), 46 (Page 114), 48, **56**, **57**, 63 (102409 - color presentation), 77, **85** (102409 - color presentation of dried material), 105, 127*

Sporobolus airoides var. *airoides* (see *Sporobolus airoides*)

Sporobolus airoides var. *wrightii* (see *Sporobolus wrightii*)

***Sporobolus contractus* A.S. Hitchcock: Spike Dropseed**

COMMON NAMES: Dropseed, Spike Dropseed. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 16 inches to 5 feet in height and 4 to 12 inches in width at the base, plants 16 inches in height and 8 inches in width were reported); the spikelets (flowers) may be brownish, lead colored or whitish; flowering generally takes place be between late August and late October (additional record: one for early July). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; rocky and gravelly canyons; along sandy and sandy-clayey canyon bottoms; bases of cliffs; talus; bluffs; knolls; in sand amongst pinyons and junipers; sandy

foothills; sandy hills; rocky and sandy hillsides; rocky, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, sandy, sandy-loamy, sandy-clayey and sandy-clayey-loamy slopes; bajadas; rocky outcrops; sand hills; sand dunes; mesquite hummocks; sandy plains; gravelly, sandy and clayey flats; sandy basins; valley floors; railroad right-of-ways; along cindery-gravelly, gravelly-loamy, sandy-loamy and sandy roadsides; sandy arroyos; clayey bottoms of arroyos; bottoms of gulches; bouldery ravines; bouldery streambeds; sandy soils along creeks; in sandy soils along rivers; sandy riverbeds; along and in gravelly, gravelly-clayey, sandy and silty-clayey washes; drainages; drainage ways; depressions; pot holes; cindery swales; sandy banks of creeks and rivers; gravelly-sandy and sandy edges of washes and drainage ways; silty and silty-clayey margins of seeps; sand bars; sandy beaches; sandy benches; bouldery-gravelly-sandy, gravelly and sandy terraces; floodplains; mesquite bosques; along fencelines; in ditches; sandy ditch banks; sandy riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly-sandy, rocky, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; rocky-sandy clay, rocky clay, gravelly clay, sandy clay, silty clay and clay ground, and gravelly-clayey silty, clayey silty and silty round, occurring from 900 to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. *Sporobolus contractus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (Pages 225-226), 43 (102409), 46 (Page 114), 48, 58, 63 (102409 - color presentation of seeds), 77, **85** (102409 - color presentation of dried material), 127*

***Sporobolus cryptandrus* (J. Torrey) A. Gray: Sand Dropseed**

COMMON NAMES: Covered-spike Dropseed, Dropseed, Drop Seed Grass; Drop-seed Grass, Large-panicle Vilfa, Larfe-panicled Vilfa, Lesser Dropseed, Prairie Grass, Prairie-grass, Sand Drop-seed, Sand Dropseed, Sand Rush Grass, Sand Rush-grass, Sand Rushgrass, Sporobole à Fleurs Cacnées (French, alternate spelling Sporobole à Fleures Cachées also observed), Vai Tava'i (Yaqui, also called this grass Vaso which is the Yaqui generic name for grass), Zacate de Arena. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect, rarely decumbent, culms 1 to 4 feet (one record of 6½ feet) in height and 1 to 8 inches in width at the base, plants 40 inches in height and 4 to 6 inches in width were reported); the foliage may be bluish-green, light green, dark green or purple curing to light straw-yellow; the spikelets (flowers) may be brownish, purplish, bright red-maroon or yellow; flowering generally takes place between late April and early June and between late July and late October (additional records: one for late January, one for early April and one for late May). HABITAT: Within the range of this species it has been reported from mountains; gravelly mountaintops; bouldery, rocky, gravelly-sandy and sandy mesas; sandy plateaus; rocky and sandy rims of canyons; cliffs; rocky and gravelly-loamy canyons; along bouldery-cobbly-sandy and sandy canyon bottoms; gorges; bouldery talus; sandy crevices in boulders and rock walls; bluffs; along tops of bluffs; buttes; rocky ledges; along rocky, gravelly-loamy and sandy ridges; glades; sandy and clayey meadows; tops of cinder cones; sandy foothills; gravelly and gravelly-sandy hills; sandy hillsides; escarpments; along bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy-loamy, shaley, cobbly, gravelly, sandy, sandy-loamy and silty-clayey slopes; rocky outcrops; amongst boulders and rocks; sheltered nooks of rim rock; sandy lava flows; sand hills; sand dunes; sand hummocks; sandy and sandy-loamy prairies; pebbly, gravelly-sandy, sandy and sandy-clayey plains; bouldery, rocky, rocky-sandy, gravelly, sandy, clayey, clayey-loamy and silty-clayey flats; basin floors; gravelly-sandy valley floors; valley bottoms; coastal dunes; sandy coastal plains; sandy coastal flats; gravelly railroad right-of-ways; sandy roadways; along rocky-sandy, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-silty and clayey roadsides; sandy and clayey arroyos; bottoms of arroyos; draws; bottoms of draws; springs; gravelly-loamy soils along streams; along streambeds; rocky creekbeds; along rivers; along and in sandy riverbeds; along and in rocky, rocky-sandy, gravelly, sandy, sandy-loamy, clayey and silty-clayey washes; within drainages; drainage ways; clayey playas; gravelly-sandy depressions; clayey swales; sandy and sandy-loamy banks of arroyos, rivers,

washes and lakes; rocky, gravelly and sandy edges of draws, gullies; streams, drainage ways, pools and depressions; sandy shores of lakes; gravelly and sandy beaches; sandy benches; stony-loamy, sandy and sandy-loamy terraces; loamy bottomlands; sandy floodplains; lowlands; mesquite bosques; around stock tanks (charcos); along and in loamy ditches; rocky and gravelly-sandy riparian areas; loamy waste places, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; stony loam, gravelly loam, sandy loam, sandy-clayey loam, sandy-silty loam, silty-clayey loam and loam ground; gravelly clay, gravelly-sandy clay, sandy-clay, silty clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, established plants are drought resistant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. When using this plant in landscaping and re-vegetation projects use plants and/or seed collected from as local a population as possible. Rocky Mountain Bighorn Sheep (*Ovis canadensis*) browse this plant, Scaled Quail (*Callipepla squamata*), Black-tailed Jackrabbits (*Lepus californicus*), Black-tailed Prairie Dogs (*Cynomys ludovicianus*) feed on this plant, small mammals and birds also utilize this plant. *Sporobolus cryptandrus* is native to central and southern North America and southern South America (report for Argentina found in the Germplasm Resources Information Network). *5, 6, 15, **16**, 33 (very similar to *Sporobolus flexuosus* and difficult to distinguish without having mature panicles, Pages 226-227), 43 (102409 - *Sporobolus cryptandrus* A. Gray), 46 (Page 114), 48, **56**, **57**, 58, 63 (102409 - color presentation), **77**, **85** (102409 - color presentation of dried material), **89** (recorded as *Sporobolus cryptandrus* (Torr.) Gray var. *flexuosus* Thurb.), 105, 127*

Sporobolus cryptandrus var. *flexuosus* (see footnote 89 under *Sporobolus cryptandrus* and *Sporobolus flexuosus*)

***Sporobolus flexuosus* (G. Thurber ex G. Vasey) P.A. Rydberg: Mesa Dropseed**

COMMON NAME: Mesa Dropseed. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect, rarely decumbent, culms 1 to 4 feet in height); the foliage is purplish; the anthers are yellow; flowering generally takes place between late August and June/September and late October/November (flowering records: one for mid-May, one for late July, three for late August, one for early September, one for late September, three for early October and one for late October; flowering beginning as early as June and ending as late as November has been reported); the fruits are brownish to reddish-orange. HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy rims of canyons; rocky canyons; gravelly-sandy and sandy canyon bottoms; talus slopes; bases of cliffs; sandy crevices in rock; pockets of sandy soil in rock; bedrock and sandy rincons; knolls; sandy meadows; rocky and sandy foothills; sandy and clayey-sandy hills; hillsides; bouldery, rocky, gravelly and sandy slopes; amongst boulders and rocks; sand dunes; mesquite hummocks; blow-sand deposits; gravelly plains; sandy flats; sandy valley floors; along railroad right-of-ways; along rocky-sandy, gravelly, sandy and sandy-loamy roadsides; arroyos; sandy and clayey bottoms of arroyos; sandy gullies; springs; along creeks; riverbeds; along and in washes; along sandy drainages; marshes; swales, banks of rivers; cobbly edges of rivers; rocky and bouldery shores; sandy beaches; bouldery-gravelly-sandy and sandy floodplains; sandy ditches; ditch banks, and sandy riparian areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, cindery, gravelly, sandy, loamy sandy and clayey sandy ground; cindery-gravelly-loamy, gravelly loam, sandy loam and silty-loamy ground, and sandy clay and clay ground, occurring from 1,300 to 7,600 feet in elevation; useful as an ornamental in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it has a life expectancy of up to 4 to 5 years. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Black-tailed Jackrabbits (*Lepus californicus*) and Pronghorn (*Antilocapra americana*) feed on this grass. *Sporobolus flexuosus* is native to

southwest-central and southern North America. *5, 6, 33 (very similar to *Sporobolus cryptandrus* and difficult to distinguish without having mature panicles, Pages 227-228), 43 (102409 - *Sporobolus flexuosus* Rydb.), 46 (Page 114), 48, 63 (102409 - color presentation), **85** (102509 - color presentation of dried material), 89 (Note that J.J. Thornber reported *Sporobolus cryptandrus* (Torr.) Gray var. *flexuosus* Thurb. as occurring on the Mesa-like Mountain Slopes; howerver, in this listing this plant has been recorded as *Sporobolus cryptandrus* (J. Torrey) A. Gray.), 127*

***Sporobolus wrightii* W. Munro ex F.L. Scribner: Big Sacaton**

SYNONYMY: *Sporobolus airoides* (J. Torrey) J. Torrey var. *wrightii* (W. Munro ex F.L. Scribner) F.W. Gould. COMMON NAMES: Alkali Sacaton, Big Alkali Sacaton, Big Sacaton, Giant Sacaton, Sacaton, Sacaton Grass, Wright Sacaton, Zacaton. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with mostly erect branches 36 to 100 inches in height and 20 to 36 inches in width at the base); the foliage is pale green with a gray cast; the spikelets (flowers) are greenish, purplish or whitish; the anthers are purplish to yellowish; flowering generally takes place between early August and mid-September (flowering records: one for mid-April, one for late April, two for mid-June, two for early August, two for mid-August, two for late August, one for early September and three for mid-September; flowering beginning as early as March and ending as late as November has been reported); the fruits are blackish or reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy mesas; plateaus; canyons; canyon bottoms; bases of cliffs; rock ledges; meadows; hills; rocky hillsides; escarpments; rocky slopes; amongst rocks; plains; clayey flats; basins; basin bottoms; sandy-clayey valley floors; tidal flats; railroad right-of-ways; along gravelly-loamy and sandy-loamy roadsides; along arroyos; rocky-sandy bottoms of arroyos; along creeks; along rivers; along riverbeds; along and in gravelly and sandy washes; within drainages; bolson depressions; playas; cienegas; marshes; depressions; banks of rivers; rocky edges of washes; margins of ponds; benches; terraces; bottomlands; sandy floodplains; mesquite bosques; in clayey-loamy soils around stock tanks; along sandy ditches; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and silty-clayey loam ground; sandy clay ground, and gravelly silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and useful in slowing runoff, enhancing infiltration and controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. An estimated 95% of the original stands of Big Sacaton have been lost or degraded due to channelization, erosion and overgrazing. Attempts should be made to restore these grasslands on the mesas, plateaus, low alluvial flats, arroyos, bottomlands and broad floodplains subject to periodic flooding. This plant provides cover for wildlife including the Collard Peccary (*Peccari tajacu*), Botteri's Sparrow (*Aimophila botterii*) and other birds, Diamondback Rattlesnakes (*Crotalus atrox*) and rodents. *Sporobolus wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 33 (recorded as *Sporobolus airoides* (Torr.) Torr. var. *wrightii* (Munro) Gould, Pages 230-231), 43 (102409), 46 (Page 114), 48, 58, 63 (102409 - color presentation), 77, **85** (102409 - color presentation), **89**, 105, 127*

Trichachne californica (see *Digitaria californica*)

Trichachne insularis (see *Digitaria insularis*)

***Trichloris crinita* (M. Lagasca y Segura) L.R. Parodi: False Rhodes Grass**

SYNONYMY: *Chloris crinita* M. Lagasca y Segura, *Trichloris mendocina* (R.A. Philippi) F. Kurtz. COMMON NAMES: False Rhodes Grass, False Rhodesgrass, Feather Fingergrass, Multiflowered Chloris, Rhodes Grass, Twoflower Chloris, Twoflower Trichloris. DESCRIPTION: Terrestrial perennial graminoid (2 to 5 feet in height); the foliage is green or reddish; based on few flowering records observed,

flowering generally takes place between late April and mid-October (flowering records: one for late April, one for mid-July and one for mid-October, flowering has been generally described as taking place from late spring to fall). HABITAT: Within the range of this species it has been reported from mountains; mesas, canyons, crevices in rocks; pockets of soil; rocky hills, slopes; bajadas; plains; gravelly-sandy flats; coastal plains; along railroad right-of-ways; along sandy-loamy roadsides; along bottoms of arroyos; along seeps; along sandy washes; drainages; depressions; loamy benches; terraces; floodplains; sandy lowlands, and disturbed areas growing in dry rocky, gravelly-sandy and sandy ground and loam ground, occurring from sea level to 4,000 feet in elevation in the scrub, grassland, and desertscrub ecological formations. NOTES: This large, showy grass may be an attractive component of a restored native habitat. *Trichloris crinita* is native to southwest-central and southern North America and western and southern South America. *5, 6, 15 (recorded as *Chloris crinita* (Lag.) Parodi), 33 (recorded as *Trichloris mendocina* (Phil.) Kurtz, Page 134), 43 (102509), 46 (Page 126), 63 (102509 - color presentation), 58 (recorded as *Chloris crinita* Lag.), 85 (102509 - color presentation), **89** (recorded as *Trichloris fasiculata* Fourn.)*

Trichloris fasiculata (see footnote 89 under *Trichloris crinita*)

Trichloris mendocina (see *Trichloris crinita*)

***Tridens muticus* (J. Torrey) G.V. Nash: Slim Tridens**

COMMON NAMES: Slim Tridens, Tridente. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass 3 to 32 inches in height and 3 to 4 inches in width at the base, one plant was reported to be 32 inches in height and 4 inches in width at base); the foliage is bluish-green or gray-green curing to a light straw-yellow; flowering generally takes place between mid-April and early June and again between early August and mid-November (additional records: one for mid-January, one for early March and one for mid-March). HABITAT: Within the range of this species it has been reported from mountains; gravelly peaks; mesas; rocky cliffs; along bouldery and rocky canyons; along rocky and gravelly canyon bottoms; gorges; bouldery-sandy grottos; talus slopes; ledges; ridges; bouldery ridgetops; foothills; rocky and gravelly hills; bouldery, rocky and gravelly hillsides; rocky and gravelly slopes; rocky bajadas; boulder, rocky, shaley and chalky outcrops; amongst boulders and rocks; bases of rocks; lava flows; lava fields; plains; sandy-clayey flats; basins; valley floors; railroad right-of-ways; along rocky, gravelly-sandy and sandy roadsides; within rocky and gravelly arroyos; draws; ravines; seeps; springs; along streams; bouldery-sandy riverbeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; drainage ways; around pools; rocky banks of washes; gravelly edges of streambeds; benches; stock tanks, and riparian areas growing in dry rocky and gravelly desert pavements; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; rocky loam, gravelly loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground; sandy silty ground, and chalky ground, occurring from 500 to 6,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slim Tridens is browsed by Collard Peccary (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*) and other herbivores and birds and rodents feed on the seed. *Tridens muticus* is native to south-central and southern North America. *5, 6, 15, **16**, 33 (Page 98), 43 (*Tridens muticus* Nash, 102509), 46 (Page 91), 63 (102509 - color presentation), 77, **85** (102509 - color presentation of dried material), 105*

***Tridens muticus* (J. Torrey) G.V. Nash var. *muticus*: Slim Tridens**

SYNONYMY: *Triodia mutica* (J. Torrey) F.L. Scribner. COMMON NAMES: Slim Tridens, Slim Triodia, Tridente, Tridente Esbelto (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass 8 to 20 inches in height and 3 to 4 inches in width at the base); flowering generally takes place between mid-April and early June and again between early August and mid-November. HABITAT: Within the range of this species it has been reported from mountains; along rocky canyons; canyon

bottoms; rocky and clayey knolls; rocky ledges; ridges; bouldery ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; bajadas; amongst boulders and rocks; plains; sandy-clayey and sandy-clayey-loamy flats; roadsides; gravelly arroyos; bottoms of arroyos; draws; springs; along rocky washes; along banks of streams, and riparian areas growing in dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; gravelly-clayey loam and sandy-clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 1,200 to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slim Tridens is browsed by Collard Peccary (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*) and other herbivores and birds and rodents feed on the seed. *Tridens muticus* var. *muticus* is native to southwest-central and southern North America. *5, 6, 33 (species, Page 98), 43 (102509 - *Tridens muticus* Nash, *Triodia mutica* Benth. ex S. Watson), 46 (Page 91), 48, 63 (102509), **85** (102509), **89** (recorded as *Triodia mutica* (Torr.) Benth.), 105 (species)*

Tridens pulchellus (see *Dasyochloa pulchella*)

Triodia mutica (see *Tridens muticus* var. *muticus*)

Triodia pulchella (see *Dasyochloa pulchella*)

***Trisetum interruptum* S.B. Buckley: Prairie False Oat**

COMMON NAMES: Prairie False Oat, Prairie Trisetum, Slender Oat Grass, Slender Oat-grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (2 to 24 inches in height); the panicles (compound inflorescences) are green or tan; based on very few flowering records examined, flowering generally takes place between late March and early May (flowering records: one for late March and one for early May). HABITAT: Within the range of this species it has been reported from mountains; canyons; crevices in rocks; pockets of soil in bedrock; ledges; along ridges; foothills; rocky hills; hillsides; escarpments;rocky slopes; amongst rocks; lava flows; plains; gravelly flats; railroad right-of-ways; along roadsides; within arroyos; springs; along rivers; along and in gravelly and sandy washes; around ponds; banks of rivers; rocky and gravelly edges of washes; margins of lakes; channel bars; benches; rocky shelves; floodplains, and riparian areas growing in moist, damp and dry rocky, gravelly and sandy ground, occurring from 1,300 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Prairie Trisetum is very similar in general appearance to Common Mediterranean Grass (*Schismus barbatus*). *Trisetum interruptum* is native to south-central and southern North America. *5, 6, 15, **16**, 33 (Page 171), 43 (102609), 46 (Page 99), 58, 63 (102609), **77**, **85** (102609 - color presentation of dried material), 124*

***Urochloa arizonica* (F.L. Scribner & E.D. Merrill) O. Morrone & F.O. Zuloaga: Arizona Signalgrass**

SYNONYMY: *Brachiaria arizonica* (F.L. Scribner & E.D. Merrill) S.T. Blake, *Panicum arizonicum* F.L. Scribner & E.D. Merrill. COMMON NAMES: Arizona Panicgrass, Arizona Panicum, Arizona Signal Grass, Arizona Signalgrass, Piojillo de Arizona. DESCRIPTION: Terrestrial annual graminoid (6 to 26 inches in height); the flowers are purple; flowering generally takes place between early August and early November (flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; chasms; rocky talus; meadows; foothills; rocky hills; rocky and rocky-clayey hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy, stony and gravelly slopes; alluvial fans; gravelly bajadas; rocky banks; rock outcrops; amongst boulders; bases of rocks; sand dunes; sandy flats; coastal dunes; along roadsides; arroyos; bottoms of arroyos; sandy draws; along rocky ravines; seeps; rivulets; along and in gravelly-sandy streambeds; along and in rocky, gravelly and sandy washes; drainages; within clayey drainage ways; rocky-sandy and sandy banks of washes; shores of lakes; benches; terraces; sandy floodplains; mesquite bosques; margins of stock tanks; ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, gravelly and sandy ground;

gravelly loam and gravelly-clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 300 to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Urochloa arizonica* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), **16** (recorded as *Panicum arizonicum* Scribn. & Merr.), 33 (recorded as *Panicum arizonicum* Scribn. & Merr., Page 281), 43 (102609), 46 (recorded as *Panicum arizonicum* Scribn. & Merr., Page 135), **56** (recorded as *Brachiaria arizonica* (Scribn. & Merr.) Blake), **57** (recorded as *Brachiaria arizonica* (Scribn. & Merr.) Blake), 58 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), 63 (102609), 68, 77 (recorded as *Brachiaria arizonica* (Scribn. & Merr.) S.T. Blake), **85** (102609 - color presentation of dried material), **89** (recorded as *Panicum arizonicum* Scribn. & Merrill)*

Urochloa fasciculata (see *Urochloa fusca*)

***Urochloa fusca* (O. Swartz) B.F. Hansen & R.P. Wunderlin: Browntop Signalgrass**

SYNONYMY: *Brachiaria fasciculata* (O. Swartz) L.R. Parodi, *Panicum fasciculatum* O. Swartz, *Panicum fasciculatum* O. Swartz var. *reticulatum* (J. Torrey) W.J. Beal, *Urochloa fasciculata* (O. Swartz) R.D. Webster, nom. illeg. COMMON NAMES: Browntop Panicum, Browntop Signalgrass, Fieldgrass. DESCRIPTION: Terrestrial annual or perennial graminoid (decumbent and spreading or erect culms 12 to 40 inches in height); the spikelets (flowers) may be blackish, golden-tinged, greenish, red or yellowish-brown; flowering generally takes place between mid-August and mid-October (additional records: two for mid-May, one for mid-July, one for early November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky and rocky-clayey mountainsides; rocky canyons; openings in woodlands; rocky hills; hilltops; rocky slopes; along rocky outcrops; banks; llanos; cobbly plains; clayey flats; valley floors; coasts; roadbeds; along rocky and clayey roadsides; riverbeds; along sandy washes; along drainages; drainage ways; pondbeds; depressions; edges of arroyos; terraces; floodplains; mesquite bosques; ditches; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, cobbly and sandy ground; rocky-sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Urochloa fusca* is native to south-central and southern North America; Central America, and South America. *5, 6, 33 (recorded as *Panicum fasciculatum* Swartz var. *reticulatum* (Torr.) Beal, Pages 280-281), 43 (102609), 46 (recorded as *Panicum fasciculatum* Swartz var. *reticulatum* (Torr.) Beal, Page 135), **56** (*Brachiaria fasciculata* (Swartz) Parodi), **57** (*Brachiaria fasciculata* (Swartz) Parodi), 63 (102609), 68, **85** (102609 - color presentation of dried material), **89** (recorded as *Panicum fuscum* Sw.)*

***Vulpia myuros* (C. Linnaeus) C.C. Gmelin: Rat-tail Fescue**

SYNONYMY: *Festuca megalura* T. Nuttall, *Festuca myuros* C. Linnaeus, *Festuca myuros* C. Linnaeus var. *hirsuta* (E. Hackel) P.F. Ascherson & K.O. Graebner. COMMON NAMES: Annual Fescue, Foxtail Fescue, Festuca-rabo-de-rato (Portuguese), Hair Sixweeksgrass, Rat's-tail Fescue, Rat-tail Fescue, Rat-tail Six-weeks Grass, Rat-tail Sixweeks Grass, Rat-tailed Fescue, Rattail Grass, Rattail Fescue, Rattail Sixweeks Grass, Vulpia-rabo-de-rato (Portuguese), Zorro Fescue. DESCRIPTION: Terrestrial annual graminoid (1 to 36 inches in height); the foliage is yellowish-green; the inflorescence is yellow-green; flowering generally takes place between late February and late June (additional records: five for early February, one for late September, one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; sandy and clayey mesas; plateaus; canyons; rocky and gravelly-sandy canyon bottoms; along ridges; along ridgetops; sandy clearings in forests and woodlands; meadows; rocky foothills; rocky hills; rocky and sandy hillsides; bouldery, rocky, rocky-loamy-clayey, cobbly-sandy, cobbly-sandy-loamy, gravelly, sandy, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst rocks; boulderfields; clayey breaks; prairies; plains; sandy flats; sandy valley floors; slopes of coastal shorelines; along gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; seeps; springs; along streams; rocky

streambeds; along creeks; creekbeds; within rocky-sandy washes; banks of streams and rivers; edges of creeks and vernal pools; margins of streamlets, washes and ponds; sand bars; rocky-sandy benches; sandy-clayey shelves; sandy terraces; floodplains; lowlands; sandy banks of stock tanks; ditches; ditch banks; muddy and gravelly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground, and rocky-loamy clay, rocky clay, sandy clay and clay ground, occurring from sea level to 7,700 in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Vulpia myuros* is native to northern, central, eastern and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 33 (recorded as *Festuca megalura* Nutt., Pages 55-56 and *Festuca myuros* L., Page 57), 43 (102609), 46 (recorded as *Festuca megalura* Nutt., Page 80 and *Festuca myuros* L., Page 80), 63 (102609 - color presentation of seed), 77, 85 (102709 - color presentation), **89** (recorded as *Festuca myuros* L.), 101 (color photograph), 101 (color photograph)*

***Vulpia octoflora* (T. Walter) P.A. Rydberg: Sixweeks Fescue**

COMMON NAME: Common Sixweeks Grass, Eight-flower Six-weeks Grass, Eight-flower Sixweeks Grass, Eight-flowered Fescue, Pullout Grass, Six-weeks Fescue, Sixweeks Fescue, Six-weeks Grass, Sixweeks Grass. DESCRIPTION: Terrestrial annual graminoid (2 inches to 2 feet in height); the foliage is bright green or yellow-green; the florets are green; flowering generally takes place between early February and late June (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; pebbly-sandy-silty, sandy and clayey-loamy mesas; plateaus; rocky-sandy rims of craters; rocky cliffs; rocky canyons; bouldery, rocky, gravelly and sandy canyon bottoms; talus slopes; sandy bases of cliffs; crevices in boulders and rocks; pockets of soil on outcrops; rocky ledges; along rocky, gravelly and silty-loamy ridges; ridgetops; ridgelines; rocky-sandy and sandy meadows; rocky foothills; rocky, cobbly-sandy-loamy, stony-clayey and silty-loamy hills; rocky hilltops; rocky, rocky-gravelly, gravelly and gravelly-loamy hillsides; rocky, rocky-cobbly, rocky-gravelly-loamy, rocky-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy and clayey slopes; rocky, rocky-sandy, rocky-sandy-loamy, gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand hills; sand dunes; sandy steppes; sandy prairies; sandy plains; stony, gravelly and sandy flats; basins; stony-clayey hollows; sandy-loamy valley floors, valley bottoms; coastal plains; coastal beaches; sandy coastal shorelines; along rocky, gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; along gravelly and sandy-loamy arroyos; bottoms of arroyos; draws; gulches; gullies; ravines; sandy bottoms of ravines; springs; humusy-loamy soils along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, stony-gravelly, gravelly-sandy, sandy and sandy-loamy washes; drainages; within sandy drainage ways; around lakes; swales; along gravelly-loamy and sandy banks of streambeds, creeks, rivers and washes; sandy edges of washes; margins of pools and cienegas; sandy shorelines of rivers; gravel, gravelly-sand and sand bars; sandy beaches; cobbly-sandy-loamy benches; gravelly, gravelly-sandy and sandy terraces; sandy and loamy bottomlands; floodplains; stock tanks (charcos); ditches; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, stony, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam, humusy loam and loam ground; stony clay, sandy clay and clay ground; rocky silty, pebbly-sandy silty and silty ground, and chalky ground, occurring from sea level to 10,600 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys*

leucurus) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* is native to central and southern North America. *5, 6, 15, **16**, 33 (recorded as *Festuca octoflora* Walt., Page 55), 43 (102709), 46 (recorded as *Festuca octoflora* Walt., Page 80), 58, 63 (102709 - color presentation), **85** (102709 - color presentation of dried material)*

***Vulpia octoflora* (T. Walter) P.A. Rydberg var. *hirtella* (C.V. Piper) J.T. Henrard: Sixweeks Fescue**

SYNONYMY: *Festuca octoflora* T. Walter subsp. *hirtella* C.V. Piper, *Festuca octoflora* T. Walter var. *hirtella* (C.V. Piper) C.V. Piper ex A.S. Hitchcock. COMMON NAMES: Eight-flowered Fescue, Fescua, Hairy Pullout Grass, Sixweeks Fescue, Six-weeks Fescue, Sixweeks Fescue, Sixweeks Grass. DESCRIPTION: Terrestrial annual graminoid (erect culms 2 inches to 2 feet in height); the foliage is bright green or yellow-green; the florets are green; flowering generally takes place between early February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; rocky cliffs; rocky canyons; gravelly and sandy canyon bottoms; crevices in rocks; cobbly-loamy buttes; rocky ledges; along ridges; ridgetops; ridgelines; meadows; rocky foothills; hills; bases of hills; rocky-gravelly hillsides; rocky, rocky-sandy, gravelly, sandy and humusy-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; lava flows; dunes; along sandy outwash fans; breaks; plains; stony, gravelly and sandy flats; sandy-loamy valley floors; valley bottoms; along roadsides; sandy arroyos; gulches; gullies; springs; humusy-loamy soils along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; riverbeds; along and in bouldery, stony-gravelly, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainage ways; swales; around lakes; margins of cienegas; shores of lakes; sandy beaches; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; stock tanks (charcos); ditches; sandy riparian areas; waste places; recently burned areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy, sandy and chalky ground; rocky-clayey loam, cobbly loam, gravelly loam, sandy loam, clayey loam, humusy loam and loam ground, and sandy clay and clay ground, occurring from 200 to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* var. *hirtella* is native to west-central and southern North America. *5, 6, 33 (recorded as *Festuca octoflora* var. *hirtella* Piper, Page 55), 43 (060710), 46 (recorded as *Festuca octoflora* Walt. var. *hirtella* Piper, Page 80), **57**, 63 (102709), 77, 85 (102709), **89** (recorded as *Festuca octoflora* Walt. subsp. *hirtella* Piper)*

***Vulpia octoflora* (T. Walter) P.A. Rydberg var. *octoflora*: Sixweeks Fescue**

SYNONYMY: *Festuca octoflora* T. Walter. COMMON NAMES: Common Sixweeksgrass, Pullout Grass, Six-weeks Fescue, Sixweeks Fescue, Sixweeks Grass. DESCRIPTION: Terrestrial annual graminoid (2 inches to 2 feet in height); the foliage is bright green or yellow-green; the florets are green; flowering generally takes place between early February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy and clayey-loamy mesas; plateaus; rocky cliffs; rocky canyons; gravelly and sandy canyon bottoms; sandy bases of cliffs; crevices in rocks; rocky ledges; along ridges; ridgelines; meadows; rocky foothills; rocky and stony-clayey hills; rocky, rocky-gravelly, gravelly and gravelly-loamy hillsides; rocky, rocky-sandy, gravelly, sandy and sandy-loamy slopes; bajadas; boulder and rock outcrops; amongst boulders and rocks; sand hills; dunes; sandy plains; stony, gravelly, sandy and sandy-loamy flats; basins; stony-clayey hollows; along gravelly-

loamy, sandy and silty roadsides; along arroyos; gulches; gullies; sandy bottoms of ravines; springs; along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; sandy riverbeds; along and in stony-gravelly, gravelly-sandy and sandy washes; within sandy drainage ways; around lakes; swales; sandy banks of creeks; margins of cienegas; sand bars; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; stock tanks (charcos); ditches; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy, sandy and chalky ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; stony clay, sandy clay and clay ground, and rocky silty and silty ground, occurring from 100 to 10,600 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* var. *octoflora* is native to central and southern North America. *5, 6, 33 (recorded as *Festuca octoflora* Walt., Page 55), 43 (102809), 46 (recorded as *Festuca octoflora* Walt., Page 80), **56**, 63 (102709), 77, 85 (102709)*

Potamogetonaceae: The Pondweed Family

***Potamogeton pusillus* C. Linnaeus: Small Pondweed**

COMMON NAMES: Baby Pondweed, Lesser Pondweed, Patamot Nain (French), Pondweed, Small Pondweed. DESCRIPTION: Aquatic perennial forb/herb (7 to 60 inches in length); he stems are green; the flowers are brown or green with cream-white anthers; flowering generally takes place between early May and mid-October. HABITAT: Within the range of this species it has been reported from catch basins; around and in springs; streams; creeks; creekbeds; pools; ponds; muddy pondbeds; lakes; shallow backwaters; cienegas; marshes; depressions; around banks of ponds; in shallow water and at edges of rivers and lakes; shallow sandy margins of lakes and lagoons; coves; beaver ponds; stock tanks, and ditches growing rooted in wet sandy ground; mud, and submerged in water, occurring from sea level to 10,900 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Ducks reportedly feed on the stems, leaves and seeds. *Potamogeton pusillus* is native to northwestern, northern, central and southern North America; Central America; South America; Europe; southern Asia; and Africa. *5, 6, 43 (102809), 46 (Page 66), 58, 63 (102809 - color presentation), 85 (102809 - color presentation of dried material), **89***

Typhaceae: The Cat-tail Family

Typha angustifolia (see Notes under *Typha domingensis*)

***Typha domingensis* C.H. Persoon: Southern Cattail**

COMMON NAMES: Cat-tail, Cattail, Narrow-leaf Cattail, Southern Cat-tail, Piripepe (Spanish), Pirivevyi (Spanish), Southern Cat-tail, Southern Cattail, Totora (Spanish), Tule. DESCRIPTION: Semi-aquatic perennial forb/herb (3 to 13 feet in height); the foliage may be dark green or light yellowish-green; the pistillate flowers are light brown, tawny-brown or brown becoming buff or grayish; the staminate flowers are golden-yellow or yellow-green; flowering generally takes place between early March and late November (flowering records: one for early March, one for early April, one for late April, one for early May, three for mid-May, two for late May, four for early June, three for mid-June, one for

late June, two for early July, one for mid-July, two for late July, two for early August, one for early September, one for late September, one for early October, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from canyons; canyon bottoms; rocky hills; bouldery and rocky hillsides; clayey slopes; clayey flats; draws; seeps; around and in gravelly and gravelly-sandy springs; along and in streams; along and in rocky-sandy and sandy streambeds, along and in creeks; along rivers; sandy and sandy-silty riverbeds; rocky washes; waterholes (pozos); lagoons (esteros); pools; ponds; lakes; freshwater marshes; swamps; sinkholes; sloughs; gravelly-sandy banks of streams, rivers and washes; shallow water and silty edges of rivers, pools; ponds, lakes and bogs; along shores of lakes; sand bars; sandy benches; bottomlands; lowlands; sandy floodplains; along canals; along ditches; muddy-sandy and gravelly-sandy riparian areas, and waste places growing in shallow water, and wet, moist and damp bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; clayey loam ground; clay ground, and sandy-clayey silty and sandy silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Arizona specimens were historically referred to as *Typha angustifolia*. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. *Typha domingensis* is native to the subtropics; tropics, and warm-temperate regions of south-central and southern North America; Central America; South America; southern Pacific Islands; Australia; Eurasia, and Africa. *5, 6, 15, **16**, 28 (color photograph), 43 (102809), 46 (Page 64), 58, 63 (102809 - color presentation), 68, **77**, **85** (102809 - color presentation of dried material), 127, **WTK** (October 28, 2009)*

Zannichelliaceae: The Horned-pondweed Family

***Zannichellia palustris* C. Linnaeus: Horned Pondweed**

COMMON NAMES: Common Poolmat, Horned Pondweed, Horned-pondweed, Horned Poolmat. DESCRIPTION: Aquatic perennial forb/herb (stems to 20 inches in length); the foliage is green & brownish-purple or green-gray; the flowers are a clear white; flowering generally takes place between early April and early May (flowering record: two for early April, one for mid-April, one for late April, one for early May, one for early June, one for mid-September, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from springs; along and in streams; along and in creeks; along and in rivers; potholes; pools; ponds; lakes; estuaries; boggy areas; cienegas; marshes; banks of streams, rivers and ponds; edges of streams, creeks, rivers and marshes; shores of lakes; beaver ponds; stock tanks; reservoirs; along and in canals; along and in ditches, and troughs reported as growing on or in water and/or rooted in mucky; muddy, and wet gravelly and sandy ground and cobbly-sandy silty ground, occurring from sea level to10,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Ducks reportedly feed on the stems and leaves. *Zannichellia palustris* is native to northwestern, northern, central and southern North America; Central America; South America; Australia; Europe; Asia, and Africa. *5, 6, 43 (102909), 46 (Page 67), 58, 63 (102909 - color presentation), **85** (102909 - color presentation of dried material), **89***

CLASS MAGNOLIOPSIDA: The DICOTS

Acanthaceae: The Acanthus Family

***Anisacanthus thurberi* (J. Torrey) A. Gray: Thurber's Desert Honeysuckle**

COMMON NAMES: Anisacanthus, Chuparosa, Colegayo, Desert Honeysuckle, Thurber Anisacanthus, Thurber Desert-honeysuckle, Thurber's Desert Honeysuckle, Thurber's Desert-honeysuckle. DESCRIPTION: Terrestrial perennial cold deciduous shrub (3 to 8 feet in height); the stems are pale gray, gray or white; the leaves are green or yellow-green; the tubular flowers may be brick-red, brown-orange, brownish-red, burnt-orange, copper-red, orange, orange-brown, orange-red, orange with a purple fringe, orange-salmon, purplish, red, reddish-brown, reddish-orange, red-orange-brown or yellow; flowering generally takes place between late March and early August (additional records: one for late February, two for early October, two for mid-October, two for late October, three for early November, two for mid-November, one for late November, one for early December and one for mid-December; flowering has been described as occurring mainly in the spring, but may take place almost throughout the year). HABITAT: Within the range of this species it has been reported from mountains; escarpments; along bouldery and rocky canyons; rocky canyon bottoms; bases of cliffs; meadows; foothills; hills; gravelly hilltops; rocky and rocky-gravelly-loamy hillsides; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy and sandy slopes; rocky outcrops; amongst boulders; traces; valley bottoms; along roadsides; along arroyos; draws; sandy bottoms of draws; grottos; gulches; ravines; springs; along streams; along and in streambeds; along creeks; creekbeds; along rivers; along and in rocky, gravelly and sandy washes; bouldery drainage ways; along rocky and gravelly-sandy banks of rivers; along edges of creeks and washes; rocky shelves; rocky-sandy floodplains; mesquite bosques; ditches, and bouldery riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, pebbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam ground; rocky clay and gravelly clay ground, and silty ground, occurring from 1,000 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers may be fragrant. The flowers attract hummingbirds and both the Costa's Hummingbird (*Calypte costae*) and Rufous Hummingbird (*Selasphorus rufus*) have been observed visiting the flowers. This plant is browsed by wildlife. *Anisacanthus thurberi* is native to southwest-central and southern North America. *5, 6, 10, 13, 15, **16**, 18, 28 (color photograph), 43 (102909 - *Anisacanthus thurberi* A. Gray), 46 (Page 801), 48, **57**, 58, 63 (102909 - color presentation of seed), 77 (color photograph #1), **85** (102909), **89**, 91, 115 (color presentation)*

***Carlowrightia arizonica* A. Gray: Arizona Wrightwort**

COMMON NAMES: Arizona Carlowrightia, Arizona Wrightwort, Chuparosa, Desert Honeysuckle, Hummingbird Bush, Lemilla, Rama de Toro, Wrightwort. DESCRIPTION: Terrestrial perennial subshrub or shrub (2 to 40 inches in height); the foliage is gray, pale green or green; the flowers are cream, lavender, white or white with maroon or purple, reddish and yellow markings, or yellow reportedly opening shortly after sunrise and close late in the afternoon; based on few flowering records examined, flowering is scattered and generally taking place between mid-February and late May (flowering records: two for early January, five for mid-February, four for late February, three for mid-March, three for late March, four for early April, six for mid-April, six for late April, four for early May, nine for mid-May, one for late May, one for mid-August, one for mid-September, one for early October, three for mid-October, three for late October, one for mid-November and one for mid-December). HABITAT: Within the range of this species it has been range reported from mountains; cliffs; rocky canyons; along canyon walls; along rocky and gravelly canyon bottoms; crevices in rocks; buttes; along rocky ledges; foothills; rocky hills; bouldery, rocky and gravelly hillsides; rocky, rocky, stony and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; loamy valley bottoms; along gravelly roadsides; along and in arroyos; gulches; riverbeds; along and in gravelly, sandy and clayey-loamy washes; along and in bedrock drainages; in drainage ways; along margins of washes; benches; loamy bottomlands; around stock tanks, and riparian areas growing in dry bouldery, rocky, stony, gravelly and sandy ground and clayey loam and loam ground, occurring from sea level to 5,900 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Arizona Wrightwort is browsed by

Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Carlowrightia arizonica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (103009), 46 (Page 800), **56**, **57**, 58, 63 (103009), 77 (color photograph #2), **85** (103009 - color presentation of dried material), **89**, 115 (color presentation)*

Dicliptera pseudoverticillaris (see *Dicliptera resupinata*)

***Dicliptera resupinata* (M.H. Vahl) A.L. de Jussieu: Arizona Foldwing**

SYSNONYMY: *Dicliptera pseudoverticillaris* A. Gray. COMMON NAMES: Arizona Dicliptera, Arizona Foldwing, Dicliptera, Foldwing, Purple Drop, Twin Seed. DESCRIPTION: Terrestrial perennial forb/herb (12 to 32 inches in height); the stems are dark green; the leaves are dark green; the flowers may be lavender, lavender-pink, magenta, pink, pink-lavender, pinkish-purple, purple, purple-blue, purple-green and rose; flowering generally takes place between early mid-February and early November (additional records: two for early January, two for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky canyons; canyon bottoms; bases of cliffs; foothills; gravelly hills; rocky hillsides; rocky and stony-clayey slopes; amongst rocks; roadsides; within arroyos; along gravelly and sandy bottoms of arroyos; under shrubs in rocky streambeds; along creeks; along rivers; along and in sandy washes; drainage ways; swales; banks of washes; terraces; bottomlands; flood plains; mesquite bosques, and riparian areas sometimes reported as growing in shade in dry rocky ground; rocky-sandy loam and silty-clayey loam ground, and rocky clay, stony clay and sandy clay ground, occurring from sea level to 6,100 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dicliptera resupinata* is native to southwest-central and southern North America. *5, 6, 15, 43 (103009 - *Dicliptera resupinata* Juss.), 46 (Page 801), **56**, **57**, 63 (103009), **85** (103009), 115 (color presentation)*

***Justicia longii* R.A. Hilsenbeck: Longflower Tube Tongue**

SYNONYMY: *Siphonoglossa longiflora* (J. Torrey) A. Gray. COMMON NAMES: Longflower Tube Tongue, Long-flowered Justicia, Longflowered Tube Tongue, Longflowered Tubetongue, Siphonoglossa, Tubetongue, White Needle Flower. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 40 inches in height, one plant was described as being 12 inches in height with a crown 12 inches in width, one plant was described as being 16 inches in height with a crown 16 inches in width); the foliage is gray-green or dark green; the flowers are white or light yellow; based on few records examined, flowering generally takes place between mid-April and early November (additional records: one for early February and one for mid-March); the green fruits turn dark brown when mature. HABITAT: Within the range of this species it has been reported from mountains; crevices in cliffs; canyons; canyon bottoms; bases of cliffs; rocky foothills; gravelly hills; bouldery-rocky, rocky and rocky-sandy hillsides; rocky slopes; rocky outcrops; amongst boulders and rocks; basins; arroyos; bottoms of arroyos; ravines; springs; along washes; within rocky and rocky-gravelly drainages; within drainage ways; along rocky banks of washes; margins of washes, and bouldery-sandy riparian areas growing in dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 1,200 to 4,900 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the tubular flowers open in the evening and are reported to be slightly fragrant. This plant is browsed by wildlife. *Justicia longii* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), **16** (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 28 (recorded as *Siphonoglossa longiflora*, color photograph), 43 (103009), 46 (recorded as *Siphonoglossa longiflora* (Torr.) Gray, Page 802), 58 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 63 (103009), 77 (recorded as *Siphonoglossa longiflora*, color photograph #58), **85** (103009 - color presentation of dried material), **89** (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 115 (color presentation)*

Ruellia clandestina (see footnote 89 under *Ruellia nudiflora*)

***Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban (var. *nudiflora* is the variety reported as occurring in Arizona): Violet Wild Petunia**

SYNONYMY: (*Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban var. *glabrata* E.C. Leonard for *Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban var. *nudiflora*). COMMON NAMES: Common Wild Petunia, Longneck Ruellia, Oregano de China, Ruellia, Violet Ruellia, Violet Wild Petunia, Wild Petunia. DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (12 to 40 inches in height); the flowers are blue, lavender or purple; flowering generally takes place between mid-March mid-October. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky canyon bottoms; foothills; rocky slopes; alluvial fans; bajadas; amongst rocks; flats; roadsides; arroyos; sandy draws; along gullies; along streams; along rocky and sandy washes; cienegas; swales; banks of arroyos and washes; bottomlands; floodplains; openings in mesquite bosques; margins of stock tanks (charcos); in ditches; along ditch banks; riparian areas, and disturbed areas often growing in shaded areas and amongst rocks growing in dry rocky and sandy ground; loam ground, and clay ground often in shaded areas and amongst rocks, occurring from 1,900 to 4,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Ruellia nudiflora* is native to south-central and southern North America. *5, 6, **16**, 43 (103109), 46 (Page 799), **56**, **57**, 63 (103109 - color presentation), 77 (color photograph #3), **85** (103109 - color presentation), **89** (recorded as *Ruellia clandestina* L.), 115 (color presentation)*

Ruellia nudiflora var. *glabrata* (see *Ruellia nudiflora* var. *nudiflora*)

Siphonoglossa longiflora (see *Justicia longii*)

Aizoaceae: The Fig-marigold Family

***Trianthema portulacastrum* C. Linnaeus: Desert Horsepurslane**

COMMON NAMES: Black Pigweed, Desert Horse-purslane, Desert Horsepurslane, Desert Purslane, Giant Pigweed, Horse Purslane, Horse-purslane, Jia Hai Ma Chi (transcribed Chinese), Kaach U An (Pima), Lowland-purslane, Phak Bia Hin, Pigweed, Purslane, Verdolaga (Spanish), Verdolaga Blanca, Verdolaga Rastrera. DESCRIPTION: Terrestrial annual or perennial forb/herb (stems are to 1 to 2 or more feet in height and 1 to 5 feet in length), the stems may be reddish; the succulent leaves are green; the flowers (1/3 inch in length) are magenta, magenta-pink, pink, pink-magenta, purple, purple-pink, red, rose-pink, rose-purple, white & pink, yellow or yellow-red; flowering generally takes place between late June and late November (additional records: one for late January, one for late April and two for mid-May); the fruits are brick-red. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bases of cliffs; sandy ridges; ridgetops; foothills; rocky hills; rocky and clayey slopes; alluvial fans; bajadas; sand dunes; sand hummocks; blow-sand; sandy, clayey and silty-loamy flats; valley floors; coastal dunes; sandy coastal plains; coastal flats; railroad right-of-ways; along gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; along seeps; springs; creekbeds; along rivers; sandy riverbeds; in sandy and sandy-silty washes; along and in drainages; palm oases; lakes; clayey and silty playas; cienegas; marshes; depressions; sloughs; swales; along clayey and silty banks of creeks and rivers; sandy and sandy-clayey edges of playas, mudflats; sandy beaches; terraces; sandy and silty floodplains; along canals; along silty ditches; ditch banks; sandy and clayey riparian areas; waste places, and disturbed areas growing in moist and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and silty loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,500 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been

utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Horsepurslane is an alternate host plant of the Beet Leafhopper. *Trianthema portulacastrum* is native to south-central and southern North America; Central America; northern, western and southern South America; western, central, eastern and southern Asia, and Africa. *5, 6, 15, **16**, 43 (103109), 46 (Page 281), **56**, **57**, 58, 63 (103109), 68, 77, **85** (103109 - color presentation), 115 (color presentation), 127, **89**, **WTK** (July 2008)*

Amaranthaceae: The Amaranth Family

***Amaranthus albus* C. Linnaeus: Prostrate Pigweed**

SYNONYMY: *Amaranthus graecizans* auct. non C. Linnaeus. COMMON NAMES: Bai Xian (transcribed Chinese), Carurú-branco (Portuguese), Cochino, Pigweed, Pigweed Amaranth, Prostrate Amaranth, Prostrate Pigweed, Quelite Manchado, Stiff Tumbleweed, Tumble Pigweed, Tumble-weed, Tumbleweed, Tumbleweed Amaranth, Tumbleweed Pigweed, Tumble Pigweed, White Amaranth, White Pigweed. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 4 feet in height, one plant was described as being 6 to 10 inches in height and 5 feet in width); the stems may be yellowish; the foliage is green; the inconspicuous flowers may be green, white, whitish-green or yellowish; flowering generally takes place between mid-May and mid-November (additional records: two for mid-January, two for mid-February, one for early March, one for mid-March, one for late March, two for early April, five for mid-April and two for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; canyons; rocky canyonsides; bouldery-gravelly-sandy, rocky, gravelly-sandy, sandy and clayey canyon bottoms; bases of cliffs; along bluffs; ridges; meadows; shaley hills; bouldery and rocky hillsides; rocky, gravelly-loamy, sandy and clayey-loamy slopes; lava beds; sand dunes; prairies; silty plains; cindery, sandy and clayey-loamy flats; sandy-clayey-loamy basins; sandy and sandy-loamy valley floors; along railroad right-of-ways; along gravelly-loamy, sandy and sandy-loamy roadsides; clayey arroyos; gravelly bottoms of arroyos; draws; along streams; along and in cobbly and sandy streambeds; gravelly-sandy creekbeds; along rivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, sandy and gravelly-sandy-silty washes; clayey poolbeds; clayey lakebeds; bogs; freshwater marshes; swampy areas; freshwater marshes; clayey depressions; clay pans; sinks; swales; sandy and sandy and clayey-loamy banks of springs, streams, rivers, riverbeds and lakes; along edges of washes, tanks, ponds and salt marshes; margins of rivers, ponds and lakes; gravel and sand bars; sandy benches; rock shelves; stony-loamy and sandy terraces; clayey lowlands; sandy floodplains; around and in stock tanks; along and in ditches; ditch banks; sandy riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; stony loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; sandy-clayey and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a ceremonial item. Prostrate Amaranth is considered to be one of Arizona's tumbleweeds. *Amaranthus albus* may be native to northwestern, central, and southern North America; however, its native range in North America is obscure. *5, 6, 15, 43 (103109), 46 (Page 266), 58, 63 (103109 - color presentation), 68 (reported that *Amaranthus albus* was introduced from topical America), 85 (103109 - color presentation), **89** (recorded as *Amaranthus graecizans* L.), 101 (color photograph), 127*

***Amaranthus blitoides* S. Watson: Mat Amaranth**

SYNONYMY: *Amaranthus graecizans* auct. non C. Linnaeus. COMMON NAME: Bei Mei Xian (transcribed Chinese), Mat Amaranth, Matweed, Matweed Amaranth, Prostrate Amaranth, Prostrate Pigweed, Tumble-weed, Wiwa (Zuni). DESCRIPTION: Terrestrial annual forb/herb herb (prostrate 4 to

28 inches in length, one plant was described as being 6 to 10 inches in height and 5 feet in width); the stems may be green, purplish or red, the leaves are green; the flowers are green or white-green; flowering generally takes place between early May and mid-November. HABITAT: Within the range of this species it has been reported from mountains; mesas; gravelly-sandy canyons; rocky and sandy canyon bottoms; talus; foothills; rocky hills; rocky hillsides; along escarpments; bouldery, rocky, gravelly and clayey slopes; sand dunes; gravelly-sandy plains; sandy flats; valley floors; silty-loamy valley bottoms; railroad right-of-ways; along loamy and clayey roadsides; within arroyos; draws; gulches; springs; along streams; along creeks; along and in sandy streambeds; sandy creekbeds; sandy riverbeds; along and in rocky, stony-sandy-silty, gravelly-sandy and sandy washes; silty lakebeds; swampy areas; dried clayey-loamy mud holes; sinks; swales; clayey-loamy banks of springs and rivers; edges of washes and drainages; margins of washes; shores of lakes; cobbly-sandy and sandy benches; sandy deltas; clayey dams; along ditches; sandy riparian areas; sandy waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; clayey loam, silty loam and loam ground; clay ground; stony-sandy silty, gravelly-sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as sheep forage and for making glue. *Amaranthus blitoides* is native to northwestern and central (possibly only south-central or southeast-central) North America. *5, 6, 15, 43 (103109), 46 (shown as a synonym for *Amaranthus graecizans* L., Page 266), 63 (103109 - color presentation of seeds), 68 (recorded as *Amaranthus graecizans* L.), 85 (110109 - color presentation), **89**, 101 (color photograph), 127*

***Amaranthus fimbriatus* (J. Torrey) G. Bentham ex S. Watson: Fringed Amaranth**

SYNONYMY: *Amaranthus fimbriatus* (J. Torrey) G. Bentham ex S. Watson var. *fimbriatus*. COMMON NAMES: Bledo, Fringed Amaranth, Fringed Pigweed, Guey Cimarron (Mayo), Quelite, Quelite Cimarron (Mayo), Quelitillo, Siim (Seri), Toothed Amaranth, Wee'e (Yaqui), Ziim C ic (Seri), Ziim Cáitic (Seri). DESCRIPTION: Terrestrial annual forb/herb (6 to 64 inches in height); the stems may be green, pink or pink-red; the foliage may be green or purple, pinkish-purple, pink-red or reddish; the flowers (in spikes) are green, pink, pinkish-white or white; flowering generally takes place between early March and late November (additional records: two record for mid-December and two for late December), the fruits are pinkish-purple. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky canyons; rocky and gravelly-sandy canyon bottoms; ridgetops; foothills; bouldery, bouldery-gravelly and rocky hills; hilltops; rocky hillsides; bouldery-rocky, rocky, gravelly, gravelly-sandy and sandy slopes; rocky alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders; sandy-silty lava flows; sand hills; sand dunes; sand hummocks; blow-sand deposits; sandy plains; gravelly and sandy flats; valley floors; coastal dunes; coastal flats; along railroad right-of-ways; along gravelly roadsides; within rocky arroyos; bottoms of arroyos; draws; springs; riverbeds; along and in rocky, rocky-sandy, sandy and sandy-clayey washes; waterholes; silty lakebeds; playas; marshes; along banks of rivers and washes; sandy-clayey edges of washes, lagoons and swales; margins of esteros; mudflats; cobbly and sandy beaches; sandy floodplains; sandy mesquite bosques; stock tanks (charcos), riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Amaranthus fimbriatus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110109), 46 (Page 266), 63 (110109), 68, 77, **85** (110109 - color presentation), **89**, 115 (color presentation), 127*

Amaranthus fimbriatus var. *fimbriatus*: (see *Amaranthus fimbriatus*)

Amaranthus graecizans (synonym historically misapplied to both *Amaranthus albus* and *Amaranthus blitoides*)

***Amaranthus obcordatus* (A. Gray) P.C. Standley: Trans-Pecos Amaranth**

COMMON NAMES: Amaranth, Quelite, Trans-Pecos Amaranth. DESCRIPTION: Terrestrial annual forb/herb (4 to 20 inches in height); the flowers (in spikes) are greenish-pinkish-white; flowering generally takes place between early August and mid-October (flowering records: one for early August, one for late August, one for late September and two for mid-October). HABITAT: Within the range of this species it has been reported from rocky hillsides; rocky bajadas; plains; flats; valleys; roadsides; within arroyos; along sandy washes; floodplains; in ditches; gravelly riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground, occurring from 1,300 to 4,000 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Amaranthus obcordatus* is native to southwest-central and southern North America. *5, 6, 43 (110109), 46 (Page 266), **56**, **57**, 63 (110109), **85** (110109 - color presentation of dried material)*

***Amaranthus palmeri* S. Watson: Carelessweed**

COMMON NAMES: Bledo, Careless Weed, Careless-weed, Carelessweed, Palmer Amaranth, Palmer's Amaranth, Palmer Pigweed, Pigweed, Red-root Pigweed, Quelite, Quiltite de las Aguas, Red-root, Rough Pig Weed. DESCRIPTION: Terrestrial annual forb/herb (8 to 80 inches in height, sometimes to 15 feet in height); the stems may be green or red; the leaves are green, the flowers (in spikes) are hyaline cream with green midribs, green, pink or white-green; flowering generally takes place between early June and late December (additional records: one for early February, two for mid-March, two for early May and one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky and gravelly-loamy canyons; sandy canyon bottoms; talus slopes; gravelly ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly, sandy, sandy-loamy and sandy-silty-loamy slopes, alluvial fans; bajadas; sand dunes; sandy plains; gravelly, sandy and loamy flats; basins; valley floors; along railroad right-of-ways; along gravelly-loamy, sandy and sandy-silty roadsides, stony arroyos; draws; springs; sandy streams; creeks; creekbeds; along and in rocky-cobbly-sandy and sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; gravelly-sandy-loamy drainage ways; water holes; playas; cienegas; swampy areas; silty swales; sandy and silty banks of streams, creeks, rivers and washes; sandy edges of washes and marshes; sandy-loamy shores of ponds; mudflats; beaches; gravelly-sand and sand bars; sandy benches; sandy terraces; bottomlands; along sandy floodplains; sandy mesquite bosques; along fencelines; around stock tanks; along sandy and silty ditches; sandy and gravelly-sandy-silty riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-cobbly-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, sandy-silty loam, humus-clayey loam and loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Mourning Doves (*Zenaida macroura*), Quail and Whitewing Doves (*Zenaida asiatica*) feed on the seeds. *Amaranthus palmeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110109), 46 (Page 266), **56**, **57**, 58, 63 (110109 - color presentation of seeds), 68 ("The plant is relished by livestock in all stages of growth, and is sometimes cut for hay or put into silos.... Palmer amaranth contains nitrate varying from a trace to over 9 percent. As in monolepis, the nitrate is not poisonous, but can be changed quickly into the toxic nitrite by enzymatic action."), 77, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principle is nitrate. Most plants contain small amounts of nitrate, but carelessweed, under favorable growth conditions will store up high concentrations. ... Carelessweed is relished by livestock, particularly during the earlier stages of growth. It usually is most dangerous immediately following significant environmental changes, but poisonings have occurred at all

growth stages under a variety of conditions. The nitrate content of carelessweed has been found to be significantly higher in plant samples collected in the morning as compared to afternoon samples. Some plots of ground will produce carelessweed of higher nitrate content than others. ... Known areas of carelessweed should be avoided by livestock during the early stages of growth and following periods of sudden temperature changes as occur in the fall or mid-summer at the higher elevations in Arizona. Carelessweed may remain dangerous as a component of hay or ensilage." See text for additional information.), **85** (110109 - color presentation), **89**, 101 (color photograph), 115 (color presentation), 127*

Cladothrix lanuginosa (see *Tidestromia lanuginosa*)

***Tidestromia lanuginosa* (T. Nuttall) P.C. Standley: Woolly Tidestromia**

SYNONYMY: *Cladothrix lanuginosa* T. Nuttall. COMMON NAMES: Espanta Vaqueras, Espanta Vaqueros (Spanish), Herba Lanuda, Hierba Ceniza, Honeymat, Honeysweet, Kau Ee Oona (Yaqui), White Mat, Woolly Honeysweet, Woolly Mat, Woolly Tidestromia, Wooly Tidestromia. DESCRIPTION: Terrestrial prostrate annual forb/herb (3 to 20 inches in height and 8 inches to 5 feet in diameter); the plants are gray, gray-green, reddish, white-green, whitish or yellowish-green; the stems are pink, purple, red or red-purple; the flowers are white, yellow or yellowish-green; flowering generally takes place between late June and late November (additional record: one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; talus; sandy ridges; sandy foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; alluvial fans; rocky bajadas; lava flows; sand hills; sand dunes; sand hummocks; sandy plains; sandy and clayey flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastal flats; coastal beaches; along roadbeds; along gravelly-loamy, sandy, sandy-loamy and clayey roadsides; along sandy arroyos; draws; gullies; ravines; sandy riverbeds; along and in rocky, gravelly and sandy washes; along drainages; along drainage ways; depressions; swales; banks of rivers and washes; sandy edges of washes; rocky-sandy shores of lakes; mudflats; sandy beaches; sandy-loamy terraces; sandy-silty lowlands; along sandy floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in muddy and wet, moist, damp or dry bouldery, rocky, gravelly and sandy ground; gravelly loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Woolly Tidestromia is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus*). Subspecies and varieties for this species may or may not be recognized by various sources. *Tidestromia lanuginosa* is native to south-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (110109, no records located for varieties or subspecies), 46 (Page 268), **56**, **57**, 58, 63 (110109 - color presentation), 77, **85** (110209 - also reported as *Tidestromia lanuginosa* ssp. *eliassonii*, *Tidestromia lanuginosa* ssp. *eliassoniana* Sanchez-del Pino & Olivera, *Tidestromia lanuginosa* (T. Nuttall) P.C. Standley ssp. *eliassonii* Sánchez-del Pino & Flores-Olvera, *Tidestromia lanuginosa* ssp. *lanuginosa* (Nutt.) Stand. and *Tidestromia lanuginosa* var. *lanuginosa* (Nutt.) Stand., color presentation), **89** (recorded as *Cladothrix languinosa* Nutt.), 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation), **WTK** (October 23, 2009)*

Tidestromia lanuginosa ssp. *eliassoniana* (see footnote 85 under *Tidestromia lanuginosa*)

Tidestromia lanuginosa ssp. *eliassonii* (see footnote 85 under *Tidestromia lanuginosa*)

***Tidestromia lanuginosa* (T. Nuttall) P.C. Standley subsp. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera: Woolly Tidestromia**

COMMON NAMES: Espanta Vaqueras, Espanta Vaqueros (Spanish), Herba Lanuda, Hierba Ceniza, Honeymat, Honeysweet, Woolly Honeysweet, Woolly Tidestromia. DESCRIPTION: Terrestrial annual forb/herb (prostrate 4 inches to 1 foot in height); the stems are purple or reddish, the leaves are

gray or white-green; the flowers are yellowish; flowering generally takes place between late June and late November. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; sandy ridges; rolling foothills; rocky hill; rocky hillsides; rocky, gravelly and gravelly-loamy slopes; rocky bajadas; sand hills; sand dunes; sand hummocks; plains; sandy flats; basins; sandy valley floors; coastal flats; gravelly-loamy and sandy roadsides; gullies; sandy riverbeds; along and in rocky and sandy washes; banks of rivers; sandy-silty lowlands; along floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground; gravelly loam ground; gravelly clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This variety was not found in either BONAP Database or the NRCS Plants Database. Subspecies and varieties for this species may or may not be recognized by various sources. Woolly Tidestromia is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus*). The species, *Tidestromia lanuginosa*, is native to south-central and southern North America. *28 (species), 43 (110109, no record), 46 (species, Page 268), 63 (110109, *T.l.* var. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera is not shown as a variety), **85** (110209), 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation of species)*

Tidestromia lanuginosa ssp. *lanuginosa* (see footnote 85 under *Tidestromia lanuginosa*)

Tidestromia lanuginosa var. *lanuginosa* (see footnote 85 under *Tidestromia lanuginosa*)

Anacardiaceae: The Sumac Family

***Rhus lancea* C. Linnaeus f.: African Sumac**

COMMON NAMES: African Sumac, Hlokoshiyne (isiZulu), Karee, Karree (Afrikaans and English), Mokalaabata (North Sotho), Sauce Africano, Umhlakotshane (amaXhosa), Willow Rhus. DESCRIPTION: Terrestrial perennial evergreen tree (5 to 33 feet in height with a crown up to 30 feet in width); the inconspicuous flowers are greenish, greenish-yellow, whitish, whitish-green or yellow; based on few flowering records examined, flowering generally takes place between early December to late July (flowering records: one for early January, two for late January, one for early February, one for late February, one for mid-March, one for late July, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from along and in mountains; canyons; canyon bottoms; hills; sandy slopes; bajadas; valley floors; along rivers; along and in washes; within drainages; edges of creeks; along fencelines; along ditches; riparian areas and disturbed areas growing in moist and dry sandy ground and sandy loam ground, occurring from 300 to 2,600 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This species was not located in the BONAP Database. *Rhus lancea* is native to southern Africa. ***16**, 18, 22 (color photograph), 26 (color photograph), 43 (110209), **56**, **57**, 63 (110209), 77, **85** (110209 - color presentation of dried material), 106 (122208), 109, **WTK** (October 28, 2009)*

Apiaceae (Umbelliferae): The Carrot Family

***Bowlesia incana* H. Ruiz Lopez & J.A. Pavon: Hoary Bowlesia**

COMMON NAMES: American Bowlesia, Bowlesia, Hairy Bowlesia, Hoary Bowlesia, Miner's Lettuce. DESCRIPTION: Terrestrial annual forb/herb (creeping prostrate stems to 2 inches in height and 2 to 24 inches in length); the foliage is pale green or green; the inconspicuous flowers are greenish-white, pink, purple, white, white-green or yellowish-green; flowering generally takes place between late January and late May (additional records: one for mid-June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; rocky canyons;

rocky canyon bottoms; bases of cliffs; crevices in rocks; buttes; rocky ledges; rocky ridgetops; meadows; foothills; bouldery hills; clayey hilltops; bouldery hillsides; bouldery, rocky, gravelly, gravelly-sandy and clayey slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; lava fields; plains; rocky and gravelly flats; basins; valley floors; along roadsides; draws; along gullies; ravines; seeps; along streams; along creeks; around creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; within rocky-clayey drainages; along and in drainage ways; swampy areas; swales; along rocky and gravelly-sandy banks of arroyos, creeks, rivers and washes; sandy benches; loamy bottomlands; floodplains; lowlands; bottoms of tanks; ditches; ditch banks; rocky and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, humusy loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty ground often in the shade of boulders, rocks, trees, shrubs and other vegetation, occurring from sea level to 5,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTE: *Bowlesia incana* is native to southwest-central and southern North America, and South America. *5, 6, 15, **16**, 43 (110209), 46 (Page 609), **57**, 58, 63 (110209 - color presentation), 68, 77, **85** (110309 - color presentation), 106 (110209), 115 (color presentation), **89** (recorded as *Bowlesia lobata* R. & P.)*

Bowlesia lobata (see footnote 89 under *Bowlesia incana*)

Caucalis microcarpa (see *Yabea microcarpa*)

***Daucus pusillus* A. Michaux: American Wild Carrot**

COMMON NAMES: American Carrot, American Wild Carrot, Rattlesnake Carrot, Rattlesnake Weed (California), Rattlesnake-weed, Rattlesnakeweed, Seedticks, Southwest Wild Carrot, Southwestern Carrot, Wild Carrot, Zanahoria Silvestre. DESCRIPTION: Terrestrial annual forb/herb (1 to 40 inches in height); the flowers may be cream, greenish-white, purplish, white or light yellow; flowering generally takes place between early March and late June (additional record: one for early September); the seed heads are reddish. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; rocky, rocky-sandy and sandy-clayey mesas; plateaus; rocky and stony canyons; rocky and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; bluffs; rocky knobs; clayey-loamy and silty-loamy ridges; bouldery ridgetops; rocky foothills; bouldery, rocky, rocky-clayey and clayey hills; bouldery hilltops; rocky, rocky-clayey and loamy hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-clayey, gravelly, sandy, loamy, clayey and clayey-loamy slopes; rocky-sandy-loamy alluvial fan; bajadas; bouldery and rocky outcrops; amongst rocks; along shaded bases of rocks; sandy plains; cobbly-sandy-loamy, cobbly-sandy-loamy-clayey, gravelly and sandy flats; basins; clayey valley bottoms; coastal marshes; gravelly edges of railroadbeds; along rocky, gravelly and sandy roadsides; along bouldery arroyos; silty draws; gullies; around springs; moist sandy soil along streams; sandy streambeds; along rivers; riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; drainages; along and in drainage ways; clayey freshwater marshes; clayey depressions; gravelly-sandy and sandy banks of arroyos, streams and rivers; clayey edges of creeks and salt marshes; margins of washes; mudflats; along sandy benches; sandy terraces; sandy bottomlands; floodplains; canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, bouldery-gravelly, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clay loam, silty loam and loam ground; rocky clay, cobbly-sandy-loamy clay and clay ground, and silty ground, occurring from sea level to 5,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a talisman in gambling (a good luck charm). *Daucus pusillus* is native to northwest-central, south-central and southern North America and central and southern South America. *5, 6, **16**, 28 (color photograph), 43 (110309),

46 (Page 612), **56**, **57**, 58, 63 (110309 - color presentation), 77, **85** (110409 - color presentation), **89**, 115 (color presentation), 127*

***Hydrocotyle ranunculoides* C. Linnaeus f.: Floating Marshpennywort**

COMMON NAMES: Cut Leaf Pennywort., Floating Marsh Pennywort, Floating Marshpennywort, Floating Pennyroyal, Floating Pennywort, Floating Water-pennywort, Hydrocotyle, Ombligo de Puerco (Hispanic), Water Pennywort, Water-pennywort. DESCRIPTION: Aquatic perennial forb/herb (creeping or floating ½ to 14 inches in height or length); the foliage is green; the flowers are greenish, purplish, light yellow or yellowish-white; based on few flowering records examined, flowering generally takes place between early May and late September (flowering records: one for early May, one for early June, two for mid-June, one for mid-July, one for late July, one for early September and one for late September). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; valley floors; along arroyos; around and in springs; along streams; streambeds; creeks; in rivers; wet sandy riverbeds; watercourses; pools; cienegas; marshes; freshwater slough; muddy swales; edges of streams and lagoons; along margins of ponds and lakes; floodplains; margins of stock tanks; ditches and riparian areas growing in fresh water and occasionally creeping on mud and wet sandy ground, occurring from sea level to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Hydrocotyle ranunculoides* is native to central and southern North America; Central America; South America, and central Africa. #5, 6, 30, 43 (110409), 46 (Page 609), 58, 63 (110409 - color presentation), **85** (110409 - color presentation of dried material), **89***

Lilaeopsis recurva (see *Lilaeopsis schaffneriana* var. *recurva*)

Lilaeopsis schaffneriana subsp. *recurva* (see *Lilaeopsis schaffneriana* var. *recurva*)

***Lilaeopsis schaffneriana* (D.F. von Schlechtendal) J.M. Coulter & J.N. Rose var. *recurva* (A.W. Hill) J.M. Affolter: Schaffner's Grasswort**

SYNONYMY: *Lilaeopsis recurva* A.W. Hill, *Lilaeopsis schaffneriana* (D.F. von Schlechtendal) J.M. Coulter & J.N. Rose subsp. *recurva* (A.W. Hill) J.M. Affolter. COMMON NAMES: Cienega False Rush, Cienega False-rush, Cienega Water Umbel, Huachuca Water Umbel, Huachuca Water-umbel, Huachuca Waterumbel, Schaffner Grasswort, Schaffner's Grasswort. DESCRIPTION: Terrestrial aquatic to semi-aquatic perennial forb/herb (leaves 1½ to 9 inches in height); the leaves are yellow-green; the tiny flowers are cream, greenish or white; based on few flowering records examined, flowering generally takes place between late May and late June (flowering records: one for late January, two for late May, two for early June, two for mid-June, one for late June, one for mid-July and one for late August; flowering beginning as early as March and ending as late as October has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountain slopes; hillsides; along draws; perennial seeps; in springs; along streams; streambeds; along creeks; along rivers; around and in ponds; around and in lakes; cienegas; marshlands; muddy banks, and riparian areas growing in shallow water; muddy, and wet rocky and sandy ground and silty ground, occurring from 2,000 to 7,100 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This species has been recorded as having once occurred in the valley of the Santa Cruz River near Tucson. *Lilaeopsis schaffneriana* var. *recurva* is native to southwest-central and southern North America. *5, 6, 8, 9 (color photograph), 43 (110509), **46**, 46 (recorded as *Lilaeopsis recurva* A.W. Hill (Santa Cruz River valley near Tucson, Pima County - Pringle in 1881, the type collection), Page 617), 63 (110509), 85 (110509 - detailed information is masked - color presentation)*

***Spermolepis echinata* (T. Nuttall *ex* A.P. de Candolle) A.A. Heller: Bristly Scaleseed**

COMMON NAMES: Beggar's Lice, Bristly-fruit Scaleseed, Bristly Scaleseed, Scale Seed, Scaleseed, Wild Carrot. DESCRIPTION: Terrestrial annual forb/herb (2 to 8 inches in height); the minute flowers are cream, greenish-white, white or yellow-white; flowering generally takes place between mid-

February and late April (additional records: one for late May and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyons; along canyon bottoms; foothills; rocky hills; hillsides; rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy and gravelly-loamy slopes; rocky-sandy alluvial fans; gravelly bajadas; amongst rocks; gravelly and sandy flats; valley floors; valley bottoms; gravelly railroad right-of-ways; stony, gravelly and sandy roadsides; sandy and silty-loamy draws; bottoms of draws; springs; moist clayey soils along streams; along creeks; along rivers; riverbeds; along and in gravelly and sandy washes; gravelly-sandy drainage ways; banks of arroyos; channel bars; benches; sandy floodplains; reservoirs; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground and rocky-gravelly loam, gravelly loam and silty loam ground, occurring from 100 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Spermolepis echinata* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (110509 - no record), 46 (Page 610), 58, 63 (110509), 77, **85** (110509 - color presentation), **89***

***Yabea microcarpa* (W.J. Hooker & G.A Arnott) B.M. Koso-Poljansky: False Carrot**

SYNONYMY: *Caucalis microcarpa* W.J. Hooker & G.A. Arnott. COMMON NAMES: California Hedge Parsley, False Carrot, Falsecarrot; False Hedge Parsley, False Hedge-parsley, Hedge Parsley, Wild Parsley. DESCRIPTION: Terrestrial annual forb/herb (1 to 16 inches in height); the flowers are white; flowering generally takes place between late February and late May. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky, gravelly, gravelly-sandy and sandy canyons; rocky canyon bottoms; talus slopes; bases of cliffs; buttes; rocky ridges; rocky hills; rocky and clayey hillsides; bouldery, rocky, rocky-gravelly, gravelly, loamy and clayey-loamy slopes; rocky outcrops; amongst rocks; gravelly and sandy flats; basins; along grassy roadsides; gulches; along seeps; along streams; along creeks; rocky creekbeds; along rivers; along rocky and rocky-gravelly washes; along and in drainage ways; along banks of washes; sandy benches; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, sandy loam, clayey loam and loam ground, and stony clay and clay ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Yabea microcarpa* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (110509 - *Yabea microcarpa* Koso-Pol.), 46 (recorded as *Caucalis microcarpa* Hook. & Arn., Page 612), 58, 63 (110509), 77, **85** (110509 - color presentation)*

Apocynacaeae: The Dogbane Family

Haplophyton cimicidum (see *Haplophyton crooksii*)

Haplophyton cimicidum var. *crooksii* (see *Haplophyton crooksii*)

***Haplophyton crooksii* (L.D. Benson) L.D. Benson: Cockroachplant**

SYNONYMY: *Haplophyton cimicidum* auct. non A.L. de Candolle, *Haplophyton cimicidum* A.L. de Candolle var. *crooksii* L.D. Benson. COMMON NAMES: Actimpatli, Atempatli, Arizona Cockroach Plant, Cockroachplant, Crooks Cockroachplant, Hierba-de-la-cucuracha (Hispanic). DESCRIPTION: Terrestrial perennial subshrub or shrub (7 to 40 inches in height); the foliage is dark green; the flowers are cream-white, green-yellow or yellow; flowering generally take place between mid-July and mid-November (additional records: one for early March, one for mid-April, two for late April, one for late May and one for early December); the slender, smooth and elongate fruits are gray-green or green pods. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon walls; canyon bottoms; rocky talus slopes; bases of cliffs; below rocky ledges; rocky ridges; foothills; rocky hills; rocky hillsides; bouldery, bouldery-rocky and rocky slopes; bouldery and rocky outcrops; amongst boulders and rocks; shade of boulders; valley bottoms; gulches; in rocky and gravelly drainages;

in rocky drainage ways; rocky banks of creeks, drainages and drainage ways; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,900 to 5,200 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close in the early morning, this plant is slow growing and may be drought deciduous, it may best be used planted with succulents in rock gardens. *Haplophyton crooksii* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (110509), 46 (Page 651), 58, 63 (0110509), 77 (color photograph #4), **85** (110509 - color presentation), **89** (recorded as *Haplophyton cimicidium* (Pav.) A.DC.), 115 (color presentation), MBJ*

Aristolochiaceae: The Birthwort Family

***Aristolochia* C. Linnaeus: Dutchman's Pipe**

COMMON NAME: Dutchman's Pipe *43 (053110), 46 (Page 227), 63 (053110), 85 (053110 - color presentation), **89***

***Aristolochia watsonii* E.O. Wooton & P.C. Standley: Watson's Dutchman's Pipe**

COMMON NAMES: Dutchman's Pipe, Dutchman's Pipevine, Hierba del Indio, Indian Root, Indian-root, Indianroot, Pipevine, Pipevine Flower, Raiz del Indio, Watson's Dutchman's Pipe, Watson Indian Root. DESCRIPTION: Terrestrial perennial deciduous (evergreen?) forb/herb or vine (a short creeping, trailing or twining vine 8 to 40 inches in length); the leaves are blackish, dark brown-purple, dark green, maroon-brown of the upper surface and pale dull green below, and purple or purple-green, the flowers blackish, brownish, brown with yellow spotted throat, green with maroon rim and dots in throat, green with purple spots, brownish-purple, purple, purple-brown, purple-green, purple-green-brown or reddish-brown; flowering generally takes place between mid-March and early October (additional records: one for mid-February, one for late November, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; canyons; canyon bottoms; shady hollows; bases of cliffs; crevices in boulders and rocks; ridges; pockets of sandy soil on ridges; rocky hills; rocky, rocky-gravelly and gravelly hillsides; rocky and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; gravelly, sandy and sandy-silty flats; loamy basins; hollows; valley floors; valley bottoms; along sandy roadsides; in gravelly, gravelly-sandy and sandy arroyos; bottoms of arroyos; gulches; sandy bottoms of ravines; along streams; along creeks; creekbeds; along rivers; gravelly-sandy riverbeds; along and in rocky, gravelly and sandy washes; along small drainages twining on Canyon Ragweed and White Ratany; along bouldery drainage ways; in cienegas with Sacaton; swamps; along bedrock, gravelly and sandy banks of creeks and washes; along edges of washes; benches; terraces; floodplains; mesquite bosques; bases of levees; around stock tanks; canals; gravelly riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, gravelly loam, gravelly-sandy loam, sandy clayey loam, silty loam and loam ground; clay ground, and sandy silty ground often growing in shaded to heavily shaded areas and less often in full sun, occurring from 100 to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using the Pipevine Flower as a ground cover in heavily shaded areas. The flowers may have a fetid odor. The Pipevine Flower is a larval food plant of the Pipevine Swallowtail Butterfly (*Battus philenor*). *Aristolochia watsonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110609), 46 (alternate spelling *Aristolochia watsoni*, Page 227), **56**, **57**, 58, 63 (110609), 77 (color photograph #59), **85** (110608 - color presentation), 106 (071708 - information relating to the Pipevine Swallowtail Butterfly), 115 (color presentation)*

Asclepiadaceae: The Milkweed Family

Asclepias galioides auct. non K.S. Kunth (see *Asclepias subverticillata*)

***Asclepias nyctaginifolia* A. Gray: Mojave Milkweed**

COMMON NAMES: Four O'clock Milkweed, Four O'clock-leafed Milkweed, Hierba Lechosa, Mojave Milkweed. DESCRIPTION: Terrestrial perennial forb/herb (4 to 24 inches in height); the leaves are dark purplish-green, green or green and tinged with dark purple; the flowers may be pale green, green, purplish-green, white or yellow-cream with yellowish to orangish hoods; flowering generally takes place between mid-April and mid-September (flowering ending as late as October has been reported); the fruit is pale green. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; ridges; foothills; rocky-sandy and sandy hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; plains; valleys; clayey roadsides; along and in arroyos; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy creekbeds; in sandy drainages; drainage ways; swales; margins of washes; sand bars; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground; rocky-sandy loam and sandy loam ground, and clay ground, occurring from 1,500 to 6,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Asclepias nyctaginifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110609), 46 (species within this genus may contain a glucoside that is poisonous to livestock, especially to sheep; however, the plants are seldom eaten, Page 662), 58, 63 (110609), **77** (color photograph #60), **85** (110609 - color presentation), 115 (color presentation), 127*

***Asclepias subverticillata* (A. Gray) A.M. Vail: Horsetail Milkweed**

SYNONYMY: *Asclepias galioides* auct. non K.S. Kunth. COMMON NAMES: Horsetail Milkweed, Milkweed, Poison Milkweed, Squat Milkweed, Western Whorled Milkweed, Whorled Milkweed. DESCRIPTION: Terrestrial perennial forb/herb (8 inches to 4 feet in height); the leaves are green; the flowers are cream, cream-yellow, grayish-purple, pale green, greenish, greenish-white, white, whitish-cream or yellow-cream; flowering generally takes place between late May and early October (additional record: one for early May); the seedpods (2 to 4 inches in length) are slender. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; cliffs; gravelly, sandy and clayey canyons; canyon bottoms; rocky bases of cliffs; gravelly bases of escarpments; pockets of soil in rock; rocky ledges; rocky ridges; clearings in forests; meadows; foothills; hills; gassy hillsides; rocky, gravelly, gravely-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy-loamy and clayey slopes; alluvial fans; bajadas; amongst boulders and rocks; sandy lava flows; sandy flats of dune fields; sandy steppes; rocky and sandy-loamy prairies; rocky and sandy plains; rocky, gravelly-loamy, sandy and silty-loamy flats; basins; valley floors; sandy-loamy valley bottoms; railroad right-of-ways; along rocky, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, gravely-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey-loamy and loamy roadsides; within rocky and sandy arroyos; bottoms of arroyos; draws; gulches; springs; streambeds; along creeks; along rivers; riverbeds; in sandy, sandy-clayey, sandy-silty and loamy washes; within drainage ways, lakebeds; sandy-loamy playas; bogs; cienegas; marshes; depressions; sandy-loamy swales; sandy banks of rivers; sandy edges of ponds and marshlands; along sandy shores of rivers, ponds and lakes; benches; terraces; lowlands; floodplains; along fence lines; clayey levees; around and in stock tanks; along and in ditches; ditch banks; riparian areas; waste places, and disturbed areas growing in water; muddy, and wet, moist and dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, silty loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and silty ground, occurring from 2,400 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food,

fiber drug or medication and for making ceremonial items. The caterpillars of the Monarch Butterfly (*Danaus plexippus*) and Queen Butterfly (*Danaus gilippus*) feed on the foliage of milkweeds. Butterflies, moths and wasps have been observed visiting the flowers. *Asclepias subverticillata* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (110609), 46 ("*Asclepias subverticillata* (*Asclepias galioides* of authors) and perhaps other species contain a glucoside that is poisonous to livestock, especially to sheep, but the plants are seldom eaten.," Page 661), 58, 63 (110609 - color presentation), 68 ("All parts of the western whorled milkweed above the ground are poisonous at all times, even when dried. It is poisonous to all classes of livestock, but particularly to sheep. None of the milkweeds are palatable to livestock, and animals will rarely touch them if other forage is available."), 80 (This species is listed as a Major Poisonous Range Plant. "Whorled milkweed contains toxic glycosides and resins which are partially retained in the plant after drying. This makes milkweed poisonous at all stages of growth, even after maturity, and when put up in hay. ... When there is a scarcity of feed, areas of known milkweed infestation should not be grazed by livestock, particularly in late spring and early summer. Animals new to an area infested with whorled milkweed should be observed closely. Supplemental feeding in early spring, prior to the time grasses green up, may reduce losses." See text for additional information.), **85** (110709 - color presentation), 86 (color photograph), **89** (recorded as *Asclepias galioides* H.B.K.), 101 (color photograph), 115 (color presentation), 127*

***Cynanchum arizonicum* (A. Gray) L.H. Shinners: Arizona Swallow-wort**

SYNONYMY: *Metastelma arizonicum* A. Gray. COMMON NAMES: Arizona Milkweed Vine, Arizona Smallwort, Arizona Swallow-wort, Arizona Swallowwort, Milkweed Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (a twining vine to 40 inches in length); the leaves are green; the small flowers are cream-white, white, pale yellow or yellowish; flowering generally takes place between mid-January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky crags; rocky canyons; canyon bottoms; bases of cliffs; ridges; ridgetops; foothills; bouldery and rocky hills; rocky hilltops; rocky hills; rocky hillsides; rocky slopes; rocky outcrops; amongst boulders; valley floors; low sand dunes near beaches; arroyos; along sandy bottoms of arroyos; gulches, ravines, around seeping streams; creeks; along rocky washes; rocky drainages; rocky drainage ways, and riparian areas growing in dry bouldery, rocky and sandy ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Cynanchum arizonicum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110709), 46 (recorded as *Metastelma arizonicum* Gray, Page 663), 58, 63 (110709), **77** (color photograph #61), **85** (110709), **89** (recorded as *Metastelma arizonicum* Gray)*

***Funastrum cynanchoides* (J. Decaisne) F.R. Schlechter: Fringed Twinevine**

COMMON NAMES: Climbing Milkweed, Fringed Climbing Milkweed, Fringed Twinevine. DESCRIPTION: Terrestrial perennial forb/herb or vine (a twining vine 20 inches to 20 feet in length); the leaves are dark green; the flowers (umbels of 5 to 30 flowers) may be cream, cream-white, lilac-mauve, magenta-cream, maroon-cream, pink, purple, purple & cream, purple-white, violet-pink, white, white & brown, white & maroon, white & purple or white & purple-maroon; flowering generally takes place between mid-March and late November (additional records: one for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon walls; canyon bottoms; talus; crevices; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, gravelly and sandy slopes; bajadas; lava flows; bouldery and rocky outcrops; amongst boulders; gravelly plains; sandy flats; valley floors; along railroad right-of-ways, along sandy roadsides; along and in rocky arroyos; sandy-clayey bottoms of arroyos; within draws; seeps; springs; along streams; bouldery and sandy streambeds; along gravelly-sandy creeks; creekbeds; along rivers; rocky-cobbly-sandy riverbeds; along and in bouldery, rocky, gravelly, gravelly-sandy, sandy and sandy-silty washes; gravelly drainages; in drainage ways; waterholes (tinajas); swampy areas; depressions; along rocky, gravelly-sandy and sandy banks of rivers and washes; gravelly-silty edges of draws; sand bars; sandy beaches; benches; sandy terraces; bottomlands; lowlands; sandy floodplains;

mesquite bosques; along ditches; clayey-loamy ditch banks; fencelines; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly, rocky, rocky-cobbly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, clay loam and loam ground; sandy clay and silty clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. *Funastrum cynanchoides* is native to south-central and southern North America. *5, 6, 28 (color photograph of *Sarcostemma cynanchoides*), 43 (110709 - *Funastrum cynanchoides* F.R. Schlechter), 46 (recorded as *Funastrum cynanchoides* **(**Decne) Schlechter, Page 664 and *Funastrum heterophyllum* (Engelm.) Standl., Page 664), 63 (110709), 68, **85** (110809 - color presentation), 86 (recorded as *Sarcostemma cynanchoides*, color photograph), 115 (color presentation)*

***Funastrum cynanchoides* (J. Decaisne) F.R. Schlechter subsp. *cynanchoides*: Fringed Twinevine**

SYNONYMY: *Sarcostemma cynanchoides* J. Decaisne. COMMON NAMES: Climbing Milkweed, Fringed Climbing Milkweed, Fringed Twinevine. DESCRIPTION: Terrestrial perennial forb/herb or vine (a clambering, climbing and twining vine 8 to 20 feet in length); the leaves are dark green; the flowers may be brownish-white, cream, cream-white, pale green & white, green, green & maroon & white; greenish-white, pink, purplish, purplish-white, off white-brownish-purple, white, white & green, white & lilac or white & pink; flowering generally takes place between mid-March and early November (additional records: one for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon walls; canyon bottoms; talus; crevices; rocky foothills; hills; hillsides; rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders; gravelly plains; sandy flats; along sandy roadsides; along arroyos; seeps; springs; along streams; bouldery and sandy streambeds; gravelly-sandy creeks; rocky-cobbly-sandy riverbeds; along and in bouldery, gravelly-sandy and sandy washes; drainages; within drainage ways; swamps; depressions; along banks of rivers and washes; gravelly-silty edges of draws; sandy beaches; benches; sandy terraces; sandy floodplains; mesquite bosques; along ditches; clayey-loamy ditch banks; fencelines; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-sandy, gravelly-sandy and sandy ground; gravelly loam, clayey loam and loam ground; silty clay ground, and gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. *Funastrum cynanchoides* subsp. *cynanchoides* is native to south-central and southern North America. *5, 6, **16** (recorded as *Sarcostemma cynanchoides* Decne. var. *cynanchoides*), 28 (color photograph), 43 (110709), 46 (Page 664), **56**, **57**, 58 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*), 63 (110709 - color presentation), 68, **77** (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*, color photograph #6), **85** (110809 - color presentation, also recorded as *Sarcostemma cynanchoides* subsp. *cynanchoides* Decne.), 86 (color photograph), **89** (recorded as *Philibertella cynanchoides* (Gray) Vail), 115 (color presentation of species)*

***Funastrum cynanchoides* (J. Decaisne) F.R. Schlechter subsp. *heterophyllum* (G. Engelmann ex J. Torrey) J.T. Kartesz: Hartweg's Twinevine**

SYNONYMY: *Funastrum heterophyllum* (G. Engelmann) P.C. Standley, *Sarcostemma cynanchoides* J. Decaisne subsp. *hartwegii* (A.M. Vail) R.W. Holm, *Sarcostemma cynanchoides* J. Decaisne var. *hartwegii* (A.M. Vail) L.H. Shinners. COMMON NAMES: Climbing Milkweed, Guirote Lechosa, Hartweg Climbing Milkweed, Hartweg's Twinevine, Hexe (Seri). DESCRIPTION: Terrestrial perennial forb/herb or vine (a climbing, sprawling and twining vine 20 inches to 20 feet in length); the leaves are dark green; the flowers may be dull cream-white & maroon, cream-purple, cream-white & purple, greenish-white, lilac-mauve, magenta-cream, maroon-cream, pinkish-white, purple, purple & cream, dull purplish & white, dull purplish-red & whitish, purplish-tan & white, violet-pink, white, white & brown, white & maroon, white & dull purple, white &purple or white & purple-maroon; flowering

generally takes place between mid-March and early November (additional records: one for early February, one for mid-February, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; bouldery-cobbly mesas; canyons; along rocky and gravelly-sandy canyon bottoms; ridges; clayey ridgetops; foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky and gravelly slopes; bajadas; rocky outcrops; lava flows; sand dunes; bouldery-cobbly, cindery and sandy flats; bouldery basins; sandy valley floors; valley bottoms; coastal sand dunes; along sandy roadsides; along and in rocky and sandy arroyos; springs; along streams; along creeks; around creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy-silty washes; drainages; drainage ways; waterholes (tinajas); playas; swampy areas; rocky, gravelly-sandy and sandy banks of arroyos, streams, rivers, washes and drainages; along gravelly margins of arroyos and washes; gravel and sand bars; sandy benches; terraces; bottomlands; sandy floodplains; mesquite bosques; fencelines; canal banks; along ditches; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam and gravelly loam ground; clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Funastrum cynanchoides* subsp. *heterophyllum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinners), **16** (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinners), 43 (110709 - *Funastrum cynanchoides* Schltr. subsp. *heterophyllum* (Engelm. ex J. Torr.) Kartesz), 46 (recorded as *Funastrum heterophyllum* (Engelm.) Standl., Page 664), 58, 63 (110709), 68, **85** (110809 - color presentation), **89** (recorded as *Philibertella hartegii* Vail var. *heterophylla* (Engelm.) Vail), 115 (color presentation of species)*

Funastrum heterophyllum (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Gonolobus parvifolius (see *Matelea parvifolia*)

***Matelea parvifolia* (J. Torrey) R.E. Woodson: Spearleaf**

SYNONYMY: *Gonolobus parvifolius* J. Torrey. COMMON NAMES: Angle-pod, Anglepod, Littleleaf Matelea, Little Leaf Milk Vine, Milkweed Vine, Small-leaf Anglepod, Small-leaved Milkvine, Spearleaf. DESCRIPTION: Terrestrial perennial shrub or vine (a clambering, climbing and twining vine 16 inches to 5 feet in length); the stems are gray-green or green; the leaves are green; the flowers may be black, dark brownish-purple, green, greenish-purple, dark purple or purple-brown; based on few flowering records examined, flowering generally takes place between early March and mid-May and between mid-October and early December (flowering records: three for late January, three for early March, three for mid-March, four for late March, three for early April, two for mid-April, one for early May, one for mid-May, one for mid-October, one for late October, five for early November, one for mid-November, one for late November and one for early December); the fruits are long, warty, green seed pods. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; rocky canyons; canyon bottoms; rocky ridge tops; ridgelines; rocky and stony-gravelly hills; rocky and rocky-gravelly hillsides; bouldery and rocky slopes; bajadas; amongst boulders and rocks; bouldery, cobbly, gravelly and gravelly-sandy flats; along roadsides; along arroyos; springs; rivers; along and in rocky washes; along drainages; edges of washes; floodplains, and rocky riparian areas growing in dry bouldery, rocky, rocky-gravelly, stony-gravelly, cobbly and gravelly soils, occurring from 1,200 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Matelea parvifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (110809), 46 (recorded as *Gonolobus parvifolius* Torr., Page 665), 63 (110809), 77, **85** (110809 - color presentation)*

Metastelma arizonicum (see *Cynanchum arizonicum*)

Philibertella cynanchoides (see footnote 89 under *Funastrum cynanchoides* subsp. *cynanchoide*)

Philibertella hartegii var. *heterophylla* (see footnote 89 under *Funastrum cynanchoides* subsp. *heterophyllum*)

Sarcostemma cynanchoides (see *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *cynanchoides* (see footnote 85 under *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *hartwegii* (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Sarcostemma cynanchoides var. *cynanchoides* (see footnote 16 under *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides var. *hartwegii* (see *Funastrum cynanchoides* subsp. heterophyllum)

Asteraceae (Compositae): The Aster Family

***Acourtia nana* (A. Gray) J.L. Reveal & R.M. King: Dwarf Desertpeony**

SYNONYMY: *Perezia nana* A. Gray. COMMON NAMES: Ban Auppa-ga (Gila River Pima), Desert Holly, Desert-holly, Dwarf Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (2 to 10 inches in height, plants 4 to 5 inches in height and 3 to 6 inches in width were reported); the holly-like leaves are pale grayish-green or olive-green; the flowers may be cream, pale lavender-pink, lavender, lavender-pink, maroon and white, pale pink-lavender, pink, pink-purple, purple, white or white-pink; flowering generally takes place between late March and early June (additional records: one for late January, one for late February, one for early July, one for late July, one for early August, one for mid-August, one for early September, two for late September, one for mid-October, one for mid-November and two for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; sandy mesas; gravelly-loamy canyons; talus slopes; rocky foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery, rocky, stony, gravelly, gravelly-sandy and sandy slopes; bajadas; amongst boulders and rocks; gravelly breaks; gravelly plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; basins; basin bottoms; rocky valley floors; valley bottoms; gravelly-loamy roadsides; arroyos; bottoms of arroyos; rocky gullies; gravelly-loamy creekbeds; riverbeds; in gravelly, gravelly-sandy and sandy-clayey washes; drainage ways; playas; sandy-loamy, sandy-clayey-loamy and clayey-loamy swales; clayey-loam banks of washes; benches; gravelly and sandy terraces; floodplains; mesquite mosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground, and sandy clay and clay ground often in the shade of trees and shrubs, occurring from 1,200 to 7,100 feet (one record for 8,500 feet) in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Consider using Desert Holly as a ground cover under larger shrubs and trees. The flowers give off a fragrance similar to that of violets or lilacs. *Acourtia nana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (110809), 46 (recorded as *Perezia nana* Gray, Page 957), 58, 63 (110809 - color presentation), 77, **85** (110909 - color presentation), **89** (recorded as *Perezia nana* Gray), 115 (color presentation)*

***Acourtia wrightii* (A. Gray) J.L. Reveal & R.M. King: Brownfoot**

SYNONYMY: *Perezia wrightii* A. Gray. COMMON NAMES: Brownfoot, Desert Holly, Perezia, Pink Perezia, Pink Perezzia, Wright's Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (1 to 5 feet in height, one plant was recorded as being 1 foot in height with a crown 1 foot in width); the holly-like leaves are dark green; the flowers may be lavender, pink, pink-brown, pink-lavender, pink-purple, pale purple, purple, white, white & pink, whitish-maroon or white & purple; flowering generally takes place between early February and early July and sometimes in autumn between early September and early November (additional records: one for mid-August, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; rock cliffs; crater walls; rocky canyons; rocky canyon bottoms; talus slopes; bases of cliffs; along crevices in boulders; buttes; along ledges; ridges; ridgetops; foothills; rocky, stony-gravelly and sandy hills; rocky and rocky-gravelly-loamy hillsides; bouldery-rocky, rocky, rocky-gravelly, shaley, gravelly and sandy slopes; sandy alluvial fans; gravelly and sandy bajadas; along bedrock and rocky outcrops; amongst boulders and rocks; bases of boulders; in shaded alcoves; rocky plains; rocky and silty flats; railroad right-of-ways; rocky and gravelly-sandy-clayey-loamy roadsides; along rocky arroyos; draws; gullies; ravines; seeps; rocky springs; along creeks; along rocky, gravelly and sandy washes; along drainage ways; rocky banks of streams and washes; edges of washes; mudflats; beaches; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly and sandy ground; rocky-gravelly loam, rocky silty loam, gravelly-sandy-clayey loam, sandy loam, silty-clayey loam and silty loam ground, and silty ground, occurring from 700 to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Acourtia wrightii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (110809), 46 (recorded as *Perezia wrightii* Gray, Page 957), 58, 63 (110909 - color presentation), 77, **85** (110909 - color presentation), **89** (recorded as *Perezia wrightii* Gray), 115 (color presentation), 127, **WTK** (August 12, 2005)*

Actinolepis lanosa (see footnote 89 under *Antheropeas lanosum*)

***Adenophyllum porophylloides* (A. Gray) J.L. Strother: San Felipe Dogweed**

SYNONYMY: *Dyssodia porophylloides* A. Gray. COMMON NAMES: San Felipe Adenophyllum, San Felipe Dogweed, San Felipe Dyssodia, San Felipe Fetid Marigold, Yerba del Venado. DESCRIPTION: Terrestrial perennial subshrub (8 to 32 inches in height, one plant was described as being approximately 18 inches in height and 24 inches in width); the leaves are dark green; the disk flowers may be golden-yellow, maroon, orange or yellow-orange; the ray flowers may be pink, pink-maroon, red-orange, yellow, yellowish-brown or yellow-orange; flowering generally takes place between early February and early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mesas; rocky cliffs; bouldery and rocky canyons; canyon walls; rocky canyon bottoms; buttes; ridgetops; foothills; rocky-gravelly and stony-gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy slopes; alluvial fans; rocky-gravelly bajadas; boulder and rock outcrops; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valleys; along roadsides; along the bottoms of rocky arroyos; gulches; ravines; streambeds; along creeks; along and in rocky, gravelly, gravelly-sandy and sandy washes; at waterfalls; rocky edges of washes; benches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-gravelly, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and cobbly-gravelly loam ground, and sandy clay ground, occurring from 700 to 4,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The leaves give off a strong odor when bruised, reportedly similar to that of *Porophyllum gracile* (Deerweed). *Adenophyllum porophylloides* is native to southwest-central and southern North America. *5, 6, 13, 15 (recorded as *Dyssodia porophylloides* Gray), **16** (recorded as *Dyssodia*

porophylloides Gray), 28 (recorded as *Dyssodia porophylloides*, color photograph), 43 (111009), 46 (recorded as *Dyssodia porophylloides* Gray, Page 932), 63 (111009 - color presentation), 77 (recorded as *Dyssodia porophylloides* Gray), **85** (111009 - color presentation), **89** (recorded as *Dyssodia porophylloides* Gray), 115 (color presentation)*

Ambrosia aptera (see *Ambrosia trifida* var. *texana*)

***Ambrosia ambrosioides* (A.J. Cavanilles) W.W. Payne: Ambrosia Leaf Bur Ragweed**

SYNONYMY: *Franseria ambrosioides* A.J. Cavanilles. COMMON NAMES: Ambrosia Bursage, Ambrosia Leaf Bur Ragweed, Ambrosia Leaf Burr Ragweed, Big Bursage, Burr Sage, Bur-sage, Bursage, Canyon Ragweed, Chicura (Hispanic), Giant Bursage, Leaf Burr Ragweed, Nu Nu Ju Its (Tohono O'odham), Tinkl (Seri). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous subshrub or shrub (1 to 7 feet in height, one plant was described as being 3 feet in height and 6 feet in width); the branches are reddish-brown with white hairs; the leaves are dull gray-green or green; the flowers are yellowish or yellowish-green; flowering generally takes place between mid-February and early May (additional records: two for mid-January, one for late May, one for early June, one for mid-June, one for early July and one for mid-September), the fruits are burrs. HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; rocky canyons; canyon walls; rocky, gravelly and gravelly-sandy canyon bottoms; bases of cliffs; crevices in rocks; foothills; rocky hills; rocky hillsides; rocky and sandy slopes; rocky outcrops; sandy soil pockets in rocks; plains; basins; silty valleys; along coasts; coastal plains; along rocky-sandy roadsides; arroyos; arroyo bottoms; along seeping streams; along streams; rocky and sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-silty and sandy washes; along and in sandy drainages; along and in cobbly and sandy drainage ways; around waterholes; rocky and sandy banks of lakes; sandy edges of washes; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam and sandy-clayey loam ground, and gravelly silty and silty ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Ambrosia ambrosioides* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph), 43 (111009 - *Ambrosia ambrosioides* (Delpino) W.W. Payne), 46 (recorded as *Franseria ambrosioides* Cav., Page 895), 63 (111009), 77 (color photograph #67), **85** (111009 - color presentation), 91, 115 (color presentation), 127*

***Ambrosia confertiflora* A.P. de Candolle: Weakleaf Bur Ragweed**

SYNONYMY: *Franseria confertiflora* (A.P. de Candolle) P.A. Rydberg. COMMON NAMES: Altamisa de Playa, Bur Ragweed, Bur-sage, Bursage Ragweed, Bur-weed, Chi'ichivo (Yaqui), Estafiate (Mexican), Field Ragweed, Istafiate (northern Sinaloa, Mexico), Mo?otatk Juich (Gila River Pima), Slender Ragweed, Slimleaf Bursage, Slimleaf Ragweed, Weak-leaf Burr-ragweed, Weakleaf Bur Ragweed, Weakleaf Burr Ragweed, Weak-leaved Burweed. DESCRIPTION: Terrestrial perennial forb/herb (4 inches to 5 feet in height and may be procumbent and up to 6 feet in width in higher elevations); the leaves are gray, gray-green or whitish; the flowers are greenish, tan-yellow, white, yellow, yellow-brown or yellow-green; flowering generally takes place between late April and mid-December (additional records: one for early January, one for mid-March, one for late March and one for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; along sandy canyon bottoms; bases of cliffs; crevices in rock faces; knolls; rocky ridgetops; sandy meadows; foothills; rocky-gravelly-loamy hills; hilltops; rocky hillsides; rocky, rocky-loamy, rocky-clayey, gravelly, gravelly-loamy, gravelly-clayey and sandy-loamy slopes; bajadas; piedmonts; shaley-sandy outcrops; prairies; sandy-silty plains; clayey flats; rocky-silty, gravelly-sandy and sandy valley floors; coastal plains; along clayey roadsides; arroyos; ravines; seeps; springs; along streams; streambeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy

washes; rocky drainages; within rocky drainage ways; around ponds; around lakes; playas; depressions; silty swales; along banks of creeks, rivers and washes; gravelly-sandy edges of washes; beaches; rocky benches; terraces; grassy bottomlands; floodplains; mesquite bosques; fencerows; canal banks; ditches; riparian areas; waste places, and disturbed areas growing in dry rocky, shaley-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, sandy loam and sandy-clayey loam ground; rocky clay, gravelly clay and clay ground, and rocky silty, gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The flowers are reported to be fragrant. *Ambrosia confertiflora* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (061309), 46 (recorded as *Franseria confertiflora* (DC.) Rydb., Page 895), **56**, **57**, 58, 63 (111009), 68, 77, **85** (111009 - color presentation), **89** (recorded as *Franseria tenuifolia* Gray), 115 (color presentation)*

***Ambrosia cordifolia* (A. Gray) W.W. Payne: Tucson Bur Ragweed**

SYNONYMY: *Franseria cordifolia* A. Gray. COMMON NAMES: Chicurilla, Heartleaf Bursage, Sonoran Bursage, Tucson Bur Ragweed, Tucson Burr Ragweed. DESCRIPTION: Terrestrial perennial deciduous (cold and drought) subshrub or shrub (2 to 4 feet in height); the leaves are gray-green; the flowers are yellow; flowering generally takes place between early December and mid-May. HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; canyon bottoms; rocky and gravelly hills; gravelly hillsides; rocky and rocky-gravelly slopes; coastal plains; along roadsides; arroyos; springs; along and in washes; drainages; banks of arroyos; along edges of creeks and washes, and floodplains growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy soils and gravelly-sandy silty soils sometimes growing in the shade of trees and shrubs, occurring from 100 to 4,100 feet in elevation in the scrub and desertscrub ecological formations. NOTE: *Ambrosia cordifolia* is native to southwest-central and southern North America. *5, 6, 13, 43 (111009), 46 (recorded as *Fransera cordifolia* Gray, Page 896), **56**, **57**, 63 (111009), 77, **85** (111009 - color presentation), 91, 115 (color presentation)*

***Ambrosia deltoidea* (J. Torrey) W.W. Payne: Triangle Bur Ragweed**

SYNONYMY: *Franseria deltoidea* J. Torrey. COMMON NAMES: Burrobush, Bur-sage, Bursage, Chamizo Forrajero, Chicurilla, Rabbit Bush, Kokomak Segoi (Pima), Shegoi (Pima), Todshag (Papago), Triangle Bur Ragweed, Triangle Burr Ragweed, Triangle Bursage, Triangle-leaf Bursage, Triangle-leaved Bursage, Triangle-leaf Burr Ragweed. DESCRIPTION: Terrestrial perennial evergreen (or drought-deciduous) subshrub or shrub (1 to 4 feet in height, one plant was described as being 2 feet in height and width); the leaves are gray, gray-green or green; the flowers are greenish, greenish-yellow, purple, white or yellow; flowering generally takes place between early January and early May (additional records: three for late May; flowering as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; canyon bottoms; bases of cliffs; buttes; ridges; rocky foothills; rocky hills; rocky hillsides; rocky, gravelly and gravelly-clayey slopes; bajadas; lava flows; dunes; sandy plains; rocky, stony-chalky, gravelly and sandy flats; basins; rocky valley floors; along rocky-sandy roadsides; shallow arroyos; runnels; riverbeds; along and in stony-gravelly, gravelly and sandy washes; within drainages; rocky and sandy banks of creeks and washes; edges of dry lakes (playas); margins of washes; gravelly terraces; bottomlands; floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; rocky clay, gravelly clay and sandy clay ground, and stony chalky ground, occurring from 100 to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may be useful in the restoration of disturbed habitat. It may live to be about 50 years of age. The Triangleleaf Bursage serves as a nurse plant for Saguaro (*Carnegiea gigantea*), Ocotillo (*Fouquieria splendens*), Foothill Paloverde (*Parkinsonia microphylla*) and other woody plants. The Triangleleaf Bursage is one of the first plants to colonize in open spaces. *Ambrosia*

deltoidea is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 46 (recorded as *Franseria deltoidea* Torr., Page 896), 63 (111009 - color presentation), 77 (color photograph #68), **85** (111009 - color presentation), **89** (recorded as *Franseria deltoidea* Torr.), 91, 115 (color presentation), **WTK** (August 12, 2005)*

***Ambrosia dumosa* (A. Gray) W.W. Payne: Burrobush**

SYNONYMY: *Franseria dumosa* A. Gray. COMMON NAMES: Burro Bush, Burrobush, Burro Weed, Burro-weed, Burroweed, Bur Sage, Bur-sage, Chamizo, Chicurilla, Hierba del Burro, White Bur-sage, White Bursage, White Burrobush, Xcactz (Seri). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous subshrub or shrub (7 to 40 inches in height, one low mound-shaped plant was reported to be 40 inches in width); the branches may be gray, tan or white; the leaves are blue-green-gray, gray-green or white-tomentose; the flowers are cream, cream-yellow, greenish, green-yellow or yellow with yellowish anthers; flowering generally takes place between mid-January and late June and again between late September and late June; the fruits are spiny burs. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; sandstone cliffs; rocky canyons; sandy canyon bottoms; gorges; talus slopes; buttes; along ridges; bouldery ridge tops; rocky-sandy foothills; rocky hills; rocky and gravelly hillsides; bouldery, rocky, rocky-sandy, gravelly, gravelly-loamy, sandy and sandy-silty slopes; rocky alluvial fans; sandy and sandy-silty bajadas; bouldery and rocky outcrops; amongst boulders; lava fields; sand hills; sand dunes; blow-sand deposits; gravelly and sandy plains; rocky, gravelly, gravelly-sandy, sandy and sandy-loamy flats; sand sheets; gravelly-sandy and sandy valley floors; valley bottoms; shifting beach dunes; along gravelly and sandy roadsides; within sandy arroyos; along and in gravelly, gravelly-sandy and sandy washes; drainages; along drainage ways; silty playas; banks of streambeds and washes; sandy edges of washes and lakes; benches; sandy bottomlands; floodplains; canal banks; sandy and sandy-silty riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground, and sandy silty ground, occurring from sea level to 4,600 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat, and may live to be more than 100 years of age with an estimated average longevity of 35.7 years. This plant is a host for the parasitic Sand Root (*Pholisma sonorae*). In the re-vegetation of disturbed sites more success may be achieved through the use of transplanted plants than from over-seeding. White Bursage serves as a nurse plant for Creosote Bush (*Larrea tridentata*), Foothill Paloverde (*Parkinsonia microphylla*) and other woody plants. White Bursage is an early colonizer of disturbed sites and open spaces. *Ambrosia dumosa* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (111109), 46 (*Franseria dumosa* Gray, Page 895), 63 (111109 - color presentation), 77, **85** (111109 - color presentation), 91*

Ambrosia monogyra (see *Hymenoclea monogyra*)

***Ambrosia trifida* C. Linnaeus var. *texana* G.H. Scheele: Texan Great Ragweed**

SYNONYMY: *Ambrosia aptera* A.P. de Candolle. COMMON NAMES: Blood Ragweed, Blood Weed, Giant Ragweed, Great Ragweed, Horseweed, Texan Great Ragweed. DESCRIPTION: Terrestrial annual forb/herb or subshrub (1 to over 10 feet in height); the flowers are yellow; flowering generally takes place between mid-August and mid-October (flowering beginning as early as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; flats; valley floors; along roadsides; along arroyos; along streams; along creeks; drainages; cienegas; along loamy banks of streams; bottomlands; floodplains; ditches; riparian areas; waste places, and disturbed areas growing in wet and moist loam ground, occurring from 2,400 to 8,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Ambrosia trifida*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Ambrosia trifida* var. *texana* is native to south-central and southern North America. *5, 6, 28 (color photograph of species), 43 (111109), 46 (recorded as *Ambrosia aptera*

DC., Page 894), 58, 63 (111109), 85 (111109), **89** (recorded as *Ambrosia aptera* DC.), 101 (color photograph of species), 127 (species)*

***Anthemis cotula* C. Linnaeus: Stinking Chamomile**

COMMON NAMES: Camomila-de-cachorro (Portuguese), Chamomille des Chiens (French), Camomille Puante (French), Dillweed, Dog's Chamomile, Dog Daisy, Dog Fennel, Dog-fennel, Fennel, Macéla-fétida (Portuguese), Manzanilla, Manzanilla Cimarrona, Manzanilla Hedionda (Spanish), Mather, May-weed, Mayweed, Mayweed Chamomile, Stinkende Hundskamille (German), Stinking Chamomile, Stinking Mayweed, Stinkweed. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 3 feet in height); the disk flowers are yellow, the ray flowers are white; flowering generally takes place between early April and late July (additional records: one for mid-August, one for early September, one for early October, one for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; bouldery-gravelly-sandy, canyon bottoms; rocky meadows; foothills; rolling hills; clayey hillsides; rocky, sandy, sandy-clayey and silty-loamy slopes; sandy flats; basins; valley floors; valley bottoms; coastal dunes; along sandy roadsides; streambeds; riverbeds; stony arroyos; in sandy washes; near and in vernal pools; clayey marshes; saltmarshes; banks of streams; edges of ponds; gravelly benches; terraces; bottomlands; floodplains; dams; silty river channels; in clayey ditches; riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery-gravelly-sandy, rocky, rocky-cobbly, stony and sandy ground; silty loam ground; sandy clay and clay ground, and silty ground, occurring from 600 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a as a drug or medication. *Anthemis cotula* is native to central, eastern, northern and southern Europe; southern and western Asia, and northern Africa. *5, 6, 43 (111109), 46 (Page 936), 63 (111109 - color presentation) 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "In the western hemisphere, poultry are the only livestock to be poisoned by this annual forb."), **85** (111109 - color presentation), **89**, 101 (color photograph), 127*

***Antheropeas lanosum* (A. Gray) P.A. Rydberg: White Easterbonnets**

SYNONYMY: *Eriophyllum lanosum* (A. Gray) A. Gray. COMMON NAMES: White Easter-bonnets, White Easterbonnets, Whoolly Daisy, Whooly Daisy, Woolly Daisy, Woolly-daisy, Woolly Eriophyllum, Woolly Fleabane. DESCRIPTION: Terrestrial annual forb/herb (¾ to 8 inches in height); the stems are reddish; the leaves are gray-green; the disk flowers are orange-yellow or yellow; the ray flowers are white; flowering generally takes place between early February and mid-May (additional records: two for mid-June and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; gravelly and pebbly-sandy-silty mesas; canyons; talus slopes; bases of cliffs; bluffs; rocky ridges; foothills; rocky and gravelly hills; hilltops; rocky hillsides; rocky, rocky-loamy, cobbly, gravelly and gravelly-loamy slopes; alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; sand hills; gravelly and sandy plains; rocky, gravelly and sandy flats; basins; valley floors; silty valley bottoms; along gravelly, sandy and clayey roadsides; along and in gravelly arroyos; creekbeds; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along muddy and sandy banks of arroyos and washes; benches; terraces; sandy bottomlands, and disturbed areas growing in dry desert pavement; bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly loam, sandy loam and silty loam ground; clay ground, and pebbly-sandy silty, powdery silty and silty ground, occurring from 500 to 4,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may grow in patches with larger plants tending to be prostrate. *Antheropeas lanosum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Eriophyllum lanosum*, color photograph), 43 (111109 - *Antheropeas lanosum* Rydb.), 46 (recorded as *Eriophyllum lanosum* Gray, Page 921), 58, 63 (111109 - color presentation), 77 (recorded as *Eriophyllum lanosum*,

color photograph #19), **85** (111209 - color presentation), **89** (recorded as *Actinolepis lanosa* Gray), 115 (color presentation)*

Aplopappus australis (see footnote 89 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus gracilis (see footnote 46 under *Machaeranthera gracilis*)

Aplopappus laricifolia (see footnote 89 under *Ericameria laricifolia*)

Aplopappus laricifolius (see footnote 46 under *Ericameria laricifolia*)

Aplopappus spinulosus (see footnote 46 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus spinulosus var. *turbinellus* (see footnote 46 under *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Aplopappus tenuisectus (see footnote 46 under *Isocoma tenuisecta*)

Aster arenosus (see *Chaetopappa ericoides*)

Aster commutatus var. *crassulus* (see *Symphyotrichum falcatum* var. *commutatum*)

Aster exilis (see *Symphyotrichum divaricatum*)

Aster falcatus var. *crassulus* (see *Symphyotrichum falcatum* var. *commutatum*)

Aster hebecladus (see footnotes 89 and 137 under *Symphyotrichum falcatum* var. *commutatum*)

Aster hebecladus (see footnotes 89 and 137 under *Symphyotrichum ericoides* var. *ericoides*)

Aster hirtifolius (see *Chaetopappa ericoides*)

Aster incanus (see footnote 89 under *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Aster parviflorus (see footnote 89 under *Machaeranthera parviflora*)

Aster parvulus (see Machaeranthera parviflora)

Aster spinosus (see *Chloracantha spinosa*)

Aster subulatus var. *ligulatus* (see *Symphyotrichum divaricatum*)

Aster tagetinus (see *Machaeranthera tagetina*)

Aster tanacetifolius (see *Machaeranthera tanacetifolia*)

Aster tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Baccharis brachyphylla* A. Gray: Shortleaf Baccharis**

COMMON NAMES: Shortleaf Baccharis, Short-leaved Baccharis. DESCRIPTION: Terrestrial perennial subshrub or shrub (1 to 5 feet in height, plants were described as being 2 feet in height and width, one plant was described as being 40 inches in height and width); the branches and leaves are yellow-green; the flowers are dull cream, greenish-white or white; flowering generally takes place between mid-August and early November (additional records one for early April and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; bouldery and rocky canyon bottoms; gorges; rocky buttes; foothills; rocky hills; rocky hillsides; bouldery-rocky, rocky and rocky-sandy slopes; amongst boulders; lava flows; stabilized debris flows; plains; gravelly and sandy flats; rocky roadsides; arroyos; along sandy bottoms of arroyos; gullies; springs; streambeds; along creeks; along and in rocky, shaley, gravelly, gravelly-sandy and sandy washes; within shallow drainages; within drainage ways; gravelly banks of arroyos, creeks, rivers, washes and drainages; rocky and sandy beaches; alluvial terraces; floodplains; dams, and gravelly-sandy, sandy and loamy riparian areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground, and gravelly clay ground, occurring from 900 to 5,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Small bees, bombyliids, digger wasps, Great Purple Hairstreak, Snout Butterfly and tarantula hawk wasps have been observed visiting the flowers. *Baccharis brachyphylla* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (111209), 46 (Page 883), 58, 63 (111209), 77, **85** (111209 - color presentation), **89** (recorded as *Baccharis wrightii*)*

Baccharis glutinosa (see *Baccharis salicifolia*)

***Baccharis salicifolia* (H. Ruiz Lopez & J.A. Pavon) C.H. Persoon: Mule-fat**

SYNONYMY: *Baccharis glutinosa* C.H. Persoon. COMMON NAMES: Azumiate (Hispanic), Bachomo (Hispanic), Baldag Shi (Hispanic), Batamote (Hispanic), Broom Baccharis, Chamiso (Hispanic), Chamiso del Rio (Hispanic), Chilca, Cucamoarisha (Cora), Cuerepillo (Hispanic), Dsea Miis Ro (Hispanic), Dsea Miis Tee (Hispanic), False Willow, Gila Willow, Groundsel Tree, Guamate, Guatamote (Hispanic), Guatarote (Hispanic), Hierba del Pasmo (Hispanic), Huamate, Jara, Jara Amarilla (Hispanic), Jara Mexicana (Hispanic), Jaral (Hispanic), Jarilla (Hispanic), KáaW (Seri), Mule-fat, Mule's Fat, Nehol (Tohono O'odham), Romerello, Rosin Brush, Seep Willow, Seep-willow, Seepwillow, Seepwillow Baccharis, Sticky Baccharis, Sticky Seep-willow, Togzten (Hispanic), Tu Ta' Vi (Hispanic), Water Motie, Water-motie, Watermotie, Water Wally, Water-wally, Waterwally, Water Willow, Waterwillow. DESCRIPTION: Terrestrial perennial deciduous shrub (32 inches to 15 feet in height, plants were described that were 10 feet in height forming clones 6 to 13 feet in width); the bark is gray; the leaves are gray or green; the disc (no ray flowers) flowers (dioecious) are cream, cream-maroon, cream-maroon-purple, cream-white, grayish-white, off white, white, white-magenta, whitish-yellow or yellow; flowering generally takes place between mid-January and mid-November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; bouldery-rocky and rocky and rocky-sandy canyons; sandy canyon bottoms; along rocky, sandy and sandy-silty canyon bottoms; talus; bases of cliffs; foothills; hills; rocky hillsides; slopes; bajadas; amongst rocks; dunes; plains; rocky-sandy and sandy flats; valleys; coastal dunes; coastal saltwater marshes; along railroad right-of-ways; along gravelly-sandy, sandy and sandy-loamy roadsides; along and in sandy arroyos; clayey bottoms of arroyos; draws; gullies; seeps; gravelly and sandy springs; seeping springs; silty soils along streams; in bouldery-rocky, rocky and sandy streambeds; along and in bouldery creeks; along and in sandy creekbeds; along rivers; along and in rocky, gravelly and sandy riverbeds; along and in bouldery-sandy, rocky, gravelly, gravelly-sandy, sandy and silty washes; along and in bouldery-rocky and rocky-clayey drainages; along and in sandy drainage ways; rock tanks; around and in ponds; lakebeds; cienegas; freshwater and saltwater marshes; depressions; along sandy banks of arroyos, springs, streams, creeks, rivers and washes; along sandy and sandy-silty edges of springs, streams, creeks, rivers, washes, ponds, lakes, playas and saltmarshes; margins of streams and washes; rocky-sandy and sandy shores of rivers and lakes; mudflats; sandbanks; shell mantled beach ridges; rocky

and sandy beaches; sandy benches; bouldery-gravelly-sandy terraces; gravelly and sandy bottomlands; lowlands; sandy floodplains; along dikes; margins of stock tanks (charcos); reservoirs; along canals; along ditches; muddy, rocky-gravelly-sandy, rocky-sandy and sandy riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry ground in bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly-loamy, gravelly, gravelly-sandy and sandy ground; sandy loam ground; rocky clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as tools, as a drug or medication and as a commodity used in personal hygiene (the leaves were used in a hair wash solution to prevent baldness). Seep Willow is useful in controlling watercourse erosion and slowing stream flow. *Baccharis salicifolia* is native to southwest-central and southern North America; Central America, and western, central and southern South America. *5, 6, 13 (recorded as *Baccharis glutinosa* Pers.), 15, **16**, 28 (recorded as *Baccharis glutinosa*, color photograph), 30, 43 (111209), 46 (recorded as *Baccharis glutinosa* Pers., Page 884), 48 (recorded as *Baccharis glutinosa*), 58, 63 (111209 - color presentation), 68, **77**, **85** (111209 - color presentation), **89** (recorded as *Baccharis viscosa* (R. & P.) Kuntze), 115 (color presentation), 127, 134*

***Baccharis sarothroides* A. Gray: Desertbroom**

COMMON NAMES: Amargo, Broom Baccharis, Caasot Caocl (Seri), Desert Broom, Desert-broom, Desertbroom, Escoba, Greasewood, Groundsel, Hierba del Pasmo, Mexican Broom, Romerillo, Rosin Brush, Rosin-brush, Rosin Bush, Shooshk Vakch ("Wet Shoes" - Pima), Soosk Vaks ("Wet Shoes" - questionably Maricopa), Wet Shoes. DESCRIPTION: Terrestrial perennial deciduous shrub (3 to 10 feet in height, one plant was described as being 40 inches in height and 40 inches in width, one plant was described as being 7 feet in height and 8 feet in width); the foliage is bright green or yellow-green; the disc (no ray flowers) flowers (dioecious) are cream, golden, rust, white or yellow; flowering generally takes place between mid-September and late February (additional records: one for mid-March, two for late March, two for mid-April, one for late April, one for mid-July, one for early August and one for late August). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; chasms; ridges; foothills; silty-clayey hills; rocky hillsides; rocky slopes; bajadas; debris fans; sandy plains; rocky flats; valley floors; coastal plains; along rocky, rocky-gravelly-sandy-clayey-loamy, rocky-gravelly-sandy-silty-clayey-loamy and sandy roadsides; along arroyos; along sandy and clayey bottoms of arroyos; draws; gulches; gullies; springs; along streams; streambeds; along gravelly-sandy creeks; gravelly and sandy creekbeds; along rivers; along bouldery-cobbly-sandy, rocky-sandy, gravelly and sandy riverbeds; along and in cobbly, gravelly and sandy washes; along drainages; along drainage ways; waterholes; playas; oases; along gravelly and sandy banks of arroyos, rivers and washes; edges of washes; beaches; sandy benches; terraces; bottomlands; floodplains; lowlands; mesquite bosques; along canals; along ditches; muddy and sandy riparian areas, and disturbed areas growing in muddy and damp and dry bouldery-cobbly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam and rocky-gravelly-sandy-silty-clayey loam ground; silty clay and clay ground, and sandy silty ground, occurring from sea level to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider planting only male plants to eliminate seed production. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial beverage and/or fiber crop; it was also noted as having been used for making tools and as a drug or medication. *Baccharis sarothroides* is native to Southwestern and southern North America. *5, 6, 13, 15, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (111209), 46 (Page 883), 48, **56**, **57**, 58, 63 (111209), 77, **85**

(111309 - color presentation), **89** (recorded as *Baccharis emoryi* Gray), 115 (color presentation), 127, **WTK** (October 28, 2009)*

Baccharis emoryi (see footnote 89 under *Baccharis sarothroides*)

Baccharis viscosa (see footnote 89 under *Baccharis salicifolia*)

Baccharis wrightii (see footnote 89 under *Baccharis brachyphylla*)

Baeria chrysostoma (see *Lasthenia californica* subsp. *californica*)

Baeria chrysostoma var. *gracilis* (see *Lasthenia californica* subsp. *californica*)

Baeria gracilis (see footnote 89 under *Lasthenia californica* subsp. *californica*)

***Bahia absinthifolia* G. Bentham: Hairyseed Bahia**

COMMON NAMES: Bahia, Hairyseed Bahia. DESCRIPTION: Terrestrial perennial forb/herb (10 inches to 2 feet in height, plants were observed that were 12 to 18 inches in height and width); the herbage may be gray, gray-green, light green, silvery-gray-green or white woolly; the disk flowers are orange, orange-yellow or yellow; the ray flowers are yellow; flowering generally takes place between mid-March and mid-November). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy-loamy plateaus; cliff faces; canyons; talus; shaley ridges; foothills; clayey hills; rocky hillsides; bouldery escarpments; rocky, rocky-gravelly, gravelly, clayey and silty-clayey slopes; alluvial fans; gravelly and sandy bajadas; rocky outcrops; sand dunes; plains; gravelly and sandy flats; basins; rocky and sandy valley floors; along rocky and sandy roadsides; within arroyos; clayey bottoms of arroyos; draws; gullies; within gravelly and sandy washes; swales; banks of ravines; terraces; lowlands; floodplains, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy ground; sandy loam ground; silty clay and clay ground, and sandy silty ground, occurring from 1,800 to 8,800 feet, in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bahia absinthifolia* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (111309), 46 (Page 925), 63 (111309 - color presentation), 77 (color photograph #16), **85** (111309 - color presentation), **89**, 115 (color presentation)*

***Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray: Desert Marigold**

SYNONYMY: *Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray var. *thurberi* (P.A. Rydberg) M.T. Kittell. COMMON NAMES: Baileya del Desierto, Cloth-of-gold, Desert Baileya, Desert Marigold, Desert-marigold, Hierba Amarilla, Many-flowered Desert-marigold, Paper Daisy, Paperdaisy, Wild Marigold. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (6 to 30 inches in height); the foliage may be gray-green, gray-white-green, grayish and woolly or silvery-green; the flowers (1½ to 2 inches in width) are lemon-yellow, orange, light yellow or yellow; flowering generally takes place between mid-January and late December but may continue year round under favorable conditions. HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; rocky and sandy canyons; sandy pockets of soil in rock; rocky bluffs; buttes; sandy ridges; foothills; rocky, gravelly and gravelly-sandy hills; rocky, rocky-gravelly, sandy-clayey and clayey hillsides; rocky, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy, sandy and sandy-loamy slopes; rocky-sandy alluvial fans; bajadas; amongst rocks; sand hills; sand dunes; sandy embankments; sandy plains; gravelly, sandy and sandy-loamy flats; valleys; along gravelly, sandy and sandy-loamy roadsides; within stony-gravelly-sandy arroyos; bottoms of arroyos; gravelly draws; along streams; sandy streambeds; sandy creekbeds; along rivers; rocky riverbeds; in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; rocky bowls; swales; sandy banks of rivers and washes; gravelly edges of washes; benches;

gravelly terraces; sandy and loamy bottomlands; floodplains; ditch banks; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and gravelly clay, sandy clay and clay ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop; it was also noted as being a commodity used in personal hygiene. Consider seeding Desert Marigold with native Lupines (*Lupinus* spp.) and Globemallows (*Sphaeralcea* spp.) for a late winter and early spring desert wildflower display. *Baileya multiradiata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18, 28 (color photograph), 43 (111309), 46 ("It is said that horses crop the heads, but fatal poisoning of sheep and goats eating this plant on overgrazed ranges has been reported.", Page 915), 48, 58, 63 (111309 - color presentation), 68 ("Desert Baileya, either fresh or dried, is poisonous to sheep and goats, but not to horses or cattle. The plant is not palatable to sheep, but the showy flower heads are relished, however, the flowering and fruiting heads are nearly twice as poisonous as the green leaves. Goats evidently do not graze the plant under range conditions, but have been poisoned in experimental feeding. Sheep losses from Desert Baileya have occurred in Arizona when green forage is scarce."), 77 (color photograph #17), 80 (This plant is listed as a Secondary Poisonous Range Plant. "The toxic principle is an unknown water-soluble compound. Plants are toxic to sheep on the range in both the green and dry state. ... Goats have been poisoned by experimental feeding but apparently do not eat the plant on the range. Both cattle and horses graze the plant on the range but no losses have been observed. Losses generally occur only when other feed is short or animals are trailed through dense stands." See text for additional information.), **85** (111309 - also recorded as *Baileya multiradiata* var *multiradiata* Harv. & Gray, color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Baileya multiradiata var *multiradiata* (see footnote 85 under *Baileya multiradiata*)

Baileya multiradiata var. *thurberi* (see *Baileya multiradiata*)

***Bebbia juncea* (G. Bentham) E.L. Greene: Sweetbush**

COMMON NAMES: Chuckwalla Delight, Chuckwalla's Delight, Junco, Rush Bebbia, Sweetbush. DESCRIPTION: Terrestrial perennial subshrub or shrub (16 inches to 5 feet in height); the older stems are brown; the younger stems and leaves are green; the flowers (½ inch in width - disk flowers only, no ray flowers) may be cream, gold, golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering may take place throughout the year. HABITAT: Within the range of this species it has been reported from mountains; mountain summits; rocky mountainsides; rocky-sandy and sandy mesas; plateaus; cliffs; rocky cliff faces; rocky canyons; rocky canyon walls; rocky and rocky-sandy canyon bottoms; rocky bluffs; buttes; sandy-loamy ridges; foothills; bouldery and rocky hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-loamy, shaley, gravelly and sandy slopes; bouldery-stony-gravelly-sandy alluvial fans; bajadas; amongst boulders and rocks; plains; gravelly and sandy flats; sandy valley floors; beach dunes; coastal terraces; coastlines; along gravelly roadsides; within rocky-gravelly arroyos; sandy bottoms of arroyos; rocky and sandy draws; within rocky gulches; bottoms of gulches; rocky gullies; silty springs; along streams; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sandy drainage ways; bouldery gravelly-sandy banks of rivers and washes; edges of streams, rivers, washes and ponds; margins of arroyos; bouldery and sandy shores of rivers and lakes; rocky, rocky-sandy, gravelly and sandy beaches; sandy terraces; sandy-loamy floodplains; canals; canal banks; rocky riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly, rocky, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, sandy loam, clayey loam and silty loam ground, and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological

formations. NOTES: The flowers are reportedly sweet-scented. *Bebbia juncea* is native to southwest-central and southern North America. *5, 6, 13, **16**, 43 (061409), 46 (Page 912), 63 (111309 - color presentation), **85** (111309 - color presentation), **89**, 115 (color presentation)*

***Bidens leptocephala* E.E. Sherff: Fewflower Beggarticks**

COMMON NAME: Bur Marigold, Bur-marigold, Few-flower Beggar Ticks, Few-flower Beggarticks, Fewflower Beggarticks, Tickseed. DESCRIPTION: Terrestrial annual forb/herb (1 to 3 feet in height); the leaves are medium green; the disk flowers and small ray flowers may be white (rarely) or yellow; flowering generally takes place between mid-August and early November. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; along sandy canyon bottoms; pockets of soil in boulders; meadows; hills; along gravelly hillsides; rocky, gravelly and silty-loamy slopes; bajadas; bedrock outcrops; amongst gravels and sands; gravelly flats; valleys; along rocky-clayey roadsides; gravelly arroyos; rocky draws; along streams; along streambeds; along creeks; along creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy and clayey washes; along drainages; silty banks of creeks and rivers; rocky edges of streams; sand bars; gravelly benches; terraces; floodplains; mesquite bosques; riparian areas, and waste places growing in moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 2,500 to 7,000 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Bidens leptocephala* is native to southwest-central and southern North America. *5, 6, 15, 43 (061409), 46 (Page 911), 58, 63 (111309 - color presentation), **85** (111309 - color presentation)*

Bigelowia hartweggii (see note under *Isocoma tenuisecta*)

***Brickellia californica* (J. Torrey & A. Gray) A. Gray (var. *californica* is the variety reported as occurring in Arizona): California Brickellbush**

COMMON NAMES: Brickellbush, California Brickellbush, False Boneset, Pachaba (Hopi). DESCRIPTION: Terrestrial perennial subshrub or shrub (1 to 7 feet in height, plants were reported that were 28 inches in height and width, plants were reported that were 40 inches in height and width); the branches are white; the leaves are gray-green, dark green or green tinged with dark purple; the flowers may be cream, cream-pink, cream-white, greenish, greenish-yellow, red-purple, white, pale yellowish, yellow, pale yellow-green or yellow-green; flowering generally takes place between early July and early December. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; plateaus; along rocky cliffs; escarpments; along bouldery-sandy, rocky and gravelly canyons; rocky-sandy canyonsides; rocky bases of canyon walls; along bouldery, rocky, rocky-gravelly and rocky-sandy-silty canyon bottoms; rocky gorges; bouldery and rocky talus slopes; bases of cliffs; rocky-sandy crater rims; sandy crevices in boulders and rocks; rock clefts; along bluffs; buttes; rocky ledges; openings in forests; rocky ridges; sandy ridgetops; bouldery ridgelines; openings in forests; foothills; rocky hills; rocky hillsides; rocky, rocky-clayey, shaley, stony-loamy, cindery, gravelly, sandy and sandy-clayey slopes; sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders, rocks and cobbles; bases of rocks; lava flows; lava beds; sand dunes; rocky banks; debris flows; rocky, cindery and sandy flats; valley floors; along rocky and rocky-shaley roadsides; along and in gravelly arroyos; rocky bottoms of arroyos; rocky ravines; seeps; bouldery, gravelly, gravelly-sandy and sandy springs; along streams; along and in bouldery-rocky, rocky-cobbly and gravelly streambeds; along creeks; rocky-sandy and sandy creekbeds; along rivers; gravelly riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly and sandy washes; bouldery drainages; along rocky drainage ways; bogs; sandy margins of creeks; rocky banks of arroyos, ravines, rivers and washes; along gravelly-sandy edges of rivers and washes; gravelly-sandy and sandy beaches; benches; terraces; floodplains; muddy, sandy and sandy-clayey riparian areas, and disturbed areas growing in muddy and damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-shaley, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam,

gravelly loam and loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and rocky-sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food/beverage crop (the leaves were used as a substitute for tea); it was also noted as having been used as a drug or medication. *Brickellia californica* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (111409), 46, 48 (genus), 58, 63 (111409 - color presentation), 77, **85** (111409 - color presentation), 127*

***Brickellia coulteri* A. Gray: Coulter's Brickellbush**

SYNONYMY: *Brickellia coulteri* A. Gray var. *coulteri*. COMMON NAMES: Brickellbush, Coulter's Brickellbush. DESCRIPTION: Terrestrial perennial subshrub or shrub (1 to 5 feet in height); the florets (disc flowers only) may be cream, cream-maroon-purple, cream-purple, cream-white, cream-yellow, green, greenish-yellow, purplish, purplish-brown, white, yellow or yellow-green; flowering generally takes place between late January and mid-November (additional records: two for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky and gravelly-sandy mountainsides; cliff faces; rocky and rocky-sandy canyons; rocky canyon bottoms; rocky talus slopes; bases of cliffs; crevices in rocks; rock ledges; rocky ridges; clearings in woodlands; foothills; rocky hills; rocky hillsides; rocky slopes; rocky outcrops; amongst boulders and rocks; flats; basins; valleys; arroyos; rocky bottoms of arroyos; rocky draws; rocky walls of ravines; springs; along streams; along bouldery and bouldery-rocky streambeds; along rivers; along and in rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy washes; rocky and pebbly drainages; bouldery and rocky drainage ways; around waterholes; along sandy and silty-loamy banks of washes and drainages; edges of washes; floodplains, and rocky and gravelly-sandy riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, sandy loam, silty loam and loam ground, and rocky clay ground, occurring from sea level to 4,500 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are reported to be fragrant. *Brickellia coulteri* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color picture), 43 (111409), 46 (Page 849), 48 (genus), **56**, **57**, 58, 63 (111409), 77, **85** (111409 - color presentation), **89**, 115 (color presentation)*

Brickellia coulteri var. *coulteri* (see *Brickellia coulteri*)

***Calycoseris wrightii* A. Gray: White Tackstem**

COMMON NAMES: Tackstem, White Cupfruit, White Tackstem. DESCRIPTION: Terrestrial annual forb/herb (10 to 12 inches in height); the leaves are gray-green; the disc flowers are creamy-yellow or whitish-yellow; the ray flowers are white turning pinkish or purplish with age; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; buttes; ridges; bouldery and rocky ridgetops; cinder cones; foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly alluvial fans; gravelly-loamy and sandy bajadas; rock outcrops; gravelly plains; gravelly, gravelly-clayey, sandy-clayey and loamy flats; sandy basins; valley floors; along rocky, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy roadsides; arroyos; along and in rocky, gravelly and sandy washes; along drainages; gravelly drainage ways; sandy benches; terraces; canal banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam and loam ground; gravelly clay and sandy clay ground, and gravelly-sandy silty ground, occurring from 400 to 7,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calycoseris wrightii* is native to

southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (111409), 46 (Page 964), 58, 63 (111409 - color presentation), 77, **85** (111409 - color presentation of dried materials), 86 (note under *Rafinesquia neomexicana*), **89**, 115 (color presentation)*

***Castalis tragus* (W. Aiton) N.T. Norlindh: Cape Marigold**

SYNONYMY: *Dimorphotheca aurantiaca* A.P. de Candolle, non Horton. COMMON NAMES: African Daisey, Cape Marigold. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 12 inches in height); the flowers are orange or yellow; flowering generally takes place between early February and mid-April (flowering records two for early February, three for late February, one for early March, three for mid-March, ten for late March, two for early April and one for mid-April, with one additional record for early September). HABITAT: Within the range of this species it has been reported from mountains; canyons; foothills; slopes; plains; gravelly flats; roadsides; along washes, and disturbed areas growing in dry gravelly and sandy ground, occurring from 300 to 6,800 feet in elevation in the desertscrub ecological formation. NOTES: EXOTIC Invasive Plant. *Castalis tragus* is native to southern Africa. *5, 6, **16** (*Dimorphotheca aurantiaca* DC.), 18, 43 (111409), 46 (no record of species), 63 (111409 - color presentation of seed), 77 (recorded as *Dimorphotheca sinuata* DC. [*D. aurantiaca* Hort., non DC.]), 85 (111409 - color presentation of dried material)*

***Centaurea melitensis* C. Linnaeus: Maltese Star-thistle**

COMMON NAMES: Cardo, Centáurea-estrela-de-malta (Portuguese), Coix de Malte (French), Malta Centaurea, Malta Starthistle, Malta Thistle, Maltese Centaury, Maltese Cockspur, Maltese Star Thistle, Maltese Star-thistle, Malteser Flockenblume (German), Napa Starthistle, Napa Thistle, Saucy Jack, Spotted Knapweed, Star-thistle, Tocalote. DESCRIPTION: Terrestrial annual or biennial forb/herb (8 to 38 inches in height); the foliage is blue-green or dull green; the flowers (disc flowers only, no ray flowers) are yellow; flowering generally takes place between early March and late July (additional records: one for mid-August, one for late August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; mesas; clayey cliffs; canyons; sandy and clayey canyon bottoms; rocky edges of bluffs above the sea; sandy-loamy ridges; clayey ridgetops; openings in forests and woodlands; meadows; hills; rocky and rocky-sandy hillsides; rocky, rocky-loamy-clayey, rocky-clayey, sandy-silty, loamy and clayey slopes; bajadas; sand hills; gravelly banks; plains; flats; valley floors; coastal marshes; railroad right-of-ways; along gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-clayey loam, sandy-loamy and clayey roadsides; along arroyos; draws; gulches; springs; along creeks; riverbeds; along and in gravelly and sandy washes; salt marshes; depressions; edges of washes; banks of streams and lakes; along edges of washes and lagoons; silty benches; sandy terraces; floodplains; dikes; along sandy edges of stock tanks (charcos and repressos); ditches; along ditch banks; recently burned areas; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky-loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Centaurea melitensis* is native to northern Africa and southern Europe. *5, 6, 15, **16**, 22 (color photograph), 41 (color photograph), 43 (111409), 46 (Page 955), **56**, **57**, 63 (111409), 68, 77, **85** (111409 - color presentation), **89**, 101 (note under *Centaurea solstitialis*), 115 (color presentation), 127, **WTK** (October 28, 2009)*

***Centromadia pungens* (W.J. Hooker & G.A. Arnott) E.L. Greene subsp. *pungens*: Common Tarweed**

SYNONYMY: *Hemizonia pungens* (W.J. Hooker & G.A. Arnott) J. Torrey & A. Gray. COMMON NAMES: Common Spikeweed, Common Tarweed, Smooth Tarplant, Spikeweed. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 4 feet in height, one plant was described as

being 3 inches in height and 20 inches in width); the ray flowers are yellow; the anthers are yellow; flowering generally takes place between early May and late September (additional records: two for late March and two for late November). HABITAT: Within the range of this species it has been reported from rocky-sandy meadows; flats; basins; valley floors; roadsides; along arroyos; gullies; streambeds; along creeks; silty riverbeds; within drainage ways; poolbeds; lakebeds; salt marshes; depressions; swales; bottomlands; sandy floodplains; ditches; waste places, and disturbed areas growing in moist and dry rocky-sandy and sandy ground; silty clay ground, and silty ground, occurring from 200 to 4,700 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Centromadia pungens* subsp. *pungens* is native to California. *5, 6, 43 (111409 - *Centromadia pungens* Greene), 46 (recorded as *Hemizonia pungens* (Hook. & Arn.) Torr. & Gray, Page 913), 63 (111409), 85 (111509), **89** (recorded as *Hemizonia fitchii* Gray), 101 (color photograph)*

***Chaenactis carphoclinia* A. Gray (var. *carphoclinia* is the variety reported as occurring in Arizona): Pebble Pincushion**

SYNONYMY: (for *C.c.* var. *carphoclinia*: *Chaenactis carphoclinia* A. Gray var. *attenuata* (A. Gray) M.E. Jones). COMMON NAMES: Broadleaved Chaenactis, False Yarrow, Pebble False-yarrow, Pebble Pincushion, Pincushion Flower. DESCRIPTION: Terrestrial annual forb/herb (2 to below 28 inches in height); the disk flowers are cream or white; flowering generally takes place between late January and mid-June (additional records: one for early January and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy mountainsides; mesas; sandy plateaus; rocky canyons; canyon bottoms; talus slopes; ridges; cindery cinder cones; foothills; rocky and gravelly hills; rocky, rocky-sandy, shaley and gravelly hillsides; rocky, rocky-sandy, shaley and gravelly slopes; rocky alluvial fans; gravelly bajadas; amongst rocks and gravels; lava flows; sandy lava beds; plains; rocky, rocky-sandy and sandy flats; along gravelly and sandy roadsides; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; silty depressions; clayey lakebeds; silty playas; rocky and gravelly banks of creeks, rivers and washes; edges of washes; sandy margins of washes; mudflats; gravelly terraces; floodplains; canal banks; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 5,000 feet in elevation in the desertscrub and wetland ecological formation. NOTE: *Chaenactis carphoclinia* is native to southwest-central and southern North America. *5, 6, 43 (111609), 46 (Page 922), 63 (111609), 77, **85** (111709 - color presentation), **89***

Chaenactis carphoclinia var. *attenuata* (see *Chaenactis carphoclinia* var. *carphoclinia*)

***Chaenactis stevioides* W.J. Hooker & G.A. Arnott: Esteve's Pincushion**

SYNONYMY: *Chaenactis stevioides* W.J. Hooker & G.A. Arnott var. *thornberi* W.P. Stockwell. COMMON NAMES: "Broad-leaved Chaenactis", Desert Pincushion, Dusty Maiden, Dustymaiden, Esteve False Yarrow, Esteve Pincushion, Esteve's Pincushion, "False Yarrow", Pincushion Flower, Steve's Dusty Maiden, Steve's Dusty-maiden, Steve's Dustymaiden, Steve's Pincushion. DESCRIPTION: Terrestrial annual forb/herb (8 to 18 inches in height); the leaves are grayish-green; the disk flowers (no ray flowers) are cream, cream-white, yellow, dull white, white, white-cream or whitish-yellow; flowering generally takes place between early February and late June (additional records: one for early January, one for mid-January, one for mid-July and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; canyon rims; sandy canyon bottoms; chalky cliffs; bouldery canyons; bluffs; buttes; rocky and clayey knolls; ledges; ridges; bedrock ridgetops; foothills; bouldery, rocky, gravelly and sandy hills; hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, shaley, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy slopes; bouldery and sandy alluvial fans; silty bajadas; amongst boulders; lava fields; sand dunes; sand hummocks; wind-blown sand-ramps; sand fields; blow-sand deposits; gravelly banks; sandy plains; gravelly, gravelly-sandy, sandy and silty

flats; sandy and silty valley floors; along gravelly-sandy, gravelly-clayey, gravelly-sandy-clayey-loamy and sandy roadsides; rocky, rocky-gravelly, gravelly and sandy arroyos; springs; along streams; gravelly streambeds; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; drainage ways; sandy lakebeds; marshes; silty swales; sandy banks of washes; sandy and sandy-silty edges of ponds and lakes; mudflats; beaches; benches; along terraces; sandy bottomlands; sandy floodplains; along canals; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; rocky clay, shaley clay, gravelly clay, sandy clay and clay ground; gravelly-sandy silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the juice was used as a glue to mend ceremonial items. *Chaenactis stevioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (111709), 46 (Page 923), 58, 63 (111709 - color presentation), 77, **85** (111809 - also recorded as *Chaenactis stevioides* var. *stevioides* Hook. & Arn., color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Chaenactis stevioides var. *stevioides* (see footnote 85 under *Chaenactis stevioides*)

Chaenactis stevioides var. *thornberi* (see *Chaenactis stevioides*)

***Chaetopappa ericoides* (J. Torrey) G.L. Nesom: Rose Heath**

SYNONYMY: *Aster arenosus* (A.A. Heller) S.F. Blake, *Aster hirtifolius* S.F. Blake, *Leucelene ericoides* (J. Torrey) E.L. Greene. COMMON NAMES: Baby Aster, Rose Heath, Sand Aster, Sya:yahkya udeya (Zuni - “Gnat Flower”, also known as “Snowbird Medicine”), Smallflower Aster, White Aster. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (1 to 8 inches in height, plants 4 inches in height and width were reported, patches 10 feet in diameter were reported); the foliage is gray-green; the disc flowers are orange or yellow; the ray flowers may be blue, pink, pinkish-lavender, pink-purple, purple, white or whitish; flowering generally takes place between early March and late October. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky, rocky-clayey, stony, gravelly, sandy, sandy-silty, clayey and clayey-loamy mesas; plateaus; bouldery summits of cliffs; rocky-gravelly cliffs; bouldery escarpments; along rocky rims of canyons; rocky, cobbly-sandy and sandy canyons; cobbly-sandy and sandy canyon bottoms; rocky and sandy talus slopes; bases of cliffs; shallow pockets of soil in bedrock; rocky and gravelly bluffs; knolls; ledges; along rocky, gravelly and sandy ridges; ridgetops; meadows; cindery cinder cones; sandy and clayey-loamy foothills; rocky, rocky-sandy-loamy, stony, gravelly and clayey hills; hilltops; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, rocky-loamy, rocky-clayey, shaley, stony, stony-loamy, cobbly, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and silty slopes; alluvial fans; bajadas; rocky outcrops; amongst boulders, rocks and gravels; rocky mounds; embankments; sandy lava flows; lava beds; sand dunes; blow-sand deposits; sandy steppes; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy and sandy prairies; sandy, sandy-loamy and clayey-loamy plains; cobbly-sandy, cindery-gravelly, cindery-sandy, gravelly-clayey, sandy and clayey-loamy flats; sandy basins; basin bottoms; sandy and silty valley floors; valley bottoms; along rocky, rocky-silty, gravelly, gravelly-sandy-loamy, sandy and clayey-loamy roadsides; arroyos; along and in rocky-clayey-loamy and gravelly draws; gulches; along streams; along streambeds; along and in creeks; sandy creekbeds; along and in rocky-sandy washes; drainages; along drainage ways; gravelly banks of washes; edges of draws; gravel bars; sandy and sandy-loamy benches; gravelly terraces; sandy bottomlands; lowlands; cobbly-sandy and cobbly-sandy-silty floodplains; fencerows; in ditches; ditch banks; sandy riparian areas; waste places; recently burned areas of woodland, and disturbed areas growing in dry gravelly desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, cindery-gravelly, cindery-sandy, gravelly, gravelly-

sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, stony loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground; rocky clay, gravelly clay and clay ground, and rocky silty, cobbly-sandy silty, sandy silty and silty ground, occurring from 2,400 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Chaetopappa ericoides* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Leucelene ericoides* (Torr.) Greene), 28 (recorded as *Leucelene ericoides*, color photograp), 43 (061509), 46 (recorded as *Aster arenosus* (Heller) Blake, Page 872 and *Aster hirtifolius* Blake, Page 872), 48 (genus), 58 (recorded as *Leucelene ericoides* (Torr.) Greene), 63 (111809 - color presentation), 77 (recorded as *Leucelene ericoides* (Torr.) Greene), 80 (Species of Aster are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), **85** (111809 - color presentation), 127*

***Chloracantha spinosa* (G. Bentham) G.L. Nesom: Spiny Chloracantha**

SYNONYMY: *Aster spinosus* G. Bentham. COMMON NAMES: Aster, Devilweed Aster, Mexican Devil-weed, Mexican Devilweed, Nowoh (Yaqui), Spiny Aster, Spiny Chloracantha. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (20 inches to 9 feet in height, one plant was described as being 3 to 4 feet in height and width); the foliage is green; the disk flowers are orange-yellow, pale yellow or yellow; the ray flowers are cream or white or white tinged with violet; flowering generally takes place between late April and late January. HABITAT: Within the range of this species it has been reported from mountains; canyons; along canyon bottoms; rocky and rocky-clayey hillsides; alcoves; sandy debris fans; sand dunes; sandy flats; valleys; coastal plains; along railroad right-of-ways; sandy roadsides; stony arroyos; seeps; sandy springs; in sandy soils along streams; along creeks; bouldery riverbeds; along sandy washes; drainages; along sandy drainage ways; poolbeds; in lakes; in backwaters; salt marshes; depressions; sloughs; along sandy banks of rivers and washes; edges of marshes; along sandy shores of lakes; mudflats; rocky-sandy and sandy beaches; benches; sandy terraces; sandy bottomlands; lowlands; along sandy floodplains; repressos (stock tanks); along canals; along clayey banks of canals; along and in clayey-silty ditches; along clayey banks of ditches; sandy riparian areas, and disturbed areas growing in shallow water and wet, moist and dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; rocky clay and clay ground, and clayey silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be useful in controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (used for gum and starvation food) crop. *Chloracantha spinosa* is native to south-central and southern North America and Central America. *5, 6, 43 (111809), 46 (recorded as *Aster spinosus* Benth., Page 873), 48 (genus, recorded as *Aster* spp.), 63 (111809 - color presentation), 68, 80 (Species of Aster are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), **85** (111809 - color presentation), **89** (recorded as *Aster spinosus* Benth.), 91, 127*

***Cirsium neomexicanum* A. Gray: New Mexico Thistle**

COMMON NAMES: Desert Thistle, Gewul (Tohono O'odham), Lavender Thistle, New Mexico Thistle, Mexican Thistle, Thistle. DESCRIPTION: Terrestrial biennial or perennial forb/herb (16 inches to 8 feet in height); the leaves are gray, gray-green, dark green or silvery; the flowers are creamy-white, pale lavender, lavender, lavender-pink, pale pink, pink, pinkish-lavender, pink-purple, pink-violet, light purple, purple, rose, rose-purple, violet-purple, white, whitish-cream or white tinged with pink; flowering generally takes place between mid-February and mid-July (additional records: one for early January, one for mid-August and two for late August). HABITAT: Within the range of this species it has been reported

from mountains; bouldery mountaintops; rocky mountainsides; mesas; cliff faces; sandy loamy canyons; canyonsides; bouldery-rocky-cobbly and rocky canyon bottoms; shallow pockets of soil in rocks; rocky ledges; rocky and shaley-clayey ridges; rocky-gravelly-sandy ridgetops; glades; meadows; foothills; rocky and gravelly-clayey hills; rocky-gravelly-clayey hilltops; rocky and gravelly hillsides; rocky, rocky-gravelly, rocky-silty-clayey, stony and gravelly slopes; bajadas; rocky and gravelly-rocky outcrops; amongst boulders and rocks; sandy bases of rocks; sandy lava flows; banks; plains; along esplanades; rocky and clayey flats; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; gravelly-sandy-clayey arroyos; gulches; seeps; around springs; along streams; gravelly streambeds; along creeks; along rivers; riverbeds; within gravelly, gravelly-sandy and sandy washes; drainages; within rocky and sandy drainage ways; silty depressions; along rocky, stony-gravelly and sandy banks of streams and rivers; benches; sandy and loamy bottomlands; floodplains; margins of stock ponds; riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, stony, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, sandy loam and loam ground; rocky-gravelly clay, rocky-silty clay, shaley clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and silty ground, occurring from 1,000 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. This plant provides food for many types of insects including being a host plant for the Painted Lady Butterfly, *Vanessa cardui*. Thistles (*Cirsium* spp.) provide pollen and nectar for bees; goldfinches and other birds feed on their seeds. This plant was reported to have been utilized by native peoples of North America. *Cirsium neomexicanum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (111809), 46 (Page 952), 58, 63 (111809 - color presentation), 77, **85** (111809 - color presentation), 115 (color presentation), 127, 134*

***Conyza bonariensis* (C. Linnaeus) A.J. Cronquist: Asthmaweed**

SYNONYMY: *Erigeron linifolius* C.L. von Willldenow. COMMON NAMES: Argentiinankoiransilmä, Argentine Fleabane, Asthma Weed, Asthmaweed, Flax-leaf Fleabane, Flaxleaved Fleabane, Fleabane, Hairy Fleabane, Horseweed, Wavy-leaf Fleabane. DESCRIPTION: Terrestrial annual or biennial forb/herb (6 inches to 5½ feet in height); the leaves are gray-green; the disk flowers are greenish-yellow or white; the ray flowers are cream, pink or white; flowering generally takes place between early March and late October (additional records: one for mid-January, one for mid-November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; sandy bluffs; foothills; clayey slopes; plains; sandy and clayey flats; valleys; along roadsides; around and in springs; rocky-sandy streambeds; muddy and sandy riverbeds; along rocky washes, drainages; clayey soils around ponds; sandy banks of streams and rivers; edges of rivers and lagoons, ponds and salt marshes; sandy floodplains; ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky and sandy ground and clay ground, occurring form sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Conyza bonariensis* is probably native to the neotropics of the southern North America; Central America, and northern South America. *5, 6, 15, **16**, 43 (111909), 46 (recorded as *Erigeron linifolius* Willld., Page 881), **56**, **57**, 63 (111909), 77, **85** (111909 - color presentation), 101 (color photograph)*

***Conyza canadensis* (C. Linnaeus) A.J. Cronquist: Canadian Horseweed**

COMMON NAMES: Blood Stanch, Butterweed, Canada Fleabane, Canadian Fleabane, Canadian-fleabane, Canadian Horseweed, Hogweed, Horsetail Conyza, Horse-weed, Horseweed, Horseweed Fleabane, Kanadisches Berufkraut (German), Mare's Tail, Mares Tail. DESCRIPTION: Terrestrial annual or biennial forb/herb (3 inches to 9 feet in height); the stem and leaves are a dull light olive-green; the disk flowers are greenish, green-yellow, white or yellow; the ray flowers may be cream,

pink, white or yellow; flowering generally takes place between early June and late November (additional records: two for early April, one for mid-April, one for early May, one for mid-May, one for late May, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from along mountains; mesas; plateaus; cliffs; rincons; rocky and sandy canyons; sandy, sandy-silty and silty canyonsides; canyon bottoms; chasms; bases of cliffs; bluffs; along ridges; loamy openings in scrub; meadows; foothills; rocky hills; along hillsides; bouldery and rocky hillsides; escarpments; rocky, shaley, sandy-loamy, clayey and clayey-loamy slopes; bajadas; shaley-sandy outcrops; lava flows; prairies; plains; gravelly and clayey flats; basins; valley floors; coastal salt marshes; along railroad right-of-ways; along rocky, rocky-clayey, gravelly and sandy roadsides; within arroyos; along sandy and clayey bottoms of arroyos; draws; gulches; ravines; along rocky and sandy-clayey seeps; along springs; along streams; along and in sandy streambeds; along creeks; rocky, stony, gravelly-sandy and sandy creekbeds; along rivers; along and in rocky, gravelly and sandy washes; within sandy, loamy and silty-clayey drainages; palm oases; around ponds; along lakes; sandy-loamy playas; freshwater and saltwater marshes; around and in depressions; grassy swales; sandy, sandy-loamy and loamy banks of streambeds, rivers and washes; along rocky edges of streams, streambeds, rivers, riverbeds; washes, lakes and salt marshes; along margins of seeps, streams, streambeds and washes; shores of ponds; rocky beaches; benches; rocky strands; stony terraces; bottomlands; along sandy and sandy-loamy floodplains; fencerows; stock tanks (repressos); around reservoirs; along canals; canal banks; along and in ditches; along ditch banks; gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy-loamy and clayey-loamy riparian areas; waste places, and gravelly disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, shaley, shaley-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay, silty clay and clay ground, and sandy silty and silty sandy ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic Plant? This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food (*E.c.* var. *canadensis*) and as a drug or medication. *Conyza canadensis* is native to northern, central and southern North America and Central America, its native range in the coastal Caribbean Islands and South America is obscure. *5, 6, **16**, 43 (061609), 46 (recorded as *Erigeron canadensis* L. and *Erigeron canadensis* L. var. *glabratus* Gray), **56**, **57**, 58, 63 (111909 - color presentation), 68, **77**, **85** (112009 - color presentation), 101 (color photograph of the species), 115 (color presentation), 127*

***Conyza canadensis* (C. Linnaeus) A.J. Cronquist var. *canadensis*: Canadian Horseweed**

SYNONYMY: *Erigeron canadensis* C. Linnaeus. COMMON NAMES: Blood Stanch, Canada Fleabane, Canadian Fleabane, Canadian Horseweed, Horsetail Conyza, Horseweed, Horseweed Fleabane, Mare's Tail, Mares Tail. DESCRIPTION: Terrestrial annual or biennial forb/herb (3 inches to 7 feet in height); the stem and leaves are a dull light olive-green; the disk flowers are greenish, green-yellow or yellow; the ray flowers may be cream, pink or white; flowering generally takes place between mid-June and late November. HABITAT: Within the range of this species it has been reported from mountains; canyons; bluffs; roadsides; creekbeds; along rivers; riverbeds; washes; banks of lakes; floodplains; riparian areas; waste places, and disturbed areas growing in dry sandy ground, occurring from 100 to 9,200 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: Exotic Plant? This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Conyza canadensis* var. *canadensis* is native to northern, central and southern North America and Central America, its native range in South America is obscure. *5, 6, 15, 43 (061609), 46 (recorded as *Erigeron canadensis* L.), 58, 63 (111909 - color presentation), 68, 85 (112009), **89** (recorded as *Erigeron canadensis* L.), 101 (color photograph of the species), 127*

Conyza coulteri (see *Laennecia coulteri*)

Dimorphotheca aurantiaca (see *Castalis tragus*)

***Dimorphotheca sinuata* A.P. de Candolle: Glandular Cape Marigold**

COMMON NAMES: African Daisy, Cape Marigold, Cape-marigold, Glandular Cape Marigold, Margarida (Portuguese), Namaqualand Daisy, Sun-marigold. DESCRIPTION: Terrestrial annual forb/herb (4 to 12 inches in height); the disk flowers are dark (nearly black) or black; the ray flowers may be cream, orange, orange-yellow, pumpkin-gold or yellow; flowering generally takes place between early February and late May (additional flowering record: one for early September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; escarpments; canyons; rocky canyon bottoms; ridges; ridgetops; sandy openings in woodlands; rocky hillsides; rocky-clayey, gravelly and sandy slopes; sandy alluvial fans; gravelly bajadas; plains; gravelly and sandy flats; valleys; along sandy roadsides; creekbeds; riverbeds; along rocky and sandy washes; sinks, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and rocky clay ground, occurring from 400 to 4,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Dimorphotheca sinuata* is native to southern Africa. *5, 6, 18, 43 (112009), 63 (112009 - color presentation), 77 (recorded as *Dimorphotheca sinuata* DC. [*D. aurantiaca* Hort., non DC.]), **85** (112009 - color presentation), 115 (color presentation)*

Dyssodia acerosa (see *Thymophylla acerosa*)

Dyssodia concinna (see *Thymophylla concinna*)

Dyssodia pentachaeta (see *Thymophylla pentachaeta* var. *pentachaeta*)

Dyssodia porophylloides (see *Adenophyllum porophylloides*)

Eclipta alba (see *Eclipta prostrata*)

Eclipta alba (see *Eclipta prostrata*)

***Eclipta prostrata* (C. Linnaeus) C. Linnaeus: False Daisy**

SYNONYMY: *Eclipta alba* (C. Linnaeus) J.C. Hasskarl. COMMON NAMES: Eclipta, Eclipte Blanche (French), False Daisy, Hierba de Tajo (Spanish), White Eclipta, White Heads, Yerba de Tago, Yerba de Tajo. DESCRIPTION: Terrestrial (or semi-aquatic) annual or perennial forb/herb (sprawling 4 to 40 inches in length); the stems are purple-brown; the leaves are green; the disk flowers are white; the ray flowers are white; flowering generally takes place between late May and late November (additional records: one for mid-January and one for late March). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon walls; rocky canyon bottoms; clayey slopes; dunes; silty plains; sandy and clayey flats; stony arroyos; seeps; springs; along streams; along creeks; along rocky-sandy-silty creekbeds; along rivers; sandy riverbeds; silty-clayey drainages; clayey lakebeds; backwaters to rivers; freshwater marshes; swamps; muddy and sandy banks of rivers and drainage ways; muddy, gravelly and sandy edges of streams, creeks, rivers, riverbeds, ponds and lakes; margins of ponds; rocky-sandy, sandy, sandy-clayey and clayey shores of lakes; mudflats; sand bars; sandy beaches; muddy bottomlands; levees; along canals; along canal banks; along ditches; ditch banks; gravelly, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp rocky-sandy, stony, gravelly and sandy ground; sandy clay and clay ground, and rocky-sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eclipta prostrata* is native to south-central and southern North America; Central America, and South America. *5, 6, 43 (112009), 46 (recorded as *Eclipta alba* (L.) Hassk., Page 898), 63 (112009 - color presentation), 85 (112009 - color presentation of dried material), **89** (recorded as *Eclipta alba* (L.) Hassk.)*

***Encelia farinosa* A. Gray ex J. Torrey: Brittlebush**

SYNONYMY: *Encelia farinosa* A. Gray ex J. Torrey var. *farinosa* A. Gray ex J. Torrey, *Encelia farinosa* A. Gray ex J. Torrey var. *phenicodonta* (S.F. Blake) I.M. Johnston, *Encelia farinosa* A. Gray ex J. Torrey var. *radians* T.S. Brandegee ex S.F. Blake. COMMON NAMES: Brittle Bush, Brittle-bush, Brittlebush, Button Brittlebush, Goldenhills, Hierba Cenisa, Hierba de Gusano, Hierba de las Animas, Hierba del Vaso, Inceinso, Incienso (Spanish), Rama Blanca, Tohavs (Pima), White Brittle Bush, White Brittlebush. DESCRIPTION: Terrestrial perennial evergreen (leaves will be shed under extreme drought conditions) subshrub or shrub (1 to 6 feet in height, one plant was described as being 2 feet in height and width, many plants were reported as being 40 inches in height); the foliage may be dark green, pale gray-green, silvery-gray, silvery-gray-green, silvery-green, silvery or whitish; the disk flowers are brown, brown-maroon, brown-purple, orange-yellow, purple, dark purple or yellow; the ray flowers are yellow or yellow-orange (the flowers appear 6 to 12 inches above or beyond the end of the foliage); flowering generally takes place between early November and mid-June (additional records: three for early July, four for late August, one for early September, two for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rocky and shaley canyons; rocky canyon walls; rocky, rocky-sandy and sandy canyon bottoms; talus slopes; bases of cliffs; bluffs; buttes; rocky ledges; along ridges; rocky ridgetops; sandy meadows; foothills; rocky and sandy hills; hilltops; bouldery, rocky, stony and cobbly hillsides; bouldery-gravelly, rocky, rocky-loamy, gravelly, sandy, loamy and clayey slopes; bouldery-stony-gravelly-sandy, rocky and rocky-sandy-loamy alluvial fans; gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; sandy and clayey plains; rocky-sandy, gravelly-sandy and sandy flats; rocky and gravelly-sandy valley floors; coastal dunes; sandy railroad right-of-ways; along rocky, sandy and clayey roadsides; arroyos; sandy-silty bottoms of arroyos; around springs; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; along swales; edges of arroyos and washes; shores of rivers; beaches; gravelly benches; gravelly, rocky shelves; gravelly-sandy and sandy terraces; rocky-sandy floodplains; canal banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam and loam ground; sandy clay and clay ground (where it reportedly does poorly), and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has an estimated life span of 32 years. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), and/or paint (varnish) crop; it was also noted as having been used as fuel, as a tool and waterproofing agent and as a drug or medication. According to the Fire Effects Information System, Brittlebush competes strongly with Buffelgrass (*Pennisetum ciliare*); it may be top-killed or completely killed by fire, and is considered to be a good off-site colonizer of post-fire communities. Plants with yellow ray flowers and dark purple disk flowers have historically been referred to as variety *phenicodonta* which has been observed growing with the typical plant which has yellow disk flowers. The Brittle Bush is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) and Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*). *Encelia farinosa* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), **16**, 18, 26 (color photograph), 28 (color photograph), 43 (112009), 46 (Page 904), 48, 58, 63 (112009 - color presentation), **85** (112109 - color presentation), 86 (color photograph), **89**, 91, 115 (color presentation), 127, **WTK** (October 28, 2009)*

Encelia farinosa var. *farinosa* (see *Encelia farinosa*)

Encelia farinosa var. *phenicodonta* (see *Encelia farinosa*)

Encelia farinosa var. *radians* (see *Encelia farinosa*)

Eremiastrum bellioides (see footnote under *Monoptilon bellioides*)

***Ericameria laricifolia* (A. Gray) L.H. Shinners: Turpentine Bush**

SYNONYMY: *Haplopappus laricifolius* A. Gray. COMMON NAMES: Ericameria, Larch-leaf Goldenweed, Roundleaf Rabbitbrush, Turpentine Bush, Turpentine-bush, Turpentine Brush, Turpentine-brush. DESCRIPTION: Terrestrial perennial subshrub or shrub (10 to 50 inches in height, one plant was described as being 1 foot in height and 2 to 3 feet in width, one plant was described as being 16 inches in height and 40 inches in width, one plant was described as being 40 inches in height and 40 inches in width); the leaves are gray, gray-green, gray-silver, green or yellow-green; the disk flowers may be orange-yellow or yellow, the ray flowers may be orange-yellow or yellow; flowering generally takes place between mid-August to late December (additional records: two for mid-January, two for late January, one for mid-February, one for late March, one for late April, two for early May, two for late May, one for early July and one for late July); the fruits are white. HABITAT: Within the range of this species it has been reported from mountains; bouldery-gravelly mountainsides; mesas; plateaus; bouldery and rocky canyons; along bouldery and rocky-clayey canyon bottoms; rocky talus; bouldery bases of cliffs; crevices in rocks; rocky knolls; rocky ledges; rocky and gravelly ridges; stony ridgetops; ridgelines; clearings in woodlands; bouldery foothills; rocky hills; rocky and silty hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy-silty sandy-loamy and loamy-clayey slopes; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; bouldery coves; plains; gravelly and sandy flats; rocky basins; valleys; along gravelly, gravelly-sandy, sandy and loamy roadsides; along arroyos; draws; gulches; rocky gullies; seeps; along streams; along streambeds; along creekbeds; bouldery-cobbly-sandy riverbeds; along bouldery and sandy washes; drainage ways; gravelly-sandy edges of washes; margins of arroyos; gravelly terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly-silty loam, clayey loam and loam ground; rocky clay and gravelly clay ground, and gravelly-loamy silty and silty ground, occurring from 1,000 to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are visited by many types of insects. *Ericameria laricifolia* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Haplopappus laricifolius* A. Gray), 15, **16**, 28 (color photograph), 43 (112109), 46 (recorded as *Aplopappus laricifolius* Gray, Page 861), 58, 63 (112109 - color presentation), 77, **85** (112109 - color presentation), **89** (recorded as *Aplopappus laricifolia* Gray), 115 (color presentation)*

Erigeron canadensis (see *Conyza canadensis* var. *canadensis*)

***Erigeron colomexicanus* A. Nelson: Running Fleabane**

SYNONYMY: *Erigeron divergens* J. Torrey & A. Gray var. *cinereus* A. Gray. COMMON NAMES: Running Daisy, Running Fleabane. DESCRIPTION: Terrestrial biennial forb/herb (6 to 8 inches in height, plants were reported that were 6 to 8 inches in height and 4 inches in width); the foliage is gray-green or yellow-green; the disk flowers are orange-yellow or yellow; the ray flowers may be lavender, pinkish, pale purple, purple, white (turning pink with age), white-pale lavender, white with a pink tint, white tinged with purple or red-purple or white with purple tips; flowering generally takes place between mid-March and mid-July (additional records: two for late August and one for late September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; escarpments; along canyons; canyon bottoms; talus slopes; rocky ledges; rocky ridges; rocky meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly-sandy, gravelly-loamy and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; sandy steppes; sandy and clayey prairies; plains; rocky, sand and clayey flats; basins; valleys; along gravelly roadbeds; along rocky, gravelly, gravelly-loamy and sandy roadsides; within rocky and sandy arroyos; rocky and sandy draws; gulches;

ravines; springs; along streams; sandy streambeds; along and in creeks; along creekbeds; gravelly-loamy and sandy washes; sandy drainages; in bouldery drainage ways; around ponds; silty-clayey lakebeds; loamy playas; sandy-silty swales; along banks of streams, creeks and washes; rocky shelves; sandy bottomlands; floodplains; along fencerows; edges of charcos (stock tanks); ditches; riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; silty clay and clay ground, and sandy silty ground, occurring from 2,600 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Erigeron colomexicanus* is native to southwest-central and southern North America. *5, 6, 15, 43 (112109), 46 (no record of species, record for *Erigeron divergens* Torr. & Gray is located on Page 880), 48 (genus), 63 (112109), 77, **85** (112209 - color presentation, recorded as *Erigeron tracyi* Greene)*

***Erigeron divergens* J. Torrey & A. Gray: Spreading Fleabane**

SYNONYMY: *Erigeron divergens* J. Torrey & A. Gray var. *typicus* A.J. Cronquist. COMMON NAMES: Desert Fleabane, Diffuse Daisy, Fleabane, Fleabane Daisy, Green Rabbit Bush, Spreading Daisy, Spreading Fleabane. DESCRIPTION: Terrestrial biennial forb/herb (4 to 28 inches in height, plants were observed that were 8 inches in height and 6 inches in width, plants were observed that were 12 inches in height and 16 inches in width); the leaves are a dull gray-green; the disk flowers are orange-yellow or yellow; the ray flowers may be blue, blue-lavender, blue-purple, pale lavender, lavender, lavender-blue, lavender-pink, lavender-purple, pale pink, pinkish, pinkish-white, light purple, white or white-lavender; flowering generally takes place between mid-January and late December. HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly-loamy and sandy mountaintops; rocky crags; mountainsides; rocky-gravelly and sandy mesas; rocky and sandy plateaus; rocky cliffs; rocky, gravelly, gravelly-loamy and sandy canyons; along rocky and sandy canyon bottoms; talus slopes; bases of cliffs; sandy knolls; rocky ledges; bouldery and rocky ridges; ridgetops; sandy openings in forests and woodlands; rocky-sandy, sandy and clayey meadows; margins of meadows; rocky foothills; bouldery, bouldery-rocky and rocky hills; rocky and rocky-sandy hillsides; escarpments; bouldery, rocky, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy, clayey-loamy, loamy, clayey and silty slopes; bajadas; bedrock, bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sandy dunes; rocky-sandy ashflows; banks; stony prairies; sandy plains; bouldery-gravelly-sandy, rocky, gravelly, sandy, loamy and silty-loamy flats; clayey basins; rocky and sandy valley floors; along railroad right-of-ways; along rocky, gravelly, gravelly-clayey-loamy, sandy, sandy-clayey-loamy and clayey roadsides; along sandy arroyos; bottoms of arroyos; draws; gulches; in seeps; springs; along streams; along rocky-sandy and gravelly-loamy streambeds; along creeks; along cobbly-loamy, gravelly-sandy and sandy creekbeds; gravelly areas and sandy soils along rivers; along sandy riverbeds; along and in bedrock, gravelly, gravelly-sandy, sandy and silty washes; drainages; along and in rocky, rocky-silty-clayey, sandy, silty-clayey and clayey drainage ways; boggy areas; cienegas; marshes; banks of streams, creeks, rivers and ponds; sandy-silty edges of vernal pools and playas; margins of lakes; along shore of lakes; mudflats; beaches; sandy and silty-loamy benches; sandy terraces; sandy bottomlands; clayey lowlands; floodplains; mesquite bosques; along levees; edges of tanks; along and in ditches; sandy riparian areas; waste places; recently burned areas of forests, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, cobbly loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky-silty clay, gravelly clay, sandy clayey, silty clay, powdery clay and clay ground, and rocky silty and silty ground, occurring from 300 to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the plants were used in the home as a good luck charm. *Erigeron divergens* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (112209), 46

(Page 880), 48 (genus), **56**, **57**, 58, 63 (112209 - color presentation), 77, **85** (112409 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Erigeron divergens var. *cinereus* (see *Erigeron colomexicanus*)

Erigeron divergens var. *typicus* (see *Erigeron divergens*)

Erigeron linifolius (see *Conyza bonariensis*)

***Erigeron lobatus* A. Nelson: Lobed Fleabane**

COMMON NAMES: Desert Fleabane, Fleabane, Fleabane Daisy, Lobed Daisy, Lobed Fleabane. DESCRIPTION: Terrestrial biennial forb/herb (4 to 20 inches in height); the disk flowers are yellow; the ray flower may be blue, blue-lavender, lavender, lavender-blue, lavender-pink, purple, white, white-blue, white-purple or white turning purple; flowering generally takes place between early February and mid-May (additional records: one for early January, three for mid-January, two for early June, one for mid-June, two for late June, one for mid-July, one for mid-August, two for late August, three for mid-September, one for late September, one for early October, two for late October, one for early November, two for mid-November, one for early December, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bouldery and rocky canyons; canyon walls; along bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; volcanic talus; crevices in rock walls; rocky hills; hilltops; rocky hillsides; bouldery-rocky, rocky, rocky-sandy, cobbly and gravelly slopes; rock outcrops; amongst boulders and rocks; lava flows; plains; shaley esplanades; flats; along rocky roadsides; arroyos; seeps; springs; around seeping streams; along streambeds; along creeks; rocky riverbeds; along and in rocky, gravelly-sandy and sandy washes; around and in drainages; along and in sandy drainage ways; playas; marshes; depressions; around water holes; banks of rivers; along rocky edges of rivers and washes; rocky and rocky-sandy beaches; mesquite bosques; along ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, gravelly and sandy ground and sandy clay and clay ground, occurring from 500 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Erigeron lobatus* is native to southwest-central and southern North America. *5, 6, 43 (112609), 46 (Page 880), 48 (genus), 63 (112409), **77**, **85** (112609 - color presentation of dried material)*

Erigeron tracyi (see footnote 85 under *Erigeron colomexicanus*)

Eriophyllum lanosum (see *Antheropeas lanosum*)

Eupatorium solidaginifolium (see *Koanophyllon solidaginifolium*)

Evax caulescens (see footnote 89 under *Evax verna* var. *verna*)

Evax multicaulis (see *Evax verna* var. *verna*)

***Evax verna* C.S. Rafinesque (var. *verna* is the variety reported as occurring in Arizona): Spring Pygmycudweed**

SYNONYMY: (for *E.v.* var. *verna*: *Evax multicaulis* A.P. de Candolle). COMMON NAMES: Cotton-rose, Evax, Manystem Evax, Rabbit Tobacco, Roundhead Rabbit-tobacco, Spring Pygmy-cudweed, Spring Pygmycudweed. DESCRIPTION: Terrestrial annual forb/herb (clumpy and spreading from under 2 inches to 3 inches in height); the foliage is light gray; the flowers are white; flowering generally takes place between mid-March and late May. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; hills; hilltops; rocky slopes; bajadas;

clayey-loamy plains; rocky, gravelly and loamy flats; valley floors; along clayey roadsides; along rivers; along and in gravelly, gravelly-sandy and sandy washes; depressions; swales; edges of washes; edges of washes; margins of cienegas; channel bars; benches; gravelly-sandy bottomlands; lowlands; floodplains; mesquite bosques; around stock tanks; riparian areas, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground, and clay ground, occurring from 400 to 5,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Evax verna* var. *verna* is native to south-central and southern North America. *5, 6, 43 (112609), 46 (recorded as *Evax multicaulis* DC., Page 885), 63 (112609), **85** (112709 - color presentation of dried material)*

***Evax verna* C.S. Rafinesque var. *verna*: Spring Pygmycudweed**

SYNONYMY: *Evax multicaulis* A.P. de Candolle. COMMON NAMES: Cotton-rose, Evax, Manystem Evax, Rabbit Tobacco, Roundhead Rabbit-tobacco, Spring Pygmy-cudweed, Spring Pygmycudweed. DESCRIPTION: Terrestrial annual forb/herb (2 to 3 inches in length); the foliage is light gray; the flowers are white; flowering generally takes place between mid-March and late May. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; hills; hilltops; rocky slopes; bajadas; rocky, gravelly and loamy flats; valley floors; along clayey roadsides; along rivers; along and in gravelly, gravelly-sandy and sandy washes; depressions; swales; edges of washes; margins of cienegas; benches; channel bars; gravelly-sandy bottomlands; floodplains; mesquite bosques; around stock tanks; riparian areas and disturbed areas in rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground, and clay ground, occurring from 400 to 4,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Evax verna* var. *verna* is native to south-central and southern North America. *5, 6, 15 (recorded as *Evax multicaulis* DC.), **16** (recorded as *Evax multicaulis* DC.), 43 (112609), 46 (recorded as *Evax multicaulis* DC., Page 885), 58 (recorded as *Evax multicaulis* DC.), 63 (112709), **77** (recorded as *Evax multicaulis* DC.), **85** (112709 - color presentation of dried material), **89** (recorded as *Evax caulescens* Gray and *Evax multicaulis* DC.)*

Filago arizonica (see *Logfia arizonica*)

Filago californica (see *Logfia californica*)

Filago depressa (see *Logfia depressa*)

Franseria ambrosioides (see Ambrosia ambrosioides)

Franseria confertiflora (see *Ambrosia confertiflora*)

Franseria cordifolia (see *Ambrosia cordifolia*)

Franseria deltoidea (see *Ambrosia deltoidea*)

Franseria dumosa (see *Ambrosia dumosa*)

Franseria tenuifolia (see footnote 89 under *Ambrosia confertiflora*)

***Gaillardia arizonica* A. Gray: Arizona Blanketflower**

SYNONYMY: *Gaillardia arizonica* A. Gray var. *arizonica* A. Gray, *Gaillardia arizonica* A. Gray var. *pringlei* (P.A. Rydberg) S.F. Blake, *Gaillardia pringlei* P.A. Rydberg. COMMON NAMES: Arizona Blanket Flower, Arizona Blanketflower, Pringle Blanketflower, Pringle's Blanketflower. DESCRIPTION: Terrestrial annual forb/herb (4 to 8 inches in height); the foliage is dark green; the disc flowers are gold, orange-yellow or yellow; the ray flowers are gold, orange-yellow or yellow; flowering

generally takes place between early March and mid-May. HABITAT: Within the range of this species it has been reported from mountains; clayey-loamy mountainsides; mesas; gravelly and sandy canyons; foothills; hills; stony-clayey, slopes; bajadas; alluvial plains; sandy plains; sandy flats; gravelly valley floors; gravelly roadsides; grassy arroyos; draws; along and in gravelly-sandy, sandy and sandy-silty washes; depressions; gravelly-sandy-loamy terraces; mesquite bosques, and riparian areas growing in dry desert pavement; gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-clayey loam and clayey loam ground; stony clay and sandy clay ground, and sandy silty ground, occurring from 600 to 5,200 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Gaillardia arizonica* is native to southwest-central and southern North America. *5, 6, **16**, 43 (112709), 46 (Page 930), 48 (genus), 63 (112709), **77**, **85** (112709 - color presentation of dried material), **89***

Gaillardia arizonica var. *arizonica* (see *Gaillardia arizonica*)

Gaillardia arizonica var. *pringlei* (see *Gaillardia arizonica*)

Gaillardia pringlei (see *Gaillardia arizonica*)

Greenella arizonica (see *Gutierrezia arizonica*)

***Gutierrezia arizonica* (A. Gray) M.A. Lane: Arizona Snakeweed**

SYNONYMY: *Greenella arizonica* A. Gray. COMMON NAME: Arizona Snakeweed, Broomweed, Matchweed, Snakeweed. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (to 8 inches in height); the disk flowers are white or yellow; the ray flowers are white; flowering generally takes place between late February and mid-June (additional records: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky and sandy canyons; foothills; hillsides; slopes; bajadas; gravelly and sandy plains; gravelly flats; sandy valley floors; along roadsides; along washes; depressions; sandy-loamy margins of washes; floodplains, and riparian areas growing in dry rocky, gravelly and sandy ground and sandy loam ground, occurring from 700 to 4,200 feet in elevation in the desertscrub ecological formation. NOTE: *Gutierrezia arizonica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (112909), 46 (recorded as *Greenella arizonica* Gray, Page 867), 63 (112809), 77, **85** (112909 - color presentation of dried material), **89** (recorded as *Greenella arizonica* Gray)*

***Gutierrezia microcephala* (A.P. de Candolle) A. Gray: Threadleaf Snakeweed**

COMMON NAMES: Broomweed, Little-head Sankeweed, Matchweed, Perennial Snakeweed, Resinweed, Sankeweed, Small-head Matchbrush, Small-head Snakeweed, Sticky Snakeweed, Threadleaf Snakeweed, Threadleaf Snakeweed, Thread Snakeweed, Three-leaf Snakeweed, Turpentineweed. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 4 feet in height); the lower portion of the stem may be brown with the upper portion of the stem being green or yellow; the leaves are dark gray-green; the disk flowers are gold or yellow; the ray flowers are yellow; flowering generally takes place between mid-June and late November, plants may cease flowering during summer drought (additional records: two for early January, one for late January, one for late February, one for late March, one for early April, one for mid-April and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy and sandy-silty mesas; plateaus; rocky rims of canyons and craters; rocky spurs; along rocky and gravelly-loamy canyons; rocky canyon walls; along rocky canyon bottoms; rocky gorges; rocky bases of cliffs; knolls; rocky ridges; sandy ridgetops; clearings in forests; meadows; foothills; bouldery, rocky and silty hills; gravelly-silty hilltops; rocky hillsides; bouldery-cobbly-gravelly, rocky, shaley, cobbly, cindery, gravelly, gravelly-loamy and sandy slopes; sandy bajadas; rocky and gypsum outcrops; amongst boulders; alcoves; rocky lava flows; sand hills; sand dunes; stony and sandy plains; sandy flats; basins; rocky valley floors; gravelly-sandy valley

bottoms; along rocky railroad right-of-ways; along rocky, gravelly, gravelly-loamy and sandy roadsides; along arroyos; within gravelly draws; gullies; seeps; springs; along streams; gravelly-loamy streambeds; creekbeds; along rivers; along rocky, gravelly-sandy and sandy washes; silty lakebeds; along gravelly and sandy banks of streams, creeks, rivers and washes; sandy edges of washes and marshes; mudflats; beaches; benches; floodplains; mesquite bosques; ditches; sandy riparian areas, and disturbed areas growing in drained dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-gravelly, rocky, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from 1,200 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication, as cooking tools and as decorations on prayer sticks. Threadleaf Snakeweed may live to be 18 years of age; however, the average lifespan is less than ten years. Threadleaf Snakeweed invades disturbed areas and may serve as an indicator of overgrazed rangelands reducing both native plant diversity and forage values, populations may best be reduced by increasing native grass competition. *Gutierrezia microcephala* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (note under *Gutierrezia sarothrae*), 43 (112909), 46 (Snake-weeds "are more or less poisonous to sheep and goats when eaten in quantity, but are unpalatable and are seldom grazed. It is said that *G. microcephala* absorbs selenium in large quantity on certain soils.", Page), **56**, **57**, 58, 63 (112909 - color presentation), 68, **77**, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principal is apparently a saponin. It is most toxic at earlier stages of growth during early leaf development and when growing on sandy soils. ... Livestock apparently eat small amounts of the relatively unpalatable snakeweed without serious consequences. Therefore, range improvement to provide alternate, desirable feed and to reduce snakeweed infestations through grass competition will control most losses." See text for additional information.), **85** (113009 - color presentation), 86 (note under *Gutierrezia sarothrae*), **89**, 127*

Haplopappus gracilis (see *Machaeranthera gracilis*)

Haplopappus laricifolius (see *Ericameria laricifolia*)

Haplopappus spinulosus (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus spinulosus var. *australis* (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus spinulosus var. *turbinellus* (see *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*)

Haplopappus tenuisectus (see *Isocoma tenuisecta*)

***Hedosyne ambrosiifolia* (A. Gray) J.L. Strother: Ragged Marsh-elder**

SYNONYMY: *Iva ambrosiifolia* A. Gray. COMMON NAMES: Marsh Elder, Ragged Marsh-elder, Ragged Marshelder, Rag Sumpweed. DESCRIPTION: Terrestrial annual forb/herb or subshrub (32 inches to 5 feet in height); the flowers are yellow; flowering generally takes place between early August and late October (possibly flowering as early as May and as late as November). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; bouldery bases of cliffs; ridges; gravelly hills; bouldery escarpments; rocky slopes; alluvial fan; rocky outcrops; amongst boulders; rocky flats; valley floors; arroyos; gulches; springs; along streams; riverbeds; along and in sandy washes; cienegas; terraces; mesquite bosques; floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, gravelly and sandy ground, occurring from 1,000 to 6,600 feet in

elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Hedosyne ambrosiifolia* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Iva ambrosiaefolia* (Gray) Gray), 43 (113009), 46 (recorded as *Iva ambrosiaefolia* Gray, Page 892), 63 (113009), 77 (recorded as *Iva ambrosiaefolia* A. Gray), **85** (113009 - color presentation of dried material), **89** (recorded as *Iva ambrosiaefolia* Gray)*

***Helenium thurberi* A. Gray: Thurber's Sneezeweed**

COMMON NAMES: Thurber Sneezeweed, Thurber's Sneezeweed. DESCRIPTION: Terrestrial annual forb/herb (24 to 32 inches in height); the foliage is yellow-green; the flowers are brown or yellow-orange; flowering generally takes place between early April and late October (flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from mountains; stony canyons; along canyon bottoms; hillsides; valley floors; sandy draws; silty bottoms of draws; seeps; along streams; sandy streambeds; along creeks; creekbeds; riverbeds; along rocky-sandy and sandy washes; drainages; marshy places; along sandy banks of rivers; sandy edges of streams and creeks; sandy margins of creeks; floodplains; culverts; silty canal banks, and riparian areas growing in damp and dry stony and sandy ground; clay ground, and silty ground, occurring from 100 to 5,900 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formation. NOTE: *Helenium thurberi* is native to southwest-central and southern North America. *5, 6, 15, 43 (113009), 46 (Page 929), 58, 63 (113009), **85** (113009 - color presentation), **89***

***Helianthus annuus* C. Linnaeus: Common Sunflower**

COMMON NAMES: Alizeti (Swahili), Annual Sunflower, Common Sunflower, Girasol (Spanish), Girassol (Portuguese), Grand Soleil (French), Hopi Sunflower, Isoauringonkukka, Kansas Sunflower, Mirasol (Spanish for "looks at the sun"), Omatts'aba (Zuni), Sonnenblume (German), Sunflower, Tournesol (French), Wild Artichoke, Wild Sunflower. DESCRIPTION: Terrestrial annual forb/herb (1 to13 feet in height); the leaves are green; the disk flowers may be black, dark brown, brownish, maroon, reddish, reddish-brown, reddish-purple or rust-brown; the ray flowers are golden, orange-yellow or yellow; flowering generally takes place between early February and early November (additional records: one for mid-January, one for late November and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; plateaus; cliffs; canyons; rocky and sandy canyon bottoms; bluffs; ridges; rocky and loamy meadows; clayey foothills; rocky hills; rocky and clayey bouldery hillsides; gravelly-loamy, gravelly-sandy, gravelly-clayey, sandy, sandy-loamy and clayey slopes; bajadas; rocky outcrops; amongst rocks; sand dunes; rocky and sandy prairies; plains; alkali flats; sandy valley floors; along railroad right-of-ways; along gravelly, gravelly-loamy, sandy and clayey roadsides; within sandy arroyos; within gullies; ravines; seeps; springs; along streams; streambeds; along creeks; creekbeds; along rivers; riverbeds; bouldery and bouldery-cobbly-sandy riverbeds; along and in rocky, rocky-sandy, sandy, clayey and silty washes; within drainages; along and in rocky drainage ways; watersheds; around ponds; around lakes; freshwater and saltwater marshes; swales; along sandy banks of creeks and rivers; along silty edges of streams, rivers and ponds; around and along margins of lakes; sandy and sandy-loamy shores of rivers, ponds, lakes and backwaters; loamy benches; bottomlands; floodplains; fencerows; sandy-clayey stock tanks; shores of reservoirs; canals; canal banks; along and in sandy-loamy and silty ditches; along ditch banks; sandy riparian areas; waste places, and disturbed areas growing in wet, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent, fiber, and/or dye crop; it was also noted as having been used for lighting, as a tool, as a musical instrument, as a drug or medication, for ceremonial items, decorations and as a commodity used

in personal hygiene. The flower heads follows the sun through the day. *Helianthus annuus* is native to central and southern North America. *5, 6, 15, 18, 28 (color photograph), 43 (061709), 46 (Page 903), 48, 58, 63 (113009 - color presentation), 68, 77, 80 (The Common Sunflower is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This common, annual forb has been reported to accumulate toxic levels of nitrate."), **85** (113009 - color presentation), 86 (color photograph), **89**, 101 (color photograph), 115 (color presentation), 127*

***Helianthus petiolaris* T. Nuttall: Prairie Sunflower**

COMMON NAMES: Girasol, Kansas Sunflower, Lesser Sunflower, Narrowleaf Sunflower, Petioled Sunflower, Pikkuauringonkukka, Plains Sunflower, Prairie Sunflower, Sand Sunflower, Sunflower, Wild Sunflower. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 6½ feet in height, plants were reported that were 12 inches in height and 6 inches in width); the foliage is green or greenish; the disk flowers are brown, dark brown, red or reddish-brown; the ray flowers are gold, golden-yellow, lemon-yellow, orange or yellow; flowering generally takes place between early May and early November (additional records: one for late March and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; sandy canyon bottoms; bases of cliffs; hills; bases of escarpments; rocky, gravelly-clayey, sandy and clayey slopes; bouldery outcrops; sandy lava flows; sand hills; sand dunes; sandy hummocks; sandy steppes; sandy prairies; sandy plains; sandy, sandy-loamy and clayey flats; sandy valley floors; along rocky-clayey, cindery-gravelly, gravelly, gravelly-clayey-loamy, sandy and clayey-loamy roadsides; along and in sandy arroyos; rocky draws; gulches; along streams; sandy streambeds; along creeks; creekbeds; sandy riverbeds; along and in gravelly-sandy, sandy, sandy-clayey and sandy-silty washes; sandy-loamy playas; swales; banks of washes; sandy edges of washes; clayey benches; terraces; sandy bottomlands; floodplains; mesquite bosques; in ditches; riparian areas; waste places, and disturbed areas growing in dry rocky, cindery, cindery-gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, shaley-clayey loam, gravelly-clayey loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from 300 to 9,700 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and fodder crop; it was also noted as having been used as a drug or medication, for ceremonial items, decorations and as an indicator of the seasons (the amount of flowers related to the amount of rainfall and quality of the harvest). *Helianthus petiolaris* is native to west-central North America. *5, 6, 28 (color photograph), 43 (061709), 46 (Page 903), 58, 63 (113009 - color presentation), 68, 77, 85 (120109 - color presentation), 86 (note under *Helianthus annuus*), **89**, 127*

Hemizonia fitchii (see footnote 89 under *Hemizonia pungens*)

***Hemizonia kelloggii* E.L. Greene: Kellogg's Tarweed**

COMMON NAMES: Kellogg Tarweed, Tarweed Kellogg's, Tarweed. DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); the foliage has been described as being sticky; the disk are yellow; the ray flowers are yellow; the anthers are yellow; flowering generally takes place between early May and mid-July (additional records: two for early April, one for mid-April, one for early August, one for late August, one for early October and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky and clayey canyons; clayey foothills; bouldery-silty-clayey and rocky, sandy and clayey hills; hillsides; rocky-loamy, clayey, clayey-loamy and loamy slopes; pebbly and clayey plains; sandy flats; rocky valley floors; rocky-gravelly and sandy roadsides; sandy arroyos; springs; along sandy washes; within rocky-sandy-loamy drainages; along edges of washes; benches; clayey ditches; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, rocky-sandy, pebbly and sandy ground; rocky loam, rocky-sandy loam, sandy loam, clayey loam and loam ground, and bouldery-silty clay and clay ground, occurring from 800 to

6,800 feet elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Hemizonia kelloggii* is plant is native to southwest-central and southern (Baja California) North America. *5, 6, 43 (120109), 46 (Page 913), 63 (120109), 77, 85 (120109), **89** (recorded as *Hemizonia wrightii* Gray)*

Hemizonia pungens (see *Centromadia pungens* subsp. *pungens*)

Hemizonia wrightii (see footnote 89 under *Hemizonia kelloggii*)

Heterotheca psammophila (see *Heterotheca subaxillaris*)

***Heterotheca subaxillaris* (J.B. de Lamarck) N.L. Britton & H.H. Rusby: Camphorweed**

SYNONYMY: *Heterotheca psammophila* B.L. Wagenknecht. COMMON NAMES: Camphor Daisy, Camphor Weed, Camphor-weed, Camphorweed, Golden Aster, Gordolobo, Telegraph Plant. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 6 feet in height); the leaves are light green and sticky; the disk flowers are orange or yellow; the ray flowers are yellow or yellow-orange; flowering generally takes place between mid-May and late December (additional records: two for late January, two for early March and two for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; sandy ridgetops; sandy meadows; sandy foothills; sandy hilltops; rocky hillsides; rocky, gravelly and gravelly-sandy slopes; alluvial fans; bajadas; sand dunes; sandy prairies; rocky-loamy, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; along railroad right-of-ways; along gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along arroyos; ravines; along streams; rocky creekbeds; rocky-gravelly-sandy and rocky-sandy creekbeds; riverbeds; along and in sandy and clayey washes; within drainages; around ponds; sandy depressions; along banks of rivers; along gravelly and sandy-loamy shores of ponds and lakes; benches; terraces; clayey bottomlands; floodplains; along and in ditches; ditch banks; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground, and gravelly clay and clay ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage is strongly scented with crushed leaves smelling like camphor. *Heterotheca subaxillaris* is native to south-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (061909), 46 (Page 854, with an additional note in the Supplement on Page 1071 in the supplement), 58, 63 (120109 - color presentation), 68, 77, **85** (120209 - color presentation), **89**, 101 (color photograph), 115 (color presentation)*

Hymenatherum hartwegii (see footnote 89 under *Thymophylla pentachaeta*)

***Hymenoclea monogyra* J. Torrey & A. Gray: Singlewhorl Burrobrush**

SYNONYMY: *Ambrosia monogyra* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin. COMMON NAMES: Burrobrush, Burrobush, Cheeseweed Burrobrush, Iivdad (Pima Bajo), Iivdat (Gila Pima), Jeco (Mayo), Jecota (Spanish), Leafy Burrobush, Leafy Burrobrush, Romerillo, Singlewhorl Burrobrush, Singlewhorl Burrobush, White Burrobush. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (20 inches to 13 feet in height, plants were observed that were 71 inches in height and 79 inches in width); the foliage may be gray-green , green or olive-green; the flowers are cream, light green, greenish-white, white, yellow or yellow-cream; flowering generally takes place between early March and early June and again between early September and mid-December (additional records: two for mid-January, one for mid-March, one for early April and one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; rocky canyons; along rocky and sandy canyon bottoms; bases of cliffs; rocky-sandy buttes; foothills; rocky hills; hillsides; rocky and rocky-clayey slopes; sand dunes; plains; rocky and gravelly flats; basins; valley floors; valley bottoms; gravelly

embankments; along rocky, gravelly-sandy, gravelly-loamy, sandy-loamy and clayey roadsides; along and in sandy arroyos; sandy bottoms of arroyos; gulches; in sandy ravines; springs; along streams; along and in streambeds, along creeks; sandy creekbeds; along rivers; along and in cobbly-sandy, gravelly and sandy riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy washes; along and in gravelly drainages; along edges of arroyos and rivers; margins of rivers and washes; along gravelly and gravelly-sandy banks of rivers and washes; gravel bars; benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; in ditches; rocky edges of ditches; along canals, and sandy riparian areas growing in dry rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground, and rocky clay and clay ground, occurring from sea level to 6,100 feet elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is useful in controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Burrowbrush is a host plant of the Burrobrush Leaf Beetle, *Leptinotarsa lineolata*. *Hymenoclea monogyra* is native to southwest-central and southern North America. *5, 6, 13, 15, 43 (062009), 46 (Page 894), 48 (genus), 58, 63 (120209 - color presentation of dried flowers), 85 (120209 - color presentation), 91, 127, **WTK** (August 2006)*

***Hymenothrix wislizeni* A. Gray: Trans-Pecos Thimblehead**

COMMON NAMES: Golden Ragweed, Trans-Pecos Thimblehead, TransPecos Thimblehead, Wislizenus Beeflower, Yellow Thimblehead. DESCRIPTION: Terrestrial annual or biennial forb/herb (8 inches to 5 feet in height); the foliage is green; the disc and ray flowers are green-yellow or yellow; flowering generally takes place between early June and early December (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; mesas; clefts in cliffs; rocky canyons; buttes; meadows; foothills; stony-gravelly hills; rocky and gravelly hillsides; bouldery-rocky-sandy and rocky slopes; alluvial fans; bajadas; amongst boulders; plains; gravelly, sandy and clayey flats; valley floors; along gravelly, gravelly-sandy-clayey-loamy, gravelly-silty, sandy and sandy-clayey-loamy roadsides; within sandy arroyos; along sandy bottoms of arroyos; springs; sandy streambeds; along creeks; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; gravelly-sandy and sandy banks of washes; sandy edges of washes; terraces; floodplains; mesquite bosques; around stock tanks, and disturbed areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy-clayey loam, sandy-clayey loam and loam ground; gravelly clay and clay ground, and gravelly silty ground, occurring from 1,300 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Hymenothrix wislizeni* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (062009), 46 (Page 920), **56**, **57**, 58, 63 (120209), 77, **85** (120209 - color presentation), **89**, 115 (color presentation)*

***Isocoma coronopifolia* (A. Gray) E.L. Greene: Common Goldenbush**

COMMON NAMES: Burroweed, Common Goldenbush, Common Goldenweed, Common Jimmyweed, Goldenbush, Goldenweed. DESCRIPTION: Terrestrial perennial subshrub (18 inches to 2 feet in height); the flowers are gold-yellow; flowering generally takes place between early July and late September (flowering records: two for early July, one for late July and three for late September). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky-sandy canyon walls; foothills; rocky and sandy slopes; gravelly bajadas; plains; gravelly-sandy flats; basins; along roadsides; draws; in sandy-clayey washes; sandy edges of marshy areas; floodplains; ditch banks, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam ground; sandy clay ground, and sandy silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Isocoma coronopifolia* is native to southwest-central and southern North America. *5, 6, 43

(120209 - *Isocoma coronopifolia* Greene), 46 (no record of species), **56**, **57**, 63 (120209 - mapping shows a distribution within Texas with this species not being present in Arizona), **85** (120209)*

***Isocoma tenuisecta* E.L. Greene: Burroweed**

SYNONYMY: *Haplopappus tenuisectus* (E.L. Greene) S.F. Blake. COMMON NAMES: Burro Weed, Burro-weed, Burrow Goldenweed, Burroweed, Hierba del Burrow, Shrine Jimmyweed. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 40 inches in height and 12 to 40 inches in width); the bark is gray or whitish; the leaves are gray, green, silvery or yellow-green; the flowers are cream, tawny-yellow or yellow; flowering generally takes place between late July and mid-November (additional records: two for late June, one for early July, three for early December and one for late December). HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; canyons; along canyon bottoms; rocky-loamy foothills; rocky hills; rocky and gravelly hillsides; rocky and gravelly slopes; bajadas; rocky outcrops; amongst rocks; rocky-clayey plains; gravelly, gravelly-clayey, sandy and clayey flats; along gravelly roadsides; sandy arroyos; draws; gulches; sandy bottoms of ravines; around streams; along and in sandy and sandy-silty washes; drainages; within clayey drainage ways; clayey playas; rocky, gravelly-sandy and sandy banks of arroyos and washes; mudflats; alluvial terraces; gravelly floodplains; mesquite bosques; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; rocky loam ground; rocky clay, gravelly clay and clay ground, and sandy silty ground, occurring from 2,000 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Isocoma tenuisecta* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (note under *Isocoma wrightii*), 43 (062009), 46 (recorded as *Aplopappus tenuisectus* (Greene) Blake, Page 862), 58, 63 (120209), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principle of burroweed is the alcohol, tremetol. All parts of the plant are poisonous, although the dried flowers are most often eaten. ... Burroweed produces the affliction called "trembles." Poisoned animals tremble violently when exercised and usually lie down in the normal position. Upon arising, the trembling recurs. Appetite is markedly depressed, and the severely poisoned animal eventually stays down until it dies. Acetonemia, characterized by the odor of acetone in the urine and on the breath, is also a product of burroweed poisoning. ... Burroweed is generally low in palatability, but is eaten in quite large amounts when better forage is not available. Special precautions must be taken with new animals brought into burroweed-infested areas as they are more likely to graze the plants. Native livestock apparently become sickened from eating the plant and tend to avoid it. An adequate supply of good feed during harsh times when livestock might be more prone to consume burroweed, may reduce its consumption." See text for additional information.), **85** (120309 - color presentation), **89** (recorded as *Bigelowia hartweggii*), 115 (color presentation)*

Iva ambrosiifolia (see *Hedosyne ambrosiifolia*)

***Koanophyllon solidaginifolium* (A. Gray) R.M. King & H.E. Robinson: Shrubby Thoroughwort**

SYNONYMY: *Eupatorium solidaginifolium* A. Gray. COMMON NAMES: Boneset, Shrubby Thoroughwort. DESCRIPTION: Terrestrial perennial subshrub (18 inches to 5 feet in height); the flowers are cream-yellow; based on few records located, flowering generally takes place between late April and early December (flowering records: one for late April, one for early May, one for late June, two for late August, two for early September, 4 for late September, 4 for early October, two for mid-October, one for mid-November and two for early December). HABITAT: Within the range of this species it has been reported from mountains; rock faces; rocky canyons; rocky canyon bottoms; rocky talus; bases of cliffs; rocky crevices; crests of buttes; rocky promontories; rocky ridges; foothills; rocky hilltops; rocky-sandy cuts in hillsides; rocky slopes; bases of rocky outcrops; amongst boulders and rocks; bases of rocks; in partial shade along valley bottoms; within draws; within ravines; along streams; along washes; shady bottomlands, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly and sandy ground,

occurring from 100 to 6,800 feet in elevation in the grassland and desertscrub ecological formations. NOTE: *Eupatorium solidaginifolium* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 46 (recorded as *Eupatorium solidaginifolium* Gray, Page 845), 58, 63 (073010), 77 (color photograph #69), **85** (073010 - color presentation of dried material)*

***Lactuca serriola* C. Linnaeus: Prickly Lettuce**

COMMON NAMES: Alface-de-espinho (Portuguese), Alface-silvestre (Portuguese), China Lettuce, Compass Plant, Escarola (Spanish), Horse Thistle, Laitue Sauvage (French), Lechuga Espinaca (Spainish), Milk Thistle, Prickly Lettuce, Stachellattich (German), Wild Lettuce, Wild Opium, Wilder Lattich (German). DESCRIPTION: Terrestrial annual or biennial forb/herb (6 inches to 10 feet in height); the stems are whitish; the leaves are medium green; the ray flowers (no disk flowers) are light blue, greenish-white, lemon-yellow, pinkish, pink-white, purple, rose, whitish, pale yellow or yellow; flowering generally takes place between late May and late October (additional records: one for early February, two for late March and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along canyons; bedrock, rocky-gravelly-sandy and rocky-sandy-silty canyon bottoms; clearings in cottonwood forests; meadows; rocky hills; rocky hillsides; bedrock, bouldery, rocky, cindery, gravelly, gravelly-sandy, gravelly-loamy and silty-loamy slopes; bedrock outcrops; lava flows; gravelly-clayey banks; prairies; plains; gravelly, loamy and clayey flats; valley floors; basins; along railroad right-of-ways; along rocky, cindery, gravelly, sandy and sandy-loamy roadsides; along arroyos; draws; gulches; seeps; springs; along streams; along creeks; creekbeds; along and in rocky, sandy and loamy washes; in bedrock drainages; drainage ways; around ponds; cienegas; freshwater marshes; clayey depressions; banks of creeks and rivers; edges of creeks; margins of arroyos, washes and ponds; shores of lakes; gravel bars; loamy benches; terraces; rocky and clayey bottomlands; rocky-gravelly-sandy, gravelly-sandy-loamy, sandy, clayey and silty-loamy floodplains; along canals; along ditches; along ditch banks; bouldery-sandy, cobbly and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet and dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, clayey loam, silty loam and loam ground; gravelly clay and clay ground, and rocky-sandy silty and silty ground, occurring from sea level to 9,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used as a drug or medication. Prickly lettuce may be browsed by Mule Deer (*Odocoileus hemionus*). *Lactuca serriola* is native to northern, middle, eastern and southern Europe; western, middle and southern Asia, and northern and southern Africa. *5, 6, 15, **16**, 28 (color photograph), 43 (120309), 46 (Page 966), **56**, **57**, 58, 63 (120309 - color presentation), 68, 77, 80 (This species is listed as a Rarely Poisonous or Suspected Poisonous Range Plant. “Hungry animals consuming large amounts of this biennial milky-juiced forb may develop pulmonary emphysema. It at also develops toxic levels of nitrate.”), **85** (120309 - color presentation), 101 (color photograph), 115 (color presentation), 127*

***Laennecia coulteri* (A. Gray) G.L. Nesom: Coulter’s Horseweed**

SYNONYMY: *Conyza coulteri* A. Gray. COMMON NAMES: Annual Horsetail, Conyza, Coulter Conyza, Coulter Horseweed, Coulter Marshtail, Coulter’s Horseweed. DESCRIPTION: Terrestrial annual forb/herb (7 inches to 6 feet in height, plants 16 to 40 inches in height and 6 inches in width were reported); the disk flowers are yellow; the ray flowers may be cream, dull white or whitish; flowering generally takes place between late March and late October (additional records: three for mid-February, two for late February, one for mid-November, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy canyons; canyonsides; canyon bottoms; meadows; foothills; hillsides; rocky, clayey and silty-loamy slopes; bajadas; rocky outcrops; amongst boulders; sandy lava beds; sand dunes; grassy plains; sandy, clayey and clayey-loamy flats; valley floors; along sandy, sandy-loamy and clayey roadsides; arroyos; sandy draws; ravines; seeps; around springs; along streams; along streambeds; along

rivers; sandy and sandy-silty riverbeds; along and in sandy washes; along silty-clayey drainages; clayey drainage ways; clayey lakebeds; playas; cienegas; freshwater and salt marshes; depressions; sandy swales; clayey-loamy mudholes; banks of rivers, drainage ways and lakes; edges of ponds and salt marshes; gravelly margins of creeks and poolbeds; rocky-sandy shores of lakes; mudflats; sandy benches; lowlands; rocky-sandy floodplains; mesquite bosques; around stock tanks; along ditches; gravelly and sandy riparian areas; recently burned areas in forests, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and silty loam ground; silty clay and clay ground, and sandy silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant is often confused with the Pineland Marshtail, *Laennecia schiedeana*. *Laennecia coulteri* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Conyza coulteri* Gray), **16** (recorded as *Conyza coulteri* Gray), 43 (120309), 46 (recorded as *Conyza coulteri* Gray, Page 881), **56** (recorded as *Conyza coulteri* A. Gray), **57** (recorded as *Conyza coulteri* A. Gray), 58 (recorded as *Conyza coulteri* Gray), 63 (120309), **77** (recorded as *Conyza coulteri* A. Gray), 80 (Listed as a Secondary Poisonous Range Plant, see text for additional information. "The poisonous principal is unknown but sheep have been poisoned by feeding fresh green leaves totaling 3% of the body weight over 3 days. Some losses can be expected in Arizona from these plants, particularly in abandoned fields and on overgrazed ranges."), **85** (120409 - color presentation), **89** (recorded as *Conyza coulteri* Gray)*

***Lasthenia californica* A.P. de Candolle ex J. Lindley (subsp. *californica* is the subspecies reported as occurring in Arizona): California Goldfields**

SYNONYMY: (for *L.c.* subsp. *californica*: *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer, *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer var. *gracilis* (A.P. de Candolle) H.M. Hall, *Lasthenia chrysostoma* (F.E. von Fischer & C.A. von Meyer) E.L. Greene). COMMON NAMES: California Goldenfields, California Goldfields, Gold-fields, Goldfields. DESCRIPTION: Terrestrial annual or perennial forb/herb (3 to 10 inches in height); the foliage is green; the disc flowers are orange or yellow; the ray flowers are golden-yellow, yellow or yellow-orange; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; plateaus; rocky canyons; canyon bottoms; ridges; ridgetops; sandy meadows; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; clayey-loamy plains; gravelly flats; sandy basins; valley floors; along roadsides; sandy draws; seeps; along streams; sandy riverbeds; along and in rocky and sandy washes; clayey lakebeds; banks of arroyos and washes; edges of creeks and rivers; gravelly and sandy-loamy terraces; bottomlands; floodplains; lowlands; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, sandy loam, clayey loam and loam ground, and clay ground, occurring from 200 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lasthenia californica* is native to southwest-central and southern (Baja California) North America. *5, 6, 15, **16**, 28 (recorded as *Lasthenia chrysostoma* - color photograph), 43 (120409), 46 (recorded as *Baeria chrysostoma* Fisch. & Mey. var. *gracilis* (DC.) Hall, reports that variety *gracillis* is the only form occurring in Arizona, Page 917-918), 63 (120409 - color presentation), 77, 85 (120409 - color presentation), 86 (recorded as *Lasthenia chrysostoma*, color photograph), 127*

***Lasthenia californica* A.P. de Candolle ex J. Lindley subsp. *californica*: California Goldfields**

SYNONYMY: *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer, *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer var. *gracilis* (A.P. de Candolle) H.M. Hall, *Lasthenia chrysostoma* (F.E. von Fischer & C.A. von Meyer) E.L. Greene. COMMON NAMES: California Goldenfields, California

Goldfields, Gold-fields, Goldfields. DESCRIPTION: Terrestrial annual forb/herb (3 to 10 inches in height); the foliage is green; the disc flowers are orange or yellow; the ray flowers are golden-yellow, yellow or yellow-orange; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; plateaus; rocky canyons; canyon bottoms; ridges; ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly and stony-loamy slopes; bajadas; amongst boulders and rocks; clayey-loamy plains; gravelly flats; sandy basins; valley floors; along roadsides; sandy draws; seeps; along streams; bouldery-gravelly streambeds; sandy riverbeds; along and in rocky and sandy washes; clayey lakebeds; edges of creeks and rivers; banks of washes; gravelly and sandy-loamy terraces; bottomlands; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy soils; rocky loam, stony loam, sandy loam and clayey loam soils, and clay soils, occurring from 700 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are reportedly fragrant. The species, *Lasthenia californica*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lasthenia californica* subsp. *californica* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Lasthenia chrysostoma*, color photograph), 43 (120409), 46 (recorded as *Baeria chrysostoma* Fisch. & Mey. var. *gracilis* (DC.) Hall, reports that variety *gracillis* is the only form occurring in Arizona, Page 917-918), 63 (120409 - color presentation), **77**, **85** (120409 - recorded as *Lasthenia californica*, no varieties of *Lasthenia californica* were recorded, color presentation), 86 (recorded as *Lasthenia chrysostoma* - color photograph), **89** (recorded as *Baeria gracilis* (DC.) Gray), 127 (species)*

Lasthenia chrysostoma (see *Lasthenia californica* subsp. *californica*)

Leucelene erioides (see *Chaetopappa ericoides*)

***Logfia arizonica* (A. Gray) J. Holub: Arizona Cottonrose**

SYNONYMY: *Filago arizonica* A. Gray. COMMON NAMES: Arizona Cottonrose, Arizona Filago, Arizona Fluffweed, Arizona Herba Impia. DESCRIPTION: Terrestrial annual forb/herb (2 to 6 inches in height); the leaves are gray, grayish or green; the disc flowers are brownish or yellowish; flowering generally takes place between mid-February and mid-May (additional records: one for early January, one for mid-June and one for early September). HABITAT: Within the range of this species it has been reported from mountains; mesas; escarpments; canyons; gravelly and sandy-loamy canyon bottoms; sandy bases of buttes; crevices in rocks; ridges; rocky hills; rocky, clayey and silty-clayey hillsides; rocky and gravelly-clayey slopes; gravelly bajadas; amongst rocks; lava fields; gravelly and sandy plains; rocky, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; valley bottoms; rocky coastal bluffs; along sandy roadsides; arroyos; along streams; riverbeds; along and in rocky-silty, gravelly, gravelly-sandy and sandy washes; drainage ways; rocky-clayey soils in and about vernal pools; shores of lakes; depressions; beaches; clayey terraces; floodplains; sandy-silty edges of stock tanks (charcos); gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, gravelly, gravelly-sandy, sandy ground; cobbly-sandy loam, sandy loam and clayey loam ground; rocky clay, gravelly clay and clay ground; rocky silty, gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from sea level to 4,400 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formation. NOTE: *Logfia arizonica* is native to southwest-central and southern (Baja California) North America. *5, 6, **16** (recorded as *Filago arizonica* Gray), 43 (120509), 46 (recorded as *Filago arizonica* Gray, Page 886), 63 (120509 - color presentation), 77 (recorded as *Filago arizonica* Gray), **85** (120509 - color presentation)*

***Logfia californica* (T. Nuttall) J. Holub: California Cottonrose**

SYNONYMY: *Filago californica* T. Nuttall. COMMON NAMES: California Cottonrose, California Filago, California Fluffweed, Herba Impia. DESCRIPTION: Terrestrial annual forb/herb (3 to 12 inches in height); the stems are grayish to green; the leaves are grayish, gray-green or green; the color of the flowers has been described as being cream-white, white, white-straw, yellow or yellowish; flowering generally takes place between mid-February and early June (additional records: three for late June and one record for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky-sandy and gravelly mesas; plateaus; rocky cliffs; rocky canyons; rocky canyon rims; rocky, rocky-gravelly, gravelly-sandy and sandy canyon bottoms; shaley-cobbly talus slopes; sandy bases of rock outcrop; buttes; ridges; rocky ridgetops; rocky ridgecrests; openings in chaparral; foothills; bouldery and rocky hills; rocky, cobbly-sandy-loamy and clayey hillsides; bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy-clayey, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy, loamy, clayey and clayey-loamy slopes; sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; edges of boulders; plains; gravelly, sandy and sandy-loamy flats; basins; hollows; valley floors; in roadways; along roadsides; rocky arroyos; around springs; along sandy streams; in sandy streambeds; along creeks; along sandy creekbeds; rivers; riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; drainage ways; sandy depressions; rocky banks of arroyos and rivers; cobbly edges of washes; sandy shores of lakes; benches; bouldery-gravelly-sandy and sandy terraces; loamy bottomlands; floodplains; bar ditches; sandy riparian areas; recently burned areas in woodlands and chaparrals, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley-cobbly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and gravelly-sandy silty ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Logfia californica* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Filago californica* Nutt.), **16** (recorded as *Filago californica* Nutt.), 43 (120509), 46 (recorded as *Filago californica* Nutt., Page 886), 58, 63 (120509), 77 (recorded as *Filago californica* Nutt.), **85** (120509 - color presentation), **89** (recorded as *Filago californica* Nutt.)*

***Logfia depressa* (A. Gray) J. Holub: Dwarf Cottonrose**

SYNONYMY: *Filago depressa* A. Gray. COMMON NAMES: Dwarf Cottonrose, Dwarf Filago, Spreading Filago. DESCRIPTION: Terrestrial annual forb/herb (to 4 inches in height); the stems may be gray-green or have a purplish cast; the leaves are grayish to whitish; the flowers are brownish, pink-lavender, yellow or yellowish; flowering generally takes place between early late February and mid-May. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hills; rocky, cobbly-sandy, gravelly and gravelly-sandy slopes; rocky-cobbly-sandy and rocky-sandy alluvial fan; bajadas; bases of rocky outcrops; sand dunes; sandy hummocks; blow-sand; gravelly and sandy flats; basins; gravelly valley floors; along sandy roadsides; along and in gravelly, gravelly-sandy and sandy washes; sandy edges of lakes; margins of washes; sandy benches; sandy terraces; gravelly-sandy floodplains; along edges of canals; gravelly-sandy riparian areas, and disturbed areas growing in wet and dry desert pavement and rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Logfia depressa* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Filago depressa* Gray), **16** (recorded as *Filago depressa* Gray), 43 (120509), 46 (recorded as *Filago depressa* Gray, Page 886), 58, 63 (120509), 77 (recorded as *Filago depressa* Gray), **85** (120509 - color presentation of dried material)*

***Machaeranthera arida* B.L. Turner & D.B. Horne: Arid Tansyaster**

SYNONYMY: *Machaeranthera coulteri* (A. Gray) B.L. Turner & D.B. Horne var. *arida* (B.L. Turner & D.B. Horne) B.L. Turner, *Psilactis coulteri* auct. non A. Gray. p.p. COMMON NAMES: Arid Machaeranthera, Arid Spiny Daisy, Arid Tansyaster, Silver Lake Daisy. DESCRIPTION: Terrestrial

annual forb/herb (2 to 16 inches in height); the disk flowers are gold or yellow; the ray flowers may be blue, bluish-lavender, lavender, lavender-blue, pale lavender-pink, lavender-white, pink, purple, pale violet, violet or white; flowering generally takes place between early March and early September (additional records: three for early October, one for mid-October, one for early November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; crater walls; rolling hills; hillsides; rocky slopes; gypsum outcrops; dunes; blowout areas between dunes; gravelly and sandy flats; basins; gravelly-sandy and sandy-clayey-loamy valley floors; coastal plains; along railroad right-of-ways; along roadsides; springs; sandy-silty riverbeds; along and in sandy washes; drainages; around pools; silty lakebeds; depressions; alkali sinks; banks of rivers; edges of seeps; gravelly benches; shores of lakes; clayey and gravelly-sandy-silty floodplains, and disturbed areas growing in wet and dry rocky-sandy, gravelly and sandy ground; sandy-clayey loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from 100 to 4,800 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: *Machaeranthera arida* is native to southwest-central and southern North America. *5, 6, 43 (120509), 46 (recorded as *Psilactis coulteri* Gray, Page 867), **56** (recorded as *Machaeranthera coulteri* (A. Gray) Turner & Horne var. *arida* (Turner & Horne) Turner), **57** (recorded as *Machaeranthera coulteri* (A. Gray) Turner & Horne var. *arida* (Turner & Horne) Turner), 63 (120509), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), **85** (120509 - color presentation of dried material)*

***Machaeranthera canescens* (F.T. Pursh) A. Gray subsp. *canescens* var. *incana* (J. Lindley) A. Gray: Hoary Tansyaster**

SYNONYMY: *Aster tephrodes* (A. Gray) S.F. Blake, *Machaeranthera incana* (J. Lindley) E.L. Greene, *Machaeranthera tephrodes* (A. Gray) E.L. Greene. COMMON NAMES: Cutleaf Goldenweed, Hoary Aster, Hoary Tansyaster, Purple Aster. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (6 to 40 inches in height); the disk flowers are yellow; the ray flowers may be lavender, purple, purple-blue, violet-blue, white or white tinged with lavender; flowering generally takes place between mid-February and early November. HABITAT: Within the range of this species it has been reported from mountains; canyons; sandy ridges; sandy-loamy hills; cindery-loamy slopes; amongst rocks; rocky alcoves; sand dunes; blow-sand; gullies; rivers; along and in sandy washes; rocky and sandy edges of streams; sandy terraces, and floodplains growing in dry rocky and sandy ground; cindery loam, sandy loam and sandy-clayey loam ground, and sandy silty ground, occurring from 100 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera canescens* subsp. *canescens* var. *incana* is native to west-central and southern (Baja California) North America. *5, 6, 43 (062009), 46 (recorded as *Aster tephrodes* (Gray) Blake, Page 874), 58 (recorded as *Machaeranthera tephrodes* (Gray) Greene), 63 (120509), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (120509 - color presentation), **89** (recorded as *Aster incanus* (Lindl.) Gray), 101 (species, recorded as *Machaeranthera canescens*, (Pursh) Gray, color photograph)*

Machaeranthera coulteri var. *arida* (see *Machaeranthera arida*)

***Machaeranthera gracilis* (T. Nuttall) L.H. Shinners: Slender Goldenweed**

SYNONYMY: *Haplopappus gracilis* (T. Nuttall) A. Gray. COMMON NAMES: Goldenweed, Slender Goldenweed, Yellow Daisy, Yellow Spiny Daisy. DESCRIPTION: Terrestrial annual forb/herb (4 to 28 inches in height); the foliage is gray-green or yellow-green; the disk and ray flowers are gold, yellow or yellow-orange; flowering generally takes place between mid-March and mid-November (additional records: one for early January, two for early February and three for early December).

HABITAT: Within the range of this species it has been reported from mountains; summits of mountains; mountainsides; mesas; rocky canyons; sandy canyon bottoms; sandy bases of cliffs; bouldery and sandy ridges; rocky ridgetops; clearings in forests and woodlands; sandy meadows; foothills; rocky, stony and sandy hills; rocky, gravelly-clayey, sandy-clayey and clayey hillsides; rocky, rocky-silty, gravelly, gravelly-loamy, silty-loamy, sandy and clayey slopes; bajadas; amongst boulders; sand dunes; plains; rocky, sandy and clayey flats; valley floors; valley bottoms; along rocky, gravelly-sandy, sandy and clayey roadsides; arroyos; draws; along streams; streambeds; along gravelly-sandy creeks; rocky creekbeds; along rivers; bouldery-cobbly-sandy and sandy riverbeds; along and in bouldery, rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; bouldery and gravelly-sandy-loamy drainage ways; along lakes; bog-like areas; sandy and silty banks of streams, creeks and lakes; shores of lakes; beaches; sandy benches; sandy and loamy bottomlands; sandy floodplains; around and in stock tanks; along ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; gravelly clay, sandy clay and clay ground, and rocky silty and powdery silty ground, occurring from 1,100 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Machaeranthera gracilis* is native to south-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (062009), 46 (recorded as *Aplopappus gracilis* (Nutt.) Gray, Page 860), 58, 63 (120509 - color presentation), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock.”), 85 (120509 - color presentation), **89** (recorded as *Aplopappus gracilis* (Nutt.) Gray), 127*

Machaeranthera incana (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Machaeranthera parviflora* A. Gray: Smallflower Tansyaster**

SYNONYMY: *Aster parvulus* S.F. Blake. COMMON NAMES: Small-flower Tansy-aster, Smallflower Tansyaster, Small-flowered Spiny Daisy. DESCRIPTION: Terrestrial annual forb/herb; the ray flowers are purple or white; flowering generally takes place between late February and late October (flowering records: one for late February, one for late May, one for early June, one for early August, four for early September, three for mid-September, two for early October, one for mid-October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; escarpments; canyons; gravelly hills; gravelly slopes; sand dunes; plains; clayey flats; basins; coastal sand dunes; along rocky and sandy roadsides; springs; along and in sandy washes; drainage ways; playas; sandy-clayey-loamy depressions; silty and silty-clayey margins of seeps; edges of playas; mudflats, and riparian areas growing in dry rocky, gravelly and sandy ground; sandy-clayey loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 5,600 feet in elevation in the desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant reportedly has a foul odor to it. *Machaeranthera parviflora* is native to southwest-central and southern North America. *5, 6, 43 (120509), 46 (recorded as *Aster parvulus* Blake, Page 873), 63 (120509), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock.”), 85 (120509 - color presentation of dried material), **89** (recorded as *Aster parviflorus* Gray), 127*

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shinners: Lacy Tansyaster**

COMMON NAMES: Cutleaf Goldenweed, Cutleaf Ironplant, Ironplant, Lacy Tansy-aster, Lacy Tansyaster, Pinnate Machaeranthera, Spiny Daisy, Spiny Goldenweed, Spiny Haplopappus, Tansyaster, Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 36 inches in height); the color of the leaves has been described as being bluish, gray-green or green; the disk flowers may be brown, brownish, golden-yellow, orange, yellow or yellow-orange; the ray flowers are golden-yellow or yellow; flowering generally takes place between mid-January and late December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; rocky mesas; plateaus; rock cliffs; rocky and rocky-sandy rims of canyons and craters; rocky, shaley and sandy canyons; canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; talus slopes; bases of cliffs; rocky clefts; crevices in bedrock, boulders, rocks and cracks in soil; ledges; rocky and chalky ridges; bouldery ridgetops; crater walls; foothills; rocky and sandy hills; bouldery and rocky hillsides; bouldery, rocky and gravelly slopes; gravelly, gravelly-sandy and sandy bajadas; rock outcrops; amongst boulders and rocks; alcoves; along lava flows; lava fields; prairies; sandy plains; gravelly, sandy and clayey flats; valley floors; along rocky, rocky-loamy, gravelly and gravelly-loamy roadsides; arroyos; sandy-silty draws; gullies; along streams; streambeds; along creeks; creekbeds; along rivers; along and in rocky, gravelly and sandy washes; along and in cobbly drainages; banks of creeks and rivers; mudflats; sand bars; along rocky beaches; gravelly and sandy benches; rocky and gravelly-sandy terraces; rocky terrace alcoves; bottomlands; floodplains; mesquite bosques; dry bottoms of stock tanks (charcos); sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy, sandy and chalky ground; rocky loam, gravelly loam, gravelly-clayey loam and sandy loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera pinnatifida* is native to central and southern North America. *5, 6, **16**, 43 (062109), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860; *Aplopappus spinulosus* (Pursh) DC. subsp. *typicus* H.M. Hall, Page 860; *Aplopappus spinulosus* (Pursh) DC. var. *gooddingii* (A. Nels.) Blake, Page 860, and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 63 (120609 - color presentation), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock.”), **85** (120609 - color presentation), 86 (color photograph - *Haplopappus spinulosus*)*

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shinners subsp. *pinnatifida* var. *pinnatifida*: Lacy Tansyaster**

SYNONYMY: *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle, *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle var. *australis* (E.L. Greene) H.M. Hall, *Haplopappus spinulosus* (F.T. Pursh) A.P. de Candolle var. *turbinellus* (P.A. Rydberg) S.F. Blake. COMMON NAMES: Cutleaf Goldenweed, Cutleaf Ironplant, Ironplant, Lacy Tansy-aster, Lacy Tansyaster, Pinnate Machaeranthera, Spiny Goldenweed, Spiny Haplopappus Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 16 inches in height); the foliage is gray-green; the disk and ray flowers are yellow; flowering generally takes place between March and late October. HABITAT: Within the range of this species it has been reported from cliffs; gorges; bouldery hillsides; rocky slopes; gravelly bajadas; amongst boulders; gravelly flats; valleys; along roadsides; arroyos; washes; banks of rivers; beaches, and disturbed areas growing in dry bouldery, rocky and gravelly ground, occurring from 1,600 to 7,200 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida* is native to central and southern North America. *5, 6, 15, 43 (062109), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860 and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 63 (120609 - color presentation), 77 (recorded as *Machaeranthera pinnatifida* (Hooker) Shinners var. *pinnatifida* [*Aplopappus spinulosus* (Pursh) DC.]), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant.

"Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (120609), 86 (color photograph - *Haplopappus spinulosus*), **89** (recorded as *Aplopappus australis* (Greene))*

***Machaeranthera tagetina* E.L. Greene: Mesa Tansyaster**

SYNONYMY: *Aster tagetinus* (E.L. Greene) S.F. Blake. COMMON NAMES: Mesa Tansy-aster, Mesa Tansyaster, Tansyleaf Spine Aster. DESCRIPTION: Terrestrial annual forb/herb (8 to 40 inches in height, one plant was described as being 10 inches in height and width); the foliage is gray-green; the disk flowers are yellow, the ray flowers may be blue, blue-purple, blue-violet, lavender, dark lavender, purple, purple-indigo or violet; flowering generally takes place between early July and mid-December (additional records: one for mid-March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; bases of cliffs; ridges; ridgetops; foothills; hills; rocky and rocky-clayey hillsides; rocky, gravelly and gravelly-sandy-loamy slopes; alluvial fans; bajadas; rocky-loamy, gravelly and clayey flats; basins; valleys; in gravelly roadways; along rocky roadsides; springs; along streams; along creeks; sandy creekbeds; along rocky washes; in drainage ways; banks of rivers; benches; terraces; floodplains; ditch banks; riparian areas, and disturbed areas growing in dry rocky, stony-sandy, gravelly and sandy ground; rocky loam, gravelly-sandy loam and clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 300 to 8,100 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera tagetina* is native to southwest-central and southern North America. *5, 6, **16**, 43 (062109), 46 (recorded as *Aster tagetinus* (Greene) Blake, Page 873), **56**, **57**, 58, 63 (120609), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), **85** (120609 - color presentation)*

***Machaeranthera tanacetifolia* (K.S. Kunth) C.G. Nees von Esenbeck: Tansyleaf Tansyaster**

SYNONYMY: *Aster tanacetifolius* K.S. Kunth. COMMON NAMES: Aster, Tahoka Daisy, Tahoka-daisy, Tansy-aster, Tansy-leaf-aster, Tansyleaf Aster, Tansyleaf Goldenweed, Tansyleaf Spine Aster, Tansyleaf Tansyaster, Udeya Lianna (Zuni, "Blue Flower"). DESCRIPTION: Terrestrial annual or biennial forb/herb (4 inches to 6 feet in height); the foliage is gray-green or pale green; the disk flowers are yellow; the ray flowers may be light bluish-purple, blue, dark blue, blue-lavender, blue-purple, lavender, deep lavender, lavender-blue, pink, purple, red-violet, violet or violet-lavender; flowering generally takes places between late April and mid-November (additional record: one for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy-loamy plateaus; rocky rims of canyons; along rocky and gravelly-loamy canyons; canyon bottoms; ridges; sandy ridgetops; meadows; foothills; sandy hills, hillsides; rocky, gravelly-loamy, sandy and sandy-loamy slopes; clayey breaks; sand hills; sand dunes; clayey breaks; rocky-sandy and sandy steppes; sandy and clayey prairies; plains; sandy and clayey flats; sandy valley floors; along cindery railroad right-of-ways; along rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; bottoms of arroyos; draws; seeps; around and in springs; streambeds; along creeks; sandy creekbeds; along rivers; sandy riverbeds; within sandy washes; drainages; swampy areas; sumps; grassy swales; along banks of rivers; edges of lakes; sandy-loamy shores of ponds; sandy beaches; benches; sandy terraces; sandy bottomlands; lowlands; sandy floodplains; ditches; sandy riparian areas; waste places, and disturbed areas growing in damp and dry rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and sandy loam ground; rocky clay, sandy clay and clay ground, and rocky silty, gravelly silty and gravelly-sandy silty ground, occurring from 1,000 to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Machaeranthera tanacetifolia* is native to west-central and southern North

America. *5, 6, 18, 28 (color photograph), 43 (062109), 46 (recorded as *Aster tanacetifolius* H.B.K., Page 873), 63 (120609 - color presentation), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (120609 - color presentation), 86 (color photograph), **89** (recorded as *Aster tanacetifolius* H.B.K.), 127*

Machaeranthera tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Malacothrix californica var. *glabrata* (see *Malacothrix glabrata*)

***Malacothrix clevelandii* A. Gray: Cleveland's Desertdandelion**

COMMON NAMES: Annual Malacothrix, Cleveland's Desertdandelion, Cleveland's Desertdandelion, Cleveland Yellow Saucers, Yellow Saucers. DESCRIPTION: Terrestrial annual forb/herb (2 to 22 inches in height); the flowers are cream, cream-white, cream-yellow, bright lemon-yellow, white, pale yellow or yellow; flowering generally takes place between mid-March and early July. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; canyons; sandy canyon bottoms; gravelly bases of cliffs; rocky ledges; ridges; ridgetops; ridgelines; hills; rocky hillsides; rocky and sandy slopes; bajadas; rocky outcrops; amongst gravels; gravelly flats; along bottoms of arroyos; along streams; along creeks; along and in sandy washes; drainage ways; banks of washes; sandy edges of washes, margins of cienegas; floodplains; shaley and sandy riparian areas recently burned areas in chaparral, and disturbed areas growing in moist and dry rocky, shaley, gravelly and sandy ground, occurring from 1,200 to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Malacothrix clevelandii* is native to southwest-central and southern (Baja California) North America. *5, 6, 15, **16**, 43 (120709 - no record of species), 46 (Page 963), 58, 63 (120709), 77, **85** (120709 - color presentation), **89**, 115 (color presentation)*

***Malacothrix coulteri* W.H. Harvey & A. Gray: Snake's Head**

COMMON NAMES: Coulter Desertdandelion, Snakehead, Snakehead Malacothrix, Snakes Head, Snake's-head, Snake's-head Desert-dandelion, Snakes-head. DESCRIPTION: Terrestrial annual forb/herb (2 to 20 inches in height); the flowers are cream, white, pale yellow or yellow; flowering generally takes place between late February and mid-May (additional records: one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; ridges; ridgetops; rocky, stony-sandy, gravelly and clayey slopes; hills; hilltops; rocky alluvial fans; gravelly and sandy outwash fans; plains; sandy, clayey and silty flats; gravelly valley floors; clayey roadsides; springs; draws; in rocky and sandy washes; along drainage ways; silty lakebeds; silty playas; sandy depressions; alkali sinks; sandy banks of washes; sandy edges of lakes and dry lakes; shores of lakes; benches; recently burned areas of coastal sage scrub, and disturbed areas growing in damp and dry desert pavement; rocky, rocky-gravelly, shaley, stony-sandy, cindery, gravelly and sandy ground; sandy loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from 300 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Malacothrix coulteri* is native to southwest-central and southern (Baja California) North America. *5, 6, **16**, 43 (120709), 46 (Page 963), 63 (120709), 77, 85 (120709 - color presentation of dried material), 86 (color photograph), **89***

***Malacothrix glabrata* (A. Gray ex D.C. Eaton) A. Gray: Smooth Desertdandelion**

SYNONYMY: *Malacothrix californica* A.P. de Candolle var. *glabrata* A. Gray ex D.C. Eaton. COMMON NAMES: California Desert-dandelion, Desert Dandelion, Desert-dandelion, Smooth Desert Dandelion, Smooth Desertdandelion. DESCRIPTION: Terrestrial annual forb/herb (3 to 16 inches in height); the flowers are creamy-white & yellow, lemon-yellow, white, pale yellow, bright yellow or yellow; flowering generally takes place between early February and mid-July (additional records: one for mid-January and one for mid-November). HABITAT: Within the range of this species it has been

reported from mountains; mountaintops; mountainsides; mesas; canyon rims; canyons; bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy and sandy canyon bottoms; gorges; bouldery talus slopes; bluffs; sandy and clayey knolls; rocky ledges; ridgetops; foothills; rocky, shaley and sandy hills; rocky hilltops; bouldery and rocky hillsides; bedrock, rocky, rocky-sandy, shaley, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava hills; lava flows; sand hills; sand dunes; gravelly-sandy banks; sandy alluvial fans; gravelly-sandy and sandy plains; gravelly, sandy and sandy-clayey flats; rocky-sandy, gravelly and sandy valley floors; sandy coastal plains; along rocky-sandy, stony, gravelly and sandy roadsides; gullies; springs; along gravelly-sandy creeks; creekbeds; along sandy rivers; along and in bouldery, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy lakebeds; backwater playas; sandy and silty depressions; clayey pans; rocky and sandy banks of washes; sandy edges of rivers, washes, lakes and lakebeds; alkaline mudflats; benches; sandy terraces; sandy bottomlands; canal banks; riparian areas; recently burned areas in woodlands, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-gravelly-pebbly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam and gravelly loam ground; clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Malacothrix glabrata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph, *Malacothrix californica* var. *glabrata*), 43 (120709), 46 (Page 963 and Supplement Page 1076), 58, 63 (120709 - color presentation), 77, **85** (120709 - color presentation of dried material), 86 (color photograph), **89**, 127*

***Malacothrix sonchoides* (T. Nuttall) J. Torrey & A. Gray: Sowthistle Desertdandelion**

COMMON NAMES: Sowthistle Desertdandelion, Yellow Saucers. DESCRIPTION: Terrestrial annual forb/herb (2 to 16 inches in height); the flowers are lemon-yellow or yellow; flowering generally takes place between early April and late June (additional record: one for mid-March). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; along gravelly and sandy rims of craters; canyons; sandy talus slopes; bluffs; rocky ridges; rocky and sandy hills; rocky hillsides; gravelly, gravelly-sandy, sandy and powdery-loamy slopes; gravelly alluvial fans; rocky outcrops; sand hills; sand dunes; sand hammocks; blow-sand deposits; sandy plains; sandy and silty flats; basins; sandy valley floors; valley bottoms; gravelly roadways; along sandy and sandy-loamy roadsides; arroyos; draws; along rivers; gravelly-sandy and sandy washes; alkali sinks; sandy beaches; bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, shaley-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, powdery loam and loam ground; sandy clay ground, and rocky silty ground, occurring from 800 to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Malacothrix sonchoides* is native to southwest-central North America. *5, 6, 43 (120709 - *Malacothrix sonchoides* Torr. & A. Gray), 46 (Page 963 and Supplement Page 1076), 58, 63 (120709 - color presentation), 85 (120809 - color presentation of dried material), **89**, 127*

***Malacothrix sonorae* W.S. Davis & P.H. Raven: Sonoran Desertdandelion**

COMMON NAME: Sonoran Desert Dandelion, Sonoran Desertdandelion. DESCRIPTION: Terrestrial annual forb/herb (7 to 10 inches in height); the flowers are white; flowering generally takes place between mid-March and early May (additional record: one for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; gravelly faces of cliffs; rock faces; rocky canyons; shaded canyon walls; canyon bottoms; hillsides; rocky slopes; rocky outcrops; amongst gravels; gulches; along streams; along creeks; along washes; drainage ways; margins of washes; around reservoirs, and bouldery and sandy riparian areas growing in dry bouldery, rocky, gravelly and sandy soils, occurring from 100 to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub

and wetland ecological formations. NOTE: *Malacothrix sonorae* is native to southwest-central and southern North America. *5, 6, 43 (120809), 46 (no record of species), 63 (120809), **85** (120809 - color presentation)*

***Matricaria discoidea* A.P. de Candolle: Disc Mayweed**

SYNONYMY: *Matricaria matricarioides* auct. non (C.F. Lessing) T.C. Porter, *Matricaria suaveolens* (F.T. Pursh) F.G. Buchenau. COMMON NAMES: Disc Mayweed, False Chamomile, Manzanilla, Pineapple Weed, Pineapple-weed, Pineappleweed, Rayless Chamomile, Rounded Chamomile, Strahllose Kamille (German), Uv Spuluv 'Smelly Clover' (Pima). DESCRIPTION: Terrestrial annual forb/herb (3 to 12 inches in height); the flowers may be green, greenish-yellow, white, dull yellow, yellow, dull yellow-green or yellow-green; flowering generally takes place between mid-February and mid-July (additional record: one for early August, two for mid-August, one for early September and one for late September). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon bottoms; bluffs; ridgetops; meadows; foothills; rocky and loamy hills; hillsides; bouldery, bouldery-sandy and rocky slopes; plains; clayey flats; valley floors; loamy valley bottoms; in roadways; along roadsides; gulches; along streams; along rivers; along riverbeds; along and in gravelly and sandy washes; along sandy-clayey-loamy drainages; sandy banks of rivers and pools; alkali lakebeds; clay pans; rocky beaches; sandy terraces; bottomlands; stock tanks; canals; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-sandy, rocky, gravelly and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and rocky clay, sandy clay and clay ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber (dried and crushed plants used to line baby cradles crop; it was also noted as having been used as a drug or medication, the dried blossoms were used for jewelry, perfume and as an insect repellent, and the plant was used as an indicator of the salmonberry picking time. *Matricaria discoidea* is native to northwestern, northern (Yukon Territory), west-central and southern (Baja California) North America, and eastern Asia, its exact native range is obscure. *5, 6, **16**, 43 (120809), 46 (recorded as *Matricaria matricarioides* (Less.) Porter, Page 937), 63 (120809), **77**, **85** (120809 - color presentation), **89** (recorded as *Matricaria suaveolens* (Pursh) Buchenau), 101 (color photograph), 127*

Matricaria matricarioides (see *Matricaria discoidea*)

Matricaria suaveolens (see *Matricaria discoidea*)

***Microseris lindleyi* (A.P. de Candolle) A. Gray: Lindley's Silverpuffs**

SYNONYMY: *Microseris linearifolia* (T. Nuttall) C.H. Schultz: Hierba de Pasmo, *Uropappus lindleyi* (A.P. de Candolle) T. Nuttall, *Uropappus linearifolius* T. Nuttall. COMMON NAMES: Lindley Silverpuffs, Lindley's Silverpuffs, Linearleaf Microseris, Narrowleaf Microseris, Silver Puffs, Starpoint. DESCRIPTION: Terrestrial annual forb/herb (2½ to 20 inches in height); the foliage is gray-green or green; the ray flowers (no disk flowers) are greenish, straw-yellow, white, pale yellow or yellow; flowering generally takes place between mid-January and mid-June (additional record: one for early September). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; mesas; canyon rims; rocky, gravelly-sandy and sandy canyons; along rocky, rocky-sandy and sandy canyon bottoms; chasms; gorges; bases of cliffs; rocky knobs; knolls; rocky and rocky-stony ledges; rocky promontories; along ridges; rocky ridgetops; rocky-sandy meadows; sandy foothills; bouldery, rocky, cobbly-sandy-loamy, gravelly and gravelly-sandy hills; hilltops; rocky and clayey hillsides; along rocky, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy-clayey-loamy, clayey, clayey-loamy, loamy and silty slopes; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; sandy plains; rocky

and sandy flats; basins; sandy and clayey valley floors; along gravelly, gravelly-sandy and sandy roadsides; along bottoms of arroyos; around streams; gravelly-clayey-loamy streambeds; creeks; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along drainages; within cobbly drainage ways; sandy and clayey depressions; along sandy banks of arroyos, rivers and washes; edges of creeks; sandy margins of creeks; benches; shelves; sandy terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; along fencelines; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-stony, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, and silty ground, occurring from 300 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Microseris lindleyi* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Microseris linearifolia* (DC.) Schultz Bip.), 28 (recorded as *Microseris lindleyi* and *Microseris linearifolia*, color photographs), 43 (120809 - *Microseris lindleyi* A.Gray), 46 (recorded as *Microseris linearifolia* (DC.) Schultz Bip., Page 959), 58, 63 (120809 - color presentation), 77 (recorded as *Microseris linearifolia* (DC.) Schultz Bip.color photograph #20), **85** (120809 - color presentation), **89** (recorded as *Microseris linearifolia* (DC.) Gray), 115 (color presentation)*

Microseris linearifolia (see *Microseris lindleyi*)

***Monoptilon bellioides* (A. Gray) H.M. Hall: Mojave Desertstar**

COMMON NAMES: Desert Daisy, Desert Star, Desertstar, Mohave Desert Star, Mohave Desertstar, Mojave Desertstar, Rock Daisy. DESCRIPTION: Terrestrial annual forb/herb (1 to 12 inches in height, plants may be up to 10 inches in width, plants ¾ inch in height and 5 inches in width were reported); the leaves are grayish-green; the disk flowers are golden or yellow; the ray flowers may be blue, blue-lavender-white, lavender, pink, purplish-lavender, white, white-lavender or white tinged with pink, pink-purple, purple or rose; flowering generally takes place between mid-January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; stony and sandy mesas; rocky canyons; foothills; rocky, gravelly and sandy hills; rocky, rocky-cobbly and gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly-sandy, sandy and clayey slopes; rocky alluvial fans; gravelly-sandy and sandy bajadas; bouldery outcrops; amongst rocks; lava flows; lava fields; sand dunes; gravelly plains; rocky, gravelly and sandy flats; valley floors; coastal sand dunes; sandy roadsides; gullies; creekbeds; along and in stony-sandy, gravelly, gravelly-sandy and sandy washes; stony drainage ways; playas; gravelly and sandy banks of drainage ways, silty depressions; shores of lakes; gravel bars; gravelly and sandy benches; terraces; canal banks, and gravelly-sandy riparian areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and sandy loam ground, and clay ground, occurring from sea level to 4,000 feet in elevation in the desertscrub and wetland ecological formations. NOTES: This small winter annual may be an attractive component of a restored native habitat, the flowers are about ¾ inch in width. *Monoptilon bellioides* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (120809 - *Monoptilon bellioides* H.M. Hall), 46 (Page 868), 63 (120809 - color presentation), 77 (color photograph #21), **85** (120909 - color presentation), 86 (color photograph), **89** (recorded as *Eremiastrum bellioides* Gray), 115 (color presentation)*

***Parthenice mollis* A. Gray: Annual Monsterwort**

COMMON NAME: Annual Monsterwort. DESCRIPTION: Terrestrial annual forb/herb (20 inches to 8 feet in height); the foliage is pale green or green; the flowers are green or greenish-white; flowering generally takes place between mid-August and late October (additional records: one for late March, one for early April, one for late April, one for late June and one for early July, flowering ending as late as December has been reported). HABITAT: Within the range of this species it has been reported

from mountains; rocky cliffs; sandy canyons; canyon bottoms; foothills; rocky hills; rocky hillsides; rocky and silty-loamy slopes; bajadas; amongst rocks; mesquite flats; rocky and gravelly roadsides; ravines; seeps; along streams; along streambeds; along and in sandy washes; within rocky drainages; banks of washes and lakes; along edges of washes; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky and sandy ground and silty loam ground, occurring from 400 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Parthenice mollis* is native to southwest-central and southern North America. *5, 6, 15, 43 (120909), 46 (Page 891), 58, 63 (120909), 85 (120909 - color presentation of dried material, includes varieties *mollis* and *peninsularis* Sauck (five records for Baja California)), **89***

***Parthenium incanum* K.S. Kunth: Mariola**

COMMON NAMES: Crowded Rayweed, Mariola. DESCRIPTION: Terrestrial perennial evergreen (?) shrub (1 to 4 feet in height, plants were described that were 8 inches in height and width, one plant was described as being 30 inches in height and 40 inches in width); the foliage is gray, gray-green or white; the flowers may be cream, cream-white, cream-yellow, green, greenish-white, greenish-yellow, white, whitish-green, yellow, pale yellow-white or yellow-cream; flowering generally takes place between late May and mid-December (additional records: one for early January, three for mid-January, one for late February, one for mid-March, one for mid-April and one for late April). HABITAT: Within the range of this species it has been range reported from mountains; mountainsides; sandy mesas; plateaus; cliffs; rocky and gravelly-loamy canyons; gorges; talus slopes; crevices in rock; hogbacks; knolls; ledges; ridges; ridgetops; sandy foothills; hills; rocky, sandy and sandy-loamy hillsides; bouldery escarpments; bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy-clayey-loamy, rocky-loamy, rocky-silty-loamy, stony, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-silty-clayey, clayey and chalky slopes; bajadas; rocky and clayey-loamy-gypsum outcrops; amongst rocks; lava flows; breaks; plains; gravelly and sandy flats; sandy esplanades; basins; valley floors; along rocky-sandy and gravelly-loamy roadsides; within rocky arroyos; ravines; springs; along rivers; along and in rocky, rocky-gravelly and gravelly washes; drainage ways; clayey depressions; sandy banks of creeks; rocky-sandy shores of lakes; floodplains; lowlands; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy-clayey loam, rocky-silty loam, sandy loam and clayey loam ground; sandy clay, sandy-silty clay and clay ground, and chalky ground, occurring from 900 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial crop. *Parthenium incanum* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 43 (120909), 46 (Page 891), 63 (120909 - color presentation), 77, **85** (120909 - color presentation), **89**, 127*

***Pectis cylindrica* (M.L. Fernald) P.A. Rydberg: Sonoran Cinchweed**

COMMON NAMES: Fetid-marigold, Sonoran Cinchweed, Summer Mat. DESCRIPTION: Terrestrial annual forb/herb (prostrate to erect stems 1 to 4 inches in height sometimes forming dense mats); the disk flowers are yellow; the ray flowers are yellow; flowering generally takes place between late August and early October (additional records: one for late October and one for early December, flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy mesas; ridges; foothills; rocky hills; bajadas; lava flows; earthen banks; gravelly-sandy and silty plains; sandy-silty, clayey and silty flats; valley floors; valley bottoms; gravelly roadsides; within shaded arroyos; washes; drainages; playas; gravelly-sandy banks of streambeds; mudflats; channel bars; floodplains; mesquite bosques, and disturbed areas growing in moist and dry rocky, gravelly and gravelly-sandy ground; rocky-gravelly-sandy loam and gravelly loam ground; clay ground, and sandy-silty and silty ground, occurring from 600 to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectis cylindrica* is

native to southwest-central and southern North America. *5, 6, 43 (071710), 46 (Page 935), 63 (073010), 77, **85** (073010 - color presentation of dried material)*

***Pectis papposa* W.H. Harvey & A. Gray: Manybristle Chinchweed**

COMMON NAMES: Chinchweed, Chinchweed Fetidmarigold, Cinchweed, Desert Cinchweed, Fetid Marigold, Fetid-marigold, Limoncillo, Manybristle Chinchweed, Manzanilla de Coyote. DESCRIPTION: Terrestrial annual forb/herb (1 to 8 inches in height and up 2 to 15 inches in width, plants were described as being 6 inches in height and 8 inches in width); the foliage is green or yellow; the ray and disk flowers are yellow; flowering generally takes place between early July and late December (additional records: one for early April, one for late April, two for early May, one for mid-May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy mesas; plateaus; rocky canyons; crevices in rock; buttes; sandy ridges; rocky and sandy foothills; bouldery and gravelly hills; rocky-gravelly hilltops; rocky hillsides; bouldery-rocky-gravelly, rocky, rocky-gravelly, gravelly, sandy and sandy-silty slopes; gravelly alluvial fans; bajadas; amongst boulders and rocks; sand hills; sand dunes; sand hummocks; blow-sand deposits; gravelly and gravelly-sandy plains; bouldery, rocky-sandy, gravelly, gravelly-silty and sandy flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastal flats; along gravelly, gravelly-sandy and sandy-loamy roadsides; rocky and sandy arroyos; along sandy bottoms of arroyos; silty springs; along streams; along streambeds; sandy riverbeds; along and in bouldery-sandy, cobbly, gravelly, gravelly-sandy, sandy and silty washes; gravelly drainages; sandy baysides; depressions; swales; sandy banks of rivers and washes; silty edges of lakebeds; terraces; lowlands; floodplains; mesquite bosques; impoundments; bottoms of dry stock tanks (charcos); riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, pebbly, pebbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam and sandy loam ground; clay ground, and gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has been reported to be pleasantly aromatic (one report that it is a pungent aroma somewhat like that of a lemon). This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a drug or medication and as a ceremonial item. This plant is a host of the Beet Leaf Hopper. *Pectis papposa* is native to southwest-central and southern North America. *5, 6, **16**, 43 (121009), 46 (Page 935), 63 (121009), 77, **85** (121009 - color presentation), 86 (color photograph), **89**, 127*

***Pectis papposa* W.H. Harvey & A. Gray var. *papposa*: Manybristle Chinchweed**

COMMON NAMES: Chinchweed, Chinchweed Fetidmarigold, Cinchweed, Desert Cinchweed, Fetid Marigold, Fetid-marigold, Limoncillo, Manybristle Chinchweed, Manzanilla de Coyote. DESCRIPTION: Terrestrial annual forb/herb (1 to 8 inches in height and up to 2 to 12 inches in width, plants were described as being 2 inches in height and 2 to 4 inches in width); the foliage is green or yellow; the ray and disk flowers yellow; flowering generally takes place between mid-July and late December (additional records: two for early June). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; buttes; sandy ridges; rocky foothills; rocky hillsides; rocky, gravelly and sandy slopes; bajadas; sand hills; sand dunes; sand hummocks; gravelly and gravelly-sandy plains; rocky-sandy, gravelly and sandy flats; sandy valley floors; gravelly roadsides; sandy arroyos; sandy bottoms of arroyos; sandy bottoms of ravines; along streams; along streambeds; sandy riverbeds; along and in cobbly, gravelly-sandy, sandy and silty washes; gravelly drainages; sandy baysides; depressions; banks of washes; terraces; floodplains; sandy riparian areas; waste areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, silty loam and loam ground; clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 5,900 feet in elevation in the scrub, grassland,

desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat, and has been reported to be pleasantly aromatic (one report that it is a pungent aroma somewhat like that of a lemon). The species, *Pectis papposa*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a drug or medication and as a ceremonial item. This plant is a host of the Beet Leaf Hopper. *Pectis papposa* var. *papposa* is native to southwest-central and southern North America. *5, 6, 15, 43 (121009), 46 (species, Page 935), 63 (121009), **85** (121009 - color presentation of dried material), 86 (color photograph of species), 127 (species)*

***Pectis prostrata* A.J. Cavanilles: Spreading Chinchweed**

SYNONYMY: *Pectis prostrata* A.J. Cavanilles var. *urceolata* M.L. Fernald. COMMON NAMES: Creeping Pectis, Dwarf Chinchweed, Spreading Chinchweed, Spreading Cinchweed. DESCRIPTION: Terrestrial annual forb/herb (2 to 10 inches in height); the foliage is yellow-green; the flowers are yellow; flowering generally takes place between mid-August and late October (additional records: one for late July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; sandy canyon bottoms; gravelly pockets of soil in rock; rocky ridgetops; meadows; rocky foothills; rocky hills; rocky-gravelly hilltops; rocky and gravelly-clayey hillsides; rocky, rocky-gravelly, stony and gravelly slopes; alluvial fans; bajadas; rocky outcrops; sandy plains; gravelly flats; valley floors; gravelly roadbeds; along rocky and gravelly roadsides; along arroyos; along streams; sandy streambeds; silty creekbeds; along and in gravelly, gravelly-sandy and sandy washes; scrapes; swales; silty banks of creeks; alluvial terraces; bottomlands; floodplains; around and in stock tanks; riparian areas, and disturbed areas growing in wet and dry bouldery-gravelly, rocky, rocky-gravelly, stony, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly clay ground, and gravelly-silty and silty ground, occurring from 600 to 6,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectis prostrata* is native to south-central and southern North America, Central America and northern South America. *5, 6, 15, 43 (062209), 46 (recorded as *Pectis prostrata* Cav. and *Pectis prostrata* Cav. var. *urceolata* Fern., Page 935), 63 (121009), 85 (121109 - color presentation of dried material), **89***

Pectis prostrata var. *urceolata* (see *Pectis prostrata*)

Perezia nana (see *Acourtia nana*)

Perezia wrightii (see *Acourtia wrightii*)

***Pluchea sericea* (T. Nuttall) F.V. Coville: Arrowweed**

SYNONYMY: *Tessaria sericea* (T. Nuttall) L.H. Shinners. COMMON NAMES: Arrowweed, Arrowweed Pluchea, Arrowwood, Marsh Fleabane, Os Ha Ma Kee (Pima). DESCRIPTION: Terrestrial perennial deciduous shrub (3 to 13 feet in height); the foliage is grayish, gray-green, green or silvery; the disk flowers are pink, purple-pink or rose; the ray flowers are lavender or reddish-purple; flowering generally takes place between mid-February and early September (additional records: three for mid-January, two for late September, one for early October and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons, sandy-loamy and sandy-silty canyon bottoms; sandy ridges; rocky hills; rocky, gravelly and clayey slopes; plains; flats; valleys; beach dunes; coastal beaches; along sandy-silty roadsides; arroyos; along bottoms of arroyos; draws; in seeps; around springs; along streams; streambeds; along sandy creeks; sandy creekbeds; along rivers; along rocky-sandy, gravelly-sandy-loamy, sandy and sandy-loam riverbeds; within washes; along drainages; around clayey poolbeds; cienegas; marshes; swamps; sinks; along banks of streams and rivers; along sandy edges of streams, rivers, washes, lakes and freshwater marshes; margins of washes; sandy shores of rivers and lakes; beaches; sandy benches; gravelly-sandy, sandy and

sandy-clayey terraces; bottomlands; lowlands; bouldery-gravelly-sandy and sandy floodplains; mesquite bosques; margins of charcos (stock tanks); sandy canals; along ditches; sandy ditch banks; sandy riparian areas; waste places, and disturbed areas growing in wet, damp and dry ground bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; gravelly clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 4,300 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as tools and as a drug or medication. This plant is a host for the parasitic Sand Root (*Pholisma sonorae*) and is browsed by deer. *Pluchea sericea* is native to southwest-central and southern North America. *5, 6, 13, 28 (color photograph), 43 (121109), 46 (Page 884), 48, 63 (121109 - color presentation), **85** (121109 - color presentation), **89**, 127*

***Porophyllum gracile* G. Bentham: Slender Poreleaf**

COMMON NAMES: Deerweed, Hierba del Venado (Herb of the Deer), Odora, Poreleaf, Slender Poreleaf. DESCRIPTION: Terrestrial perennial subshrub (4 to 48 inches in height, one plant was described as being 8 inches in height and 12 inches in width, one plant was described as being 16 inches in height and 20 inches in width), the foliage is bluish, blue-gray, gray, gray-green, green or purple-gray; the disk flowers (no ray flowers) may be cream, cream-maroon, cream-purple, cream-white, flesh, grayish-white, maroon, maroon-cream, pinkish, pinkish-white, purple, purplish-white, white, whitish, white tinged with purple, yellow or yellow-white; flowering generally takes place between mid-February and late December (additional records: one for early January and one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky-gravelly and gravelly mesas; cliffs; bouldery and rocky and stony canyons; rocky and sandy canyon bottoms; scree; talus slopes; bouldery bases of cliffs; crevices in boulders and rocks; ledges; rocky ridges; ridgetops; meadows; foothills; rocky and rocky-sandy hills; along bouldery hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly, rocky-loamy, rocky-clayey, gravelly and sandy slopes; alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst boulders and rocks; sandy lava beds; sand dunes; sandy hummocks; sandy plains; rocky-sandy, gravelly and sandy flats; basins; valley floors; sandy coastal dune ridges; along gravelly roadsides; sandy arroyos; rocky arroyo walls; rocky arroyo bottoms; draws; along gullies; around springs; along streams; along creeks; sandy creekbeds; along rivers; rocky riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; in drainage ways; rocky, cobbly and sandy banks of arroyos, rivers and washes; rocky edges of arroyos; along shores; beaches; gravelly terraces; floodplains; riparian areas, and recently burned areas of chaparral growing in wet and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and rocky-gravelly loam ground, and rocky clay and clay ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Deerweed emits a pungent odor when bruised. This plant was reported to have been utilized by native peoples of North America crop; it was noted as having been used as a drug or medication. Deer browse this plant. *Porophyllum gracile* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (121109), 46 (Pages 933-934), **56**, **57**, 58, 63 (121109 - color presentation), 77, **85** (121209 - color presentation), **89**, 115 (color presentation), 127*

Psilactis coulteri (see *Machaeranthera arida*)

***Psilostrophe cooperi* (A. Gray) E.L. Greene: Whitestem Paperflower**

COMMON NAMES: Cooper Paperflower, Paper Daisy, Paper-daisy, Paper Flower, Paper-flower, Paperflower, Whitestem Paperflower, Yellow Paper Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 32 inches in height, one plant was described as being 32 inches in height and

40 inches in width); the stems are white; the leaves may be blue-green, gray, gray-green, green, greenish-gray or white; the disk flowers are yellow, the ray flowers are lemon-yellow, pale yellow or yellow fading to cream or white and persisting on plant when dry; flowering generally takes place between early January and early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; bouldery canyons; along canyon bottoms; buttes; rocky and chalky ridges; ridgelines; foothills; rocky, stony-gravelly, cobbly-gravelly-loamy and clayey hills; rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly-clayey, stony, gravelly-sandy-silty, gravelly-clay and sandy-silty slopes; sandy bajadas; amongst boulders and rocks; lava fields; plains; gravelly and sandy flats; basins; sandy valley floors; rocky embankments; in roadbeds; along rocky-sandy-loamy, gravelly-sandy, sandy and clayey roadsides; arroyos; along streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sandy along rocky drainage ways; sandy depressions; gravelly-silty edges of draws; along sandy banks of arroyos, rivers and washes; mudflats; rocky benches; gravelly terraces; sandy bottomlands; floodplains; sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony, stony-gravelly, cindery, gravelly, gravelly-sandy, sandy and chalky ground; rocky-sandy loam, cobbly-gravelly loam, sandy-clayey loam and sandy-silty loam ground; rocky-gravelly clay, gravelly clay and clay ground, and gravelly silty, gravelly-sandy silty and sandy silty ground, occurring from 500 to 5,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Psilostrophe cooperi* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, **16**, 18, 28 (color photograph), 43 (121209 - *Psilostrophe cooperi* Greene), 46 (Page 914), 48 (genus), **56**, **57**, 63 (121209 - color presentation), 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This showy, low-growing shrub is widespread in Arizona. No losses have been documented, but it may cause some poisoning similar to the other paperflowers.”), **85** (121209 - color presentation), 86 (color photograph), **89** (recorded as *Riddellia cooperi* Gray), 115 (color presentation), **HR**, **WTK** (October 28, 2009)*

***Rafinesquia neomexicana* A. Gray: New Mexico Plumeseed**

COMMON NAMES: Desert Chickory, Desert Chicory, Desert-chicory, Desert Dandelion, Goatsbeard, Mexican Plumeseed, New Mexico Plumeseed, New Mexico Plumseed, Plumeseed. DESCRIPTION: Terrestrial annual forb/herb (4 to 24 inches in height); the foliage is bluish-gray-green; the ray flowers (flowering head 2 inches in width) are cream, cream-white, white, white with lavender or pink stripes, yellow or yellow-cream; flowering generally takes place between early January and late May (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas, along rocky cliffs; rocky canyons; sandy and sandy-loamy canyon bottoms; bases of cliffs; knobs; ridges; ridgetops; foothills; rolling hills; rocky and sandy hillsides; rocky escarpment; bouldery-sandy-clayey, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-silty-clayey, rocky-powdery, stony, cobbly-gravelly-sandy, cobbly-sandy loam, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and silty slopes; alluvial fans; rocky-sandy and gravelly bajadas; amongst rocks; lava fields; sand dunes; blow-sand deposits; bouldery-pebbly and sandy plains; rocky, gravelly, sandy, sandy-loamy, sandy-silty silty flats; gravelly and sandy valley floors; coastlines; along rocky-sandy, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; rocky and sandy arroyos; along gullies; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; cobbly drainage ways; silty lakebeds; sandy and silty depressions; alkaline sinks; gravelly-sandy and sandy banks of washes; sandy edges of washes and lakes; margins of washes; shores of lakes; gravelly-sandy benches; terraces; floodplains; ditches; sandy riparian areas and disturbed areas growing in dry desert pavement; bouldery-pebbly, rocky, rocky-sandy, stony, cobbly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; bouldery-sandy clay, rocky-silty clay, silty clay and clay ground; sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 5,800 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It is often

found growing up through the crowns of and supported by Triangleleaf Bursage (*Ambrosia deltoidea*) and other small low shrubs. *Rafinesquia neomexicana* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (121209), 46 (Page 961), 58, 63 (121209 - color presentation), 77 (color photograph #22), **85** (121209 - color presentation), 86 (color photograph), **89**, 115 (color presentation)*

Riddellia cooperi (see footnote 89 under *Psilostrophe cooperi*)

***Sanvitalia aberti* A. Gray: Abert's Creeping Zinnia**

COMMON NAMES: Abert's Creeping Zinnia, Abert's Creeping Zinnia, Abert's Dome. DESCRIPTION: Terrestrial annual forb/herb (4 to 24 inches in height, one plant was described as being 24 inches in height and 32 inches in width); the stems are green, sometimes with a reddish tinge; the leaves are green; the disk flowers are pale green, green, greenish-yellow, yellow or yellow-green; the ray flowers are lemon-yellow, pale yellow or yellow drying cream or straw; flowering generally takes place between early August and late October (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; rocky cliffs; rocky canyons; sandy and clayey canyon bottoms; rocky gorges; pockets of soil in rock; rocky ledges; ridges; ridgetops; clearings in forests; meadows; foothills; rocky-sandy and sandy hills; rocky, gravelly and gravelly-clayey hillsides; rocky, cindery, gravelly, gravelly-loamy, gravelly-clayey and sandy-clayey slopes; bajadas; plains; rocky outcrops; bouldery-sandy, gravelly and sandy flats; valley floors; along gravelly-loamy and sandy-clayey-loamy roadsides; rocky, sandy and clayey arroyos; sandy bottoms of arroyos; along draws; springs; along streams; rocky-gravelly streambeds; along creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; drainages; depressions; swales; banks of washes and drainages; edges of washes; sandy-loamy terraces; bottomlands; floodplains; mesquite bosques; ditches; along sandy and silty riparian areas; waste places, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, sandy loam and sandy-clayey loam ground; sandy clay and clay ground, and sandy-silty and silty ground, occurring from 2,600 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Sanvitalia aberti* is native to southwest-central and southern North America. *5, 6, 15, 43 (072009), 46 (Page 898), 63 (121209 - color presentation), 77, **85** (121209 - color presentation), 115 (color presentation), 127*

Senecio douglasii var. *douglasii* (see footnote 16 under *Senecio flaccidus* var. *monoensis*)

Senecio douglasii var. *monoensis* (see *Senecio flacciduss* var. *monoensis*)

***Senecio flaccidus* C.F. Lessing var. *monoensis* (E.L. Greene) B.L. Turner & T.M. Barkley: Mono Ragwort**

SYNONYMY: *Senecio douglasii* A.P. de Candolle var. *monoensis* (E.L. Greene) W.L. Jepson, *Senecio monoensis* E.L. Greene. COMMON NAMES: Comb Butterweed, Creek Senecio, Groundsel, Mono Groundsel, Mono Ragwort, Sand Wash Groundsel, Shrubby Ragwort, Smooth Threadleaf, Threadleaf Groundsel, Threadleaf Ragwort. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (1 to 4 feet in height); the hairless foliage is green or yellow-green; the disk flowers are orange-yellow or yellow; the ray flowers are yellow; flowering generally takes place between late January and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; canyons; foothills; bouldery and rocky hills; rocky hillsides; bedrock, rocky, gravelly-loamy, sandy and cindery slopes; gravelly alluvial fans; bajadas; rocky and shaley outcrops; amongst boulders and rocks; plains; gravelly and sandy flats; valley floors; gravelly, gravelly-loamy and sandy roadsides; rocky-gravelly arroyos; bottoms of arroyos; silty draws; bottoms of draws; deep shaded

ravines; springs; along rivulets; along streams; streambeds; along creeks; sandy creekbeds; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; in drainages; clayey depressions; edges of washes; benches; sandy bottomlands; sandy floodplains; bouldery, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam and clayey loam ground; clayey ground, and gravelly-sandy silty and silty ground, occurring from 1,400 to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant is reported to be a nectar source for many butterflies. *Senecio flaccidus* var. *monoensis* is native to southwest-central and southern North America. *5, 6, 13, 15 (recorded as *Senecio douglasii* DC. var. *monoensis* (Greene) Jepson), **16**, 28 (recorded as *Senecio monoensis*, color photograph), 43 (062409), 46 (recorded as *Senecio monoensis* Greene, Page 947), 63 (121309 - color presentation), 77 (recorded as *Senecio douglasii* DC. var. *monoensis* (Greene) Jepson), 80 (The Threadleaf Groundsel, Woolly Groundsel, Senecio (*Senecio longilobus* and others) are listed as Major Poisonous Range Plants. Poisoning by Threadleaf Groundsel has been attributed to the presence of a number of alkaloids. "These alkaloids belong to a single group - the pyrrolizidine alkaloids. Upon hydrolysis, these break into a nitrogen-containing fraction and a mono- or di-carboxylic necic acid. The nitrogen oxides are hepatotoxic, causing liver lesions that are attributed to senecio poisoning. ... Cattle and horses are equally sensitive to senecio poisoning; sheep and goats are less susceptible. ... Also, the consumption of small amounts of the plant over a period of a month or more will have a cumulative effect. ... When possible, livestock should be kept from areas heavily infested with Threadleaf Groundsel, particularly when the range is excessively dry." See text for additional information.), **85** (121509 - color presentation), 115 (color presentation)*

Senecio lemmoni (see footnote 46 under *Senecio flaccidus* var. *flaccidus*)

***Senecio lemmonii* A. Gray: Lemmon's Ragwort**

COMMON NAMES: Groundsel; Lemmon Butterweed, Lemmon's Butterweed, Lemmon Groundsel, Lemmon Ragwort, Lemmon's Ragwort. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (generally 10 to 20 inches in height; however, plants up to 5 feet in height have been reported); the stems are reddish; the foliage is purple beneath and green above; the disk flowers are golden-yellow, orange-yellow or yellow, the ray flowers are buttery-yellow, green-yellow or yellow, flowering generally takes place between early February and mid-May (additional records: one for early January, one for mid-January, one for early February, one for early June, one for late June, two for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky peaks; rocky mountainsides; mesas; canyon rims; rocky cliffs; rocky cliff faces; along rocky canyons; bases of cliffs; crevices in boulders and rocks; buttes; rocky ridges; foothills; rolling hills; rocky, shaley, gravelly and gravelly-silty hillsides; bouldery, bouldery-rocky and rocky slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; along arroyos; draws; around seeps; along streams; rocky streambeds; along creeks; along and in rocky, rocky-sandy, gravelly and sandy washes; banks of streams and washes, and riparian areas growing in dry bouldery, rocky, rocky-sandy, shaley, gravelly and sandy ground; gravelly loam ground; clay ground, and gravelly silty ground, occurring from 300 to 4,700 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Senecio lemmonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (121509), 46 (recorded as *Senecio lemmoni* Gray, Page 949), 58, 63 (121509), 77, **85** (121509 - color presentation), **89**, 115 (color presentation)*

Senecio monoensis (see *Senecio flaccidus* var. *monoensis*)

Solidago arizonica (see *Solidago velutina*)

Solidago canadensis var. *arizonica* (see *Solidago velutina*)

Solidago sparsiflora (see *Solidago velutina*)

***Solidago velutina* A.P. de Candolle: Threenerve Goldenrod**

SYNONYMY: *Solidago arizonica* (A. Gray) E.O. Wooton & P.C. Standley, *Solidago canadensis* C. Linnaeus var. *arizonica* A. Gray, *Solidago sparsiflora* A. Gray. COMMON NAMES: Few-flowered Goldenrod; Sparse Goldenrod, Three-nerve Goldenrod, Threenerve Goldenrod, Velvety Foothills Goldenrod, Velvety Goldenrod. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 inches to 5 feet in height); the older stems may be reddish and woody; the foliage is gray-green or green; the disk and ray flowers are golden or yellow; flowering generally takes place between early June and late November (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; clayey mesas; gravelly plateaus; along rocky canyons; canyonsides; along rocky-clayey and sandy canyon bottoms; gorges; talus slopes; bases of cliffs; pockets of soil in rock; buttes; rocky ledges; rocky ridges; ridgetops; clearings in forests; meadows; gravelly hills; rocky hillsides; escarpments; rocky, rocky-gravelly-sandy, gravelly, gravelly-loam, clayey-loamy and loamy slopes; rocky outcrops; amongst rocks; along and around bases of rocks; debris fans; plains; flats; stony-loamy and cobbly-loamy hollows; rocky valley floors; along sandy and sandy-silty roadsides; arroyos; bottoms of arroyos; draws; gulches; bottoms of ravines; seeps; springs; along streams; along and in rocky and gravelly-loamy streambeds; along rocky-sandy creeks; creekbeds; along riverbeds; along and in bouldery-sandy, rocky and cobbly washes; along drainages; within rocky and rocky-cindery drainage ways; around ponds; along rocky and sandy banks of arroyos, streams and creeks; along edges of lakes; sand bars; sandy beaches; sandy benches; bouldery-sandy and stony terraces; bottomlands; floodplains; rocky-gravelly-sandy, sandy, sandy-loamy and clayey-loamy riparian areas, and disturbed areas growing in moist and dry bouldery-sandy, rocky, rocky-cindery, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam, cobbly loam, gravelly loam, sandy loam, clayey loam, silty loam, humus loam and loam ground; rocky-clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from 1,200 to 10,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Solidago velutina* is native to southwest-central North America. *5, 6, 15, 28 (recorded as *Solidago canadensis*, color photograph), 43 (121609), 46 (recorded as *Solidago sparsiflora* Gray), 58, 63 (121609), 80 (Species of the genus *Solidago* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Forced use of these unpalatable perennial forbs may result in abortion and death of livestock. Apparently plants are not toxic until after flowering.”), **85** (121709 - color presentation), 86 (recorded as *Solidago canadensis*, color photograph), **89** (recorded as *Solidago canadensis* L. var. *arizonica* Gray), 101 (recorded as *Solidago canadensis*, color photograph), 127*

***Sonchus asper* (C. Linnaeus) J. Hill: Spiny Sowthistle**

SYNONYMY: *Sonchus asper* (C. Linnaeus) J. Hill subsp. *asper* (C. Linnaeus) J. Hill. COMMON NAMES: Achicoria Dulce, Annual Sow-thistle, Cerraja, Chinita, Perennial Sowthistle, Prickly Sow Thistle, Prickly Sow-thistle, Prickly Sowthistle, Rough Sow Thistle, Rough Sowthistle, Serralha-comun (Portuguese), Sow Thistle, Sowthistle, Spiny Sow Thistle, Spiny Sowthistle, Spiny-leaf Sow-thistle, Spinyleaf Sowthistle. DESCRIPTION: Terrestrial annual forb/herb (1 to 7 feet in height); the leaves are green, purplish and purple-green; the disk and ray flowers are yellow; flowering generally takes place between late January and mid-October (additional records: one for early January and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; plateaus; sandy canyons; rocky canyonsides; bouldery-gravelly-sandy and sandy canyon bottoms; talus slopes; crevices in rocks; ridges; meadows; rocky hillsides; rocky, rocky-clayey-loamy and sandy slopes; bajadas; amongst rocks; volcanic plugs; alkali flats; along railroad right-of-ways; roadsides; bottoms of arroyos; draws; bottoms of draws; gulches; around and on muddy seeps; sandy spring-seeps; in sand around springs; along streams; sandy streambeds; along sandy creeks; along

gravelly-sandy rivers; riverbeds; along and in stony-gravelly, gravelly-sandy and sandy washes; sandy-loamy and clayey-loamy drainages; drainage ways; lakebeds; cienegas; marshes; depressions; sandy and sandy-silty banks of springs, streams, creeks, rivers and washes; sandy edges of streams, ponds, lakes and freshwater and saltwater marshes; margins of washes, drainages and poolbeds; along sand bars; beaches; sandy benches; terraces; bottomlands; floodplains; along fencelines; margins of stock tanks; along canals; along gravelly-clayey canal banks; sandy channels; along ditches; along ditch banks; bouldery-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and dry bouldery-gravelly-sandy, bouldery-sandy, rocky, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay and clay ground, sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Sonchus asper* is native to northern, middle, eastern and southern Europe; Asia, and Africa; however, the exact native range is obscure. *5, 6, 15, 28 (note), 43 (121709), 46 (Page 965), 30, 58, 63 (121709 - color presentation), 68, 77, 80 (Species of the genus *Sonchus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Species of this genus (*Sonchus*) have been reported to accumulate dangerous levels of nitrates.”), **85** (121709 - color presentation), **89**, 101 (color photograph), 115 (color presentation), 127*

Sonchus asper subsp. *asper* (see *Sonchus asper*)

***Sonchus oleraceus* C. Linnaeus: Common Sowthistle**

COMMON NAMES: Achicoria (Hispanic), Achicoria Dulce (Hispanic), Annual Sow Thistle, Annual Sowthistle, Borraja (Hispanic), Borrajilla (Hispanic), Cardo (Hispanic), Cerraja (Spanish), Chicalotillo (Hispanic), Chicoria (Hispanic), Chicoria (Purépecha), Chicória-brava (Portuguese), Colewort, Common Sow Thistle, Common Sowthistle, Diente de León (Hispanic), Endivia (Hispanic), Grespino Commune (Hispanic), Hare’s Lettuce, Hierba del Golpe (Hispanic), Hwai Hoehoevo (Pima, meaning “Deer Lashes”); Kaalivalvatti (Hispanic), Lechuguilla (Hispanic), Matalí Morado (Hispanic), Milk Thistle, Mitihuaraca (Hispanic), Muela de Caballo (Hispanic), Pualele, Serralha-lisa (Portuguese), Smooth Sowthistle, Sow Thistle, Sowthistle, Tlamatsalin (Michoacán), Tskutsuk Chekamiti (Purépecha). DESCRIPTION: Terrestrial annual forb/herb (1 to 8 feet in height); the stems may be reddish or reddish-pink with a white sap; the leaves are green above and pale green below; the disk flowers are yellow; the ray flowers are cream or yellow; flowering generally takes place between mid-January and mid-October (additional records: one for early November and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; along rocky canyons; bouldery-gravelly-sandy, rocky and clayey canyon bottoms; chasms; bluffs; ridgetops; foothills; rocky hillsides; rocky, rocky-clayey, gravelly-loamy and sandy slopes; sandy loamy bajadas; bedrock and rocky outcrops; amongst rocks; sand dunes; blow-sand deposits; plains; gravelly, sandy and clayey flats; basins; valley floors; clayey coastal cliffs; coastal flats; along roadsides; within draws; seeps; along sandy streams; streambeds; along creeks; along and in creekbeds; along rivers; rocky riverbeds; along and in sandy washes; within clayey and silty drainages; within rocky-silty drainage ways; lakebeds; saltwater marshes; depressions; sandy edges of rivers and washes, washes and ponds; along cobbly banks of creeks and rivers; edges of lagoons; margins of rivers; shores of rivers; sandy beaches; terraces; loamy bottomlands; sandy floodplains; stock tanks; along and in silty ditches; ditch banks; along canals; along clayey banks, edges and walls of canals; sandy channels; cobbly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery-gravelly-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; rocky clay, silty clay and clay ground, and rocky silty and silty ground, occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of

North America; it was noted as having been used for food, fodder and as a drug or medication. *Sonchus oleraceus* is native to northern, eastern, middle and southern Europe; Asia, and northern Africa. *5, 6, 15, **16**, 28 (color photograph), 30, 43 (121709), 46 (Page 965), **56**, **57**, 63 (121709 - color presentation), 68, **77** (color photograph #23), 80 (Species of the genus *Sonchus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus (*Sonchus*) have been reported to accumulate dangerous levels of nitrates."), **85** (121709 - color presentation), **89**, 101 (color photograph), 115 (color presentation), **WTK** (May 27, 2010)*

***Stephanomeria exigua* T. Nuttall (subsp. *exigua* is the variety reported as occurring in Arizona): Small Wirelettuce**

SYNONYMY: (for *S.e.* subsp. *exigua*: *Stephanomeria exigua* T. Nuttall var. *pentachaeta* (D.C. Eaton) H.M. Hall). COMMON NAMES: Annual Mitra, Small Stephanomeria, Small Wirelettuce, Wire Lettuce. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (8 to 32 inches in height); the foliage is purple-gray; the flowers may be pale blue, creamy-beige, cream-lavender-pink, pale lavender, lavender, pink, pink-lavender, pink-white, pale purple-blue, pale purple-lavender, rose, white or white-tan/pink; flowering generally takes place between late March and late November. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy plateaus; canyons; along rocky and sandy canyon bottoms; talus slopes; bases of cliffs; buttes; ridgetops; foothills; bouldery and sandy hills; sandy-loamy hillsides; bouldery, rocky, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey and silty slopes; sandy bajadas; gravelly-sandy and sandy outwash fans; sand hills; sand dunes; plains; pebbly-sandy, gravelly-sandy, sandy, sandy-loamy and silty-clayey flats; sandy basin floors; sandy-clayey-loamy valley floors; along sandy roadbeds; along gravelly, gravelly-sandy and sandy roadsides; along shallow draws; within sandy gullies; sandy ravines; along creeks; sandy creekbeds; in sandy along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; lakebeds; along banks of washes; sandy benches; terraces; floodplains; mesquite bosques; ditches; riparian areas; recently burned areas of chaparral, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly-clayey loam, sandy loam and sandy-clayey loam ground; silty-clayey ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant has a milky sap. *Stephanomeria exigua* is native to southwest-central and southern (Baja California) North America. *5, 6, 43 (121809), 46 (Page 960), 58, 63 (121809 - color presentation), 85 (121809 - color presentation of dried material), **89**, 127*

Stephanomeria exigua var. *pentachaeta* (see *Stephanomeria exigua* subsp. *exigua*)

***Stephanomeria pauciflora* (J. Torrey) A. Nelson: Brownplume Wirelettuce**

SYNONYMY: *Stephanomeria pauciflora* (J. Torrey) A. Nelson var. *parishii* (W.L. Jepson) P.A. Munz, *Stephanomeria pauciflora* (J. Torrey) A. Nelson var. *pauciflora*. COMMON NAMES: Brownplume Wirelettuce, Desert Straw, Fewflower Wirelettuce, Skeleton Plant, Small-flowered Wirelettuce, Wire Lettuce. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 inches to 5 feet in height with some plants described as being up to 4 feet in width, plants were reported that were 10 inches in height and 14 inches in width, plants were reported that were 20 inches in height and 28 inches in width); the foliage is blue-green, gray-green, pale green or green; the flowers may be bluish-white, cream, pale & dark gray, pale lavender, pale lavender-pink, lavender, lavender-pink, orange, pale pink, pink fading to tan-brown, pinkish, pink-lavender, pink-purple, pink-violet, pink-white, pale purple, purple, rose, pale red-lavender, tan, violet, white, dull white, off-white or white-pink; flowering generally takes between early March and late December (additional records: on for mid-January and one for early February). HABITAT: Within the range of this species it has been reported from mountains; cindery mountainsides; clayey-loamy mesas; rock cliffs; rocky, sandy and sandy-loamy canyons; crevices in

canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; talus; crevices in rocks; knolls; rocky ridges; bouldery ridgetops; rocky ridgelines; rocky foothills; bouldery, rocky and clay hills; hilltops; rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly-loamy, cobbly, cindery, gravelly, gravelly-loamy, sandy, sandy-silty and loamy slopes; gravelly bajadas; rocky outcrops; amongst rocks; tops of cinder cones; stony mounds; sand hills; sand dunes; rocky-gravelly and sandy outwash fans; sandy prairies; stony, gravelly-sandy, sandy and clayey plains; rocky-sandy, gravelly, gravelly-loamy and sandy-silty flats; valley floors; gravelly valley bottoms; coastal sand dunes; railroad right-of-ways; along gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-silty and silty roadsides; sandy and clayey-loamy arroyos; gravelly-silty draws; gulches; within ravines; around springs; seeping streams; along streams; along creeks; sandy creekbeds; bouldery-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; along drainage ways; around ponds; gravelly banks of rivers and washes; sandy edges of arroyos and washes; around fringes of playas; along margins of arroyos and washes; gravel bars, rocky beaches; gravelly and sandy benches; rocky and sandy terraces; rocky-sandy bottomlands; floodplains; stock tanks; ditch banks; rocky-sandy, sandy and clayey-loamy riparian areas, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy-clayey loam, sandy-clayey and clayey loam and loam ground; clayey ground, and gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy) crop; it was also noted as having been used as a ceremonial item and as a drug or medication. This plant has a milky sap. *Stephanomeria pauciflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (121909), 46 (Page 960), **56**, **57**, 58, 63 (121909 - color presentation), 77 (color photograph #70), **85** (121909 - color presentation), **89**, 115 (color presentation), 127*

Stephanomeria pauciflora var. *parishii* (see *Stephanomeria pauciflora*)

Stephanomeria pauciflora var. *pauciflora* (see *Stephanomeria pauciflora*)

***Stylocline gnaphalioides* T. Nuttall: Mountain Neststraw**

COMMON NAMES: Desert Nest Straw, Everlasting Nest Straw, Everlasting Neststraw, Mountain Neststraw. DESCRIPTION: Terrestrial annual forb/herb (3 to 4 inches in height); the woolly herbage is gray; the woolly flowers are greenish-white or white; flowering generally takes place between late February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; sandy mesas; plateaus; stony canyons; canyon bottoms; pockets of sand in rock; sandy coastal bluffs; sandy knolls; bouldery and gravelly-silty-loamy ridgetops; foothills; bouldery, rocky and gravelly hills; clayey hilltop; hillsides; bouldery, rocky, rocky-loamy-clayey, cobbly-sandy-loamy, loamy, clayey and clayey-loamy slopes; clayey barrens; gravelly, sandy and clayey flats; basins; valley floors; coastal plains; along roadsides; creeks; rivers; along rocky-silty and gravelly-sandy washes; drainages; pockets swales; sandy benches; sandy and clayey terraces; floodplains; gravelly-sandy-silty riparian areas, and recently burned areas of woodland, chaparral, scrub and desert, growing in dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, gravelly-silty loam, clayey loam and loam ground; rocky clay, rocky-loamy clay and clay ground, and rocky silty, gravelly-sandy silty and silty ground, occurring from 100 to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline gnaphalioides* is native to southwest-central and southern (Baja California) North America. *5, 6, **16**, 43 (121909 - *Stylocline gnaphaloides* Nutt.), 46 (Page 885), 63 (121909), 77, 85 (121909 - *Stylocline gnaphalioides* Nutt.and *Stylocline gnaphaloides* Nutt., color presentation of dried material)*

***Stylocline micropoides* A. Gray: Woollyhead Neststraw**

COMMON NAMES: Desert Nest Straw, Desert Neststraw, Woollyhead Fambract, Woolly Neststraw, Woollyhead Neststraw. DESCRIPTION: Terrestrial annual forb/herb (1½ to 8 inches in height); the herbage is light grayish; the flowers are white; flowering generally take place between mid-February and mid-May. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; rocky canyon rims; canyons; talus slopes; pockets of soil in cobbles; along ridges; rocky and clayey hills; hilltops; rocky hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, gravelly and gravelly-sandy slopes; gravelly and sandy bajadas; amongst rocks; lava flows; lava fields; dunes; plains; rocky, gravelly, gravelly-sandy and sandy flats; along gravelly roadsides; arroyos; along draws; rocky gullies; along streams; along and in rocky, gravelly, gravelly-sandy and sandy washes; sandy drainage ways; depressions; rocky banks of arroyos; rocky-gravelly edges of washes; margins of washes; silty-clayey shores of lakes; beaches; loamy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; clayey loam ground; silty clay and clay ground, and pebbly-sandy silty and sandy silty ground, occurring from 500 to 5,000 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline micropoides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (121909), 46 (Page 885), 63 (121909), 77, **85** (121909 - color presentation), **89***

***Stylocline sonorensis* I.L. Wiggins: Sonoran Neststraw**

COMMON NAMES: Sonoran Nest Straw, Sonoran Neststraw. DESCRIPTION: Terrestrial annual forb/herb (¾ to 6 inches in height); the herbage is grayish; flowering generally takes place between March and May. HABITAT: Within the range of this species it has been reported from grassy hillsides; sandy plains; along rivers, and sandy drainages growing in dry sandy ground, occurring from 1,300 to 4,600 in the grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline sonorensis* is native to southwest-central and southern North America. *5, 6, 43 (121909), 46 (no record of species), 63 (111909), **77**, **85** (121909), 135*

***Symphyotrichum divaricatum* (T. Nuttall) G.L. Nesom: Southern Annual Saltmarsh Aster**

SYNONYMY: *Aster exilis* S. Elliott nom. dub., *Aster subulatus* A. Michaux var. *ligulatus* L.H. Shinners. COMMON NAMES: Annual Saltmarsh Aster, Lawn American-aster, Panicled Aster, Saltmarsh Aster, Slender Aster, Slim Aster, Southern Annual Saltmarsh Aster, White Wood Aster. DESCRIPTION: Terrestrial annual or biennial forb/herb (16 to 79 inches in height); the disk flowers are green-yellow or yellow; the ray flowers are pale pink, pink, pink-white, light purple, purple, purple-lavender or bright white fading to dark pink; flowering generally takes place between late August and mid-November (additional records: one for mid-February and one for early August). HABITAT: Within the range of this species it has been reported from mountains; along canyons; canyon bottoms; gorges; hillsides; slopes; sand dunes; prairies; sandy flats; valley floors; coastal plains; roadsides; arroyos; silty ravines; along seeps; around and in springs; in sand along streams; along rocky streambeds; along creeks; along silty-clayey drainages; in clay around and in ponds; cienegas; marshes; silty swales; along muddy, clayey and silty banks of arroyos, streams and rivers; sandy edges of rivers, riverbeds, ponds and lakes; margins of creeks; mudflats; sandy terraces; silty floodplains; clayey stock tanks; along ditches; ditch banks; silty riparian areas and disturbed areas growing in muddy and wet, moist and damp rocky, gravelly and sandy ground; silty clay and clay ground, and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Symphyotrichum divaricatum* is native to south-central and southern North America. *5, 6, **16** (*Aster subulatus* Michx. var. *ligulatus* Shinners), 43 (121909), 46 (recorded as *Aster exilis* Ell., Page 873), 58 (*Aster subulatus* Michx. var. *ligulatus* Shinners), 63 (121909), **77** (*Aster subulatus* Michx. var. *ligulatus*

Shinners), 80 (Species of the genus *Aster* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock."), **85** (121909 - color presentation), **89** (recorded as *Aster exilis* Ell.), 127*

***Symphyotrichum ericoides* (C. Linnaeus) G.L. Nesom var. *ericoides*: White Heath Aster**

SYNONYMY: *Aster hebecladus* A.P. de Candolle. COMMON NAMES: Heath Aster, White Aster, White Heath Aster. DESCRIPTION: Terrestrial perennial forb/herb (1 to 3 feet in height and 12 to 18 inches in width); the disk flowers are yellow; the ray flowers are white; flowering generally takes place between August and November. HABITAT: Within the range of this species it has been reported from mountains; canyon rims; canyon walls; canyon bottoms; lava flows; dunes; prairies; valley floors; railroad right-of-ways; along roadsides; bottoms of draws; within drainages; boggy areas; shores; ditches; riparian areas, and disturbed areas growing in moist or dry gravelly and sandy ground and sandy clay ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Symphyotrichum ericoides* var. *ericoides* is native to central and southern North America. *43 (122009), 46 (no record of species), 63 (122009 - color presentation), 85 (122009), **89** (identification of this species is questionable, it was recorded under III. Santa Cruz Flood-Plain as *Aster hebecladus* DC., a synonym that may now be applied to *Symphyotrichum ericoides* (L.) G.L. Nesom var. *ericoides*)*), 136, 137 (recorded as *Aster hebecladus* A.P. de Candolle as being a synonym of *Symphyotrichum ericoides* (Linnaeus) Nesom var. *ericoides*)*

***Symphyotrichum falcatum* (J. Lindley) G.L. Nesom var. *commutatum* (J. Torrey & A. Gray) G.L. Nesom: White Prairie Aster**

SYNONYMY: *Aster commutatus* (J. Torrey & A. Gray) A. Gray var. *crassulus* (P.A. Rydberg) S.F. Blake, *Aster falcatus* J. Lindley var. *crassulus* (P.A. Rydberg) A.J. Cronquist, *Symphyotrichum falcatum* (J. Lindley) G.L. Nesom var. *crassulum* (P.A. Rydberg) G.L. Nesom. COMMON NAMES: Cluster Aster, Prairie Daisy, White Aster, White Heath Aster, White Prairie Aster, White Prairie Daisy. DESCRIPTION: Terrestrial perennial forb/herb (18 inches to 4 feet in height); the disk flowers are yellow; the ray flowers are white; flowering generally takes place between early August and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky canyon bottoms; ridgetops; clearings in woodlands; meadows; hills; clayey hillsides; rocky, sandy and clayey slopes; banks; prairies; plains; valley floors; gravelly-sandy-clayey-loamy and gravelly-loamy roadsides; bottoms of arroyos; draws; within gulches; seep; in springs; along creeks; creekbeds; along rivers; swales; clayey bottomlands; along canals; ditches; riparian areas, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, shaley and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and clayey loam ground, and gravelly clay and clay ground, occurring from 4,600 to 8,800 feet in elevation in the forest, woodland, grassland and wetland ecological formations. NOTE: *Symphyotrichum falcatum* var. *commutatum* is native to northern, central and southern North America. *5, 6, 43 (122009), 46 (recorded as *Aster commutatus* (Torr. & Gray) Gray var. *crassulus* (Rydb.) Blake, Page 871), 48 (genus), 58, 63 (0122009), 80 (Species of the genus *Aster* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “These annual and perennial forbs may act as secondary or facultative selenium absorbers, converters, and indicators and may become toxic to livestock.”), 85 (122009 - color presentation), **89** (identification of this species is questionable, it was recorded under III. Santa Cruz Flood-Plain as *Aster hebecladus* DC., a synonym that may now be applied to *Symphyotrichum ericoides* (L.) G.L. Nesom var. *ericoides*), 137 (recorded *Aster hebecladus* A.P. de Candolle as a synonym for *Symphyotrichum ericoides* (Linnaeus) Nesom var. *ericoides*)*

Symphyotrichum falcatum var. *crassulum* (see *Symphyotrichum falcatum* var. *commutatum*)

Tessaria sericea (see *Pluchea sericea*)

***Thymophylla acerosa* (A.P. de Candolle) J.L. Strother: Pricklyleaf Dogweed**

SYNONYMY: *Dyssodia acerosa* A.P. de Candolle. COMMON NAMES: Fetid Marigold, Needleleaf Dogweed, Prickleaf Dogweed, Prickleleaf Dogweed, Prickly Dogweed, Prickly Fetid Marigold, Pricklyleaf Dogweed, Scrubby Dogweed, Texas Dogweed. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 16 inches in height with a round shape, plants were observed that were 4 inches in height and 6 inches in width, one plant was reported to be 12 inches in height and 28 inches in width, one plant was reported to be 12 inches in height and 12 inches in width, one plant was reported to be 12 inches in height and 28 inches in width); the stems may be gray or pinkish-brown; the leaves are bright green, dark green or yellow-green; the disk flowers are yellow or yellow-orange; the ray flowers are orange-yellow or yellow; flowering generally takes place between late February and early November (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; rocky canyons; canyon bottoms; crevices in rock; bluffs; buttes; clayey knolls; rocky and rocky-sandy ledges; along rocky and sandy ridges; ridgetops; sandy foothills; rocky and sandy-clayey hills; hilltops; rocky and gravelly hillsides; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy slopes; bajadas; rocky outcrops; lava flows; sand hills; breaks; prairies; grassy flats; esplanades; sandy-loamy valley floors; gravelly-loamy, gravelly-clayey and sandy roadsides; arroyos; rocky and sandy draws; within ravines; along rivers; along washes; drainage ways; rocky-sandy shores of lakes; terraces; fence lines, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground, and gravelly clay, sandy clay and clay ground, occurring from 900 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reportedly sweet-scented. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and to add flavor to tobacco. *Thymophylla acerosa* is native to southwest-central and southern North America. *5, 6. 15 (recorded as *Dyssodia acerosa* DC.), 28 (recorded as *Dyssodia acerosa*, color photograph), 43 (122009), 46 (recorded as *Dyssodia acerosa* DC., Page 933), 63 (122009 - color presentation), **77** (recorded as *Dyssodia acerosa* DC.), **85** (122109 - color presentation), 86 (note under *Dyssodia pentachaeta*), 127*

***Thymophylla concinna* (A. Gray) J.L. Strother: Sonoran Pricklyleaf**

SYNONYMY: *Dyssodia concinna* (A. Gray) B.L. Robinson. COMMON NAMES: Dogweed, Fetid Marigold, Manzanilla de Coyote, Sonoran Pricklyleaf. DESCRIPTION: Terrestrial annual forb/herb (2 to 5 inches in height); the disk flowers are yellow; the ray flowers are white; flowering generally takes place between late February and mid-April (flowering ending as late as May has been reported). HABITAT: Within the range of this species it has been reported from mesas; rocky hills; hillsides; rocky and gravelly slopes; alluvial fans; gravelly bajadas; plains; silty flats; valleys; rocky-sandy roadsides; terraces, and floodplains growing in dry desert pavement; rocky, rocky-sandy and gravelly ground, and silty ground, occurring from 300 to 2,800 feet in elevation in the desertscrub ecological formation. NOTE: *Thymophylla concinna* is native to southwest-central and southern North America. *5, 6, 43 (122109), 46 (recorded as *Dyssodia concinna* (Gray) Robins., Page 933), 63 (122109), **77** (recorded as *Dyssodia concinna* (Gray) Rob.), **85** (122109)*

***Thymophylla pentachaeta* (A.P. de Candolle) J.K. Small var. *pentachaeta*: Fiveneedle Pricklyleaf**

SYNONYMY: *Dyssodia pentachaeta* (A.P. de Candolle) B.L Robinson. COMMON NAMES: Common Dogweed, Dogweed, Five-needle Fetid Marigold, Five-needle Pricklyleaf, Fiveneedle Pricklyleaf, Golden Dogweed, Golden Dyssodia, Parralena, Parvialena, Scale Glandbush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 inches to 2 feet in height); the leaves are dark green; the flowers are orange-yellow or yellow; flowering generally takes place between mid-March and mid-December (additional records: two for mid-January, one for mid-February and one for late

February). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy and gravelly mesas; rims of canyons; canyons; rocky canyon bottoms; gorges; gravelly bases of cliffs; crevices in boulders; sandy bluffs; shelving sandstone; bouldery-rocky-sandy and rocky ledges; ridges; ridgetops; foothills; rocky and rocky-gravelly hills; cobbly hilltops; rocky and gravelly hillsides; rocky and rocky-sandy slopes; rocky alluvial fans; bajadas; rock outcrops; rocky plains; rocky and gravelly flats; basins, rocky valley floors; along rocky, cindery, gravelly-sandy, sandy and sandy-loamy roadsides; rocky gullies; along creeks; along washes; sandy drainages; clayey swales; banks of rivers; edges of washes; beaches; benches; floodplains; riparian areas; waste places and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly; cindery, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy-silty clay, silty clay, chalky clay and clay ground, and sandy silty ground, occurring from 100 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is a larval food plant of the Dainty Sulfur (*Nathalis iole*). *Thymophylla pentachaeta* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 18, 28 (recorded as *Dyssodia pentachaeta*, color photograph), 43 (122209), 46 (recorded as *Dyssodia pentachaeta* (DC.) Robins., Page 933), 58 (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 63 (122209 - this variety is not mapped as being present in Arizona), 77 (recorded as *Dyssodia pentachaeta* (DC.) Rob., color photograph #16), 82, **85** (122309), 86 (recorded as *Dyssodia pentachaeta*, color photograph), **89** (recorded as *Hymenatherum hartwegii* Gray), 115 (color presentation of species)*

***Trixis californica* A. Kellogg: American Threefold**

SYNONYMY: *Trixis californica* A. Kellogg var. *californica*. COMMON NAMES: American Threefold, American Trixis, Arizona Green Plant, California Trixis, Trixis. DESCRIPTION: Terrestrial perennial (leaves are cold and drought deciduous) subshrub or shrub (10 inches to 6 feet in height); the stems are gray, the leaves are green, dark green or yellow-green; the disk flowers may be yellow; the ray flowers are white or yellow; flowering generally takes place between mid-January and late December; the seeds have straw-colored bristles. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; shaded cliffs; cliff faces; along rocky canyons; canyon walls; canyon bottoms; rocky gorges; talus slopes; bases of cliffs; crevices in rocks; sandy knolls; rocky ledges; bouldery and rocky ridges; bouldery ridgetops; bouldery and rocky foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bouldery, bouldery-gravelly, rocky and rocky-gravelly slopes; alluvial fans; sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; sandy boulder fields; shady coves; plains; sandy and sandy-clayey-loamy flats; valley floors; along roadsides; sandy arroyos; draws; bottoms of rocky gullies; within ravines; around springs; around seeping streams; along creeks; creekbeds; along and in bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony, gravelly, pebbly and sandy washes; in rocky-bedrock drainage ways; rocky bowls; along banks of arroyos, streams, rivers, washes and drainages; rocky edges of arroyos and washes; sandy beaches; floodplains; riparian areas, and disturbed areas often in the shade of rocks and larger shrubs and trees growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground and sandy-clayey loam ground, occurring from sea level to 7,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Trixis californica* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (122309), 46 (Page 958), 58, 63 (122309 - color presentation), 77, **85** (122409 - color presentation), 86 (color photograph), **89**, 91, 106 (122309 - color presentation), 115 (color presentation), **WTK** (October 28, 2009)*

Trixis californica var. *californica* (see *Trixis californica*)

Uropappus lindleyi (see *Microseris lindleyi*)

Uropappus linearifolius (see *Microseris lindleyi*)

***Verbesina encelioides* (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray (subsp. *exauriculata* (B.L. Robinson & J.M. Greenman) J.R. Coleman is the subspecies reported as occurring in Arizona): Golden Crownbeard**

SYNONYMY: (for *V.e.* subsp. *exauriculata*: *Verbesina encelioides* (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray var. *exauriculata* B.L. Robinson & J.M. Greenman). COMMON NAMES: American Dogweed, Butter Daisy, Butter-daisy, Cow Pasture Daisy, Cowpen Daisy, Crown-beard, Crownbeard, Girasolillo, Golden Crown-beard, Golden Crownbeard, Hierba de la Bruja, South African Daisy. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 6½ feet in height, plants 8 inches in height and 12 inches in width were reported); the foliage is bluish-green, gray, gray-green, green, silvery or silvery-green; the disk flowers are gold, deep orange, green-orange, orange-yellow or yellow; the ray flowers are gold, deep orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between early March and mid-December (additional records: two for late January and one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky-gravelly and sandy mesas; escarpments; sandy canyons; gravelly canyon bottoms; bouldery knobs; sandy ridges; sandy ridgetops; meadows; stony and clayey hills; hilltops; rocky-sandy hillsides; rocky, cindery, sandy, sandy-loamy, loamy and silty-clayey slopes; gravelly alluvial fans; gravelly bajadas; rock outcrops; sand dunes; plains; cindery, gravelly, sandy and clayey flats; basin bottoms; valley floors; sandy coastal dunes; along bouldery-gravelly, cindery, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and sandy-clayey-loamy roadsides; arroyos; along draws; sandy streambeds; along creeks; gravelly creekbeds; along gravelly-sandy rivers; along and in sandy and sandy-loamy riverbeds; along and in rocky-sandy, stony, gravelly-sandy, sandy and clayey washes; along drainages; in drainage ways; around ponds and lakes; cienegas; depressions; sandy swales; sandy and silty banks of rivers; along rocky and gravelly-sandy edges of washes and swales; around margins of playas; marshy areas; along sandy beaches; terraces; sandy bottomlands; lowlands; gravelly and sandy floodplains; mesquite bosques; along ditches; sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam,, sandy loam, sandy-clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant has a rank odor. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (*V.e.* subsp. *exauriculata*); it was also noted as having been used as a drug or medication, insecticide (*V.e.* subsp. *exauriculata*), protection (*V.e.* subsp. *exauriculata*), ceremonial items (*V.e.* subsp. *exauriculata*) and as a commodity used in personal hygiene (*V.e.* subsp. *exauriculata*). *Verbesina encelioides* is native to south-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (062409), 46 (Page 907), **56**, **57**, 58, 63 (122409 - color presentation), 68 (*Verbesina encelioides* var. *exauriculata* is reported to be an exotic and native to the Old World; however, no other source used reported it to be an exotic.), **77**, 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This annual forb has been reported to accumulate toxic levels of nitrate.), **85** (122409 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Verbesina encelioides var. *exauriculata* (see *Verbesina encelioides* subsp. *exauriculata*)

Xanthium canadense (see *Xanthium strumarium* var. *canadense*)

Xanthium commune (see *Xanthium strumarium* var. *canadense*)

Xanthium saccharatum (see *Xanthium strumarium* var. *canadense*)

***Xanthium strumarium* C. Linnaeus (var. *canadense* (P. Miller) J. Torrey & A. Gray is the variety reported as occurring in Arizona): Rough Cockleburr**

SYNONYMY: (for *X.s.* var. *canadense*: *Xanthium canadense* P. Miller, *Xanthium commune* N.L. Britton, *Xanthium saccharatum* C.F. Wallroth). COMMON NAMES: Abrojo, Cadillo (Hispanic), Cadillos (Hispanic), California-bur, Carrapicho-de-carneiro (Portuguese), Carrapicho-grande (Portuguese), Chayotillo (Hispanic), Canada Cockleburr, Clotbur, Cocklebur, Cockleburr, Common Cocklebur, Ditchbur, Kankerroos (Afrikaans), Large Cocklebur, Mo'kyatchipba (Zuni, 'round stickers'), 'Rough Cocklebur, Rough Cockleburr, Sheepbur. DESCRIPTION: Terrestrial annual forb/herb (8 inches to 7 feet in height, plants 2 to 3 feet in height and 3 to 4 feet in width were reported); the foliage is green, yellowish-green or yellow; the flowers are green, greenish-yellow or yellow-green; flowering generally takes place between early May and early November (additional record: one for early January, one for mid-February, one for early April and one for early December); the fruits are green, green-yellow or yellow-green with yellow spines turning to brown prickly burs. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rocky canyons; rock walls of canyons; along sandy canyon bottoms; gorges; bases of cliffs; clearings in woodlands; meadows; foothills; sandy-loamy and clayey slopes; bajadas; sand dunes; prairies; clayey flats; basins; valley floors; in coastal saltwater marshes; railroad right-of-ways; along rocky, gravelly-loamy, sandy and sandy-loamy roadsides; along rocky-sandy arroyos; gravelly bottoms of arroyos; within rocky draws; gulches; seeps; springs; along streams; along and in sandy streambeds; sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; drainages; sandy-clayey drainage ways; around waterholes; in clayey-loamy poolbeds; around ponds; pondbeds; lakebeds; playas; sandy bogs; sandy areas around and in marshes; swamps; depressions; swales; along sandy banks of creeks, rivers, riverbeds and washes; sandy edges of streams and lakes, lagoons and saltwater marshes; margins of rivers and lakes; rocky-sandy and sandy-loamy shores of ponds and lakes; gravelly-sandy and sandy beaches; cobbly-sandy and sandy benches; sandy terraces; loamy bottomlands; sandy floodplains; stock tanks; dams; levees; canals; along ditches; along ditch banks; along bouldery-cobbly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist or dry bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Xanthium commune* Britton was listed under Miscellaneous Introduced Species as a Long-lived Annual by J.J. Thornber in the "Vegetation Groups of the Desert Laboratory Domain. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food (*X.s.* var. *canadense*), as cooking tools (*X.s.* var. *canadense*), paint (seed powder used as a blue paint for the mask dancers (*X.s.* var. *canadense*)) and as a drug or medication. USDA Forest Service Fire Effects Information System reports that "Common Cocklebur seeds and cotyledon leaves are poisonous to all classes of livestock. Beyond the cotyledon stage, plants are not poisonous." Elk (*Cervus elaphus*) browse the plants and Mourning Doves (*Zenaida macroura*) feed on the seeds. *Xanthium strumarium* is native to eastern, middle and southern Europe; Asia; central and southern North America, and South America (Caribbean). *5, 6, 15, 28 (color photograph) 30, 43 (062509), 46 (recorded as *Xanthium saccharatum* Wallr., "The seeds and seedlings contain a glucoside, xanthostrumarin, that is poisonous to livestock, especially to swine and poultry." If ingested, the spiny burs may cause the death of young animals by irritating or clogging the intestinal tract.), **56**, **57**, 63 (122509 - color presentation), 68, **77**, 80 (This species (*Xanthium saccharatum*) is listed as a Major Poisonous Range Plant. "Although the toxic principle in cocklebur has been attributed to a glycoside isolated from seeds, the poisonous principle in *Xanthium strumarium* has been identified as hydroquinone. ... The seeds, enclosed in prickly burs, contain the toxic substance, but are rarely ever eaten. Upon germination, the toxic principle is distributed to the seedling and remains through the cotyledon stage. The concentration of the toxic substance drops rapidly as the first true leaves develop. ...

Because cocklebur is an annual and a prolific seed producer, every effort should be made to prevent its producing seed." See text for additional information.), **85** (122509 - color presentation), 101 (color photograph), 115 (color presentation), 127*

***Xanthium strumarium* C. Linnaeus var. *canadense* (P. Miller) J. Torrey & A. Gray: Canada Cockleburr**

SYNONYMY: *Xanthium canadense* P. Miller, *Xanthium commune* N.L. Britton, *Xanthium saccharatum* C.F. Wallroth. COMMON NAMES: Abrojo, Cadillo (Hispanic), Cadillos (Hispanic), Chayotillo (Hispanic), Canada Cockleburr, Clotbur, Cocklebur, Cockleburr, Common Cocklebur, Rough Cocklebur, Rough Cockleburr, Sheepbur. DESCRIPTION: Terrestrial annual forb/herb (8 inches to 7 feet in height, plants 10 inches in height and 14 inches in width were reported, plants 2 to 3 feet in height and 3 to 4 feet in width were reported); the foliage is green, yellowish-green or yellow; the flowers are green or greenish-yellow; flowering generally takes place between early May and early November (additional record: one for early December); the fruits are green, green-yellow or yellow-green with yellow spines turning to brown prickly burs. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rock walls of canyons; along sandy canyon bottoms; gorges; bases of cliffs; meadows; sand dunes; prairies; clayey flats; valleys; railroad right-of-ways; along gravelly-loamy, sandy and sandy-loamy roadsides; clayey arroyos; gulches; seeps; springs; along streams; along and in sandy streambeds; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; sandy-clayey drainage ways; around waterholes; around ponds; lakebeds; bogs; sandy areas around and in marshes; depressions; swales; along sandy banks of creeks, rivers and washes; sandy edges of streams and washes; margins of rivers and lakes; shores of lakes; sandy beaches; sandy terraces; loamy bottomlands; sandy floodplains; stock tanks; canals; along ditches; along ditch banks; bouldery-cobbly-sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist or dry bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; sandy clay and clay round, and sandy silty ground, occurring from 100 to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Xanthium commune* Britton was listed under Miscellaneous Introduced Species as a Long-lived Annual by J.J. Thornber in the Vegetation Groups of the Desert Laboratory Domain. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as cooking tools, paint (seed powder used as a blue paint for the mask dancers) and as a drug or medication. USDA Forest Service Fire Effects Information System reports that "Common Cocklebur seeds and cotyledon leaves are poisonous to all classes of livestock. Beyond the cotyledon stage, plants are not poisonous." Elk (*Cervus elaphus*) browse the plants and Mourning Doves (*Zenaida macroura*) feed on the seeds. *Xanthium strumarium* var. *canadense* is native to central and southern North America and South America (Caribbean). *5, 6, 15, 28 (color photograph) 30, 43 (062509), 46 (recorded as *Xanthium saccharatum* Wallr., "The seeds and seedlings contain a glucoside, xanthostrumarin, that is poisonous to livestock, especially to swine and poultry." If ingested, the spiny burs may cause the death of young animals by irritating or clogging the intestinal tract.), 58, 63 (122509), 68, 80 (This species (*Xanthium saccharatum*) is listed as a Major Poisonous Range Plant. "Although the toxic principle in cocklebur has been attributed to a glycoside isolated from seeds, the poisonous principle in *Xanthium strumarium* has been identified as hydroquinone. ... The seeds, enclosed in prickly burs, contain the toxic substance, but are rarely ever eaten. Upon germination, the toxic principle is distributed to the seedling and remains through the cotyledon stage. The concentration of the toxic substance drops rapidly as the first true leaves develop. ... Because cocklebur is an annual and a prolific seed producer, every effort should be made to prevent its producing seed." See text for additional information.), 85 (122509 - color presentation), **89** (recorded as *Xanthium commune* Britton), 101 (color photograph of species), 115 (color presentation of species), 127, **WTK** (October 28, 2009)

***Zinnia acerosa* (A.P. de Candolle) A. Gray: Desert Zinnia**

SYNONYMY: *Zinnia pumila* A. Gray. COMMON NAMES: Desert Zinnia, Spinyleaf Zinnia, White Zinnia, Wild Zinnia. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (3 to 20 inches in height and to 2 feet in width); the leaves are gray or gray-green; the disk flowers are green-yellow, yellow or yellow-orange; the ray flowers are cream, cream-white, white, white-cream, yellow or yellow-white; flowering generally takes place between early March and early November (additional records: three for early December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy-loamy plateaus; canyons; rocky ridges; rocky ridgetops; foothills; rocky hills; rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly-sandy, gravelly-sandy, sandy and loamy slopes; gravelly, gravelly-sandy, sandy and clayey bajadas; rocky outcrops; sand hills; sand dunes; rocky-gravelly-sandy, rocky-sandy, gravelly and gravelly-sandy-clayey flats; rocky valley floors; gravelly-silty and gravelly-silty-loamy valley bottoms; along gravelly-sandy-clayey-loamy roadsides; arroyos; sandy bottoms of arroyos; washes; sandy drainages; along ponds; edges of swales; gravelly-sandy banks of washes; sandy benches; terraces; floodplains; riparian areas, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-silty loam, gravelly-sandy-clayey loam, sandy loam and loam ground; gravelly-sandy clay and clay soils, gravelly silty ground, and chalky ground, occurring from 1,500 to 6,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Zinnia acerosa* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18, 28 (color photograph), 43 (062609 - *Zinnia acerosa* A. Gray, Page 897), 46 (recorded as *Zinnia pumila* Gray), 48 (genus), 58, 63 (122509 - color presentation), 77 (color photograph #71), **85** (122509 - color presentation), 115 (color presentation), 127, **WTK** (October 28, 2009)*

***Zinnia grandiflora* T. Nuttall: Rocky Mountain Zinnia**

COMMON NAMES: Desert Zinnia, Little Golden Zinnia, Great Plains Zinnia, Paper Daisy, Plains Zinnia, Prairie Zinnia, Rocky Mountain Zinnia, Texas Zinnia, Wild Zinnia, Zacate Pastor. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (2 to 12 inches in height, plants 2 inches in height and 8 inches in width were reported, , plants 4¼ inches in height and 3 inches in width were reported plants 8 inches in height and width were reported); the foliage is grayish-green; the disk flowers may be brown, greenish, orange, orange-red, orange-yellow, reddish, reddish-brown, yellow or yellow-orange; the ray flowers may be golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late April and late October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and sandy-silty mesas; canyon rims; along cliffs; rocky canyons; canyon floors; knolls; shaley tops of knolls; gravelly-sandy ridges; ridgetops; clayey-loamy meadows; foothills; rocky hills; hilltops; rocky, rocky-loamy and gravelly-sandy hillsides; sandy bases of escarpments; bouldery, rocky-sandy hillock; bouldery, rocky, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; rocky steppes; sandy prairies; sandy and clayey-loamy plains; gravelly-loamy and sandy flats; basins; sandy valley floors; along sandy railroad right-of-ways; along rocky, stony, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy, sandy, loamy, clayey-loamy and silty-loamy roadsides; within sandy arroyos; sandy bottoms of arroyos; draws; gravelly streambeds; along creeks; creekbeds; washes; drainages; along drainage ways; sandy depressions; banks of arroyos, rivers and washes; shores of lakes; benches; alluvial terraces; sandy bottomlands; floodplains; along and in ditches; rocky-sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, rocky-sandy, stony, shaley, shaley-sandy, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and silty loam ground; gravelly clay and sandy clay ground, and rocky silty, sandy silty and silty ground, occurring from 2,400 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers of this plant were reported to have been used by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye or

paint crop; it was also noted as having been used as a drug or medication. *Zinnia grandiflora* is native to southwest-central and southern North America. *5, 6, 18, 28 (color photograph), 43 (062609), 46 (Page 897), 48 (genus), 63 (122509 - color presentation), 85 (122609), **89***

Zinnia pumila (see *Zinnia acerosa*)

Bignoniaceae: The Trumpet-creeper Family

***Chilopsis linearis* (A.J. Cavanilles) R. Sweet: Desert Willow**

COMMON NAMES: Bow Willow, Catalpa Willow, Desert Catalpa, Desert Willow, Desert-willow, Desertwillow, False-willow, Flor de Mimbre, Flowering Willow, Flowering-willow, Jano, Mimbre, Texas Desert Willow, Willowleaf Catalpa. DESCRIPTION: Terrestrial perennial (cold-deciduous) shrub or tree (5 to 33 feet in height, plants were reported that were 10 to 13 feet in height with spreading crowns to 33 feet in width, one plant was reported to be 15 feet in height with a crown 20 feet in width, plants were reported that were 18 feet in height with crowns 20 feet in width, plants were reported that were 22 feet in height with crowns 25 feet in width,); the bark is dark brown or dark gray-brown; the light green leaves may be straight (subsp. *linearis* and roughly to 12 inches in length and 3/8 inch in width) or curved (subsp. *arcuata* and roughly 3 to 5½ in length and 1/8 to 1/4 inch in width); the flowers may be light lavender, lavender, lavender-white, pale pink, pink, pink-lavender, pinkish-white, purple, purple-white, purple with yellow markings, reddish-purple, rose, violet, white, whitish, white with a pink tint or white with pink or purple lines; flowering generally takes place between mid-April and mid-October (additional records: one for late March, two for late October and one for mid-December); the seeds are dispersed from slender pods (4 to 12 inches in length). HABITAT: Within the range of this species it has been reported from mountains; mudstone mesas; rocky canyons; rocky canyon floors; rocky and sandy talus slopes; bases of cliffs; foothills; talus hills; gravelly-sandy hillsides; rocky, gravelly-sandy, sandy, sandy-loamy and loamy slopes; sandy bajadas; amongst rocks; sand dunes; plains; sandy and sandy-loamy flats; silty valley floors; along gravelly, gravelly-sandy and gravelly-sandy-clayey-loamy roadsides; along and in gravelly-sandy, sandy and clayey-loamy arroyos; gulches; ravines; along sandy springs; along streams; rocky and gravelly-sandy streambeds; in sandy soil along creeks; sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainage ways; sandy and silty depressions; gravelly-sandy and sandy banks of streams, washes and water courses; edges of washes; along margins of washes; sand bars; sandy floodplains; mesquite bosques; along canals; sandy and clayey-loamy riparian areas and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam soils; rocky-gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground, and silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop. The Desert Willow may be useful in controlling erosion. The bee, *Bombus sonorus*, is a pollinator, and hummingbirds are attracted to the flowers and feed on the nectar. *Chilopsis linearis* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 26 (color photographs), 28 (color photograph), 43 (062609 - *Chilopsis linearis* Sweet), 46 (Page 794), 48, 52 (color photograph), 53, 63 (122609 - color presentation), 74, **77**, **85** (122609 - color presentation), 86 (color photograph), 91, 115 (color presentation), 127*

***Chilopsis linearis* (A.J. Cavanilles) R. Sweet subsp. *arcuata* (F.R. Fosberg) J.S. Henrickson: Desert Willow**

SYNONYMY: *Chilopsis linearis* (A.J. Cavanilles) R. Sweet var. *arcuata* F.R. Fosberg. COMMON NAMES: Bow Willow, Catalpa Willow, Desert Catalpa, Desert Willow, Desert-willow,

Desertwillow, False-willow, Flor de Mimbre, Flowering Willow, Flowering-willow, Jano, Mimbre, Texas Desert Willow, Willowleaf Catalpa. DESCRIPTION: Terrestrial perennial (cold deciduous) shrub or tree (5 to 33 feet in height, one plant was reported to be 13 feet in height with a crown 13 feet in width); the leaves are curved and roughly 3 to 5½ in length and 1/8 to 1/4 inch in width; the flowers may be pale pink, pink, purple, violet with yellow markings, white, white with maroon-purple or yellow & magenta lines or whitish tinged with lavender and yellow; flowering generally takes place between mid-April and early October (additional record: one for late October); the seeds are dispersed from slender pods (4 to 12 inches in length). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; foothills; bedrock, rocky, rocky-sandy, gravelly-sandy and sandy-silty-loamy slopes; sandy bajadas; amongst rocks; breaks; plains; flats; valley floors; along sandy-loamy roadsides; arroyos; along streams; along sandy streambeds; along rocky creeks, along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; sandy banks of water courses; margins of washes; sand bars; floodplains, and riparian areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky-gravelly loam, sandy loam and sandy-silty loam ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Chilopsis linearis*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop. The Desert Willow may be useful in controlling erosion. The bee, *Bombus sonorus*, is a pollinator, and hummingbirds are attracted to the flowers and feed on the nectar. *Chilopsis linearis* subsp. *arcuata* is native to southwest-central and southern North America. *5, 6, 13 ("The desert willows have been used widely as ornamentals. They are prized for their graceful habit and large, attractive, sweet-scented flowers."), 18 (species), 26 (color photographs of species, species), 28 (color photograph of species, species), 43 (062609), 46 (Page 794), 48 (species), 52 (color photograph of species, species), 53, 58, 63 (122609 - color presentation), 74 (species), 85 (122609), 86 (color photograph of species), 91 (species), 115 (color presentation of species), 127 (species), **WTK** (October 28, 2009)*

Chilopsis linearis var. *arcuata* (see *Chilopsis linearis* subsp. *arcuata*)

Boraginaceae: The Borage Family

Amsinckia echinata (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia var. *echinata* (see *Amsinckia menziesii* var. *intermedia*)

***Amsinckia menziesii* (J.G. Lehmann) A. Nelson & J.F. Macbride var. *intermedia* (F.E. von Fischer & C.A. Meyer) F.R. Ganders: Common Fiddleneck**

SYNONYMY: *Amsinckia echinata* A. Gray, *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer, *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer var. *echinata* (A. Gray) I.L. Wiggins. COMMON NAMES: Coast Buckthorn, Coast Fiddleneck, Common Fiddleneck, Devil's Lettuce, Fiddle Neck, Fiddleneck, Finger Weed, Kurttukeltalemmikki, Menzies Fiddleneck, Ranchers Fireweed, Sacoto Gordo, Tarweed, Yellow Burnweed, Yellow Burweed, Yellow Burrweed, Yellow Forget Me Not, Yellow Tarweed. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 4 feet in height); the flowers are golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late January and late May (additional records: one for mid-June, one for late June and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; silty canyons; rocky canyon bottoms; bases of cliffs; clayey ridges; ridgetops; meadows; foothills; rocky and silty hills; clayey hilltops; bouldery and rocky hillsides;

bouldery, rocky, rocky-loamy-clayey, shaley-clayey-loamy, cobbly-sandy-loamy, gravelly-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; amongst boulders and rocks; boulderfields; along boulders; sand dunes; sand sheets; gravelly, gravelly-sandy, sandy and clayey flats; basins; rocky valley floors; coastal terraces; along roadsides; along arroyos; along bottoms of arroyos; draws; seeps; in clay around springs; along streams; along creeks; along creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainages; sandy drainage ways; marshes; clayey-loamy depressions; swales; sandy banks of streams; edges of washes; margins of washes; mudflats; benches; rocky and gravelly and sandy terraces; loamy bottomlands; silty floodplains; silty impoundments; edges of stock tanks; edges of ditches; riparian areas; recently burned areas of oak woodland and chaparral, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; shaley-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and gravelly-silty and silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Amsinckia menziesii* var. *intermedia* is native to west-central and southern North America. *5, 6, 15 (reported as *Amsinckia intermedia* Fisch. & Mey.), **16** (reported as *Amsinckia intermedia* Fisch. & Mey.), 28 (reported as *Amsinckia intermedia*, color photograph), 43 (122609 - no record for var. *intermedia*), 46 (reported as *Amsinckia intermedia* Fisch. & Meyer, Page 723), 58 (reported as *Amsinckia intermedia* Fisch. & Meyer), 63 (122609 - color presentation), 68 ("The mature seeds have been demonstrated to cause hepatic cirrhosis, known as "hard liver disease" of cattle and swine, and the "walking disease" of horses. Sheep are either immune or highly resistant to the poison. The disease is common in the Pacific Northwest, but not in Arizona. This plant also may cause nitrate poisoning."), 77 (reported as *Amsinckia intermedia* F. & M., color photograph labeled *Amsinckia intermedia* #7), 80 (This plant (*Amsinckia intermedia* and others) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning."), **85** (122709 - color presentation), **89** (recorded as *Amsinckia intermedia* F. & M.), 101, 115 (color presentation)*

***Amsinckia tessellata* A. Gray (var. *tesselata* is the variety reported as occurring in Arizona): Bristly Fiddleneck**

COMMON NAMES: Bristly Fiddleneck, Checker Fiddleneck, Checkered Fiddleneck, Devil's Lettuce, Devil's-lettuce, Fiddleneck, Tessellate Fiddle Neck, Tessellate Fiddleneck, Western Fiddleneck. DESCRIPTION: Terrestrial annual forb/herb (4 to 48 inches in height); the foliage is green; the flowers may be golden, golden-yellow, orange, orange-yellow, yellow, dark yellow or yellow-orange; flowering generally takes place between early January and late June (additional records: one for early September, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mountainsides; pebbly-sandy-silty and sandy-clayey-loamy mesas; rocky, rocky-silty, gravelly and sandy canyons; gravelly, gravelly-sandy and sandy canyon bottoms; rocky knolls; ledges; rocky and sandy ridges; gravelly-sandy and sandy ridgetops; meadows; foothills; bouldery, rocky, rocky-stony, loamy and clayey hills; rocky and clayey hillsides; rocky, stony, cobbly-sandy, cobbly-loamy, sandy, sandy-loamy and sandy-clayey-loamy slopes; alluvial fans; gravelly and silty bajadas; rocky outcrops; amongst boulders and rocks; around rocks; sand dunes; sloping sand sheets; plains; gravelly, pebbly-sandy-silty and sandy flats; valley bottoms; along rocky, gravelly, sandy and loamy roadsides; gullies; sandy bottoms of ravines; seeps; clay soil along creeks; along and in rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy washes; within gravelly and sandy drainages; along and in drainage ways; depressions; silty lakebeds; banks of arroyos and rivers; sandy edges of washes and lakes; along margins of washes; silty-clayey shores of lakes and lakebeds; gravelly and sandy benches; terraces; mesquite bosques; margins of stock tanks; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-stony, rocky-sandy, stony, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam,

sandy-clayey loam, sandy-silty loam and loam ground; sandy clay, silty clay and clay ground, and rocky-silty and pebbly-sandy silty ground, occurring from 100 to 7,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Amsinckia tessellata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122709), 46 (Page 723), 77, 80 (The plant *Amsinckia intermedia* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning."), **85** (122709 - color presentation of dried material), **89**, 127*

Coldenia canescens (see *Tiquilia canescens* var. *canescens*)

***Cryptantha angustifolia* (J. Torrey) E.L. Greene: Panamint Cryptantha**

COMMON NAMES: Bristlelobe Cryptantha, Cat's-eye Panamint, Desert Cryptantha, Forget-me-not, Hehe Ksatx (Seri), Narrow-leaf Cryptantha, Narrowleaf Pick-me-not, Narrow-leaved Forget-me-not, Narrow-leaved Nievitas, Narrow-leaved Popcorn Flower, Narrowleaf Pick-me-not, Panamint Catseye, Panamint Cryptantha, Peluda. DESCRIPTION: Terrestrial annual forb/herb (2 to 12 inches in height); the foliage is grayish or greenish; the flowers are white, whitish or white with a yellow throat; flowering generally takes place between early January and mid-July (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas; rocky canyons; bouldery and sandy canyon bottoms; scree; talus slopes; sandy and clayey ridges; sandy cinder cones; foothills; rocky, gravelly and sandy hills; bouldery-sandy and rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly alluvial fans; gravelly and gravelly-sandy bajadas; about and in rocky outcrops; sandy lava flows; sandy lava fields; sand hills; sand dunes; sandy hummocks; blow-sand deposits; sandy and gravelly-sandy-loamy plains; gravelly, gravelly-sandy, sandy and silty flats; basins; gravelly and sandy valley floors; sandy coastal plains; hilly beach gravels; sandy coastal flats; along sandy and sandy-loamy roadsides; sandy draws; along gravelly-sandy creeks; sandy riverbeds; along and in bouldery, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; in drainages; drainage ways; sandy-silty bottoms of playas; sandy and silty depressions; along muddy, gravelly-sandy and sandy banks of arroyos, rivers and washes; sandy edges of washes and lakes; margins of washes; mudflats; gravel and sand bars; shelves; gravelly-sandy-silty terraces; sandy bottomland; floodplains; canal banks; riparian areas, and disturbed areas growing in muddy and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam; gravelly-sandy-clayey loam, sandy loam and loam ground; clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included the observation that the taproot contained a purplish dye. *Cryptantha angustifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (122709 - *Cryptantha angustifolia* Greene), 46 (Page 719), 58, 63 (122709 - color presentation), 77, **85** (122809 - color presentation), **89** (recorded as *Cryptanthe angustifolia* (Torr.) Greene)*

***Cryptantha barbigera* (A. Gray) E.L. Greene: Bearded Cryptantha**

COMMON NAMES: Bearded Cat's-eye, Bearded Catseye, Bearded Cryptantha, Bearded Forget-me-not, Bearded Nievitas, Narrowleaf Nievitas, Peluda. DESCRIPTION: Terrestrial annual forb/herb (4 to 16 inches in height, one plant was described as being 4 inches in height and 20 inches in length, one plant was described as being 5 inches in height and 12 inches in width, one plant was described as being 12 inches in height and 10 inches in width); the foliage is deep green; the flowers are cream, white or white with a yellow throat; flowering generally takes place between mid-January and mid-June (additional records: two for late November and one for late December). HABITAT: Within the range of

this species it has been reported from mountains; sandy mesas; rim rock; rocky canyons; along rocky and sandy canyon bottoms; rocky spurs; scree; bouldery talus slopes; bases of cliffs; rocky ledges; ridges; ridgetops; sandy meadows; gravelly, gravelly-sandy and sandy foothills; bouldery and rocky hills; rocky hillsides; bedrock, bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, gravelly, sandy and clayey slopes; rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sand hills; sand dunes; blow-sand deposits; plains; rocky-gravelly, gravelly and sandy flats; basins; valley floors; railroad right-of-ways; along gravelly, sandy and clayey roadsides; arroyos; bottoms of arroyos; draws; within rocky gullies; ravines; springs; along streams; rocky-sandy and gravelly streambeds; beside creeks; creekbeds; along rivers; sandy riverbeds; along and in bedrock, bouldery, rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and silty washes; gravelly drainages; sandy bottoms of waterholes; marshes; banks of rivers; rocky edges of arroyos and washes; margins of washes; mudflats; sandy benches; shelves; gravelly terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included an observation that the taproot contained a purplish dye. *Cryptantha barbigera* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122809 - *Cryptantha barbigera* Greene), 46 (Page 721), 58, 63 (122809 - color presentation), 77, **85** (122809 - color presentation of dried material), **89** (recorded as *Cryptanthe barbigera* (Gray) Greene)*

***Cryptantha micrantha* (J. Torrey) I.M. Johnston (var. *micrantha* is the variety reported as occurring in Arizona,): Redroot Cryptantha**

SYNONYMY: (for *C.m.* var. *micrantha: Eremocarya micrantha* (J. Torrey) E.L. Greene). COMMON NAMES: Dwarf Cryptantha, Purple-rooted Forget-me-not, Purpleroot Pick-me-not, Purple-rooted Nievitas, Redroot Cat's-eye, Redroot Catseye, Redroot Cryptantha. DESCRIPTION: Terrestrial annual forb/herb (1 to 4 inches in height); the foliage is gray-green or yellow-green; the flowers are white; flowering generally takes place between early March and mid-June (additional records: three for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; bouldery and sandy canyon bottoms; ridgetops; sandy meadows; sandy and loamy foothills; sandy hills; rocky hillsides; gravelly, gravelly-sandy-loamy and sandy slopes; rocky-sandy and sandy alluvial fans; gravelly bajadas; bouldery outcrops; along boulders; sand hills; sand dunes; sand fields; sand sheets; blow-sand deposits; sandy plains; sandy flats; basins; valley floors; along roadbeds; along gravelly and sandy roadsides; along and in sandy arroyos; along draws; gulches; along and in sandy creeks; creekbeds; gravelly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly-sandy and sandy washes; along drainages; drainage ways; swales; gravelly and sandy banks of rivers; sandy wash-side berms; along edges of washes; gravel bars; sandy benches; sandy bottomlands; sandy and silty floodplains; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground, and silty ground, occurring from 300 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that the taproot contained a red, reddish-purple or purple dye. *Cryptantha micrantha* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (122909 - *Cryptantha micrantha* I.M. Johnst., *Eremocarya micrantha* Greene), 46 (Page 719), 58, 63 (122909 - color presentation), **77**, **85** (122909 - color presentation of dried material)*

***Cryptantha micrantha* (J. Torrey) I.M. Johnston var. *micrantha*: Redroot Cryptantha**

SYNONYMY: *Eremocarya micrantha* (J. Torrey) E.L. Greene. COMMON NAMES: Dwarf Cryptantha, Purple-rooted Forget-me-not, Purpleroot Pick-me-not, Purple-rooted Nievitas, Redroot Cat's-eye, Redroot Catseye, Redroot Cryptantha. DESCRIPTION: Terrestrial annual forb/herb (to 4 inches in

height); the foliage is gray-green or yellow-green; the flowers are white; flowering generally takes place between early March and early June (additional records: two for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; sandy meadows; loamy foothills; hillsides; gravelly, gravelly-sandy, gravelly-sandy-loamy and sandy slopes; gravelly bajadas; sand hills; sand dunes; sand fields; sand sheets; blow-sand deposits; sandy plains; sandy flats; basins; valley floors; gravelly and sandy roadsides; along draws; gulches; along and in sandy creeks; creekbeds; gravelly-sandy riverbeds; along and in gravelly-sandy and sandy washes; drainage ways; swales; gravelly and sandy banks of rivers; gravel bars; sandy benches; sandy bottomlands; sandy and silty floodplains; sandy riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground, and silty ground, occurring from 300 to 5,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that the taproot contained a red, reddish-purple or purple dye. *Cryptantha micrantha* var. *micrantha* is native to southwest-central and southern North America. *5, 6, 43 (122909 - *Cryptantha micrantha* I.M. Johnst., *Eremocarya micrantha* Greene), 46 (species, Page 719), 63 (122909), 85 (122909), **89** (recorded as *Eremocarya micrantha* (Torr.) Greene)*

***Cryptantha nevadensis* A. Nelson & P.B. Kennedy: Nevada Cryptantha**

COMMON NAMES: Nevada Cat's-eye, Nevada Catseye, Nevada Cryptantha, Nevada Nievitas, Peluda, Wild Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (2 to 24 inches in height); the flowers are white; flowering generally takes place between late February and early July (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mesas; rocky canyons; sandy canyon bottoms; talus slopes; ledges; rocky ridges; meadows; foothills; rocky, cobbly-gravelly-loamy, gravelly and sandy hills; rocky, rocky-cobbly and clayey hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly, cobbly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-loamy and sandy slopes; sandy bajadas; bouldery, rocky and clayey outcrops; along and amongst boulders and rocks; sand hills; gravelly outwash fans; gravelly, sandy and sandy-clayey flats; rocky-gravelly-sandy and gravelly valley floors; along gravelly roadsides; within gravelly-loamy arroyos; gulches; within bouldery-rocky and rocky-gravelly gullies; seeps; rocky streambeds; along and in gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; lakebeds; playas; gravelly and sandy banks of creeks, rivers and washes; rocky-gravelly edges of washes; cobbly-gravelly margins of washes; benches; gravelly terraces; floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, cobbly-sandy loam and gravelly loam ground; sandy clay and clay ground, and silty ground, occurring from 700 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha nevadensis* is native to southwest-central North America. *5, 6, 15, **16**, 43 (122909), 46 (Page 721), 58, 63 (122909), 77, **85** (122909 - color presentation of dried material), **89** (recorded as *Cryptanthe intermedia*)*

***Cryptantha pterocarya* (J. Torrey) E.L. Greene: Wingnut Cryptantha**

COMMON NAMES: Wing-fruited Forget-me-not, Wing-nut Forget-me-not, Winged-nut Cryptantha, Winged Pick-me-not, Wingnut Cat's-eye, Wingnut Catseye, Wingnut Cryptantha, Wingnut Nievitas, Peluda. DESCRIPTION: Terrestrial annual forb/herb (4 to 20 inches in height); the foliage is pale grayish, dark green or yellow-green; the flowers are cream, bright white or white (sometimes with a pink tinge) with a yellow throat; flowering generally takes place between early January and late June (additional records: one for late July and one for late November); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky and rocky-sandy mountainsides; pebbly-sandy-silty and silty mesas; rim rock; sandy-clayey canyons; canyon walls; along rocky-sandy, gravelly-sandy and sandy canyon bottoms; talus slopes; bases of cliffs and rock faces;

protected clefts in boulders; bluffs; rocky ledges; ridges; rocky ridgetops; sandy cinder cones; foothills; bouldery and rocky hills; hilltops; rocky, rocky-stony, sandy and loamy hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly and sandy slopes; gravelly-sandy and sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; sandy lava flows; sand hummocks; sand sheets; gravelly breaks; sandy plains; rocky, gravelly, sandy and sandy-clayey flats; valley floors; along rocky, gravelly and sandy-silty roadsides; rocky arroyos; gravelly draws; rocky gullies; along springs; beside streams; along creeks; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainage ways; banks of washes; gravelly and sandy edges of washes; rocky-gravelly-sandy and cobbly-gravelly margins of washes; gravelly benches; shelves; sandy margins of reservoirs; gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, chaparral and desertscrub, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-stony, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony-sandy, cobbly-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; silty loam and loam ground; sandy clay, silty clay and clay ground, and rocky silty, pebbly-sandy silty, sandy silty and silty ground, occurring from 500 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations**.** NOTE: *Cryptantha pterocarya* is native to southwest-central and southern North America. *5, 6, **16**, 43 (122909 - *Cryptantha pterocarya* Greene), 46 (Page 720), 58, 63 (122909 - color presentation), 77, **85** (123009 - color presentation of dried material), **89** (recorded as *Cryptanthe pterocarya* (Gray) Greene), 115 (color presentation)*

***Cryptantha pterocarya* (J. Torrey) E.L. Greene var. *cycloptera* (E.L. Greene) J.F. Macbride: Wingnut Cryptantha**

COMMON NAMES: Wingnut Cat's-eye, Wingnut Cryptantha, Wingnut Nievitas, Peluda. DESCRIPTION: Terrestrial annual forb/herb (6 to 14 inches in height); the foliage is dark green or yellow-green; the flowers are bright white; flowering generally takes place between mid-January and early June (additional record: one for mid-June); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; canyons; canyon walls; rocky and sandy canyon bottoms; talus slopes; sandy foothills; rocky and gravelly-sandy hills; hilltops; rocky hillsides; bouldery-gravelly, rocky, gravelly and sandy slopes; rocky and sandy alluvial fans; gravelly and sandy bajadas; amongst boulders and rocks; rocky-sandy coves; sand dunes; sand hummocks; blow-sand deposits; rocky and gravelly flats; basins; valley floors; rocky roadsides; within rocky and clayey arroyos; along draws; beside streams; along creeks; along and in rocky-sandy, gravelly and sandy washes; bowls; rocky benches; terraces; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and gravelly-sandy loam ground, and gravelly-sandy silty ground, occurring from 800 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha pterocarya* var. *cycloptera* is native to southwest-central and southern North America. *5, 6, 15, 43 (122909 - *Cryptantha pterocarya* var. *cycloptera* J.F. Macbride), 46 (Page 720), 63 (122909), **85** (123009), 115 (color presentation of species)*

Cryptanthe angustifolia (see footnote 89 under *Cryptantha angustifolia*)

Cryptanthe barbigera (see footnote 89 under *Cryptantha barbigera*)

Cryptanthe intermedia (see footnote 89 under *Cryptantha nevadensis*)

Cryptanthe pterocarya (see footnote 89 under *Cryptantha pterocarya*)

Eremocarya micrantha (see *Cryptantha micrantha* var. *micrantha*)

***Harpagonella palmeri* A. Gray: Palmer's Grapplinghook**

COMMON NAMES: Arizona Harpagonella, Arizona Grapplinghook, Grappling Hook, Palmer Grapplinghook, Palmer's Grappling-hook, Palmer's Grapplinghook. DESCRIPTION: Terrestrial annual forb/herb (prostrate or 1 to 12 inches in height); the foliage is gray-green; the flowers are white; flowering generally takes place between mid-January and early June. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; sandy-loamy canyon bottoms; bases of cliffs; ledges; clayey ridges; clayey ridgetops; clayey patches in chaparral; clayey openings in scrub and grasslands; clayey escarpments; foothills; rocky, rocky-clayey, stony-clayey, cobbly-clayey and clayey hills; rocky and clayey hillsides; bouldery, rocky, rocky-loamy-clayey, stony-clayey, cobbly-clayey, gravelly and clayey slopes; gravelly bajadas; amongst rocks; clayey lenses; stony, gravelly and clayey flats; clayey valley floors; sea bluffs; coastal plains; along gravelly roadsides; along streams; creeks; creekbeds; along riverbeds; washes; drainage ways; clayey depressions; clayey benches; cobbly-clayey terraces, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony and gravelly ground; rocky loam, sandy loam and loam ground, and rocky-loamy clay, rocky clay, stony clay, cobbly clay and clay ground, occurring from sea level to 3,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Harpagonella palmeri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (123009), 46 (Page 711), 63 (123009 - color presentation), 77, **85** (123109 - color presentation of dried material), **89***

***Harpagonella palmeri* A. Gray var. *arizonica* I.M. Johnston: Arizona Grapplinghook**

COMMON NAMES: Arizona Harpagonella, Arizona Grapplinghook, Grappling Hook, Palmer Grapplinghook, Palmer's Grappling-hook, Palmer's Grapplinghook. DESCRIPTION: Terrestrial annual forb/herb (1 to 12 inches in height); the flowers are white; based on the flowering record for the species, flowering generally takes place between mid-January and early June (one report of flowering taking place between March and April in Altar Valley, Arizona). HABITAT: Within the range of this species it has been reported from mountains; gravelly slopes; flats, and gravelly benches growing in dry gravelly ground, occurring from 2,200 to 2,800 feet in elevation in the grassland and desertscrub ecological formations. NOTE: *Harpagonella palmeri* var. *arizonica* is native to southwest-central and southern North America. *5, 6, 43 (123009), **46** (Page 711), 58, 63 (123009), 85 (123109)*

***Lappula occidentalis* (S. Watson) E.L. Greene: Flatspine Stickseed**

COMMON NAMES: Beggar's Tick, Bluebur, Cupped Stickseed, Flat-spine Sheepburr, Flatspine Stickseed, Hairy Stickseed, Redowski Stickseed, Stick-seed, Stickseed, Western Stickseed, Western Sticktight. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 to 32 inches in height); the foliage is gray-green or dark green; the flowers may be pale blue, pale blue-white, blue, light pink, purple, sky blue, white or yellow; flowering generally takes place between mid-January and late September. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; gravelly-clayey mountain flanks; sandy and sandy-loamy mesas; plateaus; rocky, gravelly-loamy and sandy canyons; gravelly-sandy and sandy canyon bottoms; bouldery-gravelly-sandy and sandy gorges; talus; bases of cliffs; bedrock knolls; rocky ledges; rocky and sandy ridges; rocky ridgetops; rocky and gravelly-sandy meadows; foothills; rocky, gravelly and gravelly-sandy hills; hilltops; rocky, rocky-gravelly-sandy and gravelly-sandy hillsides; bouldery, rocky, rocky-sandy-clayey-loamy, shaley, stony, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy, sandy-clayey, loamy, clayey and silty slopes; bajadas; rocky outcrops; amongst boulders and rocks; sheltered rock coves; lava flows; breaks; steppes; clayey-loamy plains; rocky, gravelly, sandy, sandy-loamy and clayey flats; basins; loamy valley floors; railroad right-of-ways; in roadbeds; along gravelly and gravelly-loamy roadsides; rocky and sandy arroyos; sandy-silty bottoms of arroyos; rocky and stony draws; gulches; ravines; springs; along streams; streambeds; along creeks; clayey creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; in gravelly drainages; in gravelly drainage ways; in rocks around ponds; around lakes; clayey depressions; clayey swales; along gravelly banks of arroyos, streams and rivers; margins of rivers; mudflats; sandy benches; rocky terraces; cobbly-loamy and loamy bottomlands; floodplains; mesquite bosques; along fencelines;

edges of stock tanks; ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, gravelly clay, sandy clay, silty clay and clay ground; gravelly-sandy silty, sandy silty and silty ground, and gravelly-sandy chalky ground, occurring from 400 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder (*L.o*. var. *occidentalis*) crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* is native to northwestern, northern, west-central and southern North America. *5, 6, 43 (010110), 46 (*Lappula texana* (Scheele) Britton, Page 712; *Lappula texana* (Scheele) Britton var. *coronata* (Greene) Nels. & Macbr., Page 712, and *Lappula redowskii* (Hornem.) Greene, Page 713), **56**, **57**, 63 (010110 - color presentation), **85** (010210 - color presentation of dried material), 101 (color photograph), 115 (color presentation), 127*

***Lappula occidentalis* (S. Watson) E.L. Greene var. *cupulata* (A. Gray) H.H. Higgins: Flatspine Stickseed**

SYNONYMY: *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *cupulata* (A. Gray) M.E. Jones, *Lappula texana* (G.H. Scheele) N.L. Britton, *Lappula texana* (G.H. Scheele) N.L. Britton var. *coronata* (E.L. Greene) A. Nelson & J.F. Macbride. COMMON NAMES: Bluebur, Cupped Stickseed, Flatspine Stickseed, Hairy Stickseed, Stick-seed, Western Stickseed, Western Sticktight. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 to 12 inches in height, one plant was described as being 12 inches in height and 1 inch in width); the foliage is grayish-green; the flowers may be pale blue, blue, light purple, white or whitish; flowering generally takes place between mid-March and late June (additional records: one for mid-February and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy and sandy-loamy mesas; plateaus; canyons; canyon bottoms; silty bases of cliffs; rocky ledges; shaley and sandy ridges; rocky-sandy-silty hills; rocky, stony, gravelly and sandy slopes; sandy bajadas; rocky outcrops; sandy lava flows; blow-sand deposits; prairie; sandy plains; gravelly, sandy-clayey and clayey flats; railroad right-of-ways; along gravelly and gravelly-loamy roadsides; arroyos; stony draws; springs; in clay along streams; clayey creekbeds; along sandy washes; drainages; in gravelly drainage ways; around lakes; sumps; gravelly banks; edges of lakebeds; terraces; floodplains; ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; sandy clay and clay ground, and rocky-sandy silty and silty ground, occurring from 300 to 8,600 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lappula occidentalis* var. *cupulata* is native to west-central and southern North America. *5, 6, **16** (recorded as *Lappula redowskii* (Hornem.) Greene var. *cupulatum* (Gray) Jones), 43 (010110 - *Lappula occidentalis* Rydb. var. *cupulata* (Gray) Higgins, *Lappula redowskii* Greene var. *cupulata* (A. Gray) M.E. Jones), 46 (recorded as *Lappula texana* (Scheele) Britton, Page 712 and *Lappula texana* (Scheele) Britton var. *coronata* (Greene) Nels. & Macbr., Page 712), 63 (010110 - color presentation), 77 (recorded as *Lappula texana* (Scheele) Britt.), **85** (010210), **89** (recorded as *Lappula texana* (Scheelle) Greene), 101 (color photograph of species), 115 (color presentation of species), 127*

***Lappula occidentalis* (S. Watson) E.L. Greene var. *occidentalis*: Flatspine Stickseed**

SYNONYMY: *Lappula redowski* auct. non (J.W. Hornemann) E.L. Greene, *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *desertorum* (E.L. Greene) I.M. Johnston, *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *occidentalis* (S. Watson) P.A. Rydberg, *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *redowskii*. COMMON NAMES: Beggar's Tick, Bluebur, Flat-spine

Sheepburr, Flatspine Stickseed, Redowski Stickseed, Stickseed, Western Stickseed, Western Sticktight. DESCRIPTION: Terrestrial annual or biennial forb/herb (6 to 32 inches in height); the foliage is gray-green; the flowers may be pale blue, pale blue-white, blue, light pink, purple, sky blue, white or yellow; flowering generally takes place between mid-February and early August (additional records: five for mid-January, one for late August, one for early September and one for late September). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; along rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; bouldery-gravelly-sandy gorges; talus; bases of cliffs; bedrock knolls; sandy ridges; rocky ridgetops; around and in rocky and gravelly-sandy meadows; foothills; rocky, gravelly and gravelly-sandy hills; hilltops; hillsides; rocky, shaley, cobbly-loamy, cindery, gravelly, gravelly-sandy, sandy, sandy-clayey, loamy, clayey and silty slopes; bajadas; rocky outcrops; amongst rocks; sheltered rock coves; lava flows; breaks; steppes; rocky, gravelly, sandy and sandy-loamy flats; basins; loamy valley floors; in roadbeds; along gravelly and gravelly-loamy roadsides; rocky and sandy arroyos; bottoms of arroyos; rocky draws; gulches; ravines; springs; along creeks; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy-silty and sandy washes; within gravelly drainages; in rocks around ponds; clayey swales; along banks of arroyos, streams and rivers; mudflats; sandy benches; cobbly-loamy and loamy bottomlands; floodplains; along fencelines; edges of stock tanks; ditches; gravelly-sandy-loamy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery-gravelly-sandy, rocky, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay, silty clay and clay ground; gravelly-sandy silty and silty ground, and gravelly-sandy chalky ground, occurring from 700 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* var. *occidentalis* is native to northwestern, northern and west-central North America. *5, 6, 15 (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), **16** (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), 43 (010110 - *Lappula redowskii* Greene var. *desertorum* (Greene) I.M. Johnst., *Lappula redowskii* (Hornem.) Greene var. *occidentalis* Á. Löve & D. Löve), 46 (recorded as *Lappula redowskii* (Hornem.) Greene, Page 713), 58 (recorded as *Lappula redowskii* (Hornem.) Greene), 63 (010110 - color presentation), 77 (recorded as *Lappula redowskii* (Hornem.) Greene), **85** (010210), **89** (recorded as *Lappula redowskii* (Hornem.) Greene var. *occidentalis* (Wats.) Ryd.), 101 (color photograph), 115 (color presentation of species), 127*

Lappula redowskii (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *cupulata* (see *Lappula occidentalis* var. *cupulata*)

Lappula redowskii var. *desertorum* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *occidentalis* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *redowskii* (see *Lappula occidentalis* var. *occidentalis*)

Lappula texana (see *Lappula occidentalis* var. *cupulata*)

Lappula texana var. *coronata* (see *Lappula occidentalis* var. *cupulata*)

***Pectocarya heterocarpa* (I.M. Johnston) I.M. Johnston: Chuckwalla Combseed**

COMMON NAMES: Chuckwalla Combseed, Chuckwalla Pectocarya, Hairyleaf Combbur, Hairy-leaved Combbur, Mixed-nut Comb-bur. DESCRIPTION: Terrestrial annual forb/herb (2 to 8 inches in height); the flowers are pale lavender or white; flowering generally takes place between mid-

February and early June (additional records: four for mid-January, one for late June and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky and pebbly-sandy-silty mesas; rims of canyons; rocky canyons; crevices in rocks; along ridges; openings in creosote-bush scrub; rocky hills; rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly-sandy alluvial fans; gravelly-sandy bajadas; amongst boulders; sand dunes; blow-sand deposits; rocky, gravelly, gravelly-sandy and sandy flats; sandy valley floors; sandy roadsides; beside streams; creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy and sandy washes; sandy-silty, clayey and silty depressions; sandy banks of washes; sandy and silty-clayey edges of lakebeds; margins of washes; shorelines; gravel and sand bars; sandy beaches; rocky benches; floodplains; at stock tanks; canal walls; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-silty loam, gravelly-sandy loam, gravelly-clayey-silty loam and sandy-clayey loam ground; clay ground, and gravelly-sandy silty, pebbly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya heterocarpa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), 46 (Page 712), 58, 63 (010210 - color presentation), **77**, **85** (010210 - color presentation), **89** (recorded as *Pectocarya penicillata* (H. & A.) A. DC.)*

Pectocarya linearis (see footnote 89 under *Pectocarya platycarpa*)

Pectocarya penicillata (see footnote 89 under *Pectocarya heterocarpa*)

Pectocarya platycarpa **(P.A. Munz & I.M. Johnston) P.A. Munz & I.M. Johnston: Broadfruit Combseed**

COMMON NAMES: Broadfruit Combseed, Broad Nut Comb-bur, Broadnut Combbur, Broadnut Combseed, Broad-nutted Comb Bur, Broad-wing Comb-bur, Stickweed. DESCRIPTION: Terrestrial annual forb/herb (prostrate or 2 to 10 inches in height); the flowers are white; flowering generally takes place between early February and late May (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; canyons; sandy canyon bottoms; talus slopes; ridges; foothills; rocky, gravelly and sandy hills; sandy hillsides; rocky, rocky-powdery, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky alluvial fans; gravelly and gravelly-sandy bajadas; amongst boulders and rocks; rocky-sandy lava fields; sand dunes; sand sheets; blow-sand deposits; plains; rocky, gravelly, gravelly-sandy and sandy flats; gravelly and sandy valley floors; along gravelly roadsides; along streams; along creeks; creekbeds; along rivers; along and in rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy drainages; silty depressions; gravelly-sandy and sandy banks of washes; rocky and silty-clayey edges of washes and lakebeds; margins of washes; mudflats; beaches; gravelly benches; shelves; terraces; sandy and loamy bottomlands; sandy and silty floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; silty clay ground; pebbly-sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 7,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya platycarpa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), **46** (Page 712), 58 63 (010210), 77, **85** (010210 - color presentation of dried material), **89** (recorded as *Pectocarya linearis* (Ruiz & Pav.) DC.)*

Pectocarya recurvata **I.M. Johnston: Curvenut Combseed**

COMMON NAMES: Arched Bomb-bur, Arched Comb-bur, Arch-nutted Comb-bur, Archnut Combbur, Combbur, Curved Combseed, Curvenut Combseed, Recurve Combseed. DESCRIPTION: Terrestrial annual forb/herb (2 to 8 inches in height); the flowers are white or white with a yellow throat; flowering generally takes place between mid-January and late May (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; rocky mountainsides; rocky mesas; rocky canyons; sandy canyon bottoms; ledges; clayey ridgetops; rocky foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-gravelly-loamy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy and clayey slopes; bouldery-gravelly and rocky-sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava fields; dunes; plains; gravelly, sandy and clayey flats; valley bottoms; along sandy roadsides; rocky gullies; sandy springs; along sandy streams; along creeks; along creekbeds; along and in bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; clayey depressions; rocky-gravelly-sandy and gravelly edges of rivers and washes; rocky-gravelly-sandy margins of washes; shores of lakes; gravelly and clayey benches; terraces; loamy bottomlands; sandy floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, cobbly-silty loam, gravelly-clayey loam, silty loam and loam ground, and clay ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya recurvata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), 46 (Page 712), 58, 63 (010210 - color presentation), 77, **85** (010210 - color presentation)*

***Plagiobothrys arizonicus* (A. Gray) E.L. Greene ex A. Gray: Arizona Popcornflower**

COMMON NAMES: Arizona Popcorn Flower, Arizona Popcornflower, Blood Weed, Blood-weed, Bloodweed, Lipstick Plant, Pop Corn Flower, Popcorn Flower. DESCRIPTION: Terrestrial annual forb/herb (2 to 16 inches in height); the leaves are dark green with reddish veins; the flowers are white or white with a yellow throat; flowering generally takes place between mid-February and early June (additional records: one for late January, one for late June and one for early October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky plateaus; rocky canyons; gravelly and sandy-loamy canyon bottoms; rocky bases of cliffs; knolls; gravelly ridges; rocky ridgetops; rocky-sandy meadows; rocky foothills; rocky, stony-loamy, gravelly and loamy hills; hilltops; rocky hillsides; bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-silty, sandy and silty-clayey slopes; gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; steppes; sandy plains; gravelly berms; rocky-gravelly, gravelly, gravelly-sandy, sandy and sandy-loamy flats; basins; sandy-loamy valley floors; sandy-loamy valley bottoms; along bouldery and sandy roadsides; arroyos; along rocky-gravelly draws; ravines; around springs; rocky and sandy streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in gravelly drainages; within drainage ways; sandy banks of springs and rivers; benches; gravelly terraces; loamy bottomlands; sandy floodplains; sandy-silty edges of stock tanks (charcos); sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-clayey loam, sandy loam and loam ground; silty clay and clay ground, and silty ground, occurring from 1,100 to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that parts of this plant (roots, stems and leaf veins) contain a red or reddish-purple sap. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial pigment or dye crop. *Plagiobothrys arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (010210), 46 (Page 722), 58, 63

(010210), 77, 80 (*Plagiobothrys* sp. - Species of the genus *Plagiobothrys* have been listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Members of this genus have been reported to accumulate toxic levels of nitrate."), **85** (010310 - color presentation of dried material), **89**, 115 (color presentation), 127*

***Plagiobothrys pringlei* E.L. Greene: Pringle's Popcornflower**

COMMON NAMES: Pringle Popcorn-flower, Pringle's Popcorn-flower, Pringle's Popcornflower, Popcorn Flower. DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 16 inches in length); the flowers are white; flowering generally takes place between early March and late February (additional records: one for early February and one for mid-May). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; bluffs; foothills; rocky hillsides; rocky, gravelly and gravelly-loamy slopes; plains; muddy and sandy flats; valley floors; along rocky, gravelly and sandy roadsides; along streams; along sandy washes; benches; floodplains, and disturbed areas growing in muddy and moist and dry rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,200 to 4,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Plagiobothrys pringlei* is native to southwest-central and southern North America. *5, 6, 8, 15, **16**, 43 (010310), 46 (Page 722), 58, 63 (010310), 77, 80 (*Plagiobothrys* sp. - Species of the genus *Plagiobothrys* have been listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Members of this genus have been reported to accumulate toxic levels of nitrate."), 85 (010310 - color presentation of dried material), **89***

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson: Woody Crinklemat**

COMMON NAMES: Crinkle Mats, Gray Coldenia, Hierba de la Virgin, Oreja del Perro, Ratear Coldenia, Shrubby Coldenia, Woody Crinklemat. DESCRIPTION: Terrestrial perennial subshrub (generally 4 to 8 inches in height; however, plants up to 2 feet in height were reported, plants 4 inches in height and width were reported); the leaves are gray, grayish or gray-green; the flowers may be pale lavender, lavender, lavender-pink, lavender-whitish, light pink, pink, light pink-lavender, pale purple, purple, rose-lilac, violet or white with a yellow floral tube; flowering generally takes place between late March and mid-June (additional records: one for early March, two for early July, one for late July, two for early August, one for mid-August, one for early September, two for mid-September, one for late September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; escarpments; bouldery and rocky and gravelly canyons; canyon bottoms; gorges; talus slopes; crevices in rocks; gravelly-sandy bluffs; buttes; rocky ledges; along rocky and chalky ridges; openings in forests; rocky and gravelly-sandy hills; rocky hillsides; along bouldery, rocky, rocky-gravelly, gravelly, gravelly-shaley and gravelly-sandy slopes; gravelly and gravelly-sandy bajadas; shaley and rocky outcrops; amongst boulders and rocks; sand dunes; sandy plains; rocky, gravelly and sandy flats; valley floors; roadbeds; rocky-gravelly-loamy, gravelly and gravelly-loamy roadsides; arroyos; gullies; rocky ravines; along and in stony, gravelly, gravelly-sandy and sandy washes; gravelly terraces; floodplains; along fence lines; waste places; sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, stony, shaley-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam and gravelly-sandy loam ground; rocky clay, shaley clay and clay ground, and chalky ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (010310), 46 (recorded as *Coldenia canescens* DC. including the typical plant and variety *pulchella* Johnst., Page 709), 63 (010310), 77, **85** (010310 - color presentation), 115 (color presentation)*

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson var. *canescens*: Woody Crinklemat**

SYNONYMY: *Coldenia canescens* A.P. de Candolle. COMMON NAMES: Crinkle Mats, Gray Coldenia, Hierba de la Virgin, Oreja del Perro, Shrubby Coldenia, Woody Crinklemat. DESCRIPTION: Terrestrial perennial subshrub (4 to 8 inches in height, plants 2 to 4 inches in height and 16 inches in width were reported); the leaves are gray or gray-green; the flowers may be lavender, lavender-pink, lavender-whitish, light pink-lavender, pink, purple or white with a yellow floral tube; flowering generally takes place between late March and late May (additional records: two for mid-February). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; canyons; ridges; ridgetops; gravelly bajadas; rocky-gravelly slopes; gravelly flats; rocky roadsides; arroyos; sandy riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly and sandy ground, occurring from 900 to 5,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* var. *canescens* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (010310), 46 (recorded as *Coldenia canescens* DC., Page 709), 63 (010310), 85 (010310), **89** (recorded as *Coldenia canescens* DC.), 115 (color presentation of species), **HR**, **WTK** (October 28, 2009)*

Brassicaceae (Cruciferae): The Mustard Family

Arabis eremophila (see *Arabis perennans*)

***Arabis perennans* S. Watson: Perennial Rockcress**

SYNONYMY: *Arabis eremophila* E.L. Greene, *Boechera perennans* (S. Watson) W.A. Weber. COMMON NAMES: Perennial Rockcress, Rock Cress, Stiff-arm Rock Cress, Stiffarm Rock Cress. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 40 inches in height, plants 8 to 12 inches in height and 6 to 17 inches in width were reported); the leaves are gray-green; the flowers may be pale blue-lavender, bluish-purple, cream, lavender, pink, pink-lavender, pinkish-purple, dull mauve, pale purple, purple, purple-magenta, purplish-pink, purplish-rose, reddish-violet, rose-magenta, violet-lavender, white & lavender or white-purple; flowering generally takes place between early February and early July (additional records: one for early January, one for mid-January, one for early August, one for early October and one for early December). HABITAT: Within the range of this species it has been reported from mountains; along mountaintops; rocky mountainsides; sandy mesas; sandy plateaus; rocky cliffs; rock faces; bouldery, rocky and rocky-sandy canyons; rocky and shaley-sandy canyon walls; bedrock, rocky, gravelly-sandy and sandy canyon bottoms; talus slopes; along sandy bases of cliffs; crevices in rocks; bluffs; rocky knobs; summits of laccoliths; rocky ledges; sandy ridges; ridgetops; rocky openings in woodlands; meadows; rocky-gravelly foothills; rocky hills; bouldery and rocky hillsides; sandy bases of escarpments; bedrock, bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, rocky-loamy, cobbly-sandy, cobbly-loamy, cindery, gravelly, gravelly-silty, sandy, sandy-loamy and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; lava flows; rocky mounds; flats; basins; along sandy valley floors; along roadbeds; along gravelly roadsides; rocky walls of arroyos; along draws; gulches; bouldery-sandy and rocky ravines; springs; along streams; gravelly streambeds; along creeks; along rivers; along and in rocky, rocky-gravelly, gravelly and sandy washes; within drainages; bouldery-cobbly drainage ways; marshes; rocky banks of gullies, streams and washes; rocky-loamy and gravelly edges of arroyos, streams and washes; gravelly terraces; rocky and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-cobbly, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, cobbly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground, and gravelly silty and silty ground, occurring from 600 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted

as having been used as a drug or medication. *Arabis perennans* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (010310), 46 (Page 353), 58, 63 (010310 - color presentation), 77, **85** (010410 - color presentation), **89** (recorded as *Arabis eremophila* Greene), 115 (color presentation), 127*

Boechera perennans (see *Arabis perennans*)

***Brassica nigra* (C. Linnaeus) W.D. Koch: Black Mustard**

COMMON NAMES: Black Mustard, Brauner Senf (German), Hei Jie (transcribed Chinese), Mostarda-preta (Portuguese), Mostaza Negra (Spanish), Moutarde Noire (French), Schwarzer Senf (German), Short-pod Mustard, Shortpod Mustard. DESCRIPTION: Terrestrial annual forb/herb (16 inches to 10 feet in height); the flowers are pale yellow or yellow; flowering generally takes place between late February and late August (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; clayey cliffs; canyons; canyon bottoms; bluffs; clayey ridgetops; clearings in woodlands; meadows; hills; hillsides; rocky, clayey-loamy and clayey slopes; clayey flats; valley bottoms; rolling coastal dunes; in roadbeds; along rocky-loamy roadsides; draws; along streams; along rivers; riverbeds; sandy washes; edges of saltmarshes; gravelly shores of rivers; clayey benches; clayey terraces; bottomlands; along canals; along ditches; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; rocky loam and clayey loam ground, and clay ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice, as a fuel and as a drug or medication. *Brassica nigra* is native to northern, central, eastern and southern Europe; western, central, eastern and southern Asia, and northern Africa; however, the exact native range is obscure. *5, 6, 15 (listed as an excluded species), 43 (010410), 46 (Page 338), 63 (010410 - color presentation), 68, 77, 80 (The genus *Brassica* is listed as both a Rarely Poisonous and Suspected Poisonous Range Plant "Mustards, both native and escaped, may cause several diseases including goiter and gastroenteritis." and a Poisonous Cropland and Garden Plant "Cultivated mustards may cause numerous diseases including gastroenteritis, blindness, goiter, emphysema, redwater disease, nitrate poisoning, anemia, and photosensitization."), 85 (010410 - color presentation of dried material), **89**, 101 (color photograph), 127*

***Brassica tournefortii* A. Gouan: Asian Mustard**

COMMON NAMES: African Mustard, Asian Mustard, Desert Mustard, Mediterranean Mustard, Mediterranean Turnip, Moroccan Mustard, Mostaza, Mostaza Africana, Mostaza del Sahara, Mustard, Pale Cabbage, Prickly Turnip, Sahara Mustard, Tournefort's Birdrape, Turnip Weed, Wild Turnip. DESCRIPTION: Terrestrial annual forb/herb (1 to 4 feet in height, a plant 22 inches in height and 40 inches in width was reported, plants 24 to 30 inches in height and 18 inches in width at the base were reported), the large and serrated green leaves form in a basal rosette clasping on the stem, the flowers are green-white, ivory, white, pale yellow, yellow or yellow-cream, flowering generally takes place between mid-January and late May (additional records: one for mid-November, three for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; clayey canyons; rocky canyon bottoms; bases of cliffs; bluffs; rocky and rocky-clayey ridgetops; rocky hills; bouldery hillsides; bouldery, rocky, gravelly-sandy, gravelly-sandy-loamy, pebbly-sandy and sandy slopes; alluvial fans; gravelly bajadas; volcanic dikes and plugs; sand hills; sand shelves; sand dunes; sand hummocks; blow-sand deposits; sand sheets; rocky-sandy outwash fans; gravelly-sandy-loamy and silty plains; gravelly-sandy, sandy and silty flats; sandy and silty valley floors; along rocky-clayey, gravelly, gravelly-sandy-loamy and sandy roadsides; arroyos; gullies; about springs; creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; within sandy drainage ways; depressions; gravelly-sandy banks of rivers and washes; sandy edges of arroyos, rivers, washes and playas; sandy margins of washes and ponds; sandy beaches; benches;

rocky strands; sandy terraces; loamy bottomlands; floodplains; sandy levees; canal banks; along ditches; recently burned areas of coastal sage scrub; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; rocky clay and clay ground, and silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. Sahara Mustard is usually a very large and robust plant. *Brassica tournefortii* is native to southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, **16**, 22, 28, 43 (010410), 46 (Supplement Page 1051), **56**, **57**, 63 (010410 - color presentation), 77, 80 (The genus *Brassica* is listed as both a Rarely Poisonous and Suspected Poisonous Range Plant "Mustards, both native and escaped, may cause several diseases including goiter and gastroenteritis." and a Poisonous Cropland and Garden Plant "Cultivated mustards may cause numerous diseases including gastroenteritis, blindness, goiter, emphysema, redwater disease, nitrate poisoning, anemia, and photosensitization."), **85** (010410 - color presentation of dried and fresh material), 115 (color presentation), **WTK** (June 13, 2010)*

***Capsella bursa-pastoris* (C. Linnaeus) F.K. Medikus: Shepherd's Purse**

COMMON NAMES: Bolsa de Pastor, Bolsa-de-Pastor (Portuguese), Bourse à Pasteur (French), Capselle à Pasteur (French), Erva-do-bom-pastor (Portuguese), Hirtentäschel (German), Naeng-i (transcribed Korean), Paniquesillo, Shephardspurse, Shepherd's Purse, Shepherd's-purse, Shepherds-purse, Shepherdspurse, Zurrón de Pastor (Spanish). DESCRIPTION: Terrestrial annual forb/herb (3 inches to 2 feet in height); the foliage is green; the flowers are cream, lavender, pinkish-purple or white; flowering generally takes place between mid-January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; plateaus; canyons; bouldery canyon bottoms; sandy ridges; meadows; rocky foothills; hilltops; silty hillsides; rocky slopes; sandy lava flows; loamy and clayey flats; clayey valley floors; along gravelly roadsides; within arroyos; gulches; along streams; along creeks; sandy creekbeds; along rivers; riverbeds; drainages; drainage ways; clayey-loamy depressions; banks of streams, washes and lakes; sandy bottomlands; rocky-sandy and sandy-silty floodplains; mesquite bosques; along fencelines; in dry stock tanks; along canals; canal banks; along ditches; gravelly-sandy and sandy riparian areas; waste places; recently burned areas of chaparral, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice and as a drug or medication. *Capsella bursa-pastoris* is native to Europe; however, its origin is obscure. *5, 6, 15, 43 (010410), 46 (Page 344), 58, 63 (010410 - color presentation), 68, 77, 85 (010410 - color presentation), 86 (color photograph), **89**, 101 (color photograph), 115 (color presentation), 127*

Caulanthus lasiophyllus (see *Guillenia lasiophylla*)

Caulanthus lasiophyllus var. *lasiophyllus* (see footnote 15 under *Guillenia lasiophylla*)

Caulanthus lasiophyllus var. *utahensis* (see *Guillenia lasiophylla*)

Descurainia incisa (see *Descurainia incana* subsp. *incisa*)

***Descurainia incana* (J.J. Bernhardi ex F.E. von Fischer & C.A. von Meyer) R.D. Dorn subsp. *incisa* (G. Engelmann) J.T. Kartesz & K.N. Gandhi: Mountain Tansymustard**

SYNONYMY: *Descurainia incisa* (G. Engelmann) N.L. Britton, *Descurainia richardsonii* O.E. Schultz subsp. *incisa* (G. Engelmann) L.E. Detling, *Sisymbrium incisum* G. Engelmann *ex* A. Gray. COMMON NAME: Mountain Tansymustard, Tansy Mustard. DESCRIPTION: Terrestrial biennial forb/herb (to 40 inches in height); the foliage is grayish-green; the flowers are greenish-yellow or yellow; flowering generally takes place between late May and early September (additional records: one for late February and two for mid-April). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; plateaus; sandy canyons; canyon bottoms; along flumes; ridges; loamy meadows; foothills; rocky and gravelly-loamy slopes; cindery flats; basins; sandy valley floors; along roadsides; gulches; shores of lakes; sandy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry rocky, cindery and sandy ground; gravelly loam ground, and clay ground, occurring from 1,100 to 10,500 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formation. NOTES: The species, *Descurainia incana*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (*D.i.* subsp. *incana*, *D.i.* subsp. *incisa*) and/or beverage (*D.i.* subsp. *incana*) crop; it was also noted as having been used as a drug or medication (*D.i.* subsp. *incisa*). *Descurainia incana* subsp. *incisa* is native to west-central North America. *5, 6, 28 (color photograph of *Descurainia richardsonii*), 43 (010510), 46 (recorded as *Descurainia richardsonii* (Sweet) O.E. Schultz subsp. *incisa* (Engelm.) Detling, Page 350), 63 (010510), 85 (010510), **89** (recorded as *Sisymbrium incisum* Engelm.), 127*

***Descurainia pinnata* (T. Walter) N.L. Britton: Western Tansymustard**

COMMON NAMES: Aasam (Yaqui), Green Tansy Mustard, Green Tansymustard, Huy Aasum (Yaqui), Moutarde Tanaisie (French), Northern Tansy-mustard, Palmita (Spanish), Pamita (Spanish), Pinnate Tansy Mustard, Pinnate Tansymustard, Sirolitutilli, Tansy Mustard, Tansy-mustard, Tansymustard, Western Tansy Mustard, Western Tansy-mustard, Western Tansymustard, Yellow Tansy Mustard. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (4 to 40 inches in height); the foliage may be gray-green, purplish or reddish; the flowers are cream, greenish-white, greenish-yellow, purplish, pale yellow, dull yellow, yellow, yellow-green, yellowish-green, white or white tinged with mauve; flowering generally takes place between mid-January and early September (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; along sandy rims of canyons and craters; cliffs; rocky and sandy canyons; sandy canyonsides; along rocky, rocky-sandy and sandy canyon bottoms; sandy bases of cliffs and escarpments; bluffs; rocky ledges; rocky ridges; rocky-sandy meadows; cinder cones; rocky tops of cinder cones; foothills; bouldery and rocky hills; bouldery-sandy, rocky, rocky-stony, clayey, gravelly-sandy and silty-loamy hillsides; bedrock, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-sandy, cobbly-gravelly-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-silty-loamy, sandy, sandy-clayey and silty-clayey slopes; rocky-sandy alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sheltered rocky coves; volcanic dikes and plugs; sand hills; sand dunes; sand sheets; blow-sand deposits; loamy steppes; sandy prairies; sandy plains; gravelly, gravelly-sandy, sandy, sandy-clayey and silty-loamy flats; basins; basin bottoms; shaley and sandy valley floors; valley bottoms; coastal plains; sandy coastal strands; along railroad right-of-way; along rocky, gravelly and sandy roadsides; along sandy arroyos; draws; seeps; springs; along streams; along streambeds; in sand along creeks; along rivers; bouldery-rocky-gravelly riverbeds; along and in bouldery, rocky, rocky-sandy, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy washes; within gravelly drainages; drainage ways; waterholes; banks of creeks and rivers; along edges of streams, creeks and washes; margins of marshy areas; shorelines of lakes; sandy terraces; loamy bottomlands; clayey and silty floodplains; mesquite bosques; clayey catchments; in dry stock tanks; on top of and within ditches; sandy riparian areas; waste places; recently burned areas of woodland and desertscrub, and disturbed areas growing in muddy and wet, moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground;

rocky loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, sandy-clayey loam, silty loam and loam ground; sandy clay, silty clay and clay ground, and silty ground, occurring from sea level to 11,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a preservative (*D.p.* subsp. *halictorum*), fertilizer (*D.p.* subsp. *halictorum*), paint for pottery decoration (flowers mixed with dark iron pigment, *D.p.* subsp. *pinnata*) and as a drug or medication. This plant is a larval food plant of the Desert Orangetip Butterfly (*Anthocharis cethura*) and is sometimes planted in butterfly gardens to attract Orangetip, Checkered White and White Cabbage Butterflies. Black-tailed Jack Rabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*) and Rocky Mountain Mule Deer (*Odocoileus hemionus hemionus*) feed on this plant, and the Ord's Kangaroo Rat (*Dipodomys ordii*), Spotted Ground Squirrel (*Spermophilus spilosoma*), Townsend Ground Squirrel (*Spermophilus townsendii*) and Northern Grasshopper Mice (*Onychomys leucogaster*) feed on the seeds. *Descurainia pinnata* is native to northern, central and southern North America. *5, 6, 15, **16**, 43 (010510), 46 (Page 349), 63 (010510 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Symptoms of poisoning are similar to the "blind staggers" disease caused by selenium, but the principle is unknown. Large quantities of the plant must be eaten for a considerably long time before symptoms appear. Consumption of toxic amounts is most likely to occur during the blossoming period in the spring. Poisoned cattle become partially or completely blind and wander aimlessly about until exhausted, or stand pushing against some solid object for hours. Animals lose their ability to use their tongue in swallowing and cannot eat or drink. They eventually die if neglected. As a result a popular term for the disease is "paralyzed tongue". ... Analysis of plants in Arizona shows that tansy mustard also may accumulate toxic levels of nitrate. Poisoning may be prevented by deferring heavily infested pastures during the spring-growth period, or by providing more desirable forage to reduce mustard consumption." See text for additional information.), **85** (010710 - color presentation), **89** (recorded as *Sisymbrium canescens* Nutt.), 101 (note), 127*

Descurainia richardsonii subsp. *incisa* (see *Descurainia incana* subsp. *incisa*)

***Draba cuneifolia* T. Nuttall ex J Torrey & A. Gray: Wedgeleaf Draba**

COMMON NAMES: Gasa, Spring Whitlow-grass, Wedge-leaf Draba, Wedgeleaf Draba, Wedge-leaf Whitlow-grass, Wedgeleaf Whitlow Grass, Wedge-leaved Whitlow-grass, Whitlow-grass, Whitlow-grass, Whitlow-wort. DESCRIPTION: Terrestrial annual forb/herb (1½ to 5 inches in height); the leaves are gray-green; the flowers are cream, white or yellow; flowering generally takes place between early January and late April (additional records: one for mid-May, one for late May, one for mid-July, one for mid-September, one for early December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; soil pockets on shaded cliff walls; rocky canyons; rocky-sandy, sandy and loamy canyon bottoms; sandy talus slopes; bases of cliffs; rocky and stony ledges; ridges; rocky and clayey hills; rocky hillsides; along bouldery-gravelly, rocky, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; lava flows; rocky, stony-gravelly-clayey, gravelly and sandy flats; along roadsides; along arroyos; seeps, springs; arroyos; sandy bottoms of arroyos; gulches; along streams; sandy streambeds; along creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty washes; along drainage ways; gravelly-sandy bowls; sandy, sandy-silty and silty banks of washes; along sandy shorelines of rivers; gravelly and silty sand-bars; bouldery-sandy beaches; cobbly benches; sandy and loamy bottomlands; shelves; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; stony-gravelly clay ground, and silty ground, occurring from 400 to 8,100 feet in elevation in the

forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* is native to south-central and southern North America. *5, 6, **16**, 43 (010710), 46 (Pages 347-348), 63 (010710 - color presentation), 77, **85** (010810 - color presentation), **89** (recorded as *Draba platycarpa* T. & G.), 115 (color presentation)*

***Draba cuneifolia* T. Nuttall ex J Torrey & A. Gray var. *integrifolia* S. Watson: Wedgeleaf Draba**

COMMON NAMES: Wedge-leaf Draba, Wedgeleaf Draba, Wedgeleaf Whitlow Grass, Wedgeleaf Whitlowgrass, Whitlow Grass, Whitlow-grass, Whitlow-wort. DESCRIPTION: Terrestrial annual forb/herb (1½ to 5 inches in height, a plant 1¼ to 2¾ inches in height and 1¼ to 1½ inches in width was reported); the flowers are white; flowering generally takes place between mid-January and late April (additional records: one for mid-May, one for late May, one for early December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliff walls; rocky canyons; rocky canyon bottoms; bases of cliffs; ledges; openings in chaparral; sandy hills; rocky-gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly and silty-clayey slopes; sandy bajadas; bouldery and rocky outcrops; amongst rocks; in the shade of rocks and shrubs; lava flows; rocky, gravelly, sandy and clayey flats; basins; sandy coastal flats; roadsides; along arroyos; draws; seeps; along streams; along creekbeds; along rivers; along and in rocky-sandy, gravelly-sandy and sandy washes; sandy and silty banks of washes; edges of washes and drainages; gravelly benches; loamy bottomlands; floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* var. *integrifolia* is native to southwest-central and southern North America. *5, 6, 15, 43 (010710), 46 (Pages 347-348), 63 (010710), **85** (010810 - color presentation of dried material), 115 (color presentation of species)*

***Draba cuneifolia* T. Nuttall ex J Torrey & A. Gray var. *sonorae* (E.L. Greene) S.B. Parish: Sonora Draba**

SYNONYMY: *Draba sonorae* E.L. Greene. COMMON NAMES: Sonora Draba. DESCRIPTION: Terrestrial annual forb/herb (1½ to 5 inches in height); the flowers are white; based on few flowering records located, flowering generally takes place between early January and mid April. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; foothills; riverbeds; sandy-clayey washes, and bottomlands growing in dry rocky ground and sandy clay ground, occurring from 1,100 to 5,000 in the desertscrub and wetland ecological formations. NOTES: *Draba cuneifolia* var. *sonorae* is native to southwest-central and southern North America. *43 (010810 - *Draba cuneifolia* var. *sonorae* Parish), 46 (*Draba sonorae* Greene is mentioned as being a synonym to *Draba cuneifolia* var. *integrifolia*, Page 348), 63 (010810), **85** (010810), 115 (color presentation of species)*

Draba platycarpa (see fotnote 89 under *Draba cuneifolia*)

Draba sonorae (see *Draba cuneifolia* var. *sonorae*)

***Dryopetalon runcinatum* A. Gray: Rockmustard**

COMMON NAMES: Dryopetalon, Rock-mustard, Rockmustard. DESCRIPTION: Terrestrial biennial or perennial forb/herb (12 to 25 inches in height); the foliage is dark green; the flowers are lavender, pink, pale violet, white or white with a purplish tinge; flowering generally takes place between early February and early June (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rims of craters; rock cliffs; cliff faces; rocky canyons; bouldery canyon bottoms; talus slopes; bases of cliffs; crevices in and under boulders and rocks; rocky ledges; foothills; hills; hillsides; bouldery, bouldery-gravelly and rocky slopes;

rocky outcrops; amongst boulders and rocks; coastal plains; along sandy roadsides; within rocky arroyos; rocky draws; springs; in rocks along streams; along and in rocky streambeds; along creeks; along rivers; along washes; within drainages; rocky banks of arroyos and creeks, and riparian areas often growing in shaded areas in moist, damp and dry bouldery, bouldery-gravelly, rocky and sandy ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetlands ecological formations. NOTE: *Dryopetalon runcinatum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (010910), 46 (Page 339), 58, 63 (010910 - color presentation), 77 (color photograph #73), **85** (010910 - color presentation of dried material), 115 (color presentation)*

***Guillenia lasiophylla* (W.J. Hooker & G.A. Arnott) E.L. Greene: California Mustard**

SYNONYMY: *Caulanthus lasiophyllus* (W.J. Hooker & G.A. Arnott) E.B. Payson, *Caulanthus lasiophyllus* (W.J. Hooker & G.A. Arnott) E.B. Payson var. *utahensis* (P.A. Rydberg) E.B. Payson, *Thelypodium lasiophyllum* (W.J. Hooker & G.A. Arnott) E.L. Greene. COMMON NAMES: California Mustard, Coast Wild Cabbage, Cutleaf Thelypody, Hairyleaf Wildcabbage, Wild Cabbage. DESCRIPTION: Terrestrial annual forb/herb (6 to 40 inches in height, one record reported plants at 79 inches in height); the flowers are pale cream, pale cream-yellow, cream, creamy-white, pinkish-brown, white, pale yellow, yellow, yellowish, yellow-cream or yellowish-white; flowering generally takes place between early January and late May (additional records: one for mid-June, one for early July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; sandy-silty mesas; rocky and stony canyons; sandy canyon bottoms; bases of cliffs; crevices in rocks; ridges; rocky-sandy ridgetops; meadows and meadow-like openings in woodlands; foothills; bouldery, rocky and rocky-loamy hills; clayey hilltops; rocky, rocky-sandy-loamy and stony hillsides; bouldery-rocky rocky, rocky-sandy, stony, stony-sandy, cobbly-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey slopes; gravelly and sandy alluvial fans; rocky-sandy, gravelly and gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; sand sheets; gravelly outwash fans; gravelly-sandy and sandy plains; cindery, gravelly, gravelly-sandy, sandy, clayey and silty flats; stony valley floors; valley bottoms; in talus at the foot of ocean bluffs; coastal plains; along rocky and rocky-sandy roadsides; gulches; within gullies; springs; along streams; along creeks; sandy creekbeds; clayey-loamy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and silty washes; along sandy drainages; depressions; along gravelly, muddy-sandy and sandy banks of arroyos and washes; sandy edges of washes; along sandy margins of washes; clayey benches; gravelly terraces; loamy bottomlands; floodplains; catchments; along ditches; gravelly-sandy riparian areas; recently burned areas of woodland and chaparral, and disturbed areas growing in muddy and moist and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, stony-sandy, cobbly-gravelly-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey-silty loam, sandy loam, clayey loam, silty-clayey loam and loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Guillenia lasiophylla* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Caulanthus lasiophyllus* (Hook. & Arn.) Payson var. *lasiophyllus*), **16** (recorded as *Caulanthus lasiophyllus* (Hook. & Arn.) Payson), 43 (010910), 46 (recorded as *Thelypodium lasiophyllum* (Hook. & Arn.) Greene, Page 330), **56**, **57**, 63 (010910 - color presentation), 77 (recorded as *Caulanthus lasiophyllus* (H.&A.) Payson), 80 (*Thelypodium lasiophyllum* is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual mustard has been reported to accumulate toxic levels of nitrate."), **85** (010910 - color presentation of dried material), **89** (recorded as *Thelypodium lasiophyllum* (H. & A.) Greene), 115 (color presentation)*

***Lepidium* C. Linnaeus: Pepperweed**

COMMON NAME: Pepperweed. *43 (051710), 46 (Pages 332-334), 63 (051610), **89***

***Lepidium densiflorum* H.A. Schrader: Common Pepperweed**

COMMON NAMES: Common Pepperweed, Greenflower Pepperweed, Miner's Pepperweed, Miner's Pepperwort, Miners Pepperweed, Peppergrass, Pepperweed, Prairie Peppergrass, Prairie Pepperweed, Prairie Pepperwort. DESCRIPTION: Terrestrial annual or biennial forb/herb (2½ to 30 inches in height); the older leaves are yellow-green; the flowers are cream, green & reddish or white; flowering generally takes place between mid-March and mid-July (flowering records: one for early February, one for mid-February, one for late February, one for late one for late August, one for early September, two for mid-September and one for late September). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; canyonsides; along sandy canyon bottoms; bases of cliffs; bluffs; buttes; rocky ledges; ridges; meadows; hills; along bouldery-gravelly-silty-clayey, rocky, shaley and clayey slopes; alluvial fans; rocky outcrops; amongst rocks; prairies; gravelly plains; rocky, gravelly, loamy and clayey flats; basins; coastal plains; along railroad right-of-ways; along gravelly and gravelly-loamy roadsides; gulches; springs; along creeks; creekbeds; along rivers; sandy riverbeds; along and in gravelly washes; clayey drainage bottoms; in rocks around ponds; banks of creeks; mudflats; sandy beaches; rocky and clayey terraces; floodplains; lowlands; around gravelly-sandy stock tanks; ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam and loam ground; bouldery-gravelly-silty clay and clay ground, and silty ground, occurring from 100 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lepidium densiflorum* is native to northwestern, northern, central and southern North America. *5, 6, 43 (010910), 46 (Page 334), 63 (010910 - color presentation of seed), **85** (011010 - color presentation), 127*

***Lepidium lasiocarpum* T. Nuttall: Shaggyfruit Pepperweed**

COMMON NAMES: Hairy-pod Pepperwort, Hairypod Pepperweed, Hispidcress, Pepper Grass, Peppergrass, Pepperweed, Sand Peppergrass, Shaggyfruit Pepperweed. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 to 15 inches in height); the flowers are cream, green, greenish-yellow, white or yellow-green; flowering generally takes place between late December and late June (additional records: one for late August and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rocky and shaley canyons; rocky, gravelly and sandy canyon bottoms; talus slopes; bases of cliffs; buttes; rocky and sandy ledges; sandy ridges; rocky ridgetops; foothills; bouldery and rocky-sandy hills; hilltops; rocky hillsides; rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, sandy and sandy-loamy slopes; rocky, rocky-sandy and gravelly alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava beds; sand dunes; sand sheets; sand flats; along rocky-sandy and sandy outwash fans; gravelly-sandy-loamy and sandy-loamy plains; rocky, gravelly, sandy, sandy-loamy and silty flats; sandy basins; sandy and clayey valley floors; coastal bluffs; coastal dunes; coastal plains; tidal shores; along sandy roadsides; along and in arroyos; bottoms of arroyos; rocky chutes; around seeping streams; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy washes; rocky-sandy drainages; along drainage ways; silty playas; silty depressions; raised areas in saltmarshes; along muddy, gravelly-sandy and sandy banks of rivers and washes; stony-sandy and sandy edges of arroyos, washes and lakebeds; around margins of washes and marshes; shores of lakes; mudflats; gravel and sand bars; sandy beaches; bouldery benches; gravelly terraces; sandy, loamy and clayey bottomlands; lowlands; sandy and silty floodplains; along gravelly-sandy and sandy edges of stock tanks; canal banks; gravelly and sandy riparian areas; recently burned areas in woodlands and desertscrub, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and loam ground; silty clay and clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations.

NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (011010), 46 (Page 334), **56**, **57**, 63 (011010 - color presentation), 68, 77, **85** (011010 - color presentation), **89**, 127*

Lepidium lasiocarpum var. *georginum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium lasiocarpum* T. Nuttall var. *lasiocarpum*: Shaggyfruit Pepperweed**

SYNONYMY: *Lepidium lasiocarpum* T. Nuttall var. *georginum* (P.A. Rydberg) C.L. Hitchcock, *Lepidium lasiocarpum* T. Nuttall var. *typicum* C.L. Hitchcock. COMMON NAMES: Hairy-pod Pepperwort, Hairypod Pepperweed, Sand Peppergrass, Shaggyfruit Pepperweed. DESCRIPTION: Terrestrial annual or biennial forb/herb (8 to 15 inches in height); the foliage may be reddish-purple; the flowers are cream or white; flowering generally takes place between early February and early June (additional records: two for mid-January and one for late June). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; sandy canyon bottoms; talus slopes; bases of cliffs; rocky ledges; meadows; rocky and sandy hills; rocky hillsides; rocky and rocky-sandy slopes; rocky outcrops; amongst rocks; sand dunes; along sandy outwash fans; plains; gravelly, sandy and silty flats; valley floors; along gravelly and loamy roadsides; arroyos; bottoms of arroyos; gulches; along streams; along creeks; sandy creekbeds; riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sand bars; benches; floodplains; gravelly riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, cobbly-silty loam, clayey loam and loam ground; silty clay ground, and sandy silty and silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Lepidium lasiocarpum*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* var. *lasiocarpum* is native to southwest-central and southern North America. *5, 6, 43 (011010 - *Lepidium lasiocarpum* var. *georginum* C.L. Hitchc.), 46 (recorded as *Lepidium lasiocarpum* var. *typicum* C.L. Hitchcock, Page 334), 58, 63 (011010), **85** (011010 - color presentation of dried material), 127 (species)*

Lepidium lasiocarpum var. *typicum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium oblongum* J.K. Small (var. *oblongum* is the variety reported as occurring in Arizona): Veiny Pepperweed**

COMMON NAMES: Peppergrass, Veiny Peppergrass, Veiny Pepperweed, Wayside Peppergrass. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 to 12 inches in height, specimens of var. *insularae* were reported as forming sprawling mounds 1 foot in height and 2 feet in width); the flowers are white; flowering generally takes place between mid-January and mid-May (additional records: one for early June and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; bases of cliffs; bluffs; hills; grassy hillsides; clayey-loamy slopes; bajadas; rocky outcrops; dunes; valley floors; valley bottoms; coastal plains; sandy coasts; along rocky roadsides; springs; along streams; along sandy streambeds; in sand along rivers; sandy riverbeds; along washes; clayey playas; marshes; loamy banks of rivers; edges of rivers; terraces; floodplains; sandy margins of reservoirs; along ditches; gravelly-sandy-loamy riparian areas; waste places, and disturbed areas growing in dry rocky, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, clayey loam and loam ground, and silty ground, occurring from sea level to 7,700 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: Exotic? *Lepidium oblongum* may be native to southwest-central and southern North America. *5, 6, **16**, 43 (011210), 46

(Page 334), 63 (011210 - color presentation of seed), **85** (011210 - color presentation of dried material), 106 (011210 - color presentation of dried material)*

***Lepidium thurberi* E.O. Wooton: Thurber's Pepperweed**

COMMON NAMES: Thurber Peppergrass, Thurber's Peppergrass, Thurber Pepperweed, Thurber's Pepperweed, Wooton's Peppergrass. DESCRIPTION: Terrestrial annual or biennial forb/herb (8 to 40 inches in height); the leaves are gray-green, light green or green; the flowers are white; the anthers are yellow; flowering generally takes place between early February and mid-November. HABITAT: Within the range of this species it has been reported from mountains; plateaus; rocky canyons; foothills; rocky hills; hillsides; rocky and gravelly slopes; sandy alluvial fans; sandy bajadas; amongst boulders; sandy, sandy-clayey-loamy and clayey flats; basin bottoms; valley floors; railroad right-of-ways; along gravelly and sandy roadsides; arroyos; draws; gullies; riverbeds; within gravelly and sandy washes; edges of playas; gravelly-gravelly-sandy and sandy bowls; sandy banks of rivers; channel bars; benches; terraces; sandy-clayey bottomlands; floodplains; riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; sandy-clayey loam ground; sandy clay and clay ground, and gravelly-sandy silty and sandy silty ground, occurring from 1,500 to 8,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lepidium thurberi* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph), 43 (062809), 46 (Page 333), 58, 63 (011210), 77, 85 (011210 - color presentation), **89**, 127*

***Lesquerella gordonii* (A. Gray) S. Watson (var. *gordonii* is the variety reported as occurring in Arizona): Gordon's Bladderpod**

SYNONYMY: (for *L.g.* var. *gordonii*: *Physaria gordonii* (A. Gray) S.L. O'Kane & I.A. Al-Shehbaz). COMMON NAMES: Arizona Bladderpod Mustard, Bead-pod, Bladder Pod, Bladderpod Mustard, Gordon Bladder Pod, Gordon Bladder-pod, Gordon Bladderpod, Gordon's Bladderpod, Yellow Bladderpod. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (3 inches to 24 inches in height); the foliage is green; the flowers are yellow; flowering generally takes place between early February and mid-May (additional records: one for mid-January, two for early June, one for late June and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; gravelly canyon bottoms; ridges; rocky hills; hilltops; rocky and rocky-gravelly hillsides; rocky, rocky-gravelly and gravelly slopes; bajadas; rocky outcrops; rocky-sandy alluvial fans; sandy bajadas; sandy, sandy-loamy and clayey-loamy plains; rocky, gravelly and sandy flats; basins; valley floors; along rocky, gravelly, gravelly-loamy and sandy roadsides; bottoms of arroyos; draws; rocky ravines; streambeds; sandy creekbeds; gravelly riverbeds; along and in bedrock-bouldery, gravelly, sandy and silty washes; along and in drainage ways; banks of creeks and washes; margins of washes; benches; terraces; sandy floodplains; mesquite bosques; along ditches; gravelly-sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; clayey ground; silty ground, and chalky ground, occurring from 100 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella gordonii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 34 (genus), 43 (011310), 46 (Page 343), 48 (genus), **56**, **57**, 58, 63 (011310 - color presentation), 68, 77, **85** (011310 - color presentation), 86 (note under Fendler's Bladderpod), **89**, 115 (color presentation)*

***Lesquerella purpurea* (A. Gray) S. Watson: Rose Bladderpod**

COMMON NAMES: Bladder-pod, Purple Bladderpod, Rose Bladderpod, White Bladderpod. DESCRIPTION: Terrestrial perennial forb/herb (sprawling prostrate, decumbent, weakly ascending to nearly erect stems 6 inches to 2 feet in height); the stems may be dark green; the leaves are bluish-green,

gray-green or silvery-green; the flowers (to 3/8 inch diameter) are blue, lavender-white, purple, purplish, white (fading to pink or purplish), white-purple, white-violet or whitish-lavender; flowering generally takes place between late January and late May (additional records: one for late June, one for late August, one for early September and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky canyons; canyon bottoms; talus slopes; bases of cliffs; rocky foothills; rocky hills; rocky hillsides; along rocky, gravelly, gravelly-sandy and sandy-silty slopes; bajadas; sandy bases of rocky outcrops; amongst boulders and rocks; gravelly bases of boulders and rocks; flats; bottoms of arroyos; draws; along creeks; along and in gravelly-sandy-silty washes; drainages; stony-clayey and sandy banks of creeks and rivers, and bouldery-cobbly-sandy and bouldery-gravelly riparian areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, gravelly, gravelly-sandy and sandy ground; stony clay ground, and rocky-gravelly silty, gravelly-sandy silty and sandy silty ground, occurring from 1,500 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella purpurea* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph), 34 (genus), 43 (071810), 46 (Page 343), 48 (genus), 63 (071810 - color presentation), 77 (color photograph #26), **85** (080110 - color presentation), 115 (color presentation)*

Matthiola bicornis (see *Matthiola longipetala*)

***Matthiola longipetala* (É.P. Ventenat) A.P. de Candolle: Night Scented Stock**

SYNONYMY: *Matthiola bicornis* (J.E. Smith) A.P. de Candolle, *Matthiola longipetala* (É.P. Ventenat) A.P. de Candolle subsp. *bicornis* (J.E. Smith) P.W. Ball. COMMON NAMES: Evening Scented Stock, Evening-scented Stock, Evening Stock, Eveningstock, Night Scented Stock, Night-scented Stock, Night Stock, Perfumeplant. DESCRIPTION: Terrestrial annual or biennial forb/herb (10 to 20 inches in height); the foliage is gray-green; the flowers may be lavender, lavender-pink, magenta-violet, pink, purple, purple-red, purple & white, purplish fading to white or violet; flowering generally takes place between early February and late May. HABITAT: Within the range of this species it has been reported from mesas; amongst cobbles; flats; along clayey roadsides; around streams; along rivers; sandy riverbeds; in rocky, gravelly and sandy washes; ponds; along rocky-silty and cobbly banks of rivers; floodplains; riparian areas, and disturbed areas growing in dry rocky, cobbly, gravelly and sandy ground; clay ground, and rocky-silty ground, occurring from 2,400 to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Matthiola longipetala* is native to southeastern Europe; western and southern Asia, and northern Africa. *5, 6, **16** (recorded as *Matthiola bicornis* (Sibth. & Smith) DC.), 43 (011310 - *Matthiola bicornis* (L.) DC., *Matthiola longipetala* subsp. *bicornis* Ball), 46 (*Matthiola bicornis* (Sibth. & Smith) DC., note on Page 354), **56**, **57**, 63 (011310 - color presentation of seed), **77** (*Matthiola longipetala* (Vent.) DC. var. *bicornis* Sibth. & Smith), **85** (011310 - color presentation of dried material), **89** (recorded as *Matthiola bicornis* (Sibth.) DC.), 115 (color presentation)*

Matthiola longipetala subsp. *bicornis* (see *Matthiola longipetala*)

Matthiola longipetala var. *bicornis* (see footnote 77 under *Matthiola longipetala*)

***Nasturtium officinale* W.T. Aiton: Watercress**

SYNONYMY: *Rorippa nasturtium-aquaticum* (C. Linnaeus) A. von Hayek. COMMON NAMES: Agrião (Portuguese), Berro (Spanish), Bronkors (Afrikaans), Brunnenkresse (German), Cresson d'eau (French), Cresson de Fontaine (French), Mizu-garashi (transcribed Japanese), Oranda-garashi (transcribed Japanese), Pepper Leaf, Pepperleaf, Selada-air (Indonesian), True Watercress, Water Cress, Watercress, White Water-cress, White Watercress. DESCRIPTION: Aquatic or semi-aquatic perennial forb/herb (creeper with flowering stalks 4 to 8 inches in height and stems 2 inches to 2 feet in

length); the stems are reddish; the leaves are green; the flowers are cream, cream-white, white, white with a pale purple tinge or yellow & white; flowering generally takes place between early March and late October (additional record: one for early January, one for early February and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rocky canyons; bouldery-gravelly-sandy and rocky canyon bottoms; meadows; foothills; hillsides; bouldery and sandy slopes; steppes; sandy flats; coastal strands; roadsides; bottoms of arroyos; draws; gulches; gullies; seeps; around and in springs; in stones and clay along and in streams; streambeds; brooks; along and in creeks; creekbeds; along and in rivers; sandy riverbeds; along and in rocky-sandy, rocky-silty and sandy washes; within drainages; waterholes; pools; poolbeds; around ponds; lakes; bogs; cienegas; freshwater marshes; depressions; along sandy, loamy and sandy-silty banks of springs, streams, creeks, creekbeds and rivers; edges of springs, streams, creeks, rivers, riverbeds; pools; ponds and freshwater marshes; margins of creeks, rivers and ponds; shores of ponds and lakes; gravel and sand bars; floodplains; stock tanks; edges of reservoirs; along ditches, and gravelly, gravelly-sandy, sandy and loamy riparian areas growing in shallow water; muddy, and wet, moist and damp bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, clay loam, silty-clayey loam and loam ground; clay ground, and rocky silty, sandy silty and silty ground, occurring from sea level to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant (*Rorippa nasturtium-aquaticum*) was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Nasturtium officinale* is native to northern, central, eastern and southern Europe; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15 (listed as an excluded species), 28 (color photograph), 43 (011310), 46 (recorded as *Rorippa nasturtium-aquaticum* (L.) Schinz & Thell., Page 340), 58, 63 (011310 - color presentation), **85** (011410 - color presentation), 86 (color photograph), **89** (recorded as *Radicula nasturtium-aquaticum* (L.) Britton & Rusby), 127 (recorded as *Rorippa nasturtium-aquaticum*)*

Physaria gordonii (see *Lesquerella gordonii* var. *gordonii*)

Radicula nasturtium-aquaticum (see footnote 89 under *Nasturtium officinale*)

Rorippa nasturtium-aquaticum (see *Nasturtium officinale*)

***Sisymbrium altissimum* C. Linnaeus: Tall Tumblemustard**

COMMON NAMES: Hedge Mustard, Jim Hill Mustard, Tall Hedge Mustard, Tall Hedge-mustard, Tall Mustard, Tall Rocket, Tall Sisymbrium, Tall Tumblemustard, Tumble Mustard, Tumble-mustard, Tumblemustard, Tumbleweed Mustard, Tumbling Mustard, Vol-Ke-Dova (Havasupai). DESCRIPTION: Terrestrial annual or biennial forb/herb (8 inches to 5 feet in height); the flowers are white, pale yellow, yellow, yellow-cream, yellow-white or yellowish-white; flowering generally takes place between mid-March and late September (additional record: one for late January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; sandy plateaus; rocky canyons; canyon walls; sandy canyon bottoms; along rocky ridges; gravelly ridgetops; openings in chaparral; meadows; sandy foothills; bouldery and rocky hills; hilltops; rocky hillsides; bedrock-rocky-sandy, bouldery, rocky, rocky-gravelly-sandy-clayey-loamy, cobbly-loamy, cindery, gravelly, sandy-loamy and sandy-silty slopes; alluvial fans; rocky outcrops; amongst boulders and cobbles; sand hills; sandy dunes; gravelly outwash fans; steppes; prairies; gravelly-sandy plains; gravelly-sandy, sandy and silty-loamy flats; basins; sandy valley floors; sandy railroad right-of-ways; roadbeds; along rocky, gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy-loamy roadsides; rocky arroyos; sandy bottoms of arroyos; gulches; seeps; springs; gravelly-sandy streambeds; along creeks; creekbeds; along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; sandy drainages; drainage ways; lakebeds; freshwater marshes; along sandy banks of streams, creeks and rivers; edges of

washes and ponds; along rocky-sandy margins of rivers; sandy shores of rivers and lakes; mudflats; beaches; benches; along gravelly and sandy terraces; loamy bottomlands; sandy floodplains; along fencelines; edges of stock tanks; within ditches; rocky, rocky-sandy, sandy and sandy-humusy riparian areas; waste places; recently burned areas in forests and chaparral, and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay and clay ground; sandy silty and silty ground, and sandy humus ground, occurring from 1,400 to 9,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and possibly as a drug or medication. *Sisymbrium altissimum* is native to middle and eastern Europe and Asia. Tumblemustard is an alternative host plant for the Potato Leafroll Virus (PLRV, *Polerovirus* sp.). Maintaining a healthy native plant community with minimal disturbance of soils is one of the best ways to prevent an infestation of this plant. Small infestations can be controlled by the hand pulling of rosettes in fall through spring. *5, 6, **16**, 28 (color photograph), 43 (011410), 46 (Page 336), 63 (011410 - color presentation), 85 (011410 - color presentation), 86 (note under *Sisymbrium officinale*), 101 (color photograph), 106 (011410 - Potato Leafroll Virus), 127*

Sisymbrium canescens (see note under *Descurainia pinnata*)

Sisymbrium incisum (see *Descurainia incana* subsp. *incisa*)

***Sisymbrium irio* C. Linnaeus: London Rocket**

COMMON NAMES: London Rocket, Londonrocket, Pamita, Pamiton, Rocket Mustard, Tumble Mustard. DESCRIPTION: Terrestrial annual forb/herb (8 inches to 5 feet in height, plants 8 inches in height and 6 inches in width were reported); the flowers are golden-yellow, white, pale yellow or yellow; the anthers are cream; flowering generally takes place between mid-December and mid-June (additional records: one for early July, one for late July, one for early August, one for mid-August, two for late August, one for mid-September, one for late September, one for early October, one for mid-October, one for early November, one for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; canyons; along bouldery-gravelly-sandy and sandy canyon bottoms; rocky buttes; rock ledges; ridges; ridgetops; clayey meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky, rocky-sandy, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; berms; plains; rocky, gravelly, sandy and sandy-silty flats; basins; valley floors; loamy valley bottoms; railroad right-of-ways; gravelly-sandy roadbeds; gravelly, sandy and clayey roadsides; within rocky arroyos; along bottoms of arroyos; bottoms of ravines; seeps; springs; along streams; streambeds; along creeks; bouldery-rocky and rocky creekbeds; along rivers; rocky and rocky-cobbly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; in sandy drainage ways; silty lakebeds; bogs; sandy-loamy and silty depressions; along cobbly-sandy, gravelly-sandy and sandy banks of streams, rivers and washes; rocky edges of springs, streams, creeks, washes and ponds; margins of washes; sandy beaches; sandy benches; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; margins of stock tanks; canal edges and walls; along ditches; riparian areas; waste places; recently burned areas of woodland and desertscrub, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly; rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam and loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North

America; it was noted as having been used food, beverage and as a drug or medication. *Sisymbrium irio* is native to middle and southern Europe; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15, **16**, 22, 28 (color photograph), 43 (011410), 46 (Page 336), **56**, **57**, 58, 63 (011410 - color presentation), 68, 77, **85** (011510 - color presentation), 101 (color photograph), 115 (color presentation), 127*

***Sisymbrium orientale* C. Linnaeus: Indian Hedgemustard**

COMMON NAMES: Eastern Rocket, Indian Hedge Mustard, Indian Hedge-mustard, Indian Hedgemustard, Oriental Hedgemustard, Oriental Mustard, Tumble Mustard. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 5 feet in height); the flowers are purple (one record), dull yellow, light yellow or yellow; flowering generally takes place between early February and late June (additional records: one for mid-July and one for late July, flowering ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; bouldery-gravelly-sandy, rocky, rocky-sandy and gravelly-sandy canyon bottoms; gorges; talus; along ridges; ridgetops; openings in chaparral; foothills; sandy-clayey hilltops; cobbly-sandy-loamy hillsides; rocky, cobbly-sandy-loamy and sandy slopes; rocky-sandy and sandy bajadas; rocky outcrops; amongst rocks; lava fields; sandy flats; sandy ruts in roadbeds; rocky, rocky-loamy-clayey, gravelly and clayey-loamy roadsides; along arroyos; along bottoms of arroyos; draws; seeps; springs; along streams; along rocky stream courses; riverbeds; along and in rocky-sandy and sandy washes; within drainages; banks of streambeds and rivers; along sandy edges of washes and freshwater marshes; along stony-sandy margins of washes; along bouldery benches; sandy terraces; along fencelines; riparian areas; waste places; recently burned areas of woodland and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, clayey loam and loam ground, and rocky-loamy clay, rocky clay and sandy clay ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Sisymbrium orientale* is native to eastern and southern Europe; western, central and southern Asia, and northern Africa. A plant in fruit was collected on April 22, 1977, by Casey Hamilton at Milepost 210 on Interstate 10 at Eloy that was recorded as being a new record for this species for Arizona. *5, 6, 43 (011510), 63 (011510), **77**, **85** (011510 - color presentation of dried material)*

Streptanthus arizonicus (see *Streptanthus carinatus* subsp. *arizonicus*)

***Streptanthus carinatus* C. Wright *ex* A. Gray: Lyreleaf Jewelflower**

COMMON NAMES: Lyreleaf Jewelflower, Lyreleaf Twistflower, Lyre-leaved Twistflower, Pecos Twist Flower, Silver Bells, Twist Flower, Twistflower. DESCRIPTION: Terrestrial annual or biennial forb/herb (6 to 42 inches in height); the foliage is bluish-green or grayish-green; the flowers may be cream, creamy-white, cream-yellow, bright golden-yellow, greenish; lemon-yellow, pinkish-cream, purple, purple with yellowish or white margins, red, dark red, red-violet, pale violet, violet, white with purple veins, pale yellow, yellow or deep yellow tipped with maroon or red; flowering generally takes place between mid-February and early May (additional record: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky canyons; along rocky canyon bottoms; rocky bases of cliffs; crevices in rocks; bluffs; rocky ridges; foothills; rocky and gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly-loamy and gravelly slopes; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; gravelly-sandy banks; rocky, stony-gravelly-clayey and gravelly flats; along rocky, gravelly, gravelly-clayey-loamy and sandy roadsides; rocky arroyos; along draws; ravines; cobbly-sandy riverbeds; along and in sandy washes; drainages; bowls; gravelly edges of arroyos; margins of rivers; bottomlands; floodplains, and disturbed areas growing in moist and dry bouldery, rocky, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly

loam, gravelly-sandy-clayey loam and gravelly-clayey loam ground, and stony-gravelly clay ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* is native to southwest-central and southern North America. *5, 6, **8**, 28 (color photograph of *Streptanthus arizonicus*), 43 (063009), 46 (Pages 331-332), 63 (011610 - color presentation), 77 (color photograph #74), **85** (011610 - color presentation), 86 (note, color photograph of subspecies *arizonicus*), 115 (color presentation)*

***Streptanthus carinatus* C. Wright ex A. Gray subsp. *arizonicus* (S. Watson) A.R. Kruckeberg, J.E. Rodman & R.D. Worthington: Lyreleaf Jewelflower**

SYNONYMY: *Streptanthus arizonicus* S. Watson. COMMON NAMES: Arizona Jewel Flower, Arizona Twist Flower, Lyreleaf Jewelflower, Lyreleaf Twistflower, Lyre-leaved Twistflower, Silver Bells, Twist Flower, Twistflower. DESCRIPTION: Terrestrial annual or biennial forb/herb (6 to 42 inches in height, one plant was described as being 10 inches in height with a crown 5 inches in width); the foliage is bluish-green or grayish-green; the flowers may be brownish, cream, cream-white, cream-yellow, bright golden-yellow, lemon-yellow, pinkish-cream, white, pale yellow, yellow or deep yellow tipped with red; flowering generally takes place between mid-February and early May (additional record: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky canyons; canyon bottoms; rocky bases of cliffs; ridges; foothills; gravelly hills; rocky slopes; gravelly bajadas; rocky outcrops; sandy lava flows; rocky and gravelly flats; sandy roadsides; rocky arroyos; along draws; cobbly-sandy riverbeds; along and in sandy washes; drainages; gravelly edges of arroyos; margins of rivers and washes; bottomlands, and floodplains growing in dry rocky, cobbly-sandy, gravelly and sandy ground and gravelly loam ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* subsp. *arizonicus* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Streptanthus arizonicus* Wats.), 28 (color photograph), 43 (063009), 46 (recorded as *Streptanthus arizonicus* Wats., Pages 331-332), 63 (011610 - color presentation), 85 (011610 - color presentation of dried material), 86 (color photograph of *Streptanthus arizonicus*), **89** (*Streptanthus arizonicus* Wats.), 115 (color presentation of species)*

***Thelypodium* S.F. Endlicher: Thelypody**

COMMON NAME: Thelypody. *43 (051710), 46 (Pages 329-330), 63 (051610), **89***

Thelypodium lasiophyllum (see *Guillenia lasiophylla*)

Thysanocarpus amplectens (see *Thysanocarpus curvipes*)

***Thysanocarpus curvipes* W.J. Hooker: Sand Fringepod**

SYNONYMY: *Thysanocarpus amplectens* E.L. Greene, *Thysanocarpus curvipes* W.J. Hooker var. *elegans* (F.E. von Fischer & C.A. von Meyer) B.L. Robinson, *Thysanocarpus curvipes* W.J. Hooker var. *eradiatus* W.L. Jepson, *Thysanocarpus elegans* F.E. von Fischer & C.A. von Meyer. COMMON NAMES: Fringe-pod, Lace Pod, Lace-pod, Lacepod, Lacepod Mustard, Sand Fringepod, Sand Lacepod. DESCRIPTION: Terrestrial annual forb/herb (6 to 32 inches in height, one plant was described as being 10 inches in height with a crown 2 inches in width, plants 16 to 22 inches in height and 4 to 8 inches in width were reported); the foliage is pale gray-green; the flowers may be cream, pale pink, pink, purple, white or white with green midribs; flowering generally takes place between early January and early June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; rock faces and walls; rocky canyons; canyon walls; bouldery, rocky and sandy canyon bottoms; talus; bases of cliffs; crevices in bedrock and boulders; buttes; ledges; ridges; rocky ridgetops; meadows; foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-cobbly-gravelly and loamy hillsides; bouldery; bouldery-gravelly, rocky, rocky-gravelly, rocky-clayey-loamy, rocky-silty-loamy,

cobbly, cobbly-clayey, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; bajadas; amongst rocks; around boulders; lava flows; amongst boulders and rocks; bases of rocks; sand dunes; rocky banks; breaks; rocky and sandy flats; sandy valley floors; railroad right-of-ways; along roadsides; arroyos; draws; rocky chutes; gulches; seeps; along streams; edges of streambeds; along creeks; creekbeds; rocky riverbeds; along and in rocky-sandy, gravelly-sandy, sandy, sandy-loamy and loamy washes; along and in drainages; along and in sandy drainage ways; around pools; rocky and sandy banks of draws, creeks and rivers; cobbly edges of streambeds and washes; margins of washes; shores of lakes; bouldery and rocky benches; rocky-gravelly and sandy terraces; loamy bottomlands; floodplains; along sandy margins of reservoirs; ditches; rocky and sandy riparian areas; recently burned areas in woodlands and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, rocky-silty loam, cobbly-gravelly loam, gravelly loam, sandy loam and loam ground; rocky clay, cobbly clay, gravelly clay, sandy clay and clay ground, and silty ground often having been reported as growing in shade and amongst grasses, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Thysanocarpus curvipes* is native to west-central and southern North America. *5, 6, 15 (recorded as *Thysanocarpus elegans* Fisch. & Mey.), **16**, 43 (011610), 46 (recorded as *Thysanocarpus amplectens* Greene, Page 348), 58 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (Fisch. & Meyer) Robins.), 63 (011610 - color presentation), 77 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (F. and M.) Robins.), **85** (011610 - color presentation), **89**, 115 (color presentation), 127*

Thysanocarpus curvipes var. *elegans* (see *Thysanocarpus curvipes*)

Thysanocarpus curvipes var. *eradiatus* (see *Thysanocarpus curvipes*)

Thysanocarpus elegans (see *Thysanocarpus curvipes*)

Cactaceae: The Cactus Family

Cactus grahamii (see footnote 89 under *Mammillaria grahamiii*)

***Carnegiea gigantea* (G. Engelmann) N.L. Britton & J.N. Rose: Saguaro**

SYNONYMY: *Cereus giganteus* G. Engelmann. COMMON NAMES: Giant Cactus, Giant Cereus, Ha:san (Tohono O'odham), Ha Shun (Pima), Mashad (Tohono O'odham), Pitahaya (Spanish Conquistadors), Sage-of-the-desert, Saguaro (Spanish), Sahuaro. DESCRIPTION: Terrestrial perennial stem-succulent tree (5 to 60 feet in height and 6 to 30 inches in diameter); the plants are green; the spines are yellow or reddish-brown aging to gray or gray-black; the flowers (2 to 3 inches in diameter) are a waxy creamy-white opening at about 8 p.m. and closing at about 5 p.m. the next day with around four blooms opening per day over a 30 day period; flowering generally takes place between late April and mid-June (additional records: one for late March, one for early July, one for mid-July, two for early September and one for early October), the ripe fruits (2¼ to 3 inches in length and 1 to 1½ inches in diameter) split into 2 to 6 segments that curl back to reveal the red inner lining of the rinds which are sometimes mistakenly thought to be red flowers. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon walls; buttes; ridges; ridgelines; rocky foothills; rocky and gravelly hills; rocky hilltops; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-clayey-loamy slopes; rocky and gravelly bajadas; rocky outcrops; amongst boulders and rocks; stabilized sandy and sandy-powdery dunes; plains; gravelly and sandy flats; valley floors; along arroyos; along and in

riverbeds; in sandy washes; drainages; floodplains, and mesquite bosques growing in dry desert pavement; bouldery, rocky, gravelly, sandy and sandy-powdery ground, and gravelly loam and sandy-clayey loam ground, occurring from sea level to 5,100 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder (seeds), beverage and/or fiber crop; parts of the plants were also noted as having been used as tools, ceremonial items and musical instruments, and it was also used as an indicator of the changing of the seasons with the Saguaro harvest marking the beginning of a new year. Saguaros are very slow to establish, a 5 year old plant may be no more than ¼ to ½ inch in height. The growth rate of Saguaros is extremely variable. William G. McGinnies in his book "Discovering the Desert" reports that a plant 36 inches in height may be from 20 to 50 years of age, he also presents a table of typical growth rates reporting the following: 4 inches - 8.0 years, 8 inches - 12.5 years, 16 inches - 19.1 years, 32 inches - 27.3 years, 3.3 feet - 30.3 years, 6.6 feet - 40.5 years, 10 feet - 47.5 years, 13 feet - 54 years, 16 feet - 60.0 years, 18 feet - 74.0 years. 20 feet - 83.0 years, 25 feet - 107.0 years, 30 feet - 131.0 years, and 35 feet - 157.0 years. The growth rate of propagated and cultivated saguaros is much faster. One of the largest known saguaros, located in Saguaro National Monument, was reported to be 52 feet in height, had 52 arms, weighed an estimated 10 tons and was thought to be 235 years of age. Cristate forms have been reported. The Broad-billed Hummingbird (*Cynanthus latirostris*), Broad-tailed Hummingbird (*Selasphorus platycercus*), Costa's Hummingbird (*Calypte costae*), Curved-billed Thrasher (*Toxostoma curvirostre*), Lesser Long-nosed Bat (*Leptonycteris curasoae* subsp. *yerbabuenae*) and Rufous Hummingbird (*Selasphorus rufus*) have been observed visiting the flowers. Coyotes (*Canis latrans*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Javelina (*Peccari tajacu*) and White-winged Doves (*Zenaida asiatica*) as well as other animals and birds feed on the saguaro fruit and seeds. the Gila Woodpecker (*Melanerpes uropygialis*) and Gilded Flicker (*Colaptes chrysoides*) make holes in this plant for their nests which are later utilized by the Ash-throated Flycatcher (*Myiarchus cinerascens*), Cactus Wren (*Campylorhynchus brunneicapillus*), Elf Owl (*Micrathene whitneyi*), House Finch (*Carpodacus mexicanus*), Lucy's Warbler (*Vermivora luciae*), Purple Martin (*Progne subis*) and Cactus Wren (*Campylorhynchus brunneicapillus*). Red-tailed Hawks (*Buteo jamaicensis*), White-winged Doves (*Zenaida asiatica*) and other birds nest on the arms of the plant. *Carnegiea gigantea* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus giganteus* Engelm., Pages 108-111, color photographs including habitat), 13 (color photographs including habitat with associated species: Plates C.2 and D.3), 15 (color photograph on Page 77 includes habitat and associated species), **16**, 18, 26 (color photograph), 27 (recorded as *Cereus giganteus*, Pages 64-65, color photographs: Plates 39, 39A & 39B, Page 102), 28 (recorded as *Cereus giganteus*, color photograph), 38 (color photograph), 43 (011610), 45 (color photograph), 46 (Page 569), 48 (recorded as *Cereus giganteus*), 52 (recorded as *Cereus giganteus*, color photograph), 53 (recorded as *Cereus giganteus* Engelm.), 58 (recorded as *Cereus giganteus* Engelm.), 63 (011610 - color presentation), 77 (color photograph #63), **85** (011610 - color presentation), 86 (recorded as *Cereus gigantea*, color photograph), **89** (recorded as *Cereus giganteus* Engelm.), 91, 107, 115 (color presentation), 119, 127, 134, **WTK** (August 12, 2005)*

Cereus giganteus (see *Carnegiea gigantea*)

Cereus greggii (see *Peniocereus greggii*)

***Cylindropuntia acanthocarpa* (G. Engelmann & J. Bigelow) F.M. Knuth var. *major* (G. Engelmann & J. Bigelow) D.J. Pinkava: Buckhorn Cholla**

SYNONYMY: *Opuntia acanthocarpa* G. Engelmann & J. Bigelow var. *major* (G. Engelmann & J. Bigelow) L.D. Benson, *Opuntia acanthocarpa* G. Engelmann & J. Bigelow var. *ramosa* R.H. Peebles. COMMON NAMES: Buckhorn Cholla, Major Cholla. DESCRIPTION: Terrestrial perennial stem-

succulent shrub (2 to 7 feet in height, one plant was described as being 2 feet in height and 8 inches in width, one plant was described as being 32 inches in height with a crown 5 feet in width, one plant was described as being 32 inches in height with a crown 6 feet in width, one plant was described as being 4 feet in height and width, one plant was described as being 4 feet in height with a crown 87 inches in width, one plant was described as being 5 feet in height and width, one plant was described as being 5 feet in height with a crown 98 inches in width, one plant was described as being 6 feet in height with a crown 79 inches in width); the stems are grayish-blue-green or dark green; the spines are dark brown, gray with dark brown tips, purple-brown or red-brown; the flowers (1 to 1¾ inches in diameter) may be brick-red, bronze-red, bronze-yellow, brick-orange, golden, magenta, orange, pink, purple, red, red-pinkish or yellow; the anthers are yellow; flowering generally takes place between early March and early June (additional records: two for early January and two for early August); the mature spiny, dry fruits (1/2 to 7/8 inch in length and ½ to 1 inch in diameter) are brown, light charcoal, gray, grey-beige or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky-sandy mesas; buttes; ridges; ridgelines; gravelly hills; hilltops; rocky hillsides; rocky slopes; gravelly-loamy and sandy bajadas; gravelly and sandy flats; basins; along gravelly-sandy washes, and margins of washes growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and gravelly loam, clayey loam and loam ground, occurring from 800 to 3,800 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species (*Opuntia acanthocarpa*) was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia acanthocarpa* (accessed 041806). *Cylindropuntia acanthocarpa* var. *major* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia acanthocarpa* Engelmann & Bigelow var. *major* (Engelmann & Bigelow) L. Benson, Page 35 & 37), 26 (genus, recorded as *Opuntia*), 27 (color photograph, Pages 19 & 96), 28 (recorded as *Opuntia acanthocarpa*, color photograph), 43 (011710 - *Cylindropuntia acanthocarpa* (Engelm. & J.M. Bigelow) F.M. Knuth var. *major* (Engelm.) Pinkava, *Opuntia acanthocarpa* Engelm. & J.M. Bigelow var. *major* (Engelm. & J.M. Bigelow) L.D. Benson, *Opuntia acanthocarpa* Engelm. & J.M. Bigelow var. *ramosa* Peebles), 45 (color photograph of species), 46 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel. var. *ramosa* Peebles, Page 585), 48 (genus, recorded as *Opuntia*), 53 (species, recorded as *Opuntia acanthocarpa* Engelm. & Bigel.), 63 (011710 - color presentation), 77 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel. var. *major* (Engelm. & Bigel.) L. Benson, color photograph labeled *Opuntia acanthocarpa* #66), 85 (011710 - color presentation), 115 (color presentation of species), 119 (species, recorded as *Opuntia acanthocarpa* Engelm.), 127, **WTK** (May 27, 2005)*

***Cylindropuntia arbuscula* (G. Engelmann) F.M. Knuth: Arizona Pencil Cholla**

SYNONYMY: *Opuntia arbuscula* G. Engelmann. COMMON NAMES: Arizona Pencil Cholla, Bush Pencil Cholla, Pencil Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (20 inches to 12 feet in height, one plant reported to be 5 feet in height had a crown 5 feet in width, one plant reported to be 78 inches in height had a crown 102 inches in width, one plant reported to be 7 feet in height had a crown 66 inches in width); the stems are blue-green, dull green or yellow-green; the spines are pale yellow or red-brown turning black with age; the glochids are pale yellow; the flowers (¾ to 1½ inches in diameter) are dark bronze, brown, green, greenish-yellow tinged with red, orange-bronze, orange-yellow, red, terra cotta, pale yellow-green or yellow-green; the anthers are yellow; flowering generally takes place between early April and early June (additional record: one for late July); the spineless fleshy pear-shaped fruits (1/2 to 7/8 inch in diameter and 1 to 1¼ inches in length) are green with a pink blush, green tinged with purple or red or yellow-green. HABITAT: Within the range of this species it has been reported from rocky canyon bottoms; hills; rocky hillsides; rocky, sandy and silty-loamy slopes; rocky and gravelly bajadas; plains; gravelly, sandy, sandy-loamy and silty flats; basins; valley floors; along gravelly roadsides; along arroyos; within gullies; riverbeds; along gravelly, gravelly-sandy and sandy washes; along drainages; floodplains, and mesquite bosques growing in damp and dry

desert pavement; rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground, and silty ground, occurring from 600 to 4,700 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruit is eaten by browsing animals including the Javelina (*Peccari tajacu* subsp. *sonoriensis*). The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia arbuscula* (accessed 041806). *Cylindropuntia arbuscula* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia arbuscula* Engelm. , Pages 58-59), 15 (recorded as *Opuntia arbuscula* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (color photograph, Pages 3 & 94), 28 (recorded as *Opuntia arbuscula*, color photograph), 43 (011710), 45 (color photograph), 46 (recorded as *Opuntia arbuscula* Engelm., Page 584), 48 (genus, *Opuntia*), **56**, **57**, 58 (recorded as *Opuntia arbuscula* Engelm.), 63 (011710 - color presentation), 77 (recorded as *Opuntia arbuscula* Engelm.), **85** (011710 - color presentation), 91, 115 (color presentation), 119 (recorded as *Opuntia arbuscula* Engelm.), 127*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth var. *fulgida*: Jumping Cholla**

SYNONYMY: *Opuntia fulgida* G. Engelmann, *Opuntia fulgida* G. Engelmann var. *fulgida*. COMMON NAMES: Chain Cholla, Chain-fruit Cholla, Cholla, Cholla Brincadora, Choya, Jumping Cahin-fruit Cholla, Jumping Cholla, Sonora Jumping Cholla, Velas de Ccoyote. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (3 to 15 feet in height, one plant was reported as being 4¼ feet in height and 40 inches in width, one plant was reported as being 4¼ feet in height and 8¼ feet in width, one plant was reported as being 6½ feet in height and 5 feet in width, one plant was reported as being 10 feet in height and 13 feet in width); the stems are green or purple; the spines are golden-yellow turning brown with age; the flowers (¾ to 1 inch in diameter) are cream-yellow, pink, pink-purple, purple, purple-pink, red-purple, rose-pink or yellow tinged with pink; the anthers are white; flowering generally takes place between mid-April and mid-September (additional record: one for early December); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) are gray-green, green or purple forming clusters or pendulant “chains”. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; ledges; ridges; hills; hillsides; rocky, gravelly-loamy and sandy slopes; gravelly bajadas; plains; rocky-gravelly, gravelly, sandy and sandy-silty flats; along valley floors; along rocky-gravelly and sandy roadsides; along creeks; along and in washes; banks of streams, creeks and washes; edges of washes; terraces, and floodplains growing in dry desert pavement; rocky, rocky-gravelly, gravelly and sandy soils; gravelly loam and silty-clayey loam ground; clay ground, and sandy silty ground, occurring from 800 to 4,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits are added to the end of the chains. Chain-fruit Chollas may live to be from 40 to 80 years of age. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa’s Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia fulgida* (accessed 041806). *Cylindropuntia fulgida* var. *fulgida* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*, Pages 49-52), 15 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **16** (recorded as *Opuntia fulgida* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (species, Pages 10-11, color photograph: Plate 10, Page 96), 28 (recorded as *Opuntia fulgida*, color photograph), 43 (011810), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 52 (color photograph, recorded as *Opuntia fulgida*), 53 (recorded as *Opuntia fulgida* Engelm.), 63 (011810 - color presentation), 77 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **85** (011810 - color presentation), **89** (recorded as *Opuntia fulgida* Engelm.), 91 (recorded as *Opuntia fulgida* Engelm. var.

fulgida), 115 (color presentation of species), 119 (recorded as *Opuntia fulgida* Engelm.), 127, **WTK** (August 12, 2005)*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth var. *mamillata* (A.C. Schott ex G. Engelmann) C. Backeberg: Jumping Cholla**

SYNONYMY: *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter, *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter forma *monstrosa* J.M. Coulter, *Opuntia mamillata* A.C. Schott *ex* G. Engelmann. COMMON NAMES: Cholla Brincadora, Cholla, Club Cactus, Jumping Cholla, Smooth Chain-fruit Cholla, Velas de Coyote. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (40 inches to 9 feet in height, one plant was reported as being 6 feet in height and 4 feet in width, one plant was reported as being 8 feet in height and 8 feet in width); the stems are drab green or green; the flowers (¾ to 1 inch in diameter) are cream tinged with magenta, light pink, pink, pink-purple, rose-pink or violet; flowering generally takes place between late May and mid-September (additional records: one for mid-April and one for late April); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) are gray-green or green forming pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; ridges; rocky ridgetops; foothills; hills; rocky slopes; bajadas; sand dunes; plains; gravelly and sandy flats; roadsides; along washes; rocky-sandy benches; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground, occurring from sea level to 3,900 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plant, *Opuntia fulgida*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits may be added to the end of the chains. Chain-fruit Cholla may live to be from 40 to 80 years of age. Cristate forms (forma *monstrosa* J.M. Coulter) have been reported. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia fulgida* (accessed 041806). *Cylindropuntia fulgida* var. *mamillata* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coulter, Pages 50 & 52), 15 (recorded as *Opuntia fulgida* var. *mammillata* (Schott) Coult.), 26 (genus, recorded as *Opuntia*), 27 (Pages 12 & 13 (forma *monstrosa*) , color photograph: Plate 11, Page 96), 43 (011810 - recorded as *Opuntia fulgida* Engelm. var. *mamillata* (A. Schott) J.M. Coult., no record for *Opuntia fulgida* var. *mamillata* forma *monstrosa*), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult., Page 585), 48 (genus, recorded as *Opuntia*), 53 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 63 (011810), 58 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 77 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), **85** (011810 - color presentation), 91 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 115 (color presentation of species), 127*

Cylindropuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

***Cylindropuntia leptocaulis* (A.P. de Candolle) F.M. Knuth: Christmas Cactus**

SYNONYMY: *Opuntia leptocaulis* A.P. de Candolle. COMMON NAMES: Agujilla, Alfilerillo (Spanish), Catalineria (Spanish), Christmas Cactus, Christmas Cholla, Darning Needle Cactus, Desert Christmas Cactus, Desert Christmas Cholla, Diamond Cactus, Holycross Cholla, Naf (or Nav?, Gila River Pima), Pencil Cactus, Pencil Cholla, Pencil-joint Cholla, Pipestem Cactus, Rat-tail Cactus, Rattail Cactus, Slender-stem Cactus, Tajasilla, Tasajilla (Hispanic), Tasajillo (Spanish), Tasajo (Spanish), Tesajo (Hispanic), Tesajo Cactus (Christmastree Cacti). DESCRIPTION: Terrestrial perennial stem-succulent shrub (1 to 6 feet in height (sometimes becoming vine-like and growing upwards with support 8 to 15 feet

in height), one plant was reported as being 2 feet in height and 2 feet in width, one plant was reported as being 30 inches in height and 5 feet in width, one plant was reported as being 40 inches in height and 5 feet in width, one plant was reported as being 4 feet in height and 8 feet in width, one plant was reported as being 5 feet in height and 8¼ feet in width); the stems are gray-green, green, purplish or yellow-green; the spines gray-brown, purple-brown, red-brown or yellow-brown often being paler toward the tip; the glochids are reddish-brown or yellow; the anthers are yellow; the flowers (3/8 to 3/4 inch in diameter) are bronze, cream, light green-cream, cream-yellow, green, green-yellow, greenish-cream, greenish-yellow, pale yellow, yellow or whitish; flowering generally takes place between late March and late June (additional records: two for mid-July, one for late July, one for early August, one for early October, one for mid-October and one for late October); the spineless (with glochids) fleshy fruits (1/2 to 3/4 inch in length and 1/4 to 7/16 inch in diameter) are coral, orange, orange-red, red, reddish-orange, scarlet, scarlet-red or yellow when mature. HABITAT: Within the range of this species it has been reported from mountains; sandy mountainsides; rocky-sandy and silty mesas; along cliffs; rocky canyons; rocky canyon bottoms; rocky talus slopes; rocky ledges; gravelly ridges; foothills; rocky and rocky-gravelly hills; hilltops; rocky hillsides; rocky, gravelly, gravelly-sandy-loamy, sandy and silty-loamy slopes; clayey-loamy alluvial fans; gravelly, gravelly-silty and sandy bajadas; rocky and gypsum outcrops; amongst cobbles; sand hills; sandy lava flows; lava beds; breaks; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; basins; valley floors; gravelly and gravelly-sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; along ravines; riverbeds; along and in rocky, gravelly and sandy washes; sandy drainages; along cobbly-sandy banks of rivers and drainages; edges of arroyos, ravines and washes; rocky and sandy benches; terraces; bottomlands; floodplains; along fencelines; along ditches; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, clayey loam, silty loam and loam ground; rocky-sandy clay and loamy clay ground, and gravelly silty and silty ground often found growing within grasses, shrubs or trees, occurring from sea level to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Christmas Cactus is believed to have a life span of about 50 years. A high mortality rate is to be expected with plants coming into contact with fire. Hummingbirds have been observed visiting the flowers; the fruits are eaten by birds and small mammals, and Cochineal Scale (*Dactylophius coccus*) has been observed growing on this plant. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia leptocaulis* (accessed 041806). *Cylindropuntia leptocaulis* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia leptocaulis* DC., Pages 56-58), 15 (recorded as *Opuntia leptocaulis* DC.), **16** (recorded as *Opuntia leptocaulis* DC.), 18, 26 (genus - recorded as *Opuntia*), 27 (Page 2, color photograph: Plate 2, Page 94), 28 (color photograph, *Opuntia leptocaulis*), 43 (011910), 45 (color photograph), 46 (recorded as *Opuntia leptocaulis* DC., Page), 48 (genus - recorded as *Opuntia*), **56**, **57**, 58 (recorded as *Opuntia leptocaulis* DC.), 63 (011910 - color presentation), 77 (recorded as *Opuntia leptocaulis* DC.), **85** (011910 - color presentation), 86 (recorded as *Opuntia leptocaulis*, color photograph), **89** (recorded as *Opuntia leptocaulis* DC.), 91 (recorded as *Opuntia leptocaulis* DC.), 115 (color presentation), 119 (recorded as *Opuntia leptocaulis* DC.), 127, **WTK** (August 12, 2005)*

***Cylindropuntia spinosior* (G. Engelmann) F.M. Knuth: Walkingstick Cactus**

SYNONYMY: *Opuntia spinosior* (G. Engelmann) J.W. Toumey. COMMON NAMES: Cane Cholla, Cardenche, Handgrip Cholla, Spiny Cholla, Tasajo, Tourney-cane Cholla (Arizona), Walkingstick Cactus, Walking Stick Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (16 inches to 10 feet in height, one plant was described as being 6½ feet in height and 5 to 6½ feet in width, one plant was described as being 6½ feet in height and 10 feet in width); the stems may be brown-green, grayish-maroon, grayish-purple, green, purple or purplish-green; the spines may be brown, gray, pale pink, pink, purplish-gray, reddish-gray or tan; the glochids may be tan, yellow or yellowish-white aging to gray; the

flowers (1¾ to 2 inches in diameter) may be bronze-purple, brown, greenish-yellow, magenta, magenta-red, maroon, orange, pink, dark pink, light purple, purple, purple-pink, red, dark red, red-purple, red & yellow, saffron, salmon-pink, terra-cotta, white or yellow; the anthers are yellow; flowering generally takes place between early April and early August (additional records: three for early January, two for early February and one for late September); the fleshy ripe fruits (1 to 1¾ inches in length and ¾ to 1 inch in diameter) are bright lemon-yellow, red, bright yellow, pale yellow, yellow, yellow-green, yellowish-green or yellow with a reddish cast and remain on the plant for some time. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; rocky canyons; canyon bottoms; talus, ridgelines; foothills; rocky hills; rocky hillsides; along rocky, rocky-sandy and sandy slopes; bajadas; rock outcrops; amongst rocks; plains; gravelly, gravelly-sandy and silty flats; grassy valley floors; roadsides; arroyos; rocky draws; springs; along creeks; creekbeds; along sandy washes; drainages; along drainage ways; sandy flood channels; terraces; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; silty-clayey loam, silty loam and loam ground, and silty ground, occurring from 900 to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Cactus Wren (*Campylorhynchus brunneicapillus*) nests in the branches. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia spinosior* (accessed 041806). *Cylindropuntia spinosior* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia spinosior* (Engelm.) Toumey, Pages 39-43, color photograph), 15 (recorded as *Opuntia spinosior* (Engelm.) Toumey), **16** (recorded as *Opuntia spinosior* (Engelm.) Toumey), 26 (genus, recorded as *Opuntia*), 27 (Page 14, color photograph: Plate 12, Page 96), 28 (color photograph), 43 (063009), 45 (color photographs), 46 (recorded as *Opuntia spinosior* (Engelm. & Bigel.) Toumey, Page 585), 48 (genus, recorded as *Opuntia*), 53, **56**, **57**, 58 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 63 (011910 - color presentation), 77 (recorded as *Opuntia spinosior* (Engelm.) Toumey), **85** (012010 - color presentation), **89** (recorded as *Opuntia spinosior* (Engelm.) Toumey), 115 (color presentation), 119, 127, **WTK** (August 12, 2005)*

***Cylindropuntia spinosior* (G. Engelmann) F.M. Knuth x *Cylindropuntia versicolor* (G. Engelmann ex J.M. Coulter) F.M. Knuth: Cholla**

SYNONYMY: *Opuntia spinosior* (G. Engelmann) J.W. Toumey x *Opuntia versicolor* G. Engelmann ex J.M. Coulter. COMMON NAME: Cholla, Hybrid Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (4 to 5 feet in height, one plant was reported as being 4 feet in height with a crown 6½ feet in width); the stems are gray-green or purple; the flower color is variable; flowering generally takes place between early April and late April (possibly into May). HABITAT: Within the range of this species it has been reported from slopes; bajadas, and along roadsides, occurring from 2,200 to 3,300 feet in elevation in the desertscrub ecological formation. NOTE: *Cylindropuntia spinosior* x *Cylindropuntia versicolor* is native to southwest-central North America. *26 (genus, recorded as *Opuntia*), 48 (genus, recorded as *Opuntia*), **77** (recorded as *Opuntia spinosior* (Engelm.) Toumey x *Opuntia versicolor* Engelm.), **85** (012010)*

***Cylindropuntia* x *tetracantha* (J.W. Toumey) F.M. Knuth (pro sp.) [*Cylindropuntia acanthocarpa* x *Cylindropuntia leptocaulis*]: Tucson Cholla**

SYNONYMY: *Opuntia kleiniae* A.P. de Candolle var. *tetracantha* (J.W. Toumey) W.T. Marshall, *Opuntia* x *tetracantha* J.W. Toumey (pro sp.) [*Opuntia acanthocarpa* x *Opuntia leptocaulis*]. COMMON NAMES: Candle Cholla, Cane Cholla, Four-spined Cholla, Four-spined Klein's Cholla, Hybrid Pencil Cholla, Klein Pencil Cholla, Pencil Joint Cholla, Tucson Cholla, sometimes referred to as the Tucson Prickly-pear or Tucson Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (1 to 8 feet in height, plants were described as bein 20 inches in height and 32 inches in width, one plant was described as being 4 feet in height and width); the stems are gray-green, green (often reported with a gray

wax) or reddish; the spines are purple-brown or yellow; the glochids are dark brown or yellow; the flowers (3/4 to 1 3/8 inches in diameter) are green edged with brown, maroon or red, greenish-bronze, dirty pink, pink-purple-red over yellow, light reddish, dirty reddish-purple, red-magenta, yellow-green suffused with purple-brown; the anthers are pale green; flowering generally takes place between mid-April and late May (additional records: one for early February, one for late March, one for mid-September and one for late September); the egg-shaped fleshy to dry fruits are green turning yellow with a red blush or red with age; the ripe fruits (3/4 to 1 inch in length and 1/2 to 5/8 inch in diameter) are green, green-red, greenish-yellow, red or reddish-orange. HABITAT: Within the range of this species it has been reported from mountains; canyons; ridgetops; rocky hills; rocky slopes; gravelly bajadas; rocky and gravelly flats; roadsides; gullies; along washes; banks of arroyos, and mesquite bosques growing in damp and dry desert pavement and rocky and gravelly ground, occurring from 700 to 4,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia* x *tetracantha* (accessed 041806). *Cylindropuntia* x *tetracantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall), 15 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall), **16** (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) Marshall), 26 (genus, recorded as *Opuntia*), 27 (recorded as *Opuntia kleiniae* DeCandolle var. *tetracantha* (Toumey) F.M, Knuth, Marshall, Pages 4 & 94, color photograph), 43 (012010), 46 (recorded as *Opuntia tetracantha* Toumey, Page 584), 48 (genus, recorded as *Opuntia*), 63 (012010), **77** (recorded as *Opuntia* x *tetracantha* Toumey), **85** (012110 - color presentation of dried material)*

***Cylindropuntia versicolor* (G. Engelmann ex J.M. Coulter) F.M. Knuth: Staghorn Cholla**

SYNONYMY: *Opuntia versicolor* G. Engelmann ex J.M. Coulter. COMMON NAMES: Deer Horn Cactus, Deer Horn Cholla, Deerhorn Cholla, Morada Cholla (Spanish), Staghorn Cholla, Tree Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (3 to 15 feet in height, one plant was reported to be 40 inches in height with a crown 40 inches in width, one plant was reported to be 40 inches in height with a crown 6½ feet in width, one plant was reported to be 50 inches in height with a crown 40 inches in width, one plant was reported to be 51 inches in height with a crown 6½ feet in width, one plant was reported to be 63 inches in height with a crown 87 inches in width, one plant was reported to be 75 inches in height with a crown 87 inches in width); the stems are green, green-purple, greenish-red, maroon, purple, purple-green or dark purple-red; the spines are dark brown, gray, pinkish, purple-brown, dark reddish-brown or whitish; the glochids are reddish-brown, yellow or dark yellow; the flowers (1¼ to 2¼ inches in diameter) are bronze, bronze-red, brown, burnt orange, gold, green, lavender, magenta, orange, orange-brown, orange-red, orange-rust, pink-red, purple, red, rose, rose-purple, yellow, yellow-green or yellow-green-bronze; the anthers are yellow; flowering generally takes place between early April and mid-June (additional records: one for early January, one for early March, one for late August and one for mid-September); the fleshy, spineless or nearly spineless pear-shaped fruits (¾ to 1¾ inches in length and ¾ inch in diameter) are green tinged with lavender, purple, straw-yellow, red, bright yellow or yellowish-green sometimes tinged with purple or red, sometimes forming chains of 2 to 4 fruits. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky and sandy canyons; rocky canyon bottoms; ridges; foothills; rocky and rocky-gravelly hills; rocky hillsides; rocky slopes; gravelly-sandy alluvial fans; rocky and gravelly-sandy bajadas; sand dunes; plains; gravelly and gravelly-sandy flats; sandy valley floors; along roadsides; along arroyos; ravines; along sandy streambeds; along sandy washes; playas; sandy gravelbars; strands, and riparian areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Varied flower colors between plants, the cascading branches of the larger plants, along with pendulous fruits make this an attractive plant. The change in nomenclature in

USDA NRCS has not been recognized in BONAP, species remains as *Opuntia versicolor* (accessed 041806). *Cylindropuntia versicolor* is native to southwest-central and southern North America. *5, 6, 12 (color photograph, recorded as *Opuntia versicolor*, Pages 43 & 45-46), 15 (recorded as *Opuntia versicolor* Engelm.), **16** (recorded as *Opuntia versicolor* Engelm.), 26 (genus - recorded as *Opuntia*), 27 (Pages 6, color photograph: Plates 6, 6A & 6B, Page 95), 28 (color photograph), 43 (012110 - *Cylindropuntia versicolor* (Engelm.) F.M. Knuth), 45 (color photograph), 46 (recorded as *Opuntia versicolor* Engelm., Page 585), 48 (genus - recorded as *Opuntia*), 58 (recorded as *Opuntia versicolor* Engelm.), 63 (012110 - color presentation), 77 (recorded as *Opuntia versicolor* Engelm., color photograph #15), **85** (012110 - color presentation), **89** (recorded as *Opuntia versicolor* Engelm.), 115 (color presentation), 119 (recorded as *Opuntia versicolor* Engelm.), 127, **WTK** (August 12, 2005)*

Echinocactus wislizeni (see *Ferocactus wislizeni*)

***Echinocereus fasciculatus* (G. Engelmann ex B.D. Jackson) L.D. Benson: Pinkflower Hedgehog Cactus**

SYNONYMY: *Echinocereus fasciculatus* (G. Engelmann) L.D. Benson var. *fasciculatus*, *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *fasciculatus* (G. Engelmann ex B.D. Jackson) N.P. Taylor, *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *robustus* (R.H. Peebles) L.D. Benson, *Mammillaria fasciculata* G. Engelmann ex B.D. Jackson. COMMON NAMES: Bundle Hedgehog, Bundle Hedgehog Cactus, Bundle-spine Hedgehog, Magenta-flower Hedgehog Cactus, Pinkflower Hedgehog Cactus, Robust Hedgehog, Robust Hedgehog Cactus, Short-spine Strawberry Cactus, Strawberry Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (stems 2 to 18 inches in height and 1½ to 3 inches in width either single or in clusters of up to 30 stems, one plant was reported to have 150 stems); the stems are green or dark green; the spines often with zones of differing colors including black, gray, grayish-black-purplish, reddish-brown, whitish or yellowish turning gray with age; the flowers (2 to 3 inches in diameter) are cerise, lavender-pink, pale magenta, magenta, magenta-maroon, magenta-pink, magenta-purple, magenta-red, pink, pink-purple, purple, reddish-purple, rose-pink or white; the anthers are yellow; the stigma lobes are green, dark green or olive green; flowering generally takes place between late March and late June (additional records: one for early October, one for mid-October, one for late October, two for early November and one for early December); the mature fruits (¾ to 1¼ inches in length and ½ to 1 inch in diameter) are orange-red or bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; canyons; canyonsides; bases of cliffs; buttes; knolls; ledges; ridges; along rocky and stony ridgetops; foothills; rocky, gravelly and sandy hills; rocky hilltops; rocky and sandy hillsides; rocky, stony and gravelly slopes; bajadas; rocky outcrops; amongst rocks and gravels, plains; gravelly flats; valley floors; along cobbly creeks; along and in washes; rocky and sandy banks, and floodplains growing in dry rocky, rocky-gravelly, stony, cobbly, gravelly and sandy ground, occurring from 1,800 to 6,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Echinocereus fendleri*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruits are eaten by birds and other animals. *Echinocereus fasciculatus* is native to southwest-central and southern North America. *5, 6, 8, 12 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*, Pages 132-135, color photograph), 15 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), **16** (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson), 27 (Pages 81 & 104, color photograph), 43 (012110), 45 (color photograph), 46 (recorded as *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572 and *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572), 48 (genus), 58 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), 63 (012110), 77 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson, color photograph #64), **85** (012110 - color presentation), 115 (color presentation), 119 (species, recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 127*

Echinocereus fasciculatus var. *fasciculatus* (see *Echinocereus fasciculatus*)

***Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage: Pinkflower Hedgehog Cactus**

COMMON NAMES: Fendler Hedgehog Cactus, Fendler's Hedgehog Cactus, Fendler's Needle-spine Hedgehog, Pinkflower Hedgehog Cactus, Strawberry Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (stems 1½ to 14 inches in height and 1½ to 4 inches in width either single or in clusters of up to 5 stems); the stems are dark green; the spines are black, brown, pale gray or white aging to gray; the flowers (2 to 4 inches in diameter) are lavender-pink, magenta, pink, pink-cerise, pink-lavender, pink-magenta, pink-purple, purple, purplish-maroon, rose magenta or rose-purple; flowering generally takes place between early March and early July; the mature fruits (¾ to 1¼ inch in length and ½ to 1 inch in diameter) are a dull carmine, orange-tan, purplish-maroon, purplish-orange, bright red, red or red-purple. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; canyons; cobbly-sandy canyon bottoms; gravelly ridges; foothills; rocky and gravelly hills; rocky, gravelly and sandy hillsides; rocky, gravelly and gravelly-sandy slopes; gravelly bajadas; rocky outcrops; sand hills; blow-sand; prairies; cindery, gravelly and gravelly-silty flats; along arroyos; ravines, and cobbly-sandy floodplains growing in dry rocky, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground and gravelly silty ground, occurring from 2,300 to 8,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted that the dried fruits were used as a sweetener. *Echinocereus fendleri* is native to southwest-central and southern North America. *5, 6, 12 (Page 129-131), **16**, 27 (Page 79), 43 (012210 - *Echinocereus fendleri* Sencke ex Haage), 45 (color photograph), 46 (Page 572), 48 (genus), 63 (012210 - color presentation), 85 (012210 - color presentation), **89**, 119 (recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 127*

Echinocereus fendleri var. *fasciculatus* (see *Echinocereus fasciculatus*)

Echinocereus fendleri var. *robustus* (see *Echinocereus fasciculatus*)

***Ferocactus wislizeni* (G. Engelmann) N.L. Britton & J.N. Rose: Candy Barrelcactus**

SYNONYMY: *Echinocactus wislizeni* G. Engelmann. COMMON NAMES: Arizona Barrel Cactus, Barrel Cactus, Bisnaga, Biznaga, Biznaga de Agua (Spanish), Biznagre, Candy Barrel, Candy Barrel Cactus, Candy Barrelcactus, Compass Barrel, Compass Plant, Fish-hook Barrel, Fishhook Barrel Cactus, Fishhook Cactus, Southwest Barrel Cactus, Southwestern Barrel Cactus, Visnaga, Viznaga Hembra (Spanish), Wislizenus Barrel, Yellow-spined Barrel Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (1 to 11 feet in height and 8 to 40 inches in diameter); the stem is green or blue-gray-green; the central spines and larger radial spines are gray, dull pink, reddish or tan; the smaller radial spines are white; the flowers (1½ to 2½ inches in diameter) are orange, orange-yellow, orange-red, orange-yellow, parchment, pinkish-red, reddish, red-orange, yellow or yellow-orange; flowering generally takes place between mid-July and mid-October (additional records: one for early January, three for early March, five for mid-March, two for late March, one for early April, one for mid-April, one for late April and two for early June); the mature fruits (1¼ to 2 inches in length and 1 to 1½ inches in diameter) are greenish-brown, bright yellow or yellow-green and may remain on the plant until the next flowering period. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky canyons; canyon walls; sandy canyon bottoms; bluffs; foothills; bouldery, rocky, gravelly and sandy hills; hillsides; rocky, cobbly and clayey-loamy slopes; rocky, gravelly and sandy alluvial fans; bajadas; rocky outcrops; plains; rocky, gravelly and sandy flats; valley floors; along roadsides; arroyos; sandy bottoms of arroyos; along washes; rocky, gravelly and sandy margins of washes; floodplains, and mesquite bosques growing in dry desert pavement; bouldery,

rocky, cobbly, gravelly and sandy ground, and sandy-clayey loam and clayey loam ground, occurring from 500 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a tool (the spines were heated and used to make fishing hooks). Fishhook Barrel Cacti are very slow to establish. A 4 year old plant may be no more than 1½ inches in height and 2 inches in width, and an 8 year old plant may be no more that 4¼ inches in height and 4¾ inches in width. The growth rate of propagated and cultivated barrel cacti is much faster. The life-span of Fishhook Barrel Cacti is reported to be from 50 to over 130 years of age. Some plants tend to lean to the south with age. Cristate forms have been reported. The fruits are eaten by Mule Deer (*Odocoileus hemionus*), Javelina (*Peccari tajacu*) and other animals, and the seeds are eaten by birds and rodents. *Ferocactus wislizeni* is native to southwest-central and southern North America. *5, 6, 12 (Pages 166-170, color photograph), 15, **16**, 18, 26 (genus, color photograph of genus), 27 (Page 120, color photographs: Plates 60, 60A, 60B & 60C Pages 106), 28, 43 (063009 - *Ferocactus wislizeni* Britton & Rose), 45 (color photograph), 46 (Page 573), 48 (genus), 58, 63 (012210 - color presentation), 77 (color photograph #10), 85 (012210 - color presentation, also recorded as *Ferocactus wislizeni* var. *wislizeni*), **89** (recorded as *Echinocactus wislizeni* Engelm.), 91, 115 (color presentation), 119, 127, **WTK** (August 12, 2005)*

Ferocactus wislizeni var. *wislizeni* (see footnote 85 under *Ferocactus wislizeni*)

Mammillaria fasciculata (see *Echinocereus fasciculatus*)

***Mammillaria grahamii* G. Engelmann: Graham's Nipple Cactus**

SYNONYMY: *Mammillaria grahamii* G. Engelmann var. *grahamii* G. Engelmann, *Mammillaria grahamii* G. Engelmann var. *oliviae* (C.R. Orcutt) L.D. Benson, *Mammillaria microcarpa* G. Engelmann, *Mammillaria oliviae* C.R. Orcutt. *Neomammillaria microcarpa* (G. Engelmann) N.L. Britton & J.N. Rose, *Neomammillaria milleri* N.L. Britton & J.N. Rose, *Neomammillaria oliviae* (C.R. Orcutt) N.L. Britton & J.N. Rose. COMMON NAMES: Arizona Fishhook, Arizona Fishhook Cactus, Biznaguita, Cabeza de Viejo Cekida, Cactus, Corkseed Cactus, Fishhook Cactus, Fishhook Mammillaria, Fishhook Pincushion, Graham Fishhook, Graham Nipple Cactus, Graham's Fishhook Cactus, Graham's Nipple Cactus, Graham Pincushion Cactus, Lizard Catcher, Nipple Cactus, Olive Pincushion, Pin-cushion Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (1 to 12 inches in height and 1 to 3 inches in diameter, one plant was reported to be 1¼ inches in height and 1½ inches in width); the stems are gray-green or green; the central spines are black, golden-brown, purplish-brown or reddish; the radial spines are whitish; the flowers (½ to 1½ inches in diameter) may be lavender, pink, pink with a darker mid-stripe, pink-lavender, rose-pink, rose-purple or white, the anther are yellow; the stigma lobes are green; flowering generally takes place between mid-May and early August and one week after a heavy rains between mid-March and late September; the mature club-shaped fruits (1/2 to 1 1/8 inches in length and 3/16 to 1/2 inch in diameter) are carmine, bright orange, orange-red, bright red, scarlet or yellow. HABITAT: Within the range of this species it has been reported from rocky mountains; sandy mountain slopes; rocky canyons; canyon bottoms; crevices in boulders and rocks; ridges; foothills; rocky and gravelly hills; rocky hillsides; rocky slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; protected clefts; gravelly and sandy flats; valley floors; along and in bouldery and sandy washes; edges of streams, and riparian areas often in the shade of other plants growing in dry bouldery, rocky, gravelly and sandy ground; gravelly loam ground; clay ground; silty ground, and humusy ground, occurring from 200 to 5,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. Birds and rodents feed on the fruits. *Mammillaria grahamii* is native

to southwest-central and southern North America. *5, 6, 12 (recorded as *Mammillaria grahamii* Engelm., Pages 156 &159-161; *Mammillaria grahamii* Engelm. var. *grahamii*, Pages 159-160; *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson, Pages 160-161, and *Mammillaria microcarpa* Engelm., Pages 152-153 &156, color photographs), 15 (recorded as *Mammillaria grahamii* Engelm. var. *grahamii*; *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson, and *Mammillaria microcarpa* Engelm.), **16** (recorded as *Mammillaria microcarpa* Engelm.), 18 (genus), 27 (recorded as *Mammillaria grahamii*, Page 172, color photograph: Plate 94, Page 113; *Mammillaria grahamii* Engelmann var. *oliviae* (Orcutt) L. Benson, Pages 173, color photograph: Plate 95, Page 113, and *Mammillaria microcarpa* Engelmann, Page 179, color photograph: Plate 99, Page 114), 28 (recorded as *Mammillaria microcarpa*, color photograph), 43 (012210), 45 (color photograph), 46 (recorded as *Mammillaria microcarpa* Engelm., Page 578 and *Mammillaria oliviae* Orcutt, Page 578), 48 (genus), 58 (recorded as *Mammillaria microcarpa* Engelm.), 63 (012210 - color presentation), 77 (color photograph #11), 85 (012210 - restricted distribution information, color presentation), 86 (recorded as *Mammillaria microcarpa*, color photograph), **89** (recorded as *Cactus grahamii* (Engelm.) Kuntze), 115 (color presentation), 119 (recorded as *Neomammillaria microcarpa* (Engelm.) B. & R., *Neomammillaria milleri* B. & R.), 127, **WTK** (August 12, 2005)*

Mammillaria grahamii var. *grahamii* (see *Mammillaria grahamii*)

Mammillaria grahamii var. *oliviae* (see *Mammillaria grahamii*)

Mammillaria microcarpa (see *Mammillaria grahamii*)

Mammillaria oliviae (see *Mammillaria grahamii*)

Neomammillaria microcarpa (see *Mammillaria grahamii*)

Neomammillaria milleri (see *Mammillaria grahamii*)

Neomammillaria oliviae (see *Mammillaria grahamii*)

Opuntia acanthocarpa var. *major* (see *Cylindropuntia acanthocarpa* var. *major*)

Opuntia acanthocarpa var. *ramosa* (see *Cylindropuntia acanthocarpa* var. *major*)

Opuntia arbuscula (see *Cylindropuntia arbuscula*)

Opuntia arizonica (see footnote 89 under *Opuntia phaeacantha*)

Opuntia blackeana (see footnote 89 under *Opuntia phaeacantha*)

Opuntia discata (see *Opuntia engelmannii* var. *engelmannii*)

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann: Cactus Apple**

COMMON NAMES: Abrojo, Cactus Apple, Cow-tongue Cactus (for var. *linguiformis*), Cow-tongue Prickly-pear (for var. *linguiformis*), Desert Pricklypear, Desert Pricklypear Cactus, Discus Prickly-pear, Engelmann Prickly Pear, Engelmann Pricklypear, Engelmann's Prickly-pear, Few-spine Marble-fruit Prickly-pear, Flaming Pricklypear, Joconostle, Nopal, Prickly Pear, Prickly Pear Cactus, Tuna, Vela de Coyote. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps 1 to 8 feet in height and 40 inches to 10 feet or more in width, one plant was reported as being 12 inches in height and 55 inches in width, plants were reported as being 40 inches in height and width, one plant was reported as

being 40 inches in height and 6½ feet in width, one plant was reported as being 4 feet in height and 6 feet in width); the paddle-shaped stems (6 to 16 inches in length and 4 to 12 inches in width, except in var. *linguiformis* where the stems are 6 inches to 4 feet in length and 4 to 16 inches in width) are blue-gray, blue-green, green, dark green or yellow-green; the spines are dark brown, brown-red, rust, white with red tips, yellow or pale yellow-brown aging to gray; the glochids are light brown, golden, red-brown or yellow aging to blackish or gray; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-magenta, red-pink, reddish-rose, rose-red, salmon, whitish, yellow or yellow-orange turning to orange, orange-yellow or pink-orange with age; the anthers are yellow; the stigmas are green, lime green or yellow-green; flowering generally takes place between early March and late June with the individual flowers lasting one or two days (additional records: two for mid-February, one for mid-July, one for mid-August, one for late August, one for early September, two for mid-September, one for late October and one for late December); the mature fruits (also known as tunas are 1½ to 3½ in length and ¾ to 1½ inches in diameter) are maroon, purple, dark red, red-maroon, red-purple or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; rocky mesas; bedrock, bouldery and rocky mesas; canyons; canyon bottoms; talus slopes; rocky ledges; ridges; rocky ridgetops; ridgelines; foothills; rocky-sandy-loamy and rocky and rocky-sandy-loamy hills; bouldery, rocky and gravelly hillsides; bouldery, rocky, gravelly-sandy and sandy slopes; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava beds; rocky, gravelly and sandy flats; rocky valleys; along roadsides; along gravelly-humusy arroyos; gullies; along streams; along streambeds; along creeks; creekbeds; along washes; along and in drainage ways; banks of creeks and rivers; benches; shelves; terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas in bouldery, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy soils; rocky-sandy loam, gravelly loam and loam soils; silty soils, and gravelly humus soils, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. This plant provides cover for many desert animals. *Opuntia engelmannii* is native to south-central and southern North America. *5, 6, 26, 28, 43 (063009), 45 (color photograph), 46 (Page 583), 48 (genus), 63 (012310 - color presentation), 77, 85 (012310 - color presentation), 91 (recorded *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington together with *Opuntia phaeacantha* var. *major* Engelmann, "Both species are sympatric throughout much of their range and often can be found together."), 115 (color presentation), 119, 127*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *engelmannii*: Cactus Apple**

SYNONYMY: *Opuntia discata* D. Griffiths, *Opuntia phaeacantha* G. Engelmann var. *discata* (D. Griffiths) L.D. Benson & D.L. Walkington. COMMON NAMES: Abrojo, Cactus Apple, Desert Pricklypear Cactus, Engelmann Prickly Pear, Engelmann's Prickly-pear, Engelmann Pricklypear, Flaming Pricklypear, Joconostle, Nopal, Prickly Pear, Vela de Coyote. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps 20 inches to 8 feet in height and 20 inches to 10 feet or more in width, one plant was reported as being 20 inches in height and 8¼ feet in width, one plant was reported as being 3 feet in height and 4½ feet in width, one plant was reported as being 3 feet in height and 6 to 12 feet in width, one plant was reported as being 3 feet in height and 8 feet in width, one plant was reported as being 40 inches in height and 79 inches in width, one plant was reported to be 40 inches in height and 10 feet in width); the paddle-shaped stems (8 to 16 inches in length and 6½ to 12 inches in width) are bluish-green, gray-green, green, dark green or yellow-green; the spines are brown-red, chalky-white, pale straw or pale yellow-brown usually with red or red-brown bases aging to black or gray; the glochids are yellow; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-pink, rose-red, salmon, tannish-yellow, yellow, light yellow-orange, yellow-orange or yellow-peach turning to orange, orange-yellow or pink-orange with age; the anthers are yellow; the stigma lobes are lime green; flowering

generally takes place between mid-March and late June (additional records: one for early January, two for mid-February, one for mid-July, two for mid-August, one for early September, six for mid-September, three for early October and one for late December); the mature fruits (also known as tunas are 2½ to 3¼ in length and 1¼ inches in diameter) are magenta-rose, purple, red or reddish-purple. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; bedrock mesas; edges of cliffs; canyons; canyon bottoms; talus slopes; ledges; ridges; rocky ridgetops; rocky hills; bouldery, rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava beds; breaks; steppes; plains; rocky, gravelly and sandy and silty flats; basins; valley floors; along roadsides; along and in gravelly and gravelly-humusy arroyos; gullies; along streams; along creeks; creekbeds; along and in washes; along and in gravelly-sandy drainages; banks of rivers; benches; shelves; terraces; sandy floodplains; amongst mesquites; within ditches, and gravelly-sandy and sandy riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; clayey ground; silty ground, and gravelly humusy ground, occurring from 1,000 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. The flowers open around 8 AM and remaining open for one or two days, and may live to be 30 or more years of age. The juicy fruits (tunas) with edible pulp are fed on by many browsing animals, including Black Bear (*Ursus americanus amblyceps*), Coyote (*Canis latrans mearnsi*), Javelina (*Peccari tajacu sonoriensis*) and Desert Tortoise (*Gopherus agassizi*) among others, and birds. The plant provides cover for many desert animals. *Opuntia engelmannii* var. *engelmannii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington "This is the largest and, in especially southern Arizona, one of the best-known native prickly pears of the Southwestern Deserts of the United States. It is variable in habit of growth, shape and size of joints, and size and distribution of spines. It is almost always found growing with var. *major*, which has longer brown spines restricted largely to the upper part of the narrower joint. Almost everywhere there are intergrading forms with many character recombinations. Var. *discata* is rarely stable but apparently a fringe-population extreme tied in closely with the more abundant and wide-ranging var. *major*.", Pages 99 & 101-103, color photograph), 15 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington), **16** (recorded as *Opuntia phaeacantha* Engelmann var. *discata* (Griffiths) L. Benson - "Rocky slopes and gravelly flats; common; intergrading with *O. p.* var. *major*."), 26 (species), 27 (recorded as *Opuntia phaeacantha* Engelmann var. *discata* (Griffiths) L. Benson, Pages 53 & 99-100, color photographs: Plates 30 & 30A, Pages 99 & 100), 28 (color photograph), 43 (063009), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walk.), 63 (0123110 - color presentation), 77 (recorded as *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington, color photograph #14 labeled as *Opuntia phaeacantha*), **85** (012310 - color presentation), **89** (recorded as *Opuntia discata* Griffiths), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington / *Opuntia phaeacantha* var. *major* Engelmann: "Both species are sympatric throughout much of their range and often can be found together."), 115 (color presentation of the species), 119 (recorded as *Opuntia discata* Griffiths), 127, **WTK** (August 12, 2005)*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck *ex* G. Engelmann var. *linguiformis* (D. Griffiths) B.D. Parfitt & D.J. Pinkava: Cactus Apple**

SYNONYMY: *Opuntia lindheimeri* G. Engelmann var. *linguiformis* (D. Griffiths) L.D. Benson. COMMON NAMES: Cactus Apple, Cow Tongue Prickly Pear, Cow's Tongue, Cow's Tongue Prickly Pear, Cow's Tongue Pricklypear, Cow's-tongue Prickly-pear, Cow's-tongue Pricklypear, Lengua de Vaca, Prickly Pear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (4 to 10 feet in height and 4 to 8

feet in width); the paddle-shaped stems (6 inches to 4 feet in length and 4 to 16 inches in width) are light green; the spines are yellow aging to blackish; the flowers are yellow; flowering generally takes place between April and May; the mature fruits are purple or red. HABITAT: Within the range of this species it has been reported from hillsides; slopes; bajadas; gravelly flats; along washes, and floodplains growing in dry gravelly ground, occurring from 300 to 2,600 feet in elevation in the scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. *Opuntia engelmannii* var. *linguiformis* is native to southwest-central (central Texas) North America. *5, 6, 16 (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), 26 (species), 43 (070109), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 63 (012310), 77 (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), **85** (012310 - color presentation), 127 (species), **WTK** (October 28, 2009)*

***Opuntia ficus-indica* (C. Linnaeus) P. Miller: Barbary Fig**

SYNONYMY: *Opuntia opuntia* (C. Linnaeus) G.K. Karsten. COMMON NAMES: Barbary Fig, Barbary-fig, Boereturksvy (Afrikaans), Burbank Prickly Pear, Burbank's Spineless, Chumba (Spanish), Chumbera (Spanish), Feigenkaktus (German), Figo-da-Espanha (Portuguese), Figo-da-Índia (Portuguese), Figueira-da-Barbária (Portuguese), Figuier d'Inde (French), Figuier de Barbarie (French), Grootdoringturksvy (Afrikaans), Higuera (Spanish), Indian Fig, Indian-fig, Indian-fig Prickly-pear, Indian-fig Pricklypear, Jamaracá (Portuguese), Jurumbeba (Portuguese), Mission Cactus, Mission Prickly-pear, Mission Pricklypear, Nopal, Nopal de Castilla (Spanish), Nopal Pelón (Spanish), Orelha-de-onka (Portuguese), Palma-de-gado (Portuguese), Palma-gigante (Portuguese), Prickly Pear, Prickly-pear, Spineless Cactus, Smooth Mountain Prickly-pear, Smooth Prickly-pear, Spineless Cactus, Spiny Pest Pear, Sweet Prickly-pear, Sweet Pricklypear, Tuberous Prickly-pear, Tuna (Spanish), Tuna Blanca (Hispanic), Tuna Cactus, Tuna de Campo (Hispanic), Tuna de Castilla (Spanish), Tuna Fina (Hispanic), Tuna Mansa (Spanish). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (10 to 23 feet in height and 10 feet in width); the paddle-shaped stems (8 to 24 inches in length and 6 to 16 inches in width) are green; the spines if present are brown, tan or whitish; the glochids are yellowish aging brown; the flowers (¾ to 2 inches in diameter) are orange or yellow fading to salmon; the anthers are yellow; the stigma lobes are yellow; flowering generally takes place in April (flowering records: one for early june); the mature fruits (also known as tunas are 2 to 4 inches in length and 1½ to 3½ inches in diameter) are orange, purple, red or yellow. HABITAT: Within range reported from mountains; canyons; canyon bottoms; slopes; bajadas; gravelly flats; along washes; floodplains, and disturbed areas growing in dry gravelly and sandy ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The young stem segments are called nopalitos. This plant was probably created by native peoples through the selection of spineless forms of *Opuntia streptacantha* to facilitate the collection and culturing of the cochineal scale insect (Flora of North America). *Opuntia ficus-indica* is native to southern North America. *5, 6, 12 (note), **16**, 18, 26 (color photograph), 30, 43 (012310 - *Opuntia opuntia* H. Karsten), 48 (genus), **56**, **57**, 63 (012310 - color presentation), 85 (012310 - color presentation), 115 (color presentation), 127*

Opuntia fulgida (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *fulgida* (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *mamillata* (see *Cylindropuntia fulgida* var. *mamillata*)

Opuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

Opuntia gilvescens (see *Opuntia phaeacantha*)

Opuntia kleiniae var. *tetracantha* (see *Cylindropuntia* x *tetracantha*)

Opuntia leptocaulis (see *Cylindropuntia leptocaulis*)

Opuntia lindheimeri var. *linguiformis* (see *Opuntia engelmannii* var. *linguiformis*)

Opuntia mamillata (see *Cylindropuntia fulgida* var. *mamillata*)

Opuntia microdasys **(J.G. Lehmann) L.K. Pfeiffer: Angel's-wings**

COMMON NAMES: Angel's-wings, Bunny Cactus, Bunny Ears, Bunny-ear Prickly-pear, Bunny-ears Prickly-pear, Bunny Ears Pricklypear, Bunny-ears Pricklypear, Cegador (Spanish), Golden-bristle, Goldplush, Nopal Cegador (Spanish), Nopalillo Cegador (Spanish), Polka Dot Cactus, Polka-dot Cactus, Prickly Pear, Rabbit Ears. DESCRIPTION: Terrestrial perennial stem-succulent shrub (16 to 40 inches in height and 4 to 5 feet in width); the paddle-shaped stems (2 to 6 inches in length and 1¼ to 4 inches in width) are green; the glochids are brown, golden-yellow, reddish-brown, whitish or yellow; the flowers (1 to 1¼ inches in width) are bright yellow aging to peach or pinkish-salmon; the stigma lobes are green; flowering generally takes place between late April and early June (additional records: one for late June and one for early October); the ripe fruits are green. HABITAT: Within range reported from mountains; rocky canyon bottoms; bouldery-rocky hills; slopes; bajadas; amongst boulders; flats; along rocky washes; banks of washes; benches, and floodplains growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy and sandy ground and loam ground, occurring from 800 to 6,900 feet in elevation in the scrub and desertscrub ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to native habitat. *Opuntia microdasys* is native to southern North America. *5, 6, 18, 26 (color photograph), 43 (012310), 48 (genus), **56**, **57**, 63 (012310 - *Opuntia microdasys* (Lehm.) N.E. Pfeiffer, color photograph), 77, **85** (012310 - color presentation of dried material), 106 (102308)*

Opuntia opuntia (see *Opuntia ficus-indica*)

Opuntia phaeacantha **G. Engelmann: Tulip Pricklypear**

SYNONYMY: *Opuntia gilvescens* D. Griffiths, *Opuntia phaeacantha* G. Engelmann var. *major* G. Engelmann, *Opuntia phaeacantha* G. Engelmann var. *phaeacantha*, *Opuntia phaeacantha* G. Engelmann var. *superbospina* (D. Griffith) L.D. Benson. COMMON NAMES: Abrojo, Brown-spine Pricklypear, Brownspine Pricklypear, Brown-spined Prickly-pear, Desert Prickly-pear, Joconostle, Major Prickly-pear, Major Pricklypear, Mojave Prickly-pear, Mojave Pricklypear, New Mexico Prickly-pear, Nopal, Purple-fruit Prickly-pear, Sprawling Prickly Pear, Tulip Pricklypear, Vela de Coyote, Yellow Pricklypear, Yellow-spine Prickly-pear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (10 inches to 7 feet in height and 3 to 10 feet in width sometimes forming clumps up to 75 feet in width, sometimes developing a definite trunk, one plant was reported to be 10 inches in height and 40 inches in width, one plant was reported to be 1 foot in height and 3 feet in width, one plant was reported to be 14 inches in height and 52 inches in width, plants were reported that were 16 inches in height and 40 inches in width, one plant was reported to be 16 inches in height and 48 inches in width, one plant was reported to be 16 inches in height and 60 inches in width, one plant was reported to be 18 inches in height and 8 to 10 feet in width, one plant was reported to be 20 inches in height and 13 feet in width, one plant was reported to be 2 feet in height and 5 to 6 feet in width, one plant was reported to be 30 inches in height and 5 feet in width, plants were reported to be 3 feet in height and 4 to 10 feet in width); the paddle-shaped stems (4 to 10 inches in length and 3 to 8 inches in width) may be bluish-green, gray-brown, gray-

green, dull green, green, dark green, greenish-yellow, purple, reddish or yellow-gray-green; the spines are blackish, brown, charcoal, gray, reddish, red-brown, white or yellow; the glochids are golden, reddish-brown or tan; the flowers (1½ to 3 inches in diameter) may be golden-apricot (with yellow-green mid-stripes), orange, orange-yellow, pink, pink-purple, red, red-pink, pale yellow, yellow (with an orange or red center or brown, greenish, greenish-brown or red mid-stripes) or yellow-orange aging to red-orange; the anthers are yellow; the stigma lobes are green or yellow-green; flowering generally takes place between mid-March to early July (additional records: one for early January, one for late January, one for early February, one for late July, three for mid-August, two for late August, one for late September and one for early October); the mature pear-shaped fruits (1¼ to 3½ inches in length and 1 to 1¼ inches in width) are maroon, purple, purple-red, red, dark red, red-brown or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; canyons; canyon bottoms; rocky rincons; talus slopes; bases of cliffs; bluffs; rocky-gravelly-sandy buttes; knolls; rocky ledges; ridges; ridgetops; foothills; rocky and gravelly hills; cobbly and sandy hilltops; bouldery, rocky, gravelly and gravelly-sandy-loamy hillsides; bouldery, rocky, rocky-gravelly, gravelly, sandy and silty slopes; gravelly bajadas; rocky outcrops, amongst rocks; on boulders and rocks; lava beds; blow-sand; prairies; sandy llanos; plains; rocky, cindery and sandy flats; valleys; along sandy roadsides; in rocky and sandy arroyos; bottoms of arroyos; draws; springs; along creeks; along and in sandy riverbeds; along gravelly washes; sandy drainages; silty-loamy and silty-clayey-loamy dry lakebeds; along sandy banks of rivers; cobbly-sandy-silty and gravelly-sandy terraces; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery; rocky, rocky-gravelly, rocky-gravelly-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam and silty loam and silty-clayey loam ground; gravelly-sandy clay ground; cobbly-sandy silty and silty ground, and humusy ground, occurring from 800 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or cooking agent crop; it was also noted as having been used for tools, in pottery making and as a drug or medication. This plant provides cover for many desert animals. Deer, Javelina (*Peccari tajacu sonoriensis*) and rodents feed on the stems, and the fruits are eaten by deer, grasshoppers, Javelina and other desert animals (including grasshoppers). Cristate forms have been reported. The change in nomenclature in USDA NRCS has not been recognized in BONAP, varieties remain as varieties of *Opuntia phaeacantha* (accessed 041806). *Opuntia phaeacantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm., Pages 95-101; *Opuntia phaeacantha* Engelm. var. *major* Engelm., Pages 99-101, and *Opuntia phaeacantha* Engelm. var. *phaeacantha*, Pages 97-98), 15 (recorded as *Opuntia phaeacantha* var. *major* Engelm., color photograph on Page 77 includes habitat and associated species), **16** (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 26 (color photograph), 27 (recorded as *Opuntia phaeacantha* Engelmann, Pages 50, color photograph: Plate 28, Page 99; *Opuntia phaeacantha* Engelmann var. *major* Engelmann, Pages 51, color photograph: Plate 29, Page 99, and *Opuntia phaeacantha* Engelmann var. *superbospina* (Griffith) L. Benson, Pages 54, color photograph: Plate 31, Page 100), 43 (070109), 45 (color photograph), 46 (recorded as *Opuntia phaeacantha* Engelm., Page 583 and *Opuntia gilvescens* Griffiths, Page 583), 48 (genus), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), **56**, **57**, 63 (012310 - color presentation), 77 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm., color photograph #14 labeled as *Opuntia phaeacantha*), **85** (012310 - color presentation), **89** (recorded as *Opuntia arizonica* Griffiths, *Opuntia blaceana* Rose and *Opuntia toumeyi* Rose), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. (*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington) / *Opuntia phaeacantha* var. *major* Engelmann - "Both species are sympatric throughout much of their range and often can be found together."), 119, 127, **WTK** (August 12, 2005)*

Opuntia phaeacantha var. *discata* (see *Opuntia engelmannii* var. *engelmannii*)

Opuntia phaeacantha var. *major* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *phaeacantha* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *superbospina* (see *Opuntia phaeacantha*)

***Opuntia santa-rita* (D. Griffiths & R.F. Hare) J.N. Rose: Santa Rita Pricklypear**

SYNONYMY: *Opuntia violacea* G. Engelmann var. *santa-rita* (D. Griffiths & R.F. Hare) L.D. Benson. COMMON NAMES: Blue Blade, Blue-blade, Dollar Cactus, Duraznilla, Nopal Morado, Purple Prickly Pear, Purple Pricklypear, Red Blade Pricklypear, Santa Rita Cactus, Santa-rita Cactus, Santa Rita Prickly Pear, Santa Rita Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 2 to 6½ feet in height); the paddle-shaped stems (4 to 8 inches in length) may be azure-purple (warmer months), bluish-green, gray-green with a red tinge on the edge, green, greenish-blue, pink, red-purple, reddish-purple (cooler months), rose or pale violet-purple; the glochids are golden, tan or yellow aging to brown or reddish-brown; the spines are golden, pale yellow or pale yellow-gray aging to reddish-brown; the flowers (3 to 3½ inches in diameter) are lemon-yellow, orange-yellow, pale yellow or yellow; the anthers are pale yellow or yellow; the stigma lobes are light chartreuse, light green, green or light yellow; flowering generally takes place between early March and early June (additional record: one for early January and one for early August); the ripe fruits (1 to 1½ inches in length and ¾ inch in diameter) are maroon, purple, purplish or reddish aging to gray. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; ridges; grassy rolling hills; rocky hillsides; rocky and gravelly-sandy-loamy slopes; bajadas; rocky outcrops; sandy dunes; gravelly and sandy plains; flats; valley floors; along roadsides; creekbeds, and disturbed areas growing in dry rocky, gravelly and sandy ground and gravelly-sandy loam ground, occurring from 2,000 to 5,600 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; however, it was apparently observed here as a naturalized ornamental. *Opuntia santa-rita* is native to southwest-central and southern North America. *5, 6, 12 (Page 92 & 95-96), 26 (recorded as *Opuntia violacea* var. *santa-rita*, color photograph), 27 (recorded as *Opuntia violacea* Engelmann var. *santa-rita* (Griffiths & Hare) L. Benson, Page 58, color photograph: Plates 34 & 34A - *Opuntia violacea* var. *santa-rita*, Pages 100-101), 28 (color photograph), 43 (071810 - *Opuntia violacea* G. Engelmann in Emory var. *santa-rita* (Griffiths & Hare) L.D. Benson), 45 (color photograph), 46 (Page 582), 48 (genus), 58, 63 (071810), 77, 85 (080110 - color presentation including habitat), 91, 115 (color presentation), **HR***

Opuntia spinosior (see *Cylindropuntia spinosior*)

Opuntia spinosior x *Opuntia versicolor* (see *Cylindropuntia spinosior* x *Cylindropuntia versicolor*)

Opuntia tetracantha (see footnote 46 under *Cylindropuntia* x *tetracantha*)

Opuntia x *tetracantha* (see *Cylindropuntia* x *tetracantha*)

Opuntia toumeyi (see footnote 89 under *Opuntia phaeacantha*)

Opuntia versicolor (see *Cylindropuntia versicolor*)

Opuntia violacea var. *santa-rita* (see *Opuntia santa-rita*)

***Peniocereus greggii* (G. Engelmann) N.L. Britton & J.N. Rose: Nightblooming Cereus**

SYNONYMY: *Cereus greggii* G. Engelmann. COMMON NAMES: Arizona Queen-of-the-night, Chaparral Cactus, Deer-horn Cactus, Desert Night-blooming Cereus, Desert Threadcereus, Nightblooming Cereus, Queen of the Night, Queen-of-the-night, Reina de la Noche (Spanish), Reina-de-la-noche, Saramatraca (Spanish), Sweet Potato-cactus. DESCRIPTION: Terrestrial perennial root- and stem-succulent shrub (1 to 8 feet in height and ¼ to ½ inch in width); the stems are gray, gray-green or purple; the spines are black or yellowish-white; the large white flowers (2 to 5 inches in diameter and 6 to 8½ inches in length) open after dusk and last only one night; the anthers are pale cream-yellow; flowering generally takes place between late May and early July (additional records: one for early January, two for mid-March and one for early December); the ripe fruits (1¼ to 4 inches in length and ¾ to 2 inches in diameter) are orange-red or bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; ridges; ridge crests; gravelly hills; rocky hillsides; rocky slopes; bajadas; sand dunes; gravelly-sandy plains; gravelly flats; valley floors; arroyos; along sandy washes; edges of washes and bottomlands growing in dry desert pavement; rocky, gravelly and sandy ground, and rocky-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, occurring from 800 to 5,200 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are fragrant. The plant, *Peniocereus greggii* var. *greggii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. Plant with other desert shrubs and trees, such as the Creosote Bush (*Larrea tridentata* var. *tridentata*), Foothill Paloverde (*Parkinsonia microphylla*) and Velvet Mesquite (*Prosopis velutina*), that will provide support and protection. Birds feed on the fruit and seeds. *Peniocereus greggii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus greggii* Engelm., Pages 116-118), **16**, 27 (recorded as *Cereus greggii* Engelmann, Pages 61, color photograph: Plates 36 & 36A, Page 101), 28, 43 (012310), 45 (color photograph), 46 (Page 568), 48, 63 (012310), 77, 85 (012310 - color presentation), 86 (recorded as *Cereus greggii*, color photograph), **89** (recorded as *Cereus greggii* Engelm.), 115 (color presentation), 119, 127 (records found under *Peniocereus greggii* var. *greggii*)*

Campanulaceae: The Bellflower Family

***Nemacladus glanduliferus* W.L. Jepson: Glandular Threadplant**

COMMON NAMES: Glandular Nemacladus, Glandular Threadplant, Silver Stem Threadplant, Thread Plant, Threadplant, Threadstem. DESCRIPTION: Terrestrial annual forb/herb (2 to 16 inches in height), the color of the stems has been described as being reddish-brown, the foliage brown, the flowers pinkish-white, purple and white, white, whitish, white-blue-pink, white-cream-lavender, white and maroon or white tinged with purple, flowering generally takes place between mid-February and late May. HABITAT: Within the range of this species it has been reported from desert mountains; gravelly mesas; rocky canyons; rocky canyon bottoms; talus slopes; crevices in rocks; buttes; chalky ridges; ridgetops; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy, loamy and clayey slopes; gravelly bajadas; sand dunes; sand dune ridges; rocky-sandy and sandy plains; gravelly, sandy and loamy flats; valley floors; gravelly-sandy roadsides, along and in gravelly and sandy arroyos; sandy bottoms of arroyos; along and in sandy streambeds; in sand along creeks; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; gravelly banks of washes; sandy edges of drying pools; beaches; benches; sandy terraces; sandy bottomlands; sandy floodplains; sandy riparian areas, and disturbed areas growing in dry rocky, cindery, gravelly, gravelly-sandy, sandy and chalky ground; gravelly loam, sandy-clay loam and loam ground, and clay ground, occurring from sea level to 5,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE:

Nemacladus glanduliferus is native to southwest-central and southern North America. *5, 6, 43 (012310), 46 (Page 827), 63 (012310), 77, **85** (012310), 115 (color presentation)*

***Nemacladus glanduliferus* W.L. Jepson var. *orientalis* R. McVaugh: Glandular Threadplant**

COMMON NAMES: Glandular Nemacladus, Glandular Threadplant, Silver Stem Threadplant, Thread Plant, Threadplant, Threadstem. DESCRIPTION: Terrestrial annual forb/herb (3 to 8 inches in height); the stems are reddish-brown; the flowers are pinkish-white, white, white-cream-lavender or white and maroon; flowering generally takes place between mid-February and mid-May. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; canyons; crevices in rocks; ridgetops; hillsides; rocky, gravelly-loamy and loamy slopes; gravelly and loamy flats; valley floors; gravelly-sandy roadsides, within gravelly and sandy arroyos; along and in rocky and sandy washes; along and in drainages; gravelly banks of washes; riparian areas, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground and gravelly loam and loam ground, occurring from 500 to 4,900 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Nemacladus glanduliferus* var. *orientalis* is native to southwest-central and southern North America. *5, 6, 15, **16**, 46 (Page 827), 63 (012310), 85 (012310 - color presentation of dried material), **89** (recorded as *Nemacladus ramosissimus* Nutt.), 115 (color presentation of the species)*

Nemacladus ramosissimus (see footnote 89 under *Nemacladus glanduliferus* var. *orientalis*)

Cannabaceae: The Hemp Family

***Cannabis sativa* C. Linnaeus: Marijuana**

COMMON NAMES: Bhang (India - subsp. *indica*), Cáñamo (Spanish - subsp. *sativa*), Cânhamo (Portuguese - subsp. *sativa*), Cannabis, Chanvre (French - subsp. *sativa*), Chanvre d'Inde (French - subsp. *indica*), Chanvre Indien (French - subsp. *indica*), Common Hemp, Ditch Weed, Ganja (India - subsp. *indica*), Grass, Grifa (Spanish - subsp. *indica*), Hachis (Spanish- subsp. *indica*), Hanf (German - subsp. *sativa*), Haschisch (German - subsp. *indica*), Hashish, Hemp (subsp. *indica* & *sativa*), Indian Hemp (subsp. *indica*), Indischer Hanf (German - subsp. *indica*), Maconha (Portuguese - subsp. *indica*), Mariguana (Spanish - subsp. *indica*), Marihuana (subsp. *indica*), Marijuana (subsp. *indica*), Mary Jane, Maryjane, Mota, Pot. DESCRIPTION: Terrestrial annual forb/herb (3 to 20 feet in height); the foliage is dark green; the flowers are greenish with staminate flowers and pistillate flowers being born on separate plants; flowering generally takes place between early February and early October. HABITAT: Within the range of this species it has been reported from canyons; rocky ridges; clearings in woodlands; foothills; slopes; alluvial fans; prairies; plains; valley floors; railroad right-of-ways; along sandy roadsides; along streams; sandy edges of creeks; along terraces; along and in ditches; ditch banks; bouldery sandy riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement and bouldery, rocky and sandy ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. A Controlled Substance in Arizona as defined by the Arizona Revised Statutes, Chapter 27 (Uniform Controlled Substances Act), Article 1, Section 36-2501. *Cannabis sativa* is probably native to south-central Asia. *5, 6, 43 (012410), 63 (012410 - color presentation), **77**, 85 (012410 - color presentation of dried material), 101 (color photographs), 106 (102608), 127*

Capparaceae (Capparidaceae): The Caper Family

***Koeberlinia spinosa* J.G. Zuccarini: Crown of Thorns**

COMMON NAMES: Abrojo, All-thorn, Allthorn, Corona de Cristo, Crown of Thorns, Crown-of-thorns, Crucifixion-thorn, Junco, Spiny Allthorn. DESCRIPTION: Terrestrial perennial shrub or tree (2 to 15 feet in height, one plant was described as being 40 inches in height and 6½ feet in width, one plant was described as being 5 feet in height and 10 feet in width, one plant was described as being 6½ feet in height and 13 feet in width); the bark is dark green or yellow-green aging scaly and gray; the branches and twigs are dark green or yellow-green; the flowers (¼ inch in length) are cream, creamy-white, greenish-white, greenish-yellow, white, white tinged with green, pale yellow, yellow, yellowish or yellowish-white; flowering generally takes place between late February and early October (additional record: one for late December), March and June; the berries (¼ inch in diameter) are black or purplish-black and shiny. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; rocky canyons; ridges; rocky foothills; hills; rocky and rocky-gravelly hillsides; rocky and gravelly slopes; amongst boulders; sand dunes; cobbly-clayey alluvial fans; bajadas, gravelly, sandy and clayey plains; gravelly flats; clayey-loamy valley floors; gravelly-pebbly-silty and loamy valley bottoms; sandy coastal flats; along gravelly and gravelly-clayey roadsides; along and in arroyos; rocky bottoms of ravines; springs; along and in gravelly-clayey and sandy washes; sandy-clayey playas; cienegas; silty swales; sandy banks of rivers and washes; along cobbly-clayey edges of arroyos and washes; margins of drainage ways; benches; terraces; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; clayey loam and loam ground; cobbly clay, gravelly clay, sandy clay and clay ground, and gravelly-pebbly silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Koeberlinia spinosa* is native to southwest-central and southern North America. *5, 6, 13, **16**, 43 (012410), 46 (placed in The Koeberliniaceae: The Junco Family, Page 558), 53, **56**, **57**, 63 (012410), 77, **85** (012410 - color presentation), **89**, 91*

***Koeberlinia spinosa* J.G. Zuccarini var. *spinosa*: Crown of Thorns**

COMMON NAMES: Abrojo, All-thorn, Allthorn, Corona de Cristo, Crown of Thorns, Crown-of-thorns, Crucifixion-thorn, Junco, Spiny Allthorn. DESCRIPTION: Terrestrial perennial shrub or tree (a rounded spreading shrub 3 to 6 feet in height); the bark of the branches is yellow-green; the flowers are inconspicuous; flowering generally takes place in late summer (flowering record: one for early August); the berries are black. HABITAT: Within the range of this species it has been reported from gravelly and sandy mesas; hillsides; rocky slopes; sandy and gravelly plains; gravelly flats; along arroyos; along gravelly drainage ways; banks of washes, and disturbed areas growing in dry rocky, gravelly and sandy ground, occurring from 2,400 to 6,900 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Jackrabbits use the twigs for browse. *Koeberlinia spinosa* var. *spinosa* is native to southwest-central and southern North America. *5, 6, 13, 43 (012410), 46 (placed in the Koeberliniaceae: The Junco Family, Page 558), 53, 63 (012410), 85 (012410), 91, **WTK** (October 28, 2009 - these plants may be the plant that others have referred to as being var. *wivagii*)*

***Koeberlinia spinosa* J.G. Zuccarini var. *wivagii* W.C. Holmes, K.L. Yip & A.E. Rushing: Crown of Thorns**

COMMON NAMES: Crown of Thorns. DESCRIPTION: Terrestrial perennial shrub or tree (2 to 10 feet in height, one plant was described as being 2 feet in height and 6½ to 10feet in width, one plant was described as being 6½ feet in height and 13 feet in width); the spine-tipped stems are green or dark green with a yellow tinge; the flowers are cream, cream-white, white tinged with green, light yellow, yellowish or yellowish-white; the anthers are pale yellow-orange; the stigmas are purple-maroon; based on few flowering records located flowering generally takes place between early July and mid-September (additional record: two for early June plus one for early July, one for mid-July, two for late July, two for early August, one for late August, three for early September and one for mid-September); the fruit is golden yellow. HABITAT: Within the range of this species it has been reported from mountains; canyons;

canyon bottoms; foothills; hills; valley floors; within arroyos; along and in gravelly-clayey washes; along gravelly drainages; cienegas; sandy banks of washes; margins of rivers; benches; terraces; floodplains; mesquite bosques, and sandy riparian areas growing in dry gravelly and sandy ground and gravelly clay ground, occurring from 1,900 to 6,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Koeberlinia spinosa* var. *wivagii* is native to southwest-central and southern North America. *13 (species), 46 (species, Page 558), 53 (species), 63 (012410 - species, no record for var. *wivagii*), **85** (012410), 91 (species)*

***Polanisia dodecandra* (C. Linnaeus) A.P. de Candolle subsp. *trachysperma* (J. Torrey & A. Gray) H.H. Iltis: Sandyseed Clammyweed**

SYNONYMY: *Polanisia dodecandra* (C. Linnaeus) A.P. de Candolle var. *trachysperma* (J. Torrey & A. Gray) H.H. Iltis, *Polanisia trachysperma* J. Torrey & A. Gray. COMMON NAMES: Clammy Weed, Clammy-weed, Clammyweed, Red-whisker Clammyweed, Redwhisker Clammyweed, Roughseed Clammyweed, Sandyseed Clammyweed, Western Clammyweed. DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); the stems are hairy and sticky; the leaves are dark green; the color of the flowers has been described as being cream, lavender, light pink, pink-purple, white, white tinged with purple, white-yellow or yellowish; flowering generally takes place between early May and late November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; plateaus; rocky canyons; along gravelly and sandy canyon bottoms; talus slopes; ledges; meadows; foothills; stony and sandy hills; gravelly-sandy hilltops; rocky and cindery hillsides; rocky, cindery, gravelly, gravelly-loamy and sandy slopes; bajadas; sand hills; gravelly and sandy flats; basins; gravelly-sandy valley floors; valley bottoms; along rocky, rocky-sandy-loamy, gravelly and sandy roadsides; in sandy arroyos; along sandy and sandy-silty bottoms of arroyos; draws; gulches; springs; sandy streams; along and in rocky, cobbly-gravelly and gravelly-sandy streambeds; along creeks; along and in sandy creekbeds; in sand along rivers; along and in rocky, gravelly-sandy and sandy riverbeds; along and in rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, sandy and clayey washes; drainage ways; along rocky banks of streams; gravelly and sandy edges of arroyos and streams; sand bars; terraces; bottomlands; floodplains; in sandy ditches; bouldery-cobbly-sandy, cobbly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-gravelly-sandy, stony, cobbly-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and loam ground; clay ground, and sandy silty and silty ground, occurring from 1,000 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the crushed or bruised stems give off an odor that may be objectionable. *Polanisia dodecandra* subsp. *trachysperma* is native to central North America. *5, 6, 15, **16** (recorded as *Polanisia dodecandra* (L.) DC. var. *trachysperma* (Torr. & Gray) Iltis, placed in the Cleomaceae), 28 (recorded as *Polanisia dodecandra*, color photograph), 43 (070209), 46 (recorded as *Polanisia trachysperma* J. Torrey & A. Gray - placed in the Capparidaceae: The Caper Family, Page 358), **56**, **57**, 58, 63 (012410 - color presentation), 68 (recorded as *Polanisia trachysperma* Torr. & Gray), **77**, **85** (012410 - color presentation), 86 (color photograph, *Polanisia dodecandra*), 115 (color presentation of the species), **WTK** (October 28, 2009)*

Polanisia dodecandra var. *trachysperma* (see *Polanisia dodecandra* subsp. *trachysperma*)

Polanisia trachysperma (see *Polanisia dodecandra* subsp. *trachysperma*)

***Wislizenia refracta* G. Engelmann: Spectacle Fruit**

COMMON NAMES: Jackass Clover, Jackass-clover, Rocky Mountain Bee Plant, Spectacle Fruit, Spectacle Pod, Spider Flower, Yellow Bee Weed. DESCRIPTION: Terrestrial annual or perennial (perennial in subspecies *palmeri* (A. Gray) J.C. Keller) forb/herb (2 inches to 8 feet in height); the foliage

is light green; the flowers are yellow; flowering generally takes place between mid-February and early December (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; crevices in rocks; cinder cones; foothills; sandy hills; hillsides; cindery slopes; bajadas; amongst boulders; lava flows; sand dunes; sand hummocks; sandy, sandy-loamy, clayey and silty flats; valley bottoms; coastal dunes; gravelly-sandy road beds; along rocky, gravelly, gravelly-sandy-loamy and sandy roadsides; arroyos; bottoms of arroyos; within gullies; seeps; springs; streambeds; along rivers; in sandy washes; bouldery-sandy-silty drainages; silty lakebeds; playas; palm oases; marshes; depressions; sandy swales; edges of ponds; margins of washes; mudflats; sandy beaches; bottomlands; sandy floodplains; along riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-sandy, rocky, cindery, gravelly and sandy ground; gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; clay ground, and bouldery-sandy-silty and silty ground, occurring from sea level to 5,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: Rufous Hummingbirds (*Selasphorus rufus*) and Pygmy Blue Butterflies have been observed visiting the flowers. *Wislizenia refracta* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (012410), 46 (placed in the Capparidaceae: The Caper Family, Page 357), 63 (012410 - color presentation of seed), 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plants. “Feeding experiments have shown this annual forb to be highly toxic but the plant is not very palatable.”), 85 (012410 - color presentation of dried material), 86 (color photograph), 115 (color presentation), **89***

Caprifoliaceae: The Honeysuckle Family

Sambucus caerulea var. *mexicana* (see *Sambucus nigra* subsp. *canadensis*)

Sambucus canadensis (see *Sambucus nigra* subsp. *canadensis*)

Sambucus cerulea var. *mexicana* (see *Sambucus nigra* subsp. *canadensis*)

Sambucus mexicana (see *Sambucus nigra* subsp. *canadensis*)

***Sambucus nigra* C. Linnaeus subsp. *canadensis* (C. Linnaeus) R. Bolli: American Black Elderberry**

SYNONYMY: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson, orth. var., (alternate spelling: *Sambucus cerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson), *Sambucus canadensis* C. Linnaeus, *Sambucus mexicana* C.B. Presl ex A.P. de Candolle. COMMON NAMES: Alcanfor (Hispanic), American Black Elderberry, American Elder, American Elderberry, Arizona Blueberry Elder, Arizona Blue Elder, Arizona Elder, Azumate (en Mich), Azumatl (en Mich), Blueberry Elder, Common Elderberry, Coyapa (Chiapas), Desert Elderberry, Elder, Elderberry, Flor de Sauco (Hispanic), Florida Elderberry, Guarico (Hispanic), Ita tindo (Yuku en Oax), Ita tindoo (yaa Mixteco en Oax), Joday llochic (Tepehuano en Nayarit), Kanadese Vlier (Afrikaans), Kondembasi (Tarasco), Má' Ma Joo (Hispanic), Mexican Elder, Mexican Elderberry, Ne Ho (en Oax), New Mexican Blueberry, New Mexico Blueberry Elder, Ocoquihui (Chiapas), Road Berry, S'auco (Zoque-popoluca en Veracruz), Sauce (Hispanic), Sauce Chico (Hispanic), Sauco (Spanish), Sauco Grande (Hispanic), Sauzo Tapiro (Hispanic), Sweet Elder, Tapiro (Hispanic), Tapiro Sauco (Hispanic), Toxem o Toxeem (Mixe en Oax), Toxiwua (en Michoacán). DESCRIPTION: Terrestrial perennial drought-deciduous or nearly evergreen shrub or tree (7 to 36 feet in height with a compact rounded crown 8 to 26 feet in width, one tree was described as being 12 feet in height with a crown 10 feet in width and a trunk diameter of 4 inches); the bark is light brown or gray; the twigs are light green; the leaves are bright green with 3 to 5 leaflets; the flowers (between 1/8 to 1/4 inch in diameter in many-branched clusters 2 to 8 inches in width) may be buff, pale cream, cream, creamy-white, creamy-white-yellowish, creamy-yellow, pale green, white, white-cream, pale yellow, yellow,

yellow-cream or yellowish-white; flowering generally takes place between mid-March and early October (additional records: one for late February and one for late November); the mature berrylike fruits (between 1/8 to 1/4 inch in diameter in clusters) are black, blackish, blue, dark blue, blue-black, blue-gray or dark blue-purple. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; along bouldery-gravelly-sandy and sandy-silty canyon bottoms; talus slopes; bluffs; openings in forests; meadows; foothills; bouldery hills; hilltops; bouldery, rocky, cobbly-loamy and clayey hillsides; bouldery, rocky-sandy, cobbly-sandy-loamy, sandy and loamy-clayey slopes; rocky-sandy-loamy alluvial fans; amongst boulders and rocks; plains; flats; basins; gravelly-sandy valley floors; railroad right-of-ways; along rocky-gravelly roadsides; along and in arroyos; along bottoms of arroyos; within draws; gullies; along gravelly-sandy ravines; seeps; springs; along bouldery streams; gravelly-sandy streambeds; along creeks; creekbeds; riverbeds; along and in sandy and loamy washes; drainage ways; watercourses; playas; cienegas; marshes; sloughs; sandy-clayey-loamy banks of streams and rivers; sandy-silty edges of rivers, washes and marshes; sandy margins of washes and playas; sandy beaches; sandy benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; along ditches; along ditch banks; sandy canal banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly loam, cobbly-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; loamy clay, humusy clay and clay ground, and sandy silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or dye (black, orange, purple and yellow dyes) crop; it was also noted as having been used as tools, for making musical instruments (whistles), as a toy or in games, as a drug or medication and as an insecticide (inner bark of young shoots used to repel flies and insects). The tree is covered with bright green leaves during the cooler months and nearly deciduous during the hot summer months, the flowers may be fragrant. Hummingbirds have been observed visiting the flowers for nectar, the fruits are eaten by birds and the foliage is browsed by deer. One tree was seen in a residential fence line in Barrio Anita in May 2005 (now deceased), and one plant was reported as an adventive to wet, disturbed ground at the University of Arizona Desert Laboratory in 1984. The Desert Elderberry has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Sambucus nigra* subsp. *canadensis* is native to central and southern North America and

Central America. *5, 6, 13 (recorded as *Sambucus caerulea* Raf. var. *mexicana* (Presl) L. Benson), 15 (recorded as *Sambucus mexicana* Presl *ex* DC.), **16** ((recorded as *Sambucus mexicana* Presl), 18 (recorded as *Sambucus* spp.), 26 (recorded as *Sambucus mexicana*, color photograph), 28 (recorded as *Sambucus mexicana*, color photograph), 30 (recorded as *Sambucus mexicana*), 43 (012510), 46 (recorded as *Sambucus mexicana* Presl, Page 814), 48 (recorded as *Sambucus mexicana*), 52 (recorded as *Sambucus mexicana* Presl), 53 (recorded as *Sambucus mexicana* Presl), 58 (recorded as *Sambucus mexicana* Presl), 63 (012510 - color presentation), **77** (recorded as *Sambucus mexicana* Presl), 80 (Species of the genus *Sambucus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This tall shrub has been reported poisonous to livestock and humans but the cooked berries are harmless."), **85** (012510), **89** (recorded as *Sambucus mexicana* Presl), 115 (color presentation), 127, **WTK** (May 2005)*

Caryophyllaceae: The Pink Family

Herniaria cinerea (see *Herniaria hirsuta* subsp. *cinerea*)

***Herniaria hirsuta* C. Linnaeus (subsp. *cinerea* (A.P. de Candolle) A.X. Coutinho is the subspecies reported as occurring in Arizona): Hairy Rupturewort**

SYNONYMY: (for *H.s*. subsp. *cinerea*: *Herniaria cinerea* A.P. de Candolle). COMMON NAMES: Burstwort, Hairy Rupturewort. DESCRIPTION: Terrestrial annual forb/herb (prostrate 2 to 8 inches in length); the foliage is gray-green; the minute flowers are greenish; flowering generally takes place between early March and mid-July (additional records: one for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; gravelly, gravelly-sandy and sandy mesas; rocky canyons; bouldery-gravelly-sandy and rocky-sandy canyon bottoms; rocky hills; stony-loamy hilltops; rocky hillsides; rocky-sandy and gravelly slopes; bajadas; rocky outcrops; plains; gravelly, gravelly-sandy, sandy and clayey flats; sandy-silty valley floors; roadbeds; along roadsides; along arroyos; bottoms of arroyos; in sand along creeks; riverbeds; along gravelly and sandy washes; drainage ways; along edges of rivers; shores of lakes; floodplains; edges of stock tanks; riparian areas, and disturbed areas growing in moist and dry bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam ground; bouldery clay and clay ground, and sandy silty ground, occurring from 100 to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Herniaria hirsuta* is native to central and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 43 (012610), 46 (recorded as *Herniaria cinerea* DC., Page 300), 63 (012610), **85** (012610 - color presentation of dried material)*

***Herniaria hirsuta* C. Linnaeus subsp. *cinerea* (A.P. de Candolle) A.X. Coutinho: Hairy Rupturewort**

SYNONYMY: *Herniaria cinerea* A.P. de Candolle. COMMON NAMES: Burstwort, Hairy Rupturewort. DESCRIPTION: Terrestrial annual forb/herb (prostrate 2 to 8 inches in length); the minute flowers are greenish; flowering generally takes place between mid-March and mid-July (additional records: one for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; gravelly, gravelly-sandy and sandy mesas; rocky canyons; bouldery-gravelly-sandy and rocky-sandy canyon bottoms; rocky hills; stony-loamy hilltops; rocky hillsides; rocky-sandy and gravelly slopes; bajadas; rocky outcrops; plains; gravelly, gravelly-sandy and clayey flats; sandy-silty valley floors; along arroyos; bottoms of arroyos; in sand along creeks; riverbeds; along gravelly and sandy washes; drainage ways; along edges of rivers; shores of lakes; floodplains; edges of stock tanks; riparian areas, and disturbed areas growing in moist and dry bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; stony loam ground; bouldery clay and clay ground, and sandy silty ground, occurring from 100 to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Herniaria hirsuta* subsp. *cinerea* is native to central and southern Europe; western, central and southern Asia, and northern

Africa. *5, 6, **16** (recorded as *Herniaria cinerea* DC.), 43 (012610 - *Herniaria hirsuta* C. Linnaeus var. *cinerea* (DC.) Loret & Barrandon), 46 (recorded as *Herniaria cinerea* DC., Page 300), 63 (012610), **77** (recorded as *Herniaria cinerea* DC.), **85** (012610)*

Loeflingia pusilla (see footnote 89 under *Loeflingia squarrosa*)

***Loeflingia squarrosa* T. Nuttall: Spreading Pygmyleaf**

COMMON NAME: California Loeflingia, Loeflingia, Spreading Pygmyleaf. DESCRIPTION: Terrestrial annual forb/herb (½ to 4¾ inches in height); the flowers are inconspicuous; flowering generally takes place between early March and early June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; sandy ridges; rocky ridgetops; foothills; bouldery and rocky hills; rocky, cobbly-sandy and clayey slopes; rocky, gravelly, gravelly-sandy and sandy alluvial fans; gravelly gravelly-sandy bajadas; amongst gravels; sand dunes; blow-sand deposits; gravelly-sandy and sandy plains; gravelly, gravelly-sandy and sandy flats; sandy valley floors; roadbeds; along bouldery-gravelly and sandy roadsides; along and in sandy washes; clayey depressions; silty-loamy swales; banks of rivers; along edges of rivers; benches; sandy terraces; sandy and loamy bottomlands; sandy floodplains, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, silty loam and loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the forest, woodlands, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Loeflingia squarrosa* is native to south-central and southern North America. *5, 6, 15, **16**, 43 (012610), 46 (Page 300), 58, 63 (012610), **77**, **85** (012610 - color presentation of dried material), **89** (recorded as *Loeflingia pusilla* Curran)*

***Silene antirrhina* C. Linnaeus: Sleepy Silene**

COMMON NAMES: Alfinetes-da-terra-miúdo (Portuguese), Catchfly, Desert Sleepy Catchfly, Sleepy Catchfly, Silène Muflier (French), Sleepy Silene, Tjärglim (Swedish). DESCRIPTION: Terrestrial annual forb/herb (4¾ inches to 3 feet in height); the stems may be purple; the flowers may be lavender, magenta, magenta-pink, pink, pinkish-whitish, purple, purple-pink, red, rose, white with pink or dark purple-tipped lobes or white fading to deep pink; flowering generally takes place between mid-February and early July (additional records: one for mid-September and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky canyons; sandy canyon bottoms; gorges; talus slopes; bouldery and rocky ledges; ridges; ridgetops; foothills; rocky hills; rocky hillsides; along bouldery-silty-clayey, rocky, gravelly, sandy-loamy and loamy-clayey slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky, gravelly and sandy flats; basins; along gravelly and gravelly-loamy roadsides; rocky arroyos; rocky draws; clayey gulches; ravines; seeps; in sand along streams; along rocky, rocky-sandy and sandy streambeds; in sand along creeks; along creekbeds; along rivers; along and in rocky, gravelly-sandy and sandy washes; within drainages; sandy banks of washes; rocky-gravelly edges of streambeds, rivers and ponds; sandy-loamy margins of streambeds and rivers; benches; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; waste places, and recently burned areas in woodlands and chaparral growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; bouldery-silty clay, loamy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Silene antirrhina* is native to central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (012610), 46 (Page 302), **56**, **57**, 58, 63 (012610 - color presentation), 77, **85** (012710 - color presentation), **89**, 101 (note under *Silene alba*), 115 (color presentation)*

***Silene gallica* C. Linnaeus: Common Catchfly**

COMMON NAMES: Alfinetes da Terra (Potuguese), Alfinete-francês (Portuguese), Calabacilla, Common Catchfly, English Catchfly, Flor Roxa, Forked Catchfly, Franskglim (Swedish), French Catchfly, French Silene, Gunpowder Weed, Lychnis Vulgaire (French), Nariz de Zorra (Portuguese), Ranskankohokki (Finnish), Silène de France (French), Small Catchfly, Small-flower Catchfly, Small-flowered Catchfly, Windmill Pink. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 inches to 2 feet in height, one plant was described as being 12 inches in height and 10 inches in width); the flowers may be cream, greenish, lavender, pale pink, pink, pink fading to white, pinkish, pink-white, light purple, white, whitish or yellow; flowering generally takes place between mid-February and mid-June (additional records: one for mid-January, one for late September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-clayey mesas; clayey plateaus; stony canyons; bouldery-gravelly-sandy canyon bottoms; bluffs; ridgetops; meadows; foothills; hilltops; hillsides; rocky-loamy, rocky-clayey, rocky-clayey-loamy, cobbly-clayey and clayey-loamy slopes; gravelly alluvial fans; amongst rocks; sand dunes; cobbly-clayey, sandy and clayey flats; sandy valley floors; coastal prairies; coastal plains; gravelly roadbeds; along rocky, gravelly, sandy and clayey roadsides; arroyos; rocky bottoms of ravines; seeps; along streambeds; rocky creekbeds; riverbeds; within sandy washes; drainages; vernal poolbeds; depressions; along banks of streams and riverbeds; along fencelines; ditches; bouldery-gravelly-sandy riparian areas; waste places; recently burned areas in woodlands and chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery-gravelly-sandy, rocky, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam and clayey loam ground, and rocky clay, cobbly clay and clay ground, occurring from sea level to 6,600 feet in elevation in the forest (coastal redwood), woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Silene gallica* is native to northern, central, eastern and southern Europe; western and southern Asia, and northern Africa. *5, 6, 43 (012710), 46 (Page 302), 63 (012710 - color presentation), 85 (012710 - color presentation of dried materials), **89***

Chenopodiaceae: The Goosefoot Family

***Atriplex* C. Linnaeus: Saltbush**

COMMON NAMES: Orach, Saltbush. *43 (051710), 46 (Pages 254-260), 63 (012710 - color presentation), **89***

***Atriplex canescens* (F.T. Pursh) T. Nuttall: Fourwing Saltbush**

COMMON NAMES: Atahi'xp (Seri), Cenizo (Spanish), Chamere (Spanish), Chamiso (preferred usage over Chamise), Chamiso Cenizo, Chamiza, Chamizo (Spanish), Costilla de Vaca, Diwoozhii Ibehi (Navajo), Four-wing Salt-bush, Four-wing Saltbush, Fourwing Saltbush, Ke'ma:we (Zuni - "salt weed" refers to the salty taste f the flowers), Narrow-leaf Saltbush, Narrowleaf Wingscale, Thinleaf Fourwing Saltbush, Grey Sage Brush, Orache, Saladillo, Sha'ashkachk Iibatkam (River Pima), Shadscale, Wngscale, Yup (Seri). DESCRIPTION: Terrestrial perennial evergreen (winter-deciduous in cold climates) shrub (1 to 10 feet in height, one plant was reported to be 4½ feet in height and 4½ feet in width, one plant was reported to be 40 inches in height and 5 feet in width, plants were reported that were 6 ½ feet in height and width, one plant was reported to be 5 feet in height and width, plants were reported that were 6 ½ feet in height and width, one plant was reported to be 7 feet in height and 13 feet in width, plants were reported that were 8 feet in height and 15 feet in width); the leaves are gray, gray-green, light green or green; the flowers (male and female flowers are usually borne on separate plants) are brown, cream, green, greenish, greenish-white, greenish-yellow, white-brown, pale yellow, yellow or yellowish; flowering generally takes place between early February and late October (additional records: one for mid-January, four for mid-November, one for late November and one for early December); the mature four-winged fruits (0.4 to 1 inch square bracts) are green or yellow-green drying to pale brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky plateaus; along rocky, rocky-sandy and sandy rims; cliffs; rocky, sandy and clayey canyons;

sandy canyon walls; sandy and clayey canyon bottoms; gorges; rocky scree; talus slopes; along gravelly-sandy bluffs; knolls; rocky ledges; rocky ridges; rocky-sandy, rocky-loamy and sandy ridgetops; meadows; foothills; rocky, gravelly-sandy and silty-loamy hills; rocky-gravelly hilltops; bouldery, rocky, gravelly and clayey hillsides; bedrock, bouldery, rocky, rocky-sandy, shaley, stony-loamy, cindery, sandy, sandy-loamy, sandy-loamy-silty-powdery, sandy-clayey, sandy-silty, clayey and silty-loamy slopes; alluvial fans; sandy bajadas; rocky and gypsum outcrops; amongst rocks; sandy lava flows; sand hills; sand dunes; blow-sand deposits; bouldery debris flows; sandy and sandy-loamy plains; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey flats; basins; sandy and sandy-loamy valley floors; coastal dunes; sandy coastal plains; coastal flats; coastal saltmarshes; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; arroyos; bottoms of arroyos; draws; gulches; ravines; seeps; around springs; streambeds; along creeks; along sandy creekbeds; along rivers; sandy riverbeds; along rocky and sandy washes; along and in drainages; lakebeds; playas; freshwater and saltwater marshes; around and in swamps; depressions; clayey pans; sinks; swales; along gravelly-sandy, sandy and clayey banks of arroyos, rivers and drainages; cindery edges of washes, ponds, lakes and salt marshes; margins of drainages; gravel bars; beaches; sandy and clayey benches; sandy-loamy terraces; sandy bottomlands; Galleta lowlands; floodplains; mesquite bosques; ditches; sandy riparian areas, and disturbed areas growing in muddy and moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; sandy clay and clay ground; rocky silty, sandy silty and silty ground, and sandy-loamy-silty powdery ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdis perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). Possible predation was reported by the exotic Puncturevine Seed Weevil (*Microlarinus lareynii*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* is native to west-central and southern North America. *5, 6, 13, 15, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (012710), 46 (Page 259), 48, 63 (012710 - color presentation), 77, 82, **85** (012710 - color presentation), **89** (recorded as *Atriplex canescens* (Pursh) James), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil."), 115 (color presentation), 127*

Atriplex canescens subsp. *canescens* (see *Atriplex canescens* var. *canescens*)

Atriplex canescens subsp. *linearis* (see *Atriplex canescens* var. *linearis*)

***Atriplex canescens* (F.T. Pursh) T. Nuttall var. *canescens*: Fourwing Saltbush**

SYNONYMY: *Atriplex canescens* (F.T. Pursh) T. Nuttall subsp. *canescens*. COMMON NAMES: Atahi'xp (Seri), Cenizo, Chamiso, Chamiso Cenizo, Chamiza, Costilla de Vaca, Four-wing Salt-bush, Four-wing Saltbush, Orache, Saladillo, Sha'ashkachk Iibatkam (Pima), Wngscale, Yup (Seri). DESCRIPTION: Terrestrial perennial evergreen (winter-deciduous in cold climates) shrub (1 to 8 feet in height, one plant was reported to be 5 feet in height and 5 feet in width); the leaves are gray, gray-green or

green; the flowers (male and female flowers are usually borne on separate plants) are cream, green or yellow; flowering generally takes place between late April and late September (additional record: one for late October); the mature four-winged fruits (0.4 to 1 inch square bracts) are green drying to pale brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky, rocky-sandy and sandy rims; rocky canyons; canyon bottoms; talus; rocky ledges; ridges; foothills; hills; rocky hillsides; rocky and cindery slopes; sand hills; sand dunes; gravelly, sandy and sandy-clayey flats; coastal bluffs; coastal dunes; roadsides; arroyos; bottoms of arroyos; ravines; seeps; around springs; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along sandy washes; within drainage ways; swales; gravelly-sandy and sandy banks; edges of ponds and lakes; margins of drainages; gravel bars; terraces; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, clay loam and loam ground; sandy clay ground, and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Atriplex canescens*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdis perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* var. *canescens* is native to west-central and southern North America. *5, 6, 13, 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species), 43 (012710), 46 (species, Page 259), 48 (species), **56**, **57**, 58, 63 (012810), 82, 85 (012810 - color presentation), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil."), 115 (color presentation of the species), 127 (species)*

***Atriplex canescens* (F.T. Pursh) T. Nuttall var. *linearis* (S. Watson) P.A. Munz: Thinleaf Fourwing Saltbush**

SYNONYMY: *Atriplex canescens* (F.T. Pursh) T. Nuttall subsp. *linearis* (S. Watson) H.M. Hall & F.E. Clements, *Atriplex linearis* S. Watson. COMMON NAMES: Four-wing Saltbush, Narrow-leaf Saltbush, Narrowleaf Wingscale, Thinleaf Fourwing Saltbush. DESCRIPTION: Terrestrial perennial evergreen shrub (1 to 7 feet in height, one plant was reported to be 20 inches in height and 30 inches in width, plants were reported that were 6 feet in height and 8 feet in width); the stems may be yellowish; the leaves are gray or gray-green; the flowers (male and female flowers are usually borne on separate plants) are dull gold-yellow, greenish or yellow; flowering generally occurs between mid-March and late September (additional records: two for mid-October); the mature four-winged fruits (0.4 to 1 inch square bracts) are green drying to pale brown, straw or tan. HABITAT: Within the range of this species it has been reported from mesas; sand hills; sandy flats; coastal plains; roadsides; riverbeds; along and in washes; banks; sandy terraces; floodplains; in sand along canals; riparian areas, and disturbed areas growing in dry sandy ground and silty ground, occurring from sea level to 3,300 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Atriplex canescens*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to

dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdis perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* var. *linearis* is native to southwest-central and southern North America. *5, 6, 13 (*Atriplex canescens* (Pursh) Nutt. var. *macilenta* (Jepson) Munz - "This variety is restricted to more alkaline soils than is var. *canescens* and is associated often with *Atriplex polycarpa*."), 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species), 43 (012710 - *Atriplex canescens* (Pursh) Nutt. var. *linearis* Munz, *Atriplex canescens* (Pursh) Nutt. subsp. *linearis* H.M. Hall & Clem.), 46 (recorded as *Atriplex linearis* Wats.), 48 (species), **56**, **57**, 63 (012810), 77, 82, **85** (012810), 91 ("As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil."), 115 (color presentation of the species), 127 (species)*

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich: Wheelscale Saltbush**

COMMON NAMES: Chamiso Cenizo, Fasciculata Saltbush, Salton Fasciculata Saltbush, Wheelscale, Wheelscale Orach, Wheelscale Saltbush, White-scale Saltbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 inches to 3 feet in height, plants (smooth and round) were observed that were 8 inches in height and width); the foliage is gray-blue or green; the small flowers are greenish; flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter) are grayish, greenish or green-yellow. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky ledges; foothills; rocky hills; rocky hillsides; rocky and clayey-loamy slopes; rocky outcrops; alluvial fans; sand dunes; sandy plains; gravelly, sandy and clayey flats; basins; along sandy and clayey valley floors; rutted roadbeds; along gravelly and sandy roadsides; draws; sandy riverbeds; along and in gravelly washes; along and in drainages; clayey dry lakebeds; playas; depressions; clayey banks of rivers; edges of dry lakes; gravelly-sand bars; benches; along clayey bottomlands; sandy-loamy floodplains; margins of stock tanks; along canals; canal banks; ditches; silty edges of ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly clay and clay ground; clay loam and sandy loam ground, and silty ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* is native to southwest-central and southern North America. *5, 6, **16**, 43 (071309), 46 (Page 258), **56**, **57**, 63 (012810), 68, 85 (012810 - color presentation of dried material), **89**, 127, **WTK** (080310)*

Atriplex elegans subsp. *elegans* (see *Atriplex elegans* var. *elegans*)

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich var. *elegans*: Wheelscale Saltbush**

SYNONYMY: *Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich subsp. *elegans*. COMMON NAMES: Chamiso Cenizo, Fasciculata Saltbush, Salton Fasciculata Saltbush, Wheelscale, Wheelscale Saltbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 inches to 3 feet in height); the foliage is blue-gray or green; the small flowers are greenish; for the species flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter with typically smooth facings) are grayish or greenish. HABITAT: Within the range of this species it has

been reported from rocky slopes; plains; gravelly flats; gravelly-sandy roadsides; in drainages; floodplains; margins of stock tanks; clayey-silty ditch banks; gravelly riparian areas, and disturbed areas growing in dry rocky, gravelly and gravelly-sandy ground and clayey silty ground, occurring from 100 to 5,400 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Atriplex elegans*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* var. *elegans* is native to southwest-central and southern North America. *5, 6, 58, 43 (071309), 46 (species, Page 258), 58 (recorded as *Atriplex elegans* (Moq.) D. Dietr. subsp. *elegans*), 63 (012810), 68 (species), 77 (recorded as *Atriplex elegans* (Moq.) D. Dietr. subsp. *elegans*), **85** (012810 - color presentation of dried material), 127 (species)*

***Atriplex elegans* (C.H. Moquin-Tandon) D.N. Dietrich var. *thornberi* M.E. Jones: Wheelscale Saltbush**

SYNONYMY: *Atriplex thornberi* (M.E. Jones) P.C. Standley. COMMON NAMES: Chamiso Cenizo, Fasciculata Saltbush, Salton Fasciculata Saltbush, Wheelscale, Wheelscale Saltbush, White-scale Saltbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 inches to 3 feet in height); the foliage is green; the small flowers are greenish; for the species flowering generally takes place between early March and mid-October; the fruits (bracteols are 1/8 inch in diameter with prominent crests on the facings) are grayish or greenish. HABITAT: Within the range of this species it has been reported from mountains; rocky hillsides; rocky slopes; plains; gravelly and clayey flats; along roadsides; along and in washes; floodplains; around stock tanks; ditches; waste places, and disturbed areas growing in dry rocky and gravelly ground and clay ground, occurring from 100 to 3,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: The species, *Atriplex elegans*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. Wheelscale Saltbush is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Atriplex elegans* var. *thornberi* is native to southwest-central North America. *5, 6, 15, 43 (071309), 46, 63 (012810), 68 (species), **85** (012810 - color presentation of dried material, *Atriplex elegans*), 127 (species) *

Atriplex linearis (see *Atriplex canescens* var. *linearis*)

***Atriplex polycarpa* (J. Torrey) S. Watson: Cattle Saltbush**

COMMON NAMES: All-scale, Cattle Saltbush, Cattle Spinach, Cattle-spinach, Cenizo, Chamizo, Chamiso Cenizo, Cow Spinach, Desert Sage, Desert Saltbush, Desert Salt-bush, Kokomaki sha'l (Pima), Littleleaf Saltbush, Sage, Sagebrush, Shadscale. DESCRIPTION: Terrestrial perennial deciduous shrub (1 to 6½ feet in height, one plant was reported to be a round bush 2 feet in height, plants were described as being 5 feet in height and 6½ feet in width); the leaves are gray, gray-green, gray-white, silvery, silvery-gray or silvery-green; the inconspicuous flowers (male and female flowers may be borne on separate plants) are greenish, greenish-white, yellow or yellowish; the anthers are yellow; flowering generally takes place between early September and early November (additional records: two for early January, one for late January, two for early February, two for mid-February, one for late February, one for mid-March, one for late March, two for early April, two for late April, one for late May, three for late June, one for early July, two for early August and one for late December); the ripe fruits are orange. HABITAT: Within the range of this species it has been reported from mountains; foothills; rocky canyons; along sandy canyon bottoms; talus slopes; foothills; hills; hilltops; bedrock, rocky, gravelly, gravelly-loamy and sandy slopes; alluvial fans; gravelly and gravelly-sandy bajadas; amongst rocks; sand dunes; sand hummocks; sandy plains; gravelly and sandy flats; gravelly-sandy valley floors; valley bottoms; coastal dunes; coastal plains; along railroad right-of-ways; along silty roadsides; bottoms of arroyos; silty springs; along rivers; riverbeds; along and in gravelly, gravelly-sandy, gravelly-loamy and sandy washes; along drainages; clayey playas; sinks; on gravelly-loamy and sandy banks of washes; edges of washes and

playas; gravelly and sandy margins of seeps, washes and playas; along shores of lakes; rocky benches; terraces; bottomlands; sandy floodplains; canal right-of-ways; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam and silty loam ground; clay ground, and silty ground, occurring from sea level to 6,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is relatively drought resistant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Atriplex polycarpa* is native to southwest-central and southern North America. *5, 6, 13, 18, 28 (note under *Atriplex canescens*), 43 (012810 - *Atriplex polycarpa* S. Watson), 46 (Page 258-259), 48, **56**, **57**, 63 (012810 - color presentation of seeds), **77**, **85** (012810 - color presentation), **89**, 91, 127, 135*

***Atriplex serenana* A. Nelson (var. *serenana* is the variety reported as occurring in Arizona): Bractscale**

SYNONYMY: (for *A.s.* var. *serenana*: *Atriplex bracteosa* S. Watson. COMMON NAMES: Bracteate Orach, Bractscale, Stinking Orach. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 5 feet in height and 1¼ to over 40 inches in width, one plant was described as being 3 feet in height and 5 feet in width, one plant was described as 40 inches in height and 10 feet in width); the stems may be reddish; the leaves may be slightly canescent (gray and hoary); the flowers are pale yellow (male and female flowers are born separately on branchlets); flowering generally takes place between mid-June and mid-October (additional records: one for late April, one for early May and one for late May). HABITAT: Within the range of this species it has been reported from sandy mesas; canyon bottoms; bluffs; slopes; flats; silty-loamy valley floors; valley bottoms; roadsides; along rivers; in gravelly washes; along drainages; palm oases; sinks; clayey swales; freshwater marshes; along silty-loam margins of streams; mudflats; cobbly-sandy and sandy benches; floodplains; ditches; riparian areas; recently burned areas in coastal sage scrub, and disturbed areas growing in muddy and wet, moist, damp and dry cobbly-sandy, gravelly and sandy ground; silty loam ground; clay ground, and silty ground, occurring from sea level to 4,500 feet in elevation in the scrub, grassland and wetland ecological formations. NOTES: EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as food, cooking agent and spice. The foliage reportedly has a foul, rank fishy odor (smells rotten). This plant is recorded in the J.J. Thonber 1909 listing as *Atriplex bracteosa* Wats.; however, this plant was not known to occur in Arizona, and may have been *Atriplex wrightii* S. Watson). *Atriplex serenana* is native to southwest-central and southern (Baja California) North America. *43 (012710 - *Atriplex serenana* A. Nelson *ex* Abrams), 63 (012710 - mapping shows *Atriplex serenana* var. *serenana* as occurring in Arizona), 85 (012710, the University of California - Riverside recorded a sighting of *Atriplex serenana* var. *serenana* in Cochise County, Arizona on September 19, 2002), **89** (recorded as *Atriplex bracteosa* Wats.), 127, 133*

***Atriplex texana* S. Watson: Texas Saltbush**

COMMON NAME: Texas Saltbush. DESCRIPTION: Terrestrial annual forb/herb. NOTES: EXOTIC. The Texas Saltbush is not known to occur in Arizona, this species was probably misidentified, and it is not known which species might have been observed. *Atriplex texana* is native to southwest-central and southern North America. *5, 6, 43 (012810), 46 (no record), 63 (012810), 85 (012810), **89**, 95 (Personal Communication - 052206)*

Atriplex thornberi (see *Atriplex elegans* subsp. *thornberi*)

***Atriplex wrightii* S. Watson: Wright's Saltbush**

COMMON NAMES: Wright Saltbush, Wright's Orach, Wright's Salt Bush, Wright's Saltbush. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 6 feet in height); the stems are reddish; the leaves are bright green above and silvery beneath; the flowers are inconspicuous; flowering generally

takes place between early June and mid-September (additional record: one for late April). HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; rocky slopes; valley floors; along railroad right-of-ways; along rocky roadsides; draws; springs; along rivers; along riverbeds; along washes; clayey playas; sandy depressions; sandy banks of rivers; terraces; bottomlands; floodplains; ditches; clayey-loamy ditch banks; riparian areas; waste places, and disturbed areas growing in damp and dry rocky and sandy ground; clayey loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. This plant reportedly provides food for Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Antelope and Quail. *Atriplex wrightii* is native to southwest-central and southern North America. *5, 6, 43 (070209), 46 (Page 258), **56**, **57**, 63 (012810), 68, **85** (012810 - color presentation), 127*

***Chenopodium album* C. Linnaeus: Lambsquarters**

COMMON NAMES: Ançarinha-branca (Portuguese), Anserina-brancca (Portuguese), Ansérine Blanche (French), Armuelle (Spanish), Baconweed, Cenizo Blanco (Spanish), Chou Grass, Common Lambsquarters, Erva-formigueira-branca (Portuguese), Falsa-erva-de-Santa-Maria (Portuguese), Farinello Comune, Fat Hen, Fat-hen, Fathen, Forst Bite, Goosefoot, Lamb's-quarter, Lambsquarter, Lamb's-quarters, Lambs-quarters, Lambsquarters, Li (transcribed Chinese), Mealweed, Netseed Lambsquarters, Pigweed, Pitseed Goosefoot, Weißer Gänsefuß (German), White Goosefoot, White Pigweed, Wild Spinach. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 10 feet in height, plants were reported that were 10 inches in height and width); the leaves are gray-green or green with a purple underside; the inconspicuous flowers are gray-green, green, greenish, pink or yellow-green; flowering generally takes place between mid-March and mid-November (additional records: one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from rocky mountains; cliffs; sandy canyons; bases of cliffs; bluffs; meadows; foothills; hillsides; rocky-sandy, rocky-clayey and loamy slopes; loamy steppes; prairies; rocky and clayey flats; basins; valley floors; along railroad right-of-ways; along sandy roadsides; within clayey arroyos; seeps; sandy streambeds; in sand along creeks; sandy creekbeds; in sand along rivers; rocky-cobbly-sandy and sandy riverbeds; in gravelly-sandy and sandy washes; silty pondbeds; clayey lakebeds; cienegas; depressions; sandy banks of creeks; margins of washes; clayey floodplains; levees; catchment basins; along canals; in ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-cobbly-sandy, rocky-sandy, gravelly-sandy and sandy ground; gravelly loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground, and silty ground, occurring from sea level to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as a spice, as a drug or medication and as a paint (used on bows and arrows). *Chenopodium album* is native to temperate and tropical regions; however, its native range is obscure. *5, 6, 43 (012810), 46 (Page 254), 63 (012810 - color presentation), 68, 80 (This species is considered to be a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual herb frequently contains dangerous concentrations of nitrate but losses have not been reported in Arizona."), 85 (012910 - color presentation), **89**, 101 (note under *Chenopodium berlandieri*), 127*

Chenopodium album var. *leptophyllum* (see *Chenopodium leptophyllum*)

Chenopodium arizonicum (see *Chenopodium neomexicanum* var. *neomexicanum*)

***Chenopodium berlandieri* C.H. Moquin-Tandon: Pitseed Goosefoot**

COMMON NAMES: Berlandier Goosefoot, Berlandiers Gänsefuß (German), Berlandier Netseed, Bledo Extranjero (Spanish - subsp. *nuttalliae*), Huauthli (Spanish - subsp. *nuttalliae*), Huauzontle (Spanish - subsp. *nuttalliae*), Netseed Lambsquarters, Nuttalls Gänsefuß (German - subsp.

nuttalliae), Pigweed, Pitseed Goosefoot, Southern Huauzontle (Spanish - subsp. *nuttalliae*),, Teksasinsavikka. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 6 feet in height); the stems are often reddish; the foliage is green; the inconspicuous flowers are light green, green, greenish-gray, greenish-white, white or yellow-green; flowering generally takes place between early April and late October (additional records: one for late January, one for mid-February, one for late February and two for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; sandy mesas; cliffs; rocky canyons; rocky and rocky-sandy and sandy canyon bottoms; sandy and loamy ridges; meadows; bouldery foothills; hills; hilltops; clayey hillsides; bouldery, rocky, gravelly-loamy, sandy, sandy-loamy, clayey and silty-clayey slopes; alluvial fans; rocky outcrops; amongst boulders; boulder fields; dunes; silty plains; clayey, silty-loamy and silty-clayey flats; silty-loamy valley floors; silty-loamy valley bottoms; coastal saltwater marshes; along sandy coastlines; along railroad right-of-ways; along gravelly, gravelly-loamy and sandy roadsides, arroyos; clayey draws; seeps; springs; bouldery-stony-gravelly-sandy and sandy soils along streams; streambeds; along creeks; along and in sandy creekbeds; in sandy soil along rivers; along and in riverbeds; along and in rocky, rocky-gravelly-sandy and sandy washes; along drainages; drainage ways; poolbeds; muddy lakebeds; bogs; freshwater marshes; clayey depressions; swales; along sandy banks of creeks, rivers and washes; edges of salt marshes; along sandy margins of creeks, washes; pools, ponds, lakes and marshes; along shores of lakes; mudflats; sandbars; sandy beaches; cobbly-sandy and sandy benches; cobbly-sandy and sandy terraces; sandy and clayey bottomlands; sandy and clayey floodplains; along fencelines; along and in ditches; ditch banks; rocky, gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-stony-gravelly-sandy rocky, rocky-gravelly-sandy, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage is browsed by Brush Rabbits (*Sylvilagus bachmani*). Pitseed Goosefoot is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Chenopodium berlandieri* is native to northwestern, northern, central and southern North America. *5, 6, 15, 43 (070209), 46 (Page 253), 63 (012910), **77**, **85** (012910 - color presentation), 101 (color photograph)*

***Chenopodium fremontii* S. Watson: Fremont's Goosefoot**

COMMON NAMES: Fremont Goosefoot, Fremont's Goosefoot, Goose-foot. DESCRIPTION: Terrestrial annual forb/herb (4 to 64 inches in height); the stems are often purple or red; the foliage is grayish, green or yellow-green; the inconspicuous flowers may be green, greenish, greenish-white, greenish-yellow or white; flowering generally takes place between mid-May and mid-October (additional record: one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; sandy mesas; rocky plateaus; cliffs; along sandy canyons; along sandy canyon bottoms; bases of cliffs; scree; talus slopes; crevices in rocks; ridges; loamy ridgetops; sandy openings in forests; meadows; foothills; hills; hillsides; along bouldery-sandy, rocky, rocky-sandy, cindery, gravelly, sandy and sandy-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; rocky lava flows; plains; gravelly and sandy flats; basins; stony-loamy hollows; along rocky, gravelly-sandy and sandy roadsides; within rocky arroyos; sandy, sandy-silty and clayey bottoms of arroyos; sandy draws; gulches; gullies; rocky ravines; springs; along streams; along and in bouldery-rocky and sandy streambeds; along creeks; sandy creekbeds; along rivers; along riverbeds; along and in gravelly, sandy and clayey washes; drainages; rocky drainage ways; boggy areas; along sandy banks of streams, creeks and rivers; sandy edges of streams, creeks, washes, loamy drainages; drainage ways and swales; gravelly-sandy and sandy terraces; silty floodplains; mesquite bosques; along ditches; sandy-humusy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-pebbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; stony loam, gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; clay ground; bouldery-silty, sandy-silty and silty ground, and sandy humusy ground, occurring from 2,100 to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and

wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a cooking agent. *Chenopodium fremontii* is native to west-central and southern North America. *5, 6, 15, **16**, 43 (070209), 46 (Page 253-254), 63 (012910), 85 (012910 - color presentation), **89**, 127*

***Chenopodium leptophyllum* (C.H. Moquin-Tandon) T. Nuttall ex S. Watson: Narrowleaf Goosefoot**

SYNONYMY: *Chenopodium album* C. Linnaeus var. *leptophyllum* C.H. Moquin-Tandon. COMMON NAMES: Goosefoot, Narrow-leaf Goosefoot, Narrowleaf Goosefoot, Narrowleaf Lambsquarters, Narrowleaved Goosefoot, Slender Goosefoot, Slimleaf Goosefoot, Slimleaf Lambsquarters. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 4 feet in height); the inconspicuous flowers are green, greenish, green-white or reddish; flowering generally takes place between early July and late August (additional records: one for early April, one for mid-April, one for mid-September, two for late September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; rocky and sandy canyon bottoms; crevices in rocks; rocky ridges; ridgelines; gravelly-sandy-clayey-loamy meadows; foothills; hillsides; rocky, cobbly-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy, clayey and silty-clayey slopes; sandy alluvial fans; sandy lava flows; lava beds; sand dunes; sandy banks; sandy and clayey flats; sandy-clayey-loamy basins; valley floors; valley bottoms; along sandy and sandy-loamy roadsides; draws; springs; along streams; along creeks; sandy creekbeds; sandy riverbeds; along and in sandy washes; drainages; along drainage ways; sumps; banks of rivers; gravelly shores of lakes; sand bars; benches; sandy terraces; sandy rincons; bottomlands; floodplains; fencelines; sandy and sandy-humusy riparian areas; waste places; recently burned areas in woodlands, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground; cobbly loam, gravelly loam, sandy loam and sandy-clayey loam ground; silty clay and clay ground, and sandy humusy ground, occurring from 900 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Chenopodium leptophyllum* is native to northwestern, northern and central North America. *5, 6, 43 (012910), 46 (Page 253), 63 (012910), 68, 80 (The species, *Chenopodium album*, is considered to be a Rarely Poisonous and Suspected Poisonous Range Plant. “This annual herb frequently contains dangerous concentrations of nitrate but losses have not been reported in Arizona.”), 85 (012910 - color presentation of dried material), **89**, 127*

***Chenopodium murale* C. Linnaeus: Nettleleaf Goosefoot**

COMMON NAMES: Australian-spinach, Chual, Chuana Soap, Cuhal, Goosefoot, Green Fat Hen, Green Goosefoot, Lamb’s Quarters, Mauer-Gänsefuß (German), Nettle-leaf Goosefoot, Nettleleaf Goosefoot, Nettle Leaved Fat Hen, Quenopódio (Portuguese), Rauniosavikka, Round Leaved Fat Hen, Salt-green, Siim (Seri), Sowbane, Swinebane, Wall Goosefoot, Wheat Bush. DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); the leaves are shiny dark green; the inconspicuous flowers are green, greenish or white; flowering generally takes place between early December and late July, but may continue throughout the year (additional records: two for mid-September, four for late September, two for early October, one for mid-October, two for late October, one for early November and six for mid-November). HABITAT: Within the range of this species it has been reported from mountains; cliffs; canyons; rocky, sandy and sandy-loamy canyon bottoms; bases of rock walls; cobbly-sandy-loamy ridgetops; rocky and rocky-sandy hills; hilltops; rocky and clayey hillsides; rocky and sandy slopes; rocky slopes; rocky-sandy alluvial fans; sandy-loamy bajadas; sand hummocks; clay mounds; prairies; plains; rocky-sandy, sandy and clayey flats; sandy basins; valley floors; coastal dunes; coastal marshes; railroad right-of-ways; along rocky, gravelly-loamy, sandy and clayey roadsides; arroyos; gulches; seeps; springs; along streams; along and in gravelly-sandy and clayey riverbeds; along and in bouldery, gravelly-sandy and sandy washes; along and in drainage ways; in clay around ponds; clayey freshwater marshes; saltmarshes; clayey banks of streams and rivers; sandy edges of streams and washes; sand bars; cobbly

and sandy floodplains; along edges of stock tanks; along canals; canal banks; in ditches; silty edges of ditches; sandy riparian areas; waste places; recently burned areas in woodlands, chaparral and grasslands, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, rocky, rocky-sandy, cobbly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, sandy loam ground; loamy clay and clay ground, and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Nettleleaf Goosefoot is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets. *Chenopodium murale* is native to northern, central, eastern and southern Europe; western and southern Asia, and northern Africa. *5, 6, 15, **16**, 43 (012910), 46 (Page 253), 63 (012910 - color presentation of seed), 68, **77**, **85** (013010 - color presentation of dried material), 101 (color photograph), **89**, 127*

***Chenopodium neomexicanum* P.C. Standley (var. *neomexicanum* is the variety reported as occurring in Arizona): New Mexico Goosefoot**

SYNONYMY: (for *C.m.* var. *neomexicanum*: *Chenopodium arizonicum* P.C. Standley). COMMON NAMES: Choal, Fishy Goosefoot, Goosefoot, New Mexico Goosefoot. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 5 feet in height); the stems may be reddish; the inconspicuous flowers are green; flowering generally takes place between late August and late October (additional record: one for mid-July, flowering as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; bases of cliffs; ridgetops; edges of meadows; foothills; rocky hills; rocky hillsides; rocky, cindery and sandy slopes; rocky bajadas; amongst boulders and rocks; boulder fields; gravelly and gravelly-sandy flats; valleys; along roadsides; along rocky arroyos; bottoms of arroyos; ravines; springs; along creeks; along and in stony-sandy and sandy washes; sandy floodplains, and riparian areas growing in moist and dry rocky, cindery, gravelly, gravelly-sandy and sandy ground; loam ground, and bouldery silty ground, occurring from 700 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may have a strong odor, similar to that of sardines or rotting fish. *Chenopodium neomexicanum* is native to southwest-central and southern North America. *5, 6, 43 (013010), 46 (recorded as *Chenopodium arizonicum* Standl., Page 253), **57**, 63 (013010), 77, **85** (013010 - color presentation of dried material)*

***Chenopodium watsonii* A. Nelson: Watson's Goosefoot**

COMMON NAMES: Watson Goosefoot, Watson's Goosefoot. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 2 feet in height); based on a very few records located flowering generally takes place between early April and early October (flowering records: one for early April, one for early May and one for early October). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; ridges; meadows; foothills; hills; rocky and rocky-clayey hillsides; rocky, rocky-clayey and cindery slopes; amongst boulders and rocks; breaks; prairies; cindery and clayey flats; sandy-clayey-loamy basins; clayey valleys; sandy roadbeds; roadsides; draws; along rivers; along clayey washes; within drainages; drainage ways; swales; sandy bottomlands; floodplains; edges of ditches; waste places, and disturbed areas growing in dry bouldery, rocky, cindery, gravelly and sandy ground; gravelly-clayey loam and sandy-clayey loam ground; rocky clay and clay ground, and bouldery-silty, gravelly-sandy silty and silty ground, occurring from 1,000 to 10,500 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This plant may have a strong and unpleasant (fetid) odor. *Chenopodium watsonii* is native to southwest-central North America. *5, 6, 43 (070209), 46 (Page 253), **56**, 63 (013010), 85 (013010 - color presentation of dried material), 127*

***Monolepis nuttalliana* (J.A. Schultes) E.L. Greene: Nuttall's Povertyweed**

COMMON NAMES: Annual Povertyweed, Monolepis, Nutall Monolepis, Nuttall's Poverty Weed, Nuttall Poverty-weed, Nuttall Povertyweed, Nuttall's Poverty Weed, Nuttall's Poverty-weed, Nuttall's Povertyweed, Opon (Pima), Papago Spinach, Patata, Patota, Patote, Poverty Weed, Povertyweed, Suolasavikka. DESCRIPTION: Terrestrial annual forb/herb (2 to 20 inches in height); the inconspicuous flowers are green, greenish or yellow; flowering generally takes place between late January and late July (additional records: two for early September, one for late September and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; canyons; buttes; ledges; sandy ridges; meadows; foothills; clayey hills; grassy hilltops; hillsides; rocky, shaley, gravelly, gravelly-clayey and clayey slopes; rock outcrops; breaks; sandy steppes; sandy prairies; plains; gravelly, sandy, clayey and silty flats; basins; rocky-sandy and clayey valley floors; along railroad right-of-ways; along roadsides; along arroyos; gulches; gullies; springs; along streams; creekbeds; along rivers; rocky-sandy riverbeds; along and in gravelly-sandy, gravelly-loamy, sandy and sandy-silty washes; drainages; poolbeds; silty lakebeds; silty playas; marshes; clayey depressions; sinks; swales; loamy banks of rivers; sandy edges of ponds, lakes and lakebeds; around sandy margins of poolbeds, ponds and lagoons; silty-clayey shores of lakes and lakebeds; terraces; clayey bottomlands; clayey lowlands; sandy-clayey and loamy floodplains; around stock tanks (charcos); canal banks; banks of reservoirs; clayey and silty ditches; sandy-clayey riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry desert pavement; rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 100 to 11,600 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food, fodder and drug or medication. *Monolepis nuttalliana* is native to northwestern, northern, west-central and southern North America. *5, 6, **16**, 43 (013010), 46 (Page 254), 58, 63 (013010 - color presentation), 68, **77**, 80 (This species is listed as a Major Poisonous Range Plant. "The toxic principle in Patota is nitrate. The accumulation of toxic quantities of nitrate in the plant varies from year to year and generally is the result of marked change in the growth pattern of the plant. ... Control of Patota on a large scale would be impractical and not necessarily desirable as this plant does provide good nutritious feed for livestock during a normal growing season." See text for additional information.), **85** (013010 - color presentation of dried material), **89**, 127*

Salsola australis (see *Salsola tragus*)

Salsola iberica (see *Salsola tragus*)

Salsola kali (see *Salsola tragus*)

Salsola kali subsp. *tenuifolia* (see *Salsola tragus*)

Salsola kali L. var. *tenuifolia* (see *Salsola tragus*)

Salsola kali subsp. *tragus* (see *Salsola tragus*)

***Salsola tragus* C. Linnaeus: Prickly Russian Thistle**

SYNONYMY: *Salsola australis* R. Brown, *Salsola iberica* (f. Sennen & C. Pau) V.P. Botschantzev ex S.K. Czerepanov, *Salsola kali* C. Linnaeus, *Salsola kali* C. Linnaeus subsp. *tenuifolia* C.H. Moquis-Tandon, *Salsola kali* C. Linnaeus var. *tenuifolia* I.F. Tausch, *Salsola kali* C. Linnaeus subsp. *tragus* (C. Linnaeus) L.J. Čelakovský. COMMON NAMES: Cardo Ruso, Chamiso, Chamiso Valador, Ci Sha Peng (transcribed Chinese), Coast Saltwort, Common Russian Thistle, Hari Hijikii (transcribed Japanese), Leap the Field; Prickly Russian Thistle, Russian-cactus, Russian Thistle, Russian-thistle, Russian Tumbleweed, Soude Epineuse (French), Soude Roulante (French), Spineless Saltwort,

Tumbleweed, Tumbling Thistle, Ukraine Salzkraut (German), Volador, Wind Witch. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 7 feet in height, plants were observed that were 4 feet in height and 3 feet in width); the foliage may be blue-green, green, grayish-green, purple or red striped, reddish-purple or yellow-green; the inconspicuous flowers (without petals) are brown, pale green, green, green-red, pink, white, whitish, whitish-green, white-pink, white-yellow or yellowish-green; flowering generally takes place between late April and mid-November (additional records: one for early February, one record for early April and one for mid-March); the fruit is a reddish top-shaped pod with papery wings. HABITAT: Within the range of this species it has been reported from mountains; gravelly mountainsides; sandy mesas; plateaus; canyon rims; rocky-sandy rims of craters; cliffs; rocky and sandy canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; sandy bases of escarpments; rocky, sandy and sandy-loamy ridges; rocky-clayey foothills; hills; rocky, gravelly and sandy hillsides; rocky, cindery, gravelly, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy, clayey and silty slopes; bajadas; rocky outcrops; sand dunes; prairies; sandy plains; gravelly, sandy-loamy and silty flats; basins; gravelly, gravelly-sandy and sandy valley floors; valley bottoms; coastal dunes; sandy coastal beaches; coastal salt marshes; along gravelly-clayey railroad right-of-ways; gravelly roadbeds; along gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; sandy arroyos; bottoms of arroyos; draws; gravelly gullies; seeps; along streams; along streambeds; along cobbly-loamy, sandy and sandy-silty creekbeds; along rivers; along rocky-sandy and sandy riverbeds; along bouldery, sandy, sandy-loamy and sandy-clayey washes; within clayey drainages; pondbeds; around lakes; sandy-loamy playas; marshes; gravelly and gravelly-sandy swales; sandy and clayey-loamy banks of springs, rivers and washes; sandy edges of creeks and marshes; shores of lakes; sandy-clayey beaches; sandy and clayey benches; gravelly terraces; sandy-clayey bottomlands; along sandy and sandy-clayey floodplains; mesquite bosques; along fencelines; around stock tanks; shores of reservoirs; along ditches; along sandy ditch banks; bouldery-cobbly-sandy, gravelly and sandy riparian areas; waste places, and disturbed areas growing in wet and dry desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, cindery, gravelly, gravelly-pebbly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam. silty loam and loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and silty ground, occurring from sea level to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. Russian Thistle is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets *Salsola tragus* is native to northern, central, eastern and southern Europe; Asia, and northern Africa. *5, 6, 15 (recorded as *Salsola iberica* Sennen & Pau), **16** (recorded as *Salsola iberica* Sennen & Pau), 28 (recorded as *Salsola iberica*, color photograph,), 43 (070309), 46 (recorded as *Salsola kali* L. and *Salsola kali* L. var. *tenuifolia* Tausch, Page 264), **56**, **57**, 58 (recorded as *Salsola iberica* Sennen & Pau), 63 (013010 - color presentation), 68 (recorded as *Salsola kali* L. var. *tenuifolia* Tausch, "It is a host plant for the sugarbeet leafhopper which carries the virus causing curly top in beets. It is also the source of "blight" in other crop plants such as tomatoes, spinach and beans. ... May store toxic amounts of nitrates after periods of fast growth."), 77 (recorded as *Salsola australis* R. Br.), 80 (*Salsola kali* L. var. *tenuifolia* is listed as a Major Poisonous Range Plant. "Russian thistle is capable of storing up toxic quantities of nitrate, particularly during the flush period of growth. *Salsola* has also been suspected of causing oxalate poisoning in Australia. ... Large-scale control can best be accomplished through range improvement to replace the thistle with grass." See text for additional information.), **85** (013010 - color presentation, J.J. Thornber reported on August 8, 1913, that Russian Thistle (*Salsola kali* L.) was recently introduced and rapidly spreading at a population observed in the Rillito bottomlands east of Tucson,), 101 (recorded as *Salsola iberica* Sennen, color photograph), 115 (color presentation), 127, **WTK** (October 28, 2009)*

***Suaeda moquinii* (J. Torrey) E.L. Greene: Mojave Seablite**

SYNONYMY: *Suaeda nigra* (Rafenesque) J.F. MacBride, *Suaeda torreyana* S. Watson, *Suaeda torreyana* S. Watson var. *ramosissima* (P.C. Standley) P.A. Munz. COMMON NAMES: Bush Seepweed,

Chuchk Ouk (Pima), Chuick Onhk (meaning Black Salty - Pima), Desert Seepweed, Hataxipol (Seri), Inkweed, Iodineweed, Mojave Seablite, Quelite Salado, Torrey Sea-blite, Seep-weed. DESCRIPTION: Terrestrial perennial leaf-succulent forb/herb, subshrub or shrub (8 inches to 8 feet in height); the woody stems are brown to gray-brown; the stems are blue, green, dark red or yellow-brown; the leaves are blue, grayish, green, red or yellow-green; the flowers are inconspicuous; flowering generally takes place between mid-March and mid-November (additional records: one for early January, one for late February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; shaley canyons; gravelly-sandy canyon bottoms; along bluffs; ridgetops; meadows; hills; sandy hilltops; rocky hillsides; rocky-sandy, shaley, sandy-loamy and clayey slopes; bajadas; amongst rocks; sand hills; sand dunes; sand and clayey flats; sandy and clayey plains; rocky-clayey, shaley, sandy and clayey flats; basins; sandy-clayey-loamy valley floors; sandy-loamy and clayey valley bottoms; coastal plains; coastal bluffs; sandy coastal beaches; coastal salt marshes; along clayey railroad right-of-ways; gravelly-loamy and gravelly-sandy-loamy roadsides; within sandy arroyos; within gravelly-clayey ravines; around and in seeps; springs; along streams; along sandy creekbeds; along rivers; along riverbeds; along and in sandy, sandy-loamy, clayey-silty and silty washes; drainages; vernal pools; silty lakebeds; clayey and silty playas; clay pans; sinks; along sloughs; along sandy banks of rivers, ponds and marshes; sandy edges of gullies, washes, ponds, playas, bays, cienegas and marshes; mudflats; rocky and sandy beaches; benches; sandy and sandy-silty terraces; sandy bottomlands; silty-clayey-loamy lowlands; floodplains; fencelines; along silty-loamy ditch banks; sandy riparian areas and disturbed areas growing in wet, moist and dry rocky, shaley, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and silty-clayey loam ground; rocky clay, gravelly clay, silty clay and clay ground; sandy silty, clay silty and silty ground, and powdery ground, occurring from sea level to 7,400 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a cooking tool and as a drug or medication. The foliage is reportedly foul-smelling. *Suaeda moquinii* is native to west-central and southern North America. *5, 6, 13 (recorded as *Suaeda torreyana* S. Wats., *Suaeda torreyana* S. Wats. var. *ramosissima* (Standley) Munz), 43 (013010 - *Suaeda nigra* J.F. MacBr.), 46 (recorded as *Suaeda torreyana* Wats., Page 263), **56**, **57**, 63 (013010 - color presentation), **85** (013010 - color presentation), **89**, 127*

Suaeda nigra (see *Suaeda moquinii*)

Suaeda torreyana (see *Suaeda moquini*)

Suaeda torreyana var. *ramosissima* (see *Suaeda moquinii*)

***Suaeda suffrutescens* S. Watson (var. *suffrutescens* is the variety reported as occurring in Arizona): Desert Seepweed**

COMMON NAMES: Desert Seepweed, Shrubby Seepweed. DESCRIPTION: Terrestrial perennial leaf-succulent forb/herb, subshrub or shrub (36 to 40 inches in height in height); based on few flowering records located (two for mid-August and one for late August) flowering generally takes place between mid-August and late August (flowering generally taking place between March and July has also been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; slopes; alkali flats; basins; valley floors; valley bottoms; sandy-loamy roadsides; along arroyos; along rivers; bouldery-sandy-silty drainages; depressions; bottomlands; floodplains; riparian areas, and disturbed areas growing in moist and dry bouldery-sandy, gravelly-sandy and sandy ground; sandy loam ground; clay ground, and bouldery-sandy-silty ground, occurring from 1,100 to 6,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial spice crop; it was also noted as having been used as a cooking tool. *Suaeda*

suffrutescens is native to southwest-central and southern North America. *5, 6, 13, 43 (013010), 46 (Page 263), 63 (013010), 85 (013110), **89**, 127*

Convolvulaceae: The Morning-glory Family

***Convolvulus arvensis* C. Linnaeus: Field Bindweed**

COMMON NAMES: Akerwinde (German), Akkerwinde (Afrikaans), Bind-weed, Bindweed, Campainha (Portuguese), Ch'il Na'atloo'ii (Navajo), Common Bindweed, Corda-de-viola (Portuguese), Corregüela (Spanish), Creeping Jenny, European Bindweed, European Morning Glory, Field Bind-weed, Field Bindweed, Klimop (Afrikaans), Liseron des Champs (French), Morning-glory, Morningglory, Orchard Morning-glory, Perennial Morning-glory, Possession Vine, Possession Weed, Smallflowered Morning Glory, Wild Morning Glory, Wild Morning-glory. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, sprawling, trailing and twining stems 6 inches to 10 feet in length, plants were reported that were 8 inches in height and 20 inches in width); the arrow-shaped leaves are green; the flowers are lavender, pale pink, pink, pink & white, pinkish, pinkish-white, purple, white, white tinged with pink or purple, white-violet, off-white with maroon streaking or white-yellow; flowering generally takes place between mid-April and early November or until the first frost (additional records: one for mid-March and one for late March). HABITAT: Within the range of this species it has been reported from mountains; sandy-loamy mesas; plateaus; rocky canyons; rocky canyon bottoms; rocky ledges; ridges; clayey ridgetops; sandy and clayey meadows; foothills; hills; shaley-sandy escarpments; rocky, rocky-clayey-loamy, sandy and clayey-loamy slopes; gravelly banks; sandy steppes; sandy prairies; cobbly-loamy, loamy and clayey flats; valley floors; valley bottoms; sandy railroad right-of-ways; roadbeds; along rocky, stony, cindery, cindery-loamy, gravelly, gravelly-loamy, sandy and clayey roadsides; clayey bottoms of arroyos; gulches; rocky seeps; springs; along streams; along creeks; along and in sandy-silty and silty creekbeds; along rivers; riverbeds; along and in cobbly and sandy washes; sandy drainages; beds of vernal pools; along margins of lakes; banks of gullies and rivers; terraces; sandy bottomlands; floodplains; along fencelines; margins of stock tanks; along and in gravelly ditches; clayey-loamy ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, shaley-sandy, stony, cobbly, cindery, gravelly and sandy ground; rocky-clayey loam, cobbly loam, cindery loam, gravelly loam, sandy loam, clayey loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub; grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities, and considered to be one of the most noxious of all weeds. This plant was reported to have been utilized by native peoples of North America it was noted as having been used as cordage and as a drug or medication. Field Bindweed is an extremely difficult plant to eradicate once it has become established. *Convolvulus arvensis* is native to northern, central, eastern and southern Europe; Asia, and northern Africa. *5, 6, 15, 28 (color photograph), 43 (013110), 46 (Page 674), 58, 63 (013110 - color presentation), 68, **77**, 80 (Species of the genus Convolvulus are listed as Rarely Poisonous and Suspected Poisonous Range Plants. “Species of this genus have been known to develop toxic concentrations of nitrate.”), **85** (013110 - color presentation), 86 (color photograph), **89**, 101 (color photograph), 127*

***Ipomoea barbatisepala* A. Gray: Canyon Morning-glory**

COMMON NAME: Bristlecup Morning Glory, Canyon Morning-glory, Morning Glory. DESCRIPTION: Terrestrial annual forb/herb or vine (climbing and twining stems to 2 feet (probably more) in length); the flowers (¾ inch in diameter) may be blue, dark blue, pink, purple, purplish-pink, rosy-purple, pale sky blue or white; flowering generally takes place between late August and mid-September (additional record: one for early October, flowering beginning as early as July and ending as late as December has been reported). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; sandy canyon bottoms; chasms; along bases of cliffs; foothills;

hills; rocky, gravelly and loamy slopes; sandy bajadas; rocky outcrops; amongst boulders; along railroad right-of-ways; along roadsides; along bouldery arroyos; rocky draws; along rocky ravines; springs; along and in rocky streams; along sandy streambeds; creeks; along and in gravelly and sandy washes, within rocky drainages; gravelly riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, gravelly and sandy ground and rocky loam and loam ground, occurring from 1,800 to 9,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Ipomoea barbatisepala* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (013110), 46 (Page 677), 48 (genus), 63 (013110), 77, **85** (013110 - color presentation of dried material), 115 (color presentation)*

***Ipomoea coccinea* C. Linnaeus: Redstar**

COMMON NAMES: Red Morning-glory, Red Morningglory, Redstar, Scarlet Creeper, Scarlet-creeper, Scarlet Morning Glory, Scarlet Morning-glory, Scarlet Morningglory, Star Glory, Star-glory, Starglory, Star Ipomoea. DESCRIPTION: Terrestrial annual forb/herb or vine (twining stems 5 inches to 10 feet in length); the stems are reddish; the heart-shaped leaves are dark green; the narrowly trumpet-shaped flowers (1/2 to 2/3 inch in diameter) are orange-red, red, reddish-orange, reddish-purple or scarlet; flowering generally takes place between mid-August and late October (additional record: one for late June, flowering beginning as early as May has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; hillsides; rocky and gravelly slopes; amongst rocks; lava flows; gravelly flats; along gravelly-sandy and gravelly-sandy-loamy roadsides; along streams; along rock-gravelly creekbeds; along rocky, gravelly and gravelly-sandy washes; banks of rivers; terraces; floodplains; ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, gravelly and gravelly-sandy ground and gravelly-sandy loamy and loam ground , occurring from 2,000 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Ipomoea hederifolia* C. Linnaeus, once considered to be a variety of *Ipomoea coccinea* (*I.c.* var. *hederifolia* (L.) A. Gray) has leaves that are 3 to 5 lobed. Hummingbirds visit the flowers. *Ipomoea coccinea* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph), 43 (013110), 46 (Page 676), 48 (genus), 58, 63 (013110 - color presentation, the NRCS Database shows this plant as being native to southeast- central North America and as not being native to Arizona), 68, 85 (013110 -), 86 (note under *Ipomoea cristulata*), **89**, 101 (color photograph)*

Ipomoea desertorum (see *Ipomoea hederacea*)

***Ipomoea hederacea* N.J. von Jacquin: Ivyleaf Morning-glory**

SYNONYMY: *Ipomoea desertorum* H.D. House, *Ipomoea hirsutula* auct. non J.F. von Jacquin f., *Ipomoea nil* auct. non (C. Linnaeus) A.W. Roth. COMMON NAMES: Bi:bhiag (Tohono O'odham), Blue Morning-glory, Desert Morning-glory, Entireleaf Morningglory, Ivy-leaf Morning-glory, Ivyleaf Morning-glory, Ivyleaf Morningglory, Mexican Morningglory, Morning Glory, Trompillo Morado, Woolly Morning Glory, Woolly Morningglory. DESCRIPTION: Terrestrial annual forb/herb or vine (twining stems 16 inches to 8 feet in length); the flowers (to 2 inches in diameter) may be pale blue, blue, blue-purple, blue with white throat, lavender, mauve-blue, purple, purplish, violet, white & purple or whitish; flowering generally takes place between mid-August and mid-December (additional records: one for late June and one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky and sandy canyon bottoms; bouldery bases of cliffs; gravelly ridgetops; foothills; hills; rocky hilltops; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-clayey slopes; bajadas; amongst boulders; plains; gravelly, sandy, sandy clayey and sandy-silty flats; valley floors; sandy, sandy-silty and loamy valley bottoms; along rocky and sandy-loamy roadsides; stony arroyos; rocky-sandy bottoms of arroyos; gulches; along streams; streambeds; sandy riverbeds; along and in gravelly, gravelly-silty and gravelly-sandy-silty washes; drainages; cienegas; silty banks of creeks,

rivers and drainage ways; benches; terraces; sandy floodplains; mesquite bosques; ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; sandy clay ground, and gravelly silty, gravelly-sandy-silty, sandy silty and silty ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. Two records stated that the flowers close by 11:00/11:30 AM. *Ipomoea hederacea* is native to southern North America, Central America and northwestern South America. *5, 6, 18 (genus), 28 (note under *Ipomoea purpurea*), 43 (070409), 46 (recorded as *Ipomoea hirsutula* Jacq f. (*Ipomoea desertorum* House), Page 678), 48 (genus), **56**, **57**, 63 (013110 - color presentation), 68, 77, **85** (013110 - color presentation), **89**, 101 (color photograph), 115 (color presentation), 134*

Ipomoea hirsutula N.J. von Jacquin f. (see *Ipomoea purpurea*)

Ipomoea hirsutula auct. non N.J. von Jacquin f. (see *Ipomoea hederacea*)

Ipomoea nil auct. non (C. Linnaeus) A.W. Roth (see *Ipomoea hederacea*)

***Ipomoea purpurea* (C. Linnaeus) A.W. Roth: Tall Morning-glory**

SYNONYMY: *Ipomoea hirsutula* J.F. von Jacquin f. COMMON NAMES: Bejuco (Hispanic), Common Morning-glory, Common Morning Glory, Common Morning-glory, Common Morningglory, Entireleaf Morning-glory, Garden Morning-glory, Manto (Hispanic), Mexican Morning-glory, Morning Glory, Platu Kak' Araku' (Purépecha), Purperwinde (Afrikaans), Quiebra Platos (Hispanic), Tall Morning-glory, Tall Morningglory, Woolly Morning-glory. DESCRIPTION: Terrestrial annual forb/herb or vine (trailing and twining stems 1 to 30 feet in length); the heart-shaped entire to 3- to 5-lobed leaves are green; the flowers (1½ to 2½ inches in diameter) may be blue, blue-purple, blue-violet, blue & white, lavender, magenta with pink or white throats, bright pink, pink, pink-purple, purple, dark purple with blue, purple-blue, purple & white, purple with a white throat, red, violet, violet-purple, white or white tinged with purple; flowering generally takes place between late June and mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; rocky canyons; canyon bottoms; gravelly ridgetops; meadows; foothills; hills; hillsides; rocky, rocky-gravelly and stony-clayey slopes; alluvial fans; amongst rocks; plains; rocky, rocky-clayey, stony-clayey, cobbly-sandy and clayey flats; valleys; along gravelly-sandy, gravelly-loamy and sandy-loamy roadsides; in rocky arroyos; rocky-sandy bottoms of arroyos; seeps; along streams; along rocky streambeds; sandy creekbeds; along rivers; sandy riverbeds; along sandy washes; drainage ways; along sandy beaches; terraces; sandy floodplains; mesquite bosques; along ditches; banks of levees; gravelly-clayey-loamy riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground, and rocky clay, stony clay, sandy clay and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Ipomoea purpurea* is native to the tropical Americas. *5, 6, 15, 18 (genus), 28 (color photograph), 30, 43 (070409), 46 (Page 678), 48 (genus), 58, 63 (013110 - color presentation), 68, 85 (013110 - color presentation of dried material), 86 (color photograph), **89**, 101 (color photograph)*

Crassulaceae: The Stonecrop Family

***Crassula connata* (H. Ruiz Lopez & J.A. Pavon) A. Berger: Sand Pygmyweed**

COMMON NAMES: Pygmy Stonecrop, Pygmy Weed, Pygmy-weed, Sand Pygmyweed. DESCRIPTION: Terrestrial annual forb/herb (¾ to 4 inches in height); the plants are green, reddish,

reddish-yellow or yellow-green; the inconspicuous flowers are greenish-white or reddish; flowering generally takes place between mid-January and early May (additional records: one for early June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; rocky canyons; gravelly-sandy, sandy and sandy-loamy canyon bottoms; buttes; loamy-clayey ledges; clayey-loamy ridgetops; sandy meadows; rocky foothills; rocky and clayey hills; bouldery, rocky and gravelly-sandy hillsides; rocky, rocky-loamy, cobbly-sandy, gravelly-sandy and clayey slopes; rocky-sandy-loamy alluvial fans; bajadas; amongst rocks; shaded banks; gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and loamy flats; rocky valley floors; coastal bluffs; along sandy and sandy-loamy roadsides; gullies; seeps; along streams; along sandy streambeds; along creeks; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; around pools; vernal pools; poolbeds; sandy depressions; gravelly swales; rocky, sandy and silty banks of arroyos, creeks and rivers; along edges of washes and lakes; margins of pools; benches; terraces; loamy bottomlands; floodplains; beds of dried ditches; recently burned areas in woodlands and chaparral, and disturbed areas growing in standing water and wet, moist, damp and dry bouldery, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; loamy clay and clay ground, and silty ground, occurring from sea level to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Crassula connata* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 43 (013110), 46 (recorded as *Tillaea erecta* Hook. & Arn., Page 361), 63 (013110 - color presentation), **85** (013110 - color presentation)*

***Crassula connata* (H. Ruiz Lopez & J.A. Pavon) A. Berger var. *connata*: Sand Pygmyweed**

SYNONYMY: *Crassula erecta* (W.J. Hooker & G.A. Arnott) A. Berger, *Tillaea erecta* W.J. Hooker & G.A. Arnott. COMMON NAMES: Pygmy Stonecrop, Pygmy Weed, Pygmy-weed, Sand Pygmyweed. DESCRIPTION: Terrestrial annual forb/herb (¾ to 4 inches in height); the plant is reddish; the minute flowers are green and reddish; flowering for the species generally takes place between mid-January and early May (flowering records: one for late February, one for late March, two for mid-April and one for late April). HABITAT: Within the range of this species it has been reported from plateaus; openings in chaparral; rocky hills; rocky, sandy and clayey slopes; gravelly and sandy flats; coastal foothills; coastal bluffs; clayey roadsides; seeps; streambeds; washes; around vernal pools; sandy depressions; sandy terraces; and recently burned areas of chaparral, and disturbed areas growing in moist, damp and dry rocky, gravelly and sandy ground; clay loam ground, and clay ground, occurring from sea level to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Crassula connata* var. *connata* is native to southwest-central and southern North America and western South America. *5, 6, 15 (recorded as *Crassula erecta* (Hook. & Arn.) Berger), **16** (recorded as *Tillaea erecta* Hook. & Arn.), 43 (013110), 46 (recorded as *Tillaea erecta* Hook. & Arn., Page 361), 58 (recorded as *Tillaea erecta* Hook. & Arn.), 63 (013110 - color presentation, *Crassula connata* var. *connata* is shown in the mapping as not being present in Arizona), 77 (recorded as *Tillaea erecta* H. & A.), 85 (020110 - information is restricted)*

Crassula erecta (see *Crassula connata* var. *connata*)

Tillaea erecta (see *Crassula connata* var. *connata*)

Cucurbitaceae: The Cucumber Family

***Apodanthera undulata* A. Gray: Melon Loco**

COMMON NAMES: Calabaza de Coyote (Spanish), Melon de Coyote, Loco-melon, Melon Loco, Melon-loco. DESCRIPTION: Terrestrial perennial forb/herb or vine (creeping, sprawling or trailing stems 2 to 10 feet in length, one plant was described as being 12 inches in height and 6½ feet in

width); the leaves (8 to 12 inches in height) are grayish or dark green; the flowers (to 1½ inches in diameter) are greenish-yellow, yellow, yellowish-cream, yellowish-green or white; flowering generally takes place between mid-May and mid-October (additional record: one for late December); the oval, ribbed fruit (2½ to 4 inches in length) is green. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon walls; ridges; ridgetops; foothills; hills; rocky hillsides; rocky slopes; clayey bajadas; sand dunes; plains; bouldery-sandy, gravelly and sandy-silty flats; valley floors; valley bottoms; along rocky, gravelly-loamy, gravelly-sandy-clayey-loamy and gravelly-sandy-silty roadsides; rocky arroyos; along washes; sandy depressions; along swales; edges of arroyos; along margins of arroyos; terraces; floodplains; ditches, and disturbed areas growing in dry bouldery-sandy, rocky, gravelly and sandy soils; gravelly loam, gravelly-sandy loam and gravelly-sandy-clayey loam ground; clay ground, and gravelly-sandy silty and sandy-silty ground, occurring from 1,500 to 6,000 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: Melon Loco has a rank odor. *Apodanthera undulata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (070409), 46 (Page 821), 58, 63 (013110 - color presentation), 77, 85 (013110 - color presentation), 86 (color photograph), **89**, 115 (color presentation)*

***Cucurbita digitata* A. Gray: Fingerleaf Gourd**

COMMON NAMES: Calabachilla, Chichi Coyota, Coyote Gourd, Coyote Melon, Finger Leaf Gourd, Finger-leafed Gourd, Fingerleaf Gourd, Finger-leaved Gourd. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, sprawling or trailing stems 3 to 40 feet in length); the palmate leaves are dark blue-green, gray-green, grayish-green or green; the large funnel-shaped flowers (1½ to 2 inches in length) are greenish-yellow, orange or yellow; flowering generally takes place between mid-May and mid-October (additional records: one for mid-February and one for mid-November); the striped gourd-like fruits (2 to 3½ inches in diameter) are green aging to pale yellow or yellowish-green. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; foothills; hills; sandy hilltops; rocky slopes; banks; plains; gravelly and sandy flats; basins; gravelly-sandy valley floors; along gravelly, gravelly-sandy-silty and sandy roadsides; within sandy arroyos; bottoms of arroyos; gulches; along streambeds; sandy creekbeds; along rivers; sandy riverbeds; along and in gravelly-sandy, gravelly-loamy, sandy and silty washes; sandy banks of arroyos, rivers and washes; sandy benches; floodplains; along canal banks; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and gravelly-sandy silty and silty ground, occurring from 100 to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. One record reported that the flowers opened at dawn and closed in the afternoon. *Cucurbita digitata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (070409), 46 (Page 822), 48 (genus), **56**, **57**, 58, 63 (020110 - color presentation of seed), 68, 77, **85** (020110 - color presentation), **89**, 115 (color presentation), 127*

***Ibervillea tenuisecta* (A. Gray) J.K. Small: Slimlobe Globeberry**

SYNONYMY: *Maximowiczia lindheimeri* (A. Gray) C.A. Cogniaux var. *tenuisecta* (A. Gray) C.A. Cogniaux. COMMON NAMES: Cutleaf Globe Berry, Deer-apples, Globeberry, Slimlobe Globeberry, Texas Globe Berry, Texas Globeberry. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling or twining stems 6 to 12 feet in length); the stems are blue-green; the tiny flowers are yellow, yellow-green or yellowish-green; based on very few flowering records located flowering generally takes place between mid-May and early November (flowering records: one for mid-May, one for mid-august, three for late August and one for early November); the berry-like fruit (½ to ¾ inch in diameter) is persimmon-orange, bright red or scarlet. HABITAT: Within the range of this species it has been reported from mountains, mountainsides; mesas; canyons; ridges; foothills; rocky hills; rocky hillsides; rocky slopes; bajadas; clayey and silty flats; valley floors; sandy-silty valley bottoms; along

roadsides; sandy and clayey-loamy arroyos; draws; along gullies; springs; along creeks; along washes; sandy-silty floodplains, and clayey-loamy riparian areas growing in dry rocky and sandy ground; clayey loam ground; clayey ground, and sandy silty and silty ground, occurring from 1,100 to 5,000 feet in elevation in the grassland and desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The root has been described as being turnip-shaped. *Ibervillea tenuisecta* is native to southwest-central and southern North America. *5, 6, 8, 43 (020110 - no record for *Maximowiczia lindheimeri* var. *tenuisecta*), 46 (Page 821), 63 (020110), **85** (020110 - color presentation of dried material), **89** (recorded as *Maximowiczia tripartita* Cogn. var. *tenuisecta* Wats)*

Maximowiczia lindheimeri var. *tenuisecta* (see *Ibervillea tenuisecta*)

Maximowiczia tripartita var. *tenuisecta* (see footnotes 16 and 89 under *Ibervillea tenuisecta*)

***Tumamoca macdougalii* J.N. Rose: Tumamoc Globeberry**

COMMON NAMES: Globeberry, MacDougal Tumamoc Globe-berry, Tumamoc Globeberry. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering stem 28 inches to 5 feet in length); the leaves are dark green; the flowers (one-eighth inch in diameter) are greenish, greenish-yellow, white or yellow; flowering generally takes place between late July and late September; the mature berry-like fruit (½ to ¾ inch in diameter) is orange-red, bright red or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky hillsides; rocky slopes; rocky bajadas; amongst rocks; gravelly flats; valley floors; sandy valley bottoms; coastal plains; valleys; along arroyos; along gullies; along sandy washes; along stony drainages; along edges of arroyos, poolbeds and swales; along margins of washes; terraces, and mesquite bosques usually growing with the support of and/or in the shade of shrubs and trees in dry rocky, stony, gravelly and sandy ground and sandy-silty ground, occurring from sea level to 3,000 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants remains dormant during winter and early spring, vines die back after fruiting or are killed by frost, consider planting beneath shrubs and low growing trees that will give support to the vines. The flowers are pollinated by moths. Cardinals, thrashers, Gambel Quail (*Callipepla gambelii*) and Gila Woodpeckers (*Melanerpes uropygialis*) feed on the fruits and seeds, and Javelinas (*Peccari tajacu*) feed on the tuberous roots. *Tumamoca macdougalii* is native to southwest-central and southern North America. *5, 6, **8**, 9 (color photograph), **16**, 43 (020110), 46 (Pages 821-822), 63 (020110), **77**, 85 (020110 - color presentation, detailed locality information is restricted), **89** (recorded as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats.), 91*

Cuscutaceae: The Dodder Family

***Cuscuta* C. Linnaeus: Dodder**

COMMON NAME: Dodder *43 (020110), 46 (Pages 666-671), 63 (020110 - color presentation), 85 (020110), 115 (color presentation), **89***

***Cuscuta salina* G. Engelmann: Saltmarsh Dodder**

COMMON NAMES: Dodder, Golden Thread, Goldenthread, Saltmarsh Dodder, Lovevine. DESCRIPTION: Terrestrial perennial parasitic forb/herb or vine; the stems are orange; the flowers are white; flowering generally takes place between late April and mid-August (additional records: one for mid-January, one for mid-October, one for early November and three for late November and). HABITAT: Reported as growing on *Allenrolfea* spp., *Ambrosia* spp., *Atemisia* spp., *Atriplex* spp., *Bassia* spp., *Cressa* spp., *Frankenia* spp., *Haplopappus* spp., *Jaumaea* spp., *Nitrophila* spp., *Peganum* spp., *Salicornia* spp., *Salsola* spp., *Stephanomeria* spp., *Suaeda* spp., and *Xanthium* spp., occurring from sea level to 4,300 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Cuscuta salina* is

native to west-central North America. *5, 6, 43 (020110), 46 (Page 669), 63 (020110 - color presentation), 68 (genus), 77, 80 (Species of the genus *Cuscuta* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This parasitic, annual vine has been suspected of causing digestive disturbances and diarrhea in horses and cattle."), 85 (020110 - color presentation of dried material), **89***

***Cuscuta umbellata* K.S. Kunth: Flatglobe Dodder**

SYNONYMY: *Cuscuta umbellata* K.S. Kunth var. *reflexa* (J.M. Coulter) T.G. Yuncker. COMMON NAMES: Big-flower Dodder, Dodder, Flatglobe Dodder, Flat-globe Dodder, Umbrella Dodder. DESCRIPTION: Terrestrial annual parasitic forb/herb or vine, the trailing or twining stems are orange, yellow, yellowish or yellow-orange, the flowers are cream, white or yellow, flowering generally takes place between mid-February and early December. HABITAT: Reported as growing on *Alternanthera* spp., *Allionia* spp., *Amaranthus* spp., *Anoda cristata*, *Artimisia* spp., *Atriplex* spp., *Boerhaavia* spp., *Euphorbia* spp., *Chamaesyce* spp., *Kallstroemia* spp., *Physalis* spp., *Polygonum* spp., *Portulaca* spp., *Salsola* spp., *Suaeda* spp., *Sesuvium* spp., *Tidestromia* spp., *Trianthema* spp. and *Tribulus* spp., occurring from sea level 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cuscuta umbellata* is native to south-central and southern North America; Central America, and northern South America. *5, 6, 43 (020210 - *Cuscuta umbellata* var. *reflexa* Yunck.), 46 (Page 671), **56**, **57**, 63 (020210 - color presentation), 68, **77** (recorded as *Cuscuta umbellata* H.B.K. var. *reflexa* (Coult.) Yuncker and *Cuscuta umbellata* H.B.K. var. *umbellata*), 80 (Species of the genus *Cuscuta* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "This parasitic, annual vine has been suspected of causing digestive disturbances and diarrhea in horses and cattle."), **85** (020210 - color presentation)*

Cuscuta umbellata var. *reflexa* (see *Cuscuta umbellata*)

Euphorbiaceae: The Spurge Family

***Argythamnia* P. Browne: Silverbush**

SYNONYMY: *Ditaxis* M.H. Vahl *ex* A.H. Laurent de Jussieu. COMMON NAMES: Ditaxis, Silverbush. *43 (020210), 46 (recorded as *Ditaxis*, Pages 505-506), 63 (020210), 85 (020210 - color presentation), **89** (recorded as *Ditaxis*, the plant which was reported by J.J. Thornber on April 22, 1905 could possibly be *Argythamnia lanceolata*)*

***Argythamnia lanceolata* (G. Bentham) J. Müller Argoviensis: Narrowleaf Silverbush**

SYNONYMY: *Ditaxis lanceolata* (G. Bentham) F.A. Pax & K. Hoffmann. COMMON NAMES: Lanceleaf Ditaxis, Lance-leaved Argythamnia, Lance-leaved Ditaxis, Narrowleaf Silverbush. DESCRIPTION: Terrestrial perennial subshrub (8 inches to 4 feet in height, one plant was described as being 20 inches in height with a crown 11 inches in diameter); the bark is gray; the stems are brown or green and covered with silky hairs; the leaves are gray-green, light green, green, silvery, silvery-gray or silvery green and covered with silvery hairs; the small flowers may be cream, greenish-white, white, whitish, whitish-green, yellow or yellowish; flowering generally takes place between mid-January and early June (additional records: one for late June, one for mid-August, one for early September, four for mid-September, seven for late September, one for early October, three for mid-October, two for late October, two for early November, one for mid-November, one for early December, one for mid-December and one for late December, flowering had also been reported as occurring between February and September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; bouldery, rocky and gravelly canyons; rocky canyon walls; along gravelly and sandy canyon bottoms; bases of cliffs; buttes; gravelly ridges; rocky foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-sandy, gravelly and gravelly-sandy-loamy slopes; rocky-sandy alluvial fans; rocky and gravelly bajadas; amongst boulders and rocks; lava hills; sand dunes; crests of dunes;

deposits of wind-blown sand; flats; sandy coastal plains; sandy coastal beaches; railroad right-of-ways; along gravelly and sandy roadsides; along arroyos; gravelly bottoms of arroyos; ravines; along and in bouldery-rocky, rocky, rocky-sandy, gravelly and sandy washes; along and in drainages; rocky-silty-clayey banks of washes; along edges of washes; rocky margins of arroyos; sandy beaches; terraces; along floodplains; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and sandy loam ground, and rocky-silty clay and clay ground, occurring from sea level to 4,600 feet in elevation in the scrub, desertscrub and wetland ecological formation. NOTES: This plant may be browsed by rodents. *Argythamnia lanceolata* is native to southwest-central and southern North America. *5, 6, 43 (052310), 46 (recorded as *Ditaxis lanceolata* (Benth.) Pax & Hoffmann, Page 506), 63 (052310), 77, **85** (052310 - color presentation)*

***Argythamnia neomexicana* J. Müller Argoviensis: New Mexico Silverbush**

SYNONYMY: *Ditaxis neomexicana* (J. Müller Argoviensis) A.A. Heller. COMMON NAMES: Common Ditaxis, Common Silverbush, Ditaxis, New Mexico Ditaxis, New Mexico Silverbush, New Mexico Wild Mercury, Silverbush. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 to 32 inches in height, clumps described as being 4 inches in height and 12 inches in width were reported); the leaves are gray-green or green; the small flowers are cream, cream-yellow, green, white, whitish, white-pale yellow, white-yellowish, white with a yellow center or yellowish; flowering generally takes place between early January and late December. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky and gravelly mesas; rocky-loamy canyons; bouldery canyon walls; canyon bottoms; talus slopes; rocky ridges; rocky ridgetops; foothills; rocky, rocky-sandy, cindery and gravelly-sandy hills; rocky and rocky-sandy hillsides; cinder cones; rocky, rocky-loamy, gravelly-sandy, sandy and sandy-silty slopes; bouldery-rocky-cobbly and rocky alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sandy plains; rocky, gravelly, sandy, clayey and silty flats; gravelly-sandy and sandy valley floors; coastal sand dunes; coastal terraces; coastal flats; bouldery-cobbly coastal beaches; along clayey roadsides; within rocky and sandy arroyos; along rocky and sandy bottoms of arroyos; rivulets; along creeks; along and in creekbeds, riverbeds; along and in bouldery, rocky, gravelly-sandy, gravelly-sandy-silty, sandy and silty washes; sandy drainage ways; depressions; banks of arroyos and washes; sandy edges of arroyos and washes; along sandy margins of washes; mudflats; beaches; along rocky benches; rocky terraces; sandy floodplains; ditches; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bedrock, bouldery, bouldery-rocky-cobbly, bouldery-cobbly, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam and clayey loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Argythamnia neomexicana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (020210), 46 (recorded as *Ditaxis neomexicana* (Müll.Arg,) Heller, Page 506), 58, 63 (020210), 77 (recorded as *Ditaxis neomexicana* (Müll.Arg,) Heller), **85** (020210 - color presentation), **89** (recorded as *Ditaxis humilis* (Engelm. & Gray) Pax.)*

***Chamaesyce abramsiana* (L.C. Wheeler) D.L. Koutnik: Abrams' Sandmat**

SYNONYMY: *Euphorbia abramsiana* L.C. Wheeler. COMMON NAMES: Abrams Sandmat, Abrams' Sandmat, Abrams' Spurge, Abram Spurge, Golondrina, Spurge. DESCRIPTION: Terrestrial annual forb/herb; mat-forming, prostrate to erect stems; the herbage is gray-brown or dark green; the flower-like cups are white; flowering generally takes place between early August and early November (additional records: one for early January and one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky ridges; rocky hillsides; rocky and gravelly-sandy slopes; alluvial fans; rocky bajadas; amongst rocks; lava flows; dunes; plains; gravelly, sandy and sandy-silty flats; valley floors; sandy-silty and loamy valley bottoms; coastal dunes; coastal plains; along and in roadbeds; along rocky-sandy and gravelly roadsides; bottoms of arroyos; draws; along and in

rocky, gravelly-sandy, sandy and silty washes; playas; sandy-silty depressions; sandy banks of washes; gravelly-silty edges of washes; mudflats; along sandy floodplains; clayey mesquite bosques; riparian areas; sandy banks of riparian areas, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; loam soils; clay ground, and gravelly-silty, sandy silty and silty ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The stems have a milky sap. *Chamaesyce abramsiana* is native to southwest-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020210), 46 (recorded as *Euphorbia abramsiana* L.C. Wheeler, Page 520), **56** (recorded as *Euphorbia abramsiana* Wheeler), **57** (recorded as *Euphorbia abramsiana* Wheeler), 63 (020210), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia abramsiana* L.C. Wheeler), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020210 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.")*

***Chamaesyce albomarginata* (J. Torrey & A. Gray) J.K. Small: Whitemargin Sandmat**

SYNONYMY: *Euphorbia albomarginata* J. Torrey & A. Gray. COMMON NAMES: Golondrina, Ikwik'yakya, (Zuni - "to get milk"), Rattlesnake Weed, White Margin Euphorbia, White Margin Spurge, White-margin Sandmat, Sandmat Spurge, Whitemargin Euphorbia, Whitemargin Sandmat, Whitemargin Spurge. DESCRIPTION: Terrestrial perennial forb/herb (mat-forming, prostrate stems ½ to 3 inches in height and 2 to 10 inches in length); the leaves are gray-green or green often having a white margin; the flower-like cups (1/8 inch in diameter) have green perianths and maroon, purple or purple-red glands (centers) with white petaloid appendages; flowering generally takes place between early January and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mesas; plateaus; cliffs; along rocky canyons; rocky-gravelly-sandy, cobbly-gravelly-sandy, gravelly and sandy canyon bottoms; gorges; bluffs; rocky knobs; ridges; ridgetops; clearings in forests; sandy meadows; rocky-gravelly-loamy and sandy foothills; bouldery, rocky and sandy hills; rocky-gravelly hilltops; rocky hillsides; bedrock, bouldery-sandy, rocky, rocky-sandy, rocky-clayey-loamy, cobbly-sandy-loamy, sandy-clayey, clayey, clayey, clayey-loamy and silty slopes; gravelly-sandy alluvial fans; sandy bajadas; craters; sand dunes; clayey breaks; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-loamy, sandy-clayey, sandy-silty, loamy, clayey, clayey-loamy and clayey-silty flats; basins; valley floors; sandy-silty, loamy and clayey valley bottoms; along railroad right-of-ways; gravelly roadbeds; along rocky, gravelly, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, loamy and silty roadsides; along and in sandy arroyos; bottoms of arroyos; sandy draws; gulches; gullies; rocky-gravelly-silty ravines; seeps; along streams; along creeks; sandy creekbeds; rocky-cobbly-sandy, sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-silty and silty washes; drainages; within clayey drainage ways; clayey poolbeds; silty lakebeds; silty and powdery playas; depressions; swales; along rocky-sandy and sandy banks of gullies, streams, creeks, rivers and washes; gravelly and sandy edges of creeks, washes and marshes; along clayey margins of springs, washes, poolbeds and ponds; mudflats; benches; rocky strands; rocky-sandy and gravelly terraces; bottomlands; floodplains; mesquite bosques; along sandy fence lines; dry charco bottoms; along canals; canal banks; in clayey ditches; sandy riparian areas; waste places, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-

gravelly loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground; rocky-gravelly silty, sandy silty, clayey silty and silty ground, and powdery ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce albomarginata* is native to southwest-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 28 (recorded as *Euphorbia albomarginata*, color photograph), 43 (070509), 46 (recorded as *Euphorbia albomarginata* Torr. & Gray, Pages 518-519), 58, 63 (020310 - color presentation), 68 (recorded as *Euphorbia albomarginata* Torr. & Gray, see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia albomarginata* T. & G.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020310 - color presentation), 86 (color photograph, *Euphorbia albomarginata*, "Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia albomarginata* T. & G.), 127*

***Chamaesyce arizonica* (G. Engelmann) J.C. Arthur: Arizona Sandmat**

SYNONYMY: *Euphorbia arizonica* G. Engelmann. COMMON NAMES: Arizona Euphorbia, Arizona Sandmat, Arizona Spurge, Spurge. DESCRIPTION: Terrestrial perennial forb/herb (prostrate to ascending stems 6 to 12 inches in height); the foliage is reddish or reddish-purple; the flower-like cups have maroon glands (centers) with pink or white petaloid appendages; flowering generally takes place between mid-January and early December. HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky-sandy mountaintops; bouldery-rocky cliffs; bouldery and rocky canyons; rocky and gravelly canyon bottoms; scree; gravelly bases of cliffs; bluffs; ridgetops; foothills; rocky hills; rocky hillsides; rocky slopes; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; roadsides; sandy arroyos; rocky bottoms of arroyos; gulches; sandy seeps; damp sand of seeping streams; along sandy streams; along and in rocky-gravelly streambeds; along and in creeks; sandy creekbeds; along rivers; riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; swales; banks of washes; edges of creeks and washes; sandy-clayey bars; riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; sandy-clayey, and bouldery silty and silty ground, occurring from 100 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce arizonica* is native to southwest-central and southern North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 46 (recorded as *Euphorbia arizonica* Engelm., Pages 519-520), 58, 63 (020310), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will

both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020310 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.")*

***Chamaesyce capitellata* (G. Engelmann) C.F. Millspaugh: Head Sandmat**

SYNONYMY: *Euphorbia capitellata* G. Engelmann. COMMON NAMES: Galondrina, Golondrinia, Head Euphorbia, Head Sandmat, Head Spurge, Koapaim (Yaqui), Spurge. DESCRIPTION: Terrestrial perennial forb/herb (prostrate to ascending stems 3 to 8 inches in height); the leaves are green; the flower-like cups have brown-maroon or red glands with white petaloid appendages; flowering generally takes place between mid-February and late October (additional records: one for early January, one for mid-November, two for late November, one for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery and clayey mesas; rocky canyons; gravelly-sandy canyon bottoms; rocky-sandy rims of craters; rocky ridgetops; rocky ridgelines; foothills; rocky and cobbly-gravelly-loamy hills; rocky hilltops; bouldery and rocky hillsides; rocky, gravelly and sandy slopes; bajadas; boulder fields; cobbly plains; rocky, gravelly, sandy and clayey flats; along rocky roadbeds; along rocky, rocky-clayey, gravelly, sandy-clayey roadsides; sandy arroyos; gravelly bottoms of arroyos; gravelly-silty bottoms of draws; gullies; along and in stony streambeds; along creeks; sandy creekbeds; riverbeds; along and in rocky, gravelly and sandy washes; drainages; banks of arroyos and lakes; sandy edges of poolbeds, ponds; bays, lagoons and marshes; along margins of pools; floodplains; fencelines; dry stock tank (charco) bottoms; gravelly-sandy riparian areas, and disturbed areas growing in wet and dry desert pavement; bouldery, rocky, stony, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam and gravelly loam ground; bouldery clay, rocky clay, sandy clay and clay ground, and bouldery-silty and gravelly silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce capitellata* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia capitellata* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 46 (recorded as *Euphorbia capitellata* Engelm., Page 518), 58, 63 (020310), **56** (recorded as *Euphorbia capitellata* Engelm.), **57** (recorded as *Euphorbia capitellata* Engelmann), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia capitellata* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020310 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia capitellata* Engelm.)*

***Chamaesyce florida* (G. Engelmann) C.F. Millspaugh: Chiricahua Mountain Sandmat**

SYNONYMY: *Euphorbia florida* G. Engelmann. COMMON NAMES: Chiricahua Mountain Sandmat, Florida Spurge, Golondrina, Spurge. DESCRIPTION: Terrestrial annual forb/herb (ascending stems 1 to 18 inches in height); the stems are pink-tan; the leaves are green, the flower-like cups have green glands (centers) with white (aging rose), white-pink or white with pinkish tips petaloid appendages; flowering generally takes place between mid-July and early November (additional records: two for early January, one for late June and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon walls; sandy canyon bottoms; chasms;

sandy ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly-loamy and sandy-loamy slopes; bajadas; dunes; plains; gravelly and sandy flats; basins; valley floors; coastal dunes; along rocky-sandy, gravelly-clayey and sandy roadsides; arroyos; along and in streambeds; along and in gravelly and sandy washes; gravelly-clayey depressions; along sandy banks of arroyos, rivers and washes; bottomlands; floodplains; edges of stock tanks; sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground, and gravelly clay ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce florida* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia florida* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020310), 46 (recorded as *Euphorbia florida* Engelm., Page 518), 58, 63 (020310), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia florida* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020310 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia florida* Engelm.), 115 (color presentation)*

***Chamaesyce glyptosperma* (G. Engelmann) J.K. Small: Ribseed Sandmat**

SYNONYMY: *Euphorbia glyptosperma* G. Engelmann. COMMON NAMES: Corrugate-seeded Spurge, Rib-seed Sandmat, Ribseed Sandmat, Rib-seeded Sandmat, Ridgeseed Euphorbia, Ridge-seed Spurge, Ridgeseed Spurge. DESCRIPTION: Terrestrial annual forb/herb; mat-forming prostrate to ascending red-purple stems; the leaves are green or dark green; the flower-like cups have pinkish or white petaloid appendages; flowering generally takes place between late July and early September (additional record: one for early October, flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky-sandy sides of canyons; canyon bottoms; chalky talus; sandy bottoms of cracks; ledges; foothills; shaley and sandy hills; rocky, sandy-loamy and chalky slopes; sand dunes; cindery and sandy flats; sandy valley floors; along gravelly and gravelly-sandy roadsides; sandy bottoms of arroyos; gulches; sandy streambeds; gravelly and sandy banks of creeks, rivers and washes; edges of saltmarshes; cobbly benches; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sand and sandy ground; rocky-gravelly loam and sandy loam ground; clay ground; sandy silty ground, and chalky ground, occurring from 600 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce glyptosperma* is native to central North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 46 (recorded as *Euphorbia glyptosperma* Engelm., Page 520), 63 (020410 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other

desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (020410 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89**, 101 (color photograph), 127*

***Chamaesyce gracillima* (S. Watson) C.F. Millspaugh: Mexican Sandmat**

SYNONYMY: *Euphorbia gracillima* S. Watson. COMMON NAMES: Mexican Broomspurge, Mexican Erect, Mexican Sandmat, Mexican Skeletonspurge, Spurge. DESCRIPTION: Terrestrial annual forb/herb; ascending stems; flowering generally takes place between mid-August and early October (additional record: one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; bajadas; amongst rocks; grassy plains; gravelly flats; along rocky-sandy roadsides; sandy bottoms of arroyos; along streambeds; along and in rocky-sandy washes; sandy banks of streams and rivers, and rocky margins of arroyos growing in dry rocky and stony desert pavement and rocky, rocky-sandy, stony, gravelly and sandy ground, occurring from 300 to 4,400 feet in elevation in the forest, scrub and desertscrub ecological formations. NOTES: The stems have a milky sap. *Chamaesyce gracillima* is native to southwest-central and southern North America. *5, 6, **8**, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 46 (recorded as *Euphorbia gracillima* Wats., Page 519), 63 (020410), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia gracillima* S. Wats.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020410 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.")*

***Chamaesyce hyssopifolia* (C. Linnaeus) J.K. Small: Hyssopleaf Sandmat**

SYNONYMY: *Euphorbia hyssopifolia* C. Linnaeus. COMMON NAMES: Hyssop Spurge, Hyssopleaf Euphorbia, Hyssop-leaf Sandmat, Hyssopleaf Sandmat, Hyssopleaf Spurge, Leafy Spurge. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate to ascending stems 4 to 20 inches (4 feet?) in height); the stems are red or reddish; the leaves are green; the inconspicuous flower-like cups have pink glands with pink, white or white-pink petaloid appendages; flowering generally takes place between early July and mid-November (additional records: one for early January, one for mid-January, one for late January, one for mid-March, one for mid-April, one for early May, one for early June, one for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky mesas; rocky canyons; rocky canyon bottoms; pockets of soil in bedrock; ridges; rocky ridge crests; sandy-loamy meadows; rocky foothills; rocky hills; rocky hillsides; bouldery, rocky, gravelly and clayey slopes; alluvial fans; gravelly bajadas; bedrock and rocky outcrops; amongst boulders and rocks; bouldery-sandy, gravelly, sandy and clayey flats; valley floors; along railroad right-of-ways; along rocky-sandy, gravelly, gravelly-sandy-loamy and gravelly-sandy-clayey-loamy roadsides; sandy soils along and in rocky-gravelly and sandy arroyos; sandy bottoms of arroyos; gulches; gullies; ravines; seeps; springs; rocky soils along streams; along and in rocky, cobbly and gravelly-silty-loamy streambeds; in rocks along and in creeks; creekbeds; sandy-clayey soils along rivers; gravelly-sandy and sandy-clayey riverbeds; along and in rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; within drainages; along sandy drainage ways; playas; bogs; clayey swales; along sandy

and silty banks of arroyos, streams, creeks, rivers and lakes; sand and sandy-clayey bars; rocky-sandy benches; rocky shelves; terraces; bottomlands; floodplains; bosques; bottoms of dry stock tanks (charcos); along and in sandy ditches; sandy-clayey ditch banks; gravelly and sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty loam and sandy loam ground, and sandy clay and clay ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. The stems have a milky sap. *Chamaesyce hyssopifolia* is native to southeast-central (many sources report this plant as being native to areas outside of southern Florida in the continental United States) and southern North America, Central America and South America. *5, 6, 15, **16** (recorded as *Euphorbia hyssopifolia* L.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (070509), 46 (recorded as *Euphorbia hyssopifolia* L., Page 518), **56** (recorded as *Euphorbia hyssopifolia* L.), **57** (recorded as *Euphorbia hyssopifolia* Linnaeus), 58, 63 (020410 - color presentation), 68 (recorded as *Euphorbia hyssopifolia* L. - see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia hyssopifolia* L.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020410 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 115 (color presentation), **WTK** (August 2, 2010)*

***Chamaesyce melanadenia* (J. Torrey) C.F. Millspaugh: Red-gland Spurge**

SYNONYMY: *Euphorbia melanadenia* J. Torrey. COMMON NAMES: Red-gland Spurge, Spurge, Squaw Spurge, Squaw Sandmat, Spurge. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, decumbent, ascending or erect stems 2¾ to 8 inches in height); the stems may be red or reddish; the leaves are green turning reddish with age; the flower-like cups have white petaloid appendages each having a dark purple gland; flowering generally takes place between early January and mid-November. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky canyons; sandy canyon bottoms; talus; along bases of cliffs; rocky and gravelly-loamy ridgetops; rocky ridgelines; foothills; rocky hills; bouldery, rocky, cobbly and sandy hillsides; bouldery-rocky, bouldery-gravelly-loamy, rocky, stony, gravelly, gravelly-loamy and sandy slopes; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; gravelly-loamy and sandy flats; basins; along silty-clayey roadsides; arroyos; sandy bottoms of arroyos; springs; along streams; along creeks; in rocky and sandy creekbeds; along and in rocky, rocky-sandy, gravely and sandy washes; along and in gravelly-sandy and sandy drainages; along sandy banks of creeks, rivers and drainages; terraces; sandy bottomlands; sandy-loamy floodplains; bouldery-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, stony, cobbly, gravelly, gravelly-sandy, pebbly and sandy ground; bouldery-gravelly loam, rocky-sandy loam, rocky-clayey loam, gravelly loam and sandy loam ground; loamy clay and silty clay ground, and gravelly-sandy humusy ground often found amongst shrubs, occurring from 500 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce melanadenia* is native to southwest-central and southern North America. *5, 6, 15, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (071910), 46 (recorded

as *Euphorbia melanadenia* Torr., Page 519), 63 (071910 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (080110 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), 127*

***Chamaesyce micromera* (P.E. Boissier ex G. Engelmann) E.O. Wooton & P.C. Standley: Sonoran Sandmat**

SYNONYMY: *Euphorbia micromera* P.E. Boissier ex G. Engelmann. COMMON NAMES: Desert Spurge, Golondrina, Littleleaf Spurge, Pitseed Euphorbia, Sonoran Sandmat, Spurge. DESCRIPTION: Terrestrial annual forb/herb (mat-forming, prostrate and sprawling stems 3 to 9 inches in length); the stems are flesh colored; the leaves are gray-green or dull pinkish-gray green; the inconspicuous flower-like cups have green or greenish-red perianths and magenta, pink, red or dark red glands without (or with minute) petaloid appendages; flowering generally takes place between early August and late November (additional records: one for late January and two for early April, one for late April, one for early May, one for late June, two for early July, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; pockets of sandy soil in granitic hills; ridges; rocky foothills; bouldery and rocky hills; hilltops; rocky hillsides; bouldery, bouldery-rocky-gravelly, rocky, rocky-gravelly, gravelly, sandy, sandy-loamy and sandy-silty slopes; rocky-gravelly, gravelly-sandy and sandy alluvial fans; gravelly and sandy bajadas; sand dunes; gravelly outwash fans; prairies; plains; gravelly and sandy flats; basins; valley floors; valley bottoms; rocky-gravelly-loamy, rocky-sandy, gravelly and gravelly-sandy roadsides; arroyos; along sandy bottoms of arroyos; gulches; seeps; along streams; along gravelly-sandy creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; silty lakebeds; playas; along banks of rivers; gravelly edges of washes and lakebeds; rocky-sandy shores of lakes; mudflats; sandy-clayey bars; sandy beaches; sandy benches; terraces; sandy and silty floodplains; margins of stock tanks; ditch banks; sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce micromera* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia micromera* Boiss.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410 - *Chamaesyce micromera* (Boiss.) Wooton & Standl., *Euphorbia micromera* Boiss.), 46 (recorded as *Euphorbia micromera* Boiss., Page 520), 63 (020410 -), 68 (*Euphorbia micromera* Boiss. - see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia micromera* Boiss.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020410 - color

presentation of dried materials), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.") *

***Chamaesyce nutans* (M. Lagasca y Segura) J.K. Small: Eyebane**

SYNONYMY: *Euphorbia preslii* G. Gussone. COMMON NAMES: Eyebane, Milk Purslane, Nodding Spurge, Prostrate Spurge, Spotted Spurge, Spotted Sandmat, Spurge. DESCRIPTION: Terrestrial annual or perennial forb/herb (low spreading to weekly ascending stems 3 to 32 inches in height); the leaves are green; the flower-like cups have greenish-pink glands and white petaloid appendages; flowering generally takes place between June and October. HABITAT: Within the range of this species it has been reported from mountains; canyons; clearings in woodlands; rocky hills; gravelly-loamy slopes; gravelly and clayey prairies; along railroad right-of-ways; ruts of roadbeds; along rocky roadsides; sandy arroyos; swales; banks of arroyos; floodplains; along dikes; waste places, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly loam ground, and clay ground, occurring from sea level to 6,000 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce nutans* is native to eastern, southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020410), 46 (no record of species), 63 (020410 - color presentation, mapping shows that this plant is not present in Arizona), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (020410), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia preslii* Guss.), 127*

***Chamaesyce pediculifera* (G. Engelmann) J.N. Rose & P.C. Standley: Carrizo Mountain Sandmat**

SYNONYMY: *Euphorbia pediculifera* G. Engelmann. COMMON NAMES: Carrizo Mountain Sandmat, Carrizo Mountain Spurge, Golondrina, Louse Spurge, Spurge. DESCRIPTION: Terrestrial perennial forb/herb (prostrate to ascending stems 4 to 16 inches in height); the stems are red or reddish; the leaves are gray-green or green; the flower-like cups have dark red-purple glands with white petaloid appendages; flowering generally takes place between early January and late December; the white seeds are ringed with 4 to 5 ridges. HABITAT: Within the range of this species it has been reported from mountains; cliff sides; talus slopes; rocky canyons; bouldery, rocky and gravelly canyon bottoms; rocky gorges; rims of cinder cones; crevices in rocks; rocky ledges; ridge crests; cinder cones; rocky foothills; rocky and rocky-sandy hills; rocky and gravelly hillsides; bluffs; rocky slopes; sandy bajadas; amongst boulders, rocks and cobbles; boulder fields; plains; gravelly, sandy and silty flats; valley floors; sandy coastal beaches; railroad right-of-ways; along gravelly and sandy roadsides; rocky arroyos; along gravelly and sandy bottoms of arroyos; gravelly-sandy-loamy draws; rocky bottoms of ravines; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, stony, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; playas; banks of washes; along cobbly and sandy edges of washes; sandy margins of washes; mudflats; sand bars; sandy beaches; benches; sandy strands; bottomlands; sandy floodplains; mesquite bosques; dry bottoms of charcos (stock tanks); mesquite bosques; sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy

loam and sandy loam ground; rocky clay and clay ground, and bouldery silty and silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce pediculifera* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia pediculifera* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 46 (recorded as *Euphorbia pediculifera* Engelm., Page 519), **56** (recorded as *Euphorbia pediculifera* Engelm.), **57** (recorded as *Euphorbia pediculifera* Engelmann), 58, 63 (020510), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia pediculifera* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020510 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia pediculifera* Engelm.)*

***Chamaesyce serpyllifolia* (C.H. Persoon) J.K. Small subsp. *serpyllifolia*: Thymeleaf Sandmat**

SYNONYMY: *Euphorbia serpyllifolia* C.H. Persoon. COMMON NAMES: Spurge, Thymeleaf Euphorbia, Thymeleaf Spurge, Thymeleaf Sandmat. DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending stems 4 to 6 inches in length); the stems are purple-red or reddish; the leaves are green; the inconspicuous flower-like cups have red glands with white petaloid appendages, flowering generally takes place between early April and late October (additional record: one early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-gravelly mountainsides; mesas; cliffs; sandy canyons; rocky, sandy and sandy-loamy canyon bottoms; among rocky talus; gravelly knolls; ridges; meadows; foothills; hilltops; rocky, cindery, gravelly, gravelly-loamy, sandy-loamy, clayey and silty-loamy slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bajadas; sandy outwash fans; prairies; gravelly-sandy plains; rocky, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; along railroad right-of-ways; along sandy roadbeds; along gravelly, sandy and clayey roadsides; draws; seeps; springs; along streams; sandy streambeds; along sandy creeks; along rivers; sandy riverbeds; along and in bouldery-gravelly, gravelly-sandy and sandy washes; drainages; along cindery drainage ways; lakebeds; freshwater marshes; depressions; sandy banks of creeks and washes; edges of ponds; margins of lakes; clayey mudflats; sandy benches; sandy and sandy-loamy terraces; bottomlands; silty-loamy floodplains; mesquite bosques; within ditches; riparian areas, and disturbed areas growing in wet, moist and dry bouldery-gravelly, rocky, rocky-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam, sandy loam, clayey loam and silty loam ground; rocky clay, sandy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, candy and or sweetener crop; it was also noted as having been used as a drug or medication. The stems have a milky sap. *Chamaesyce serpyllifolia* subsp. *serpyllifolia* is native to west-central and southern North America. *5, 6, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 46 (recorded as *Euphorbia serpyllifolia* Pers., Page 520), 58, 63 (020510 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans

may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), 85 (020510), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia serpyllifolia* Pers.), 127*

***Chamaesyce serrula* (G. Engelmann) E.O. Wooton & P.C. Standley: Sawtooth Sandmat**

SYNONYMY: *Euphorbia serrula* G. Engelmann. COMMON NAMES: Sawtooth Euphorbia, Saw-tooth Sandmat, Sawtooth Sandmat, Sawtooth Spurge. DESCRIPTION: Terrestrial annual forb/herb (mat-forming prostrate to ascending stems 3 to 6 inches in length); the stems are red; the inconspicuous flower-like cups have green perianths and white petaloid appendages; flowering generally takes place between early July and early October (additional records: one for early May, one for late October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; crevices in rocks; ridges; clearings in woodlands; sandy foothills; rocky hills; escarpments; rocky, rocky-gravelly, gravelly and sandy-clayey slopes; alluvial fans; sandy-clayey bajadas; plains; sandy and sandy-clayey flats; valley floors; along gravelly roadsides; along and in sandy washes; bogs; banks of drainage ways; sandy-silty flood plains; banks of washes and drainages; edges of stock tanks; riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; sandy clay ground, and sandy silty and silty ground, occurring from 2,400 to 8,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce serrula* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Euphorbia serrula* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510), 46 (recorded as *Euphorbia serrula* Engelm., Page 520), 63 (020510), 68 (recorded as *Euphorbia serrula* Engelm. - see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia serrula* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020510 - color presentation of dried material), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia serrula* Engelm.)*

***Chamaesyce setiloba* (G. Engelmann ex J. Torrey) J.B. Norton: Yuma Sandmat**

SYNONYMY: *Euphorbia setiloba* G. Engelmann ex J. Torrey. COMMON NAMES: Bristlelobe Sandmat, Bristle-lobed Sandmat, Bristlelobe Spurge, Golondrina, Hamítom Hant Cocpétis (Seri), Fringed Spurge, Spurge, Yuma Sandmat, Yuma Spurge. DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending stems 1½ to 20 inches in height); the foliage is green, reddish or yellow-green; the flower-like cups have maroon or red glands with light pink, pink, pinkish-white, white or white-pink petaloid appendages; flowering generally takes place between mid-January and mid-May and early August and late November (additional records: three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; mesas; rocky and sandy canyons; bouldery and rocky canyon bottoms; rocky talus; crevices in boulders; rocky foothills; bouldery and rocky hills; rocky and shaley hillsides; bouldery-rocky, rocky, rocky-gravelly, gravelly, sandy and sandy-silty slopes; cobbly-gravelly-sandy alluvial fans; gravelly-sandy and sandy bajadas; sand dunes;

sandy plains; rocky, gravelly and sandy flats; basins; valley floors; valley bottoms; coastal plains; rocky-gravelly, rocky-sandy and gravelly roadsides; within sandy arroyos; rocky, gravelly and gravelly-sandy and sandy bottoms of arroyos; gravelly draws; within rocky gullies; along creeks; rocky, gravelly-sandy and sandy riverbeds; along and in rocky-sandy, cobbly, gravelly, gravelly-sandy, sandy and clayey washes; sandy-loamy drainage ways; waterholes; saltmarshes; banks of washes; along gravelly, gravelly-silty and sandy edges of arroyos, rivers and washes; along margins of pools; mudflats; gravel bars; sandy beaches; sandy deltas; terraces; gravelly, sandy and sandy-loamy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground; clay ground, and gravelly silty and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce setiloba* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Euphorbia setiloba* Engelm.), 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (020510 - *Chamaesyce setiloba* (G. Engelmann *ex* J. Torrey) C.F. Millspaugh), 46 (recorded as *Euphorbia setiloba* Engelm., Page 520), **57** (recorded as *Euphorbia setiloba* Engelmann), 58, 63 (020510 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia setiloba* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020510 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **89** (recorded as *Euphorbia setiloba* G. Engelm.)*

Ditaxis (see *Argythamnia*)

Ditaxis humilis (see footnote 89 under *Argythamnia neomexicana*)

Ditaxis lanceolata (see *Argythamnia lanceolata*)

Ditaxis neomexicana (see *Argythamnia neomexicana*)

***Euphorbia* C. Linnaeus: Spurge**
COMMON NAME: Spurge *43 (042510), 46 (Pages 511-520), 63 (021807), 85 (042510), **89***

***Euphorbia* C. Linnaeus: Spurge**
COMMON NAME: Spurge *43 (042510), 46 (Pages 511-520), 63 (021807), 85 (042510), **89***

***Euphorbia* C. Linnaeus: Spurge**
COMMON NAME: Spurge *43 (042510), 46 (Pages 511-520), 63 (021807), 85 (042510), **89***

Euphorbia abramsiana (see *Chamaesyce abramsiana*)

Euphorbia albomarginata (see *Chamaesyce albomarginata*)

Euphorbia arizonica (see *Chamaesyce arizonica*)

Euphorbia capitellata (see *Chamaesyce capitellata*)

Euphorbia florida (see *Chamaesyce florida*)

Euphorbia glyptosperma (see *Chamaesyce glyptosperma*)

Euphorbia gracillima (see *Chamaesyce gracillima*)

***Euphorbia heterophylla* C. Linnaeus: Mexican Fireplant**

COMMON NAMES: Adeus-Brazil (Portuguese), Amendoim-Bravo (Portuguese), Caca Poule (French), Café-do-diabo (Portuguese), Catalina, Fiddler's Spurge, Flor-do-poeta (Portuguese), Japanese Poinsettia, Hierba de Lec (Spanish), Leiteira (Portuguese), Mexican Fireplant, Mexican-fireplant, Milkweed, Painted Euphorbia, Painted Spurge, Paintedleaf, Picachalih, Summer Poinsettia, Wild Poinsettia. DESCRIPTION: Terrestrial annual or perennial forb/herb (ascending stems 8 inches to 5 feet in height); the stems are green; the leaves are green; the flowers are cream, light green, green, white or white & green; the glands are yellow without petaloid appendages; the floral bracts (below the flowering cluster) may be partly colored light green, pink, red, white or yellow; the inconspicuous flowers may be cream, green or white; flowering generally takes place between early August and late October (additional records: one for early January, one for mid-January, one for mid-March and two for mid-July); the ripe fruits are reddish. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; rocky canyons; sandy canyon bottoms; ridges; bouldery-rocky and sandy-clayey meadows; foothills; hillsides; rocky, gravelly, sandy-clayey and clayey slopes; along rocky outcrops; amongst rocks and cobbles, bases of rocks; grassy plain; gravelly and clayey flats; valley floors; along roadsides; within sandy arroyos; bottoms of arroyos; gulches; ravines; along streams; cobbly and sandy streambeds; along creeks; sandy creekbeds; along and in washes; in drainage ways; cienegas; marshes; sandy banks of rivers and washes; edges of washes; margins of arroyos; terraces; bottomlands; floodplains; mesquite bosques; ditches; grassy riparian areas, and disturbed areas growing in wet, moist and dry bouldery-rocky, rocky, stony, cobbly, gravelly and sandy ground and sandy clay and clay ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant has a milky sap. *Euphorbia heterophylla* is native to south-central and southern North America; Central America, and South America; however, the exact native range in the neotropics is obscure. *5, 6, 15, **16**, 18 ("All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species)."), 43 (070709), 46, **56**, **57**, 58, 63 (020510 - color presentation), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. "The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available." See text for additional information.), **85** (020510 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.")*

Euphorbia hyssopifolia (see *Chamaesyce hyssopifolia*)

Euphorbia melanadenia (see *Chamaesyce melanadenia*)

Euphorbia micromera (see *Chamaesyce micromera*)

Euphorbia pediculifera (see *Chamaesyce pediculifera*)

Euphorbia preslii (see *Chamaesyce nutans*)

Euphorbia serpyllifolia (see *Chamaesyce serpyllifolia* subsp. *serpyllifolia*)

Euphorbia serrula (see *Chamaesyce serrula*)

Euphorbia setiloba (see *Chamaesyce setiloba*)

***Jatropha cardiophylla* (J. Torrey) J. Müller Argoviensis: Sangre de Cristo**

COMMON NAMES: Limberbush, Matacora, Nettlespurge, Sangre de Cristo, Sangre-de-Cristo, Sangre-de-drago, Sangregrado, Sangrengado, Sangringada, Torote. DESCRIPTION: Terrestrial perennial deciduous, semi-succulent shrub (1 to 7 feet in height); the flexible stems are basally branches; the bark is reddish; the leaves shiny green; the small bell-shaped flowers may be cream-white, pink, white or yellow; flowering generally takes place between mid-July and late September. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon bottoms; foothills; rocky hills; rocky hillsides; rocky slopes; rocky and gravelly bajadas; boulder fields; gravelly plains; gravelly-sandy flats; basins; valley floors; rocky roadsides; within sandy arroyos; bottoms of arroyos; cobbly and cobbly-gravelly-loamy draws; along and in sandy washes; margins of washes; floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and cobbly-gravelly loam and gravelly loam ground, occurring from 100 to 4,800 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop for use in making baskets. The shiny heart-shaped emerald green leaves appear around the time of the first rains and then provide color when the leaves turn gold in the fall. *Jatropha cardiophylla* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, **16**, 43 (020510), 45 (color photograph), 46 (Page 509), 48, 58, 63 (020510), 77, 80 (Species of the genus *Jatropha* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Seeds of several species of *Jatropha* are toxic to humans and livestock but no poisoning has been reported from Arizona.”), 85 (020510 - color presentation), **89**, 91, 115 (color presentation), 127*

***Tragia nepetifolia* A.J. Cavanilles: Catnip Noseburn**

COMMON NAMES: Catnip Noseburn, Noseburn, Ortiguilla (Hispanic), Ra´oke (Purépecha), Ra ´uli (Purépecha). DESCRIPTION: Terrestrial perennial forb/herb (6 to 18 inches in height); the foliage is reddish; the flowers are maroon, reddish or yellow; flowering generally takes place between early March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; forested mountainsides; mesas; rocky cliffs; along rocky canyons; canyon walls; sandy canyon bottoms; talus slopes; crevices; rocky buttes; ridge crests; clearings in forests; foothills; hills; rocky hillsides; rocky, cobbly-gravelly-loamy, gravelly and sandy slopes; gravelly bajadas; bases of rock outcrops; amongst boulders, rocks and cobbles; lava beds; rocky flats; valley floors; along rocky and rocky-gravelly-sandy-clayey-loamy roadsides; along and in arroyos; along rocky ravines; along rocky and rocky-gravelly streams; streambeds; along creeks; creekbeds; along and in gravelly and sandy washes; drainages; along in drainage ways; rocky banks of washes; edges of washes; around lakes; benches; terraces; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly and sandy ground and rocky-gravelly-sandy-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-clayey loam and sandy loam ground, occurring from 100 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North

America; it was noted as having been used as a drug or medication. This vining or semi-vining herb has stinging hairs on the leaves; Richard S. Felger (SEINet record 02 Dec 2000) reported that the pain, from the mildly stinging hairs of variety *dissecta*, lasted for about 10 minutes. *Tragia nepetifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 30, 43 (020610), 46 (Page 508), 58, 63 (020610), 77, **85** (020610 - color presentation of dried material), 127*

Tragia nepetifolia var. *ramosa* (see *Tragia ramosa*)

***Tragia ramosa* J. Torrey: Branched Noseburn**

SYNONYMY: *Tragia nepetifolia* A.J. Cavanilles var. *ramosa* (J. Torrey) J. Müller Argoviensis, *Tragia stylaris* J. Müller Argoviensis. COMMON NAMES: Branched Noseburn, Branched Tragia, Catnip Noseburn, Netleaf Noseburn, Noseburn, Ortiguilla (Hispanic), Ranuriki (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb, subshrub, shrub or vine (3 to 20 inches in height or length, one plant was reported that was 4 inches in height and 3 inches in width, one plant was reported that was 4 inches in height and 4 inches in width); the stems are dark green or purple-brown; the leaves are gray-green, green, dark green or yellow-green; the inconspicuous flowers may be brownish, green, greenish, red or yellow; flowering generally takes place between late March and mid-November. HABITAT: Within the range of this species it has been reported from mountains; mesa rims; rocky cliffs; rocky canyons; rocky sides of canyons; canyon bottoms; scree; rocky talus slopes; bouldery rockfalls; bases of cliffs; crevices in rocks; gravelly buttes; rocky knolls; ledges; ridges; rocky ridgetops; ridgelines; cindery tops and flanks of cinder cones; foothills; rocky-gravelly and rocky-clayey hills; hilltops; bouldery, rocky, rocky-sandy and gravelly hillsides; bouldery escarpments; bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly-sandy, rocky-clayey, cindery, gravelly and sandy-clayey-loamy slopes; loamy alluvial fans; bajadas; gravelly pediments; rocky outcrops; amongst boulders and rocks; bases of boulders; loamy steppes; plains; gravelly-loamy flats; along gravelly-loamy roadsides; within arroyos; rocky bottoms of arroyos; bouldery draws; gulches; within ravines; along streams; streambeds; along gravelly creeks; creekbeds; along and in bouldery-sandy, rocky, rocky-gravelly, cobbly, gravelly and sandy washes; drainages; within rocky drainage ways; banks of rivers and washes; edges of springs; rocky fringes of washes; terraces, and riparian areas growing in damp and dry bouldery, bouldery-rocky-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, cindery, gravelly and sandy ground; gravelly loam, sandy-clayey loam and loam ground; rocky clay and clay ground, and silty ground, occurring from 2,500 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North; it was noted as having been used as a drug or medication. The herbage of this semi-vining plant has stinging hairs. W. Winston (SEINet record 27 June 2007) reported that the stinging hairs of a 6 inch plant caused a pain that lasted for at least 20 minutes and caused welts to form where it touched skin. *Tragia ramosa* is native to southwest-central and southern North America. *5, 6, 15, 30, 43 (020610), 46 (recorded as *Traiga stylaris* Müell. Arg., Page 508), 63 (020610), 85 (020610 - color presentation), **89**, 127*

Tragia stylaris (see *Tragia ramosa*)

Fabaceae (Leguminosae): The Pea Family

***Acacia angustissima* (P. Miller) C.E. Kuntze: Prairie Acacia**

SYNONYMY: *Acaciella angustissima* (P. Miller) N.L. Britton & J.N. Rose. COMMON NAMES: Barbus de Chivo, Cantemo, Dai (Ocurahui, Sierra Surotato, Sinaloa, Mexico), Fern Acacia, Guajillo, Palo de Pulque (Hispanic), Prairie Acacia, Siraku K'amataraku (Purépecha), Texas Prairie Acacia, Timbe (Hispanic), Timben (Hispanic), Timbre (Hispanic), Tu Ntoo (N. Mixteco), White Ball Acacia, White-ball Acacia, Whiteball Acacia. DESCRIPTION: Terrestrial perennial deciduous forb/herb

or subshrub (6 inches to 10 feet, or a small tree 6½ to 26½ feet in height); the bark is light brown, gray or green-white with white stripes; the leaflets are bluish-green or dark green; the ball-shaped flowers (to ½ inch in diameter forming in clusters) may be cream, cream-white, pink, white, white-cream, white tinged with lavender or pink, or pale yellow; flowering generally takes place between early May and early January (additional records: one for late January, one for late February and two for late March); the fruits (seedpods 1¼ to 3 inches in length and ¼ to ½ inch in width) are dark reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mesas; plateaus; rocky cliffs; rocky canyons; bouldery and rocky canyon bottoms; rocky talus; along crevices in boulders; ledges; along rocky, rocky-sandy and gravelly-clayey ridges; along ridgetops; ridge lines; clearings in woodlands; clayey-loamy meadows; rocky and rocky-sandy foothills; rocky and stony hills; rocky, rocky-gravelly-loamy, gravelly-sandy-loamy and sandy-loamy hillsides; bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy-clayey, rocky-clayey-loamy and gravelly slopes; bouldery bajadas; piedmonts; rocky outcrops; amongst boulders and rocks; stabilized sand dunes; rocky and clayey flats; silty valley floors; coastal flats; along rocky, gravelly-loamy and gravelly-clayey-loamy roadsides; rocky draws; ravines; along streams; gravelly creeks; along and in rocky-sandy and sandy washes; along watercourses; within rocky drainage ways; depressions; gravelly-loamy banks of washes; sandy edges of streams and washes; sandy-loamy benches; rock terraces; bottomlands; floodplains; bosques; along ditches; riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-rocky-sandy, rocky, rocky-stony-sandy, rocky-gravelly, rocky-sandy, shaley, stony, gravelly and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky-sandy clay, gravelly clay and clay ground, and silty ground, occurring from 100 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the leaves are fernlike. Quail feed on the seeds of this plant. *Acacia angustissima* is native to south-central and southern North America and Central America. *5, 6, 13, 28 (color photograph), 30, 43 (070709), 46 (Pages 398-399), 48, 58, 63 (020610 - color presentation), 77, 85 (020610 - color presentation), **89** (recorded as *Acacia filiculoides* (Cav.) Trelease), 91, 115 (color presentation)*

Acacia angustissima var. *cuspidata* (see *Acacia angustissima* var. *suffrutescens*)

***Acacia angustissima* (P. Miller) C.E. Kuntze var. *filicioides* (A.J. Cavanilles) C.E. Kuntze: Prairie Acacia**

SYNONYMY: *Mimosa filicioides* A.J. Cavanilles. COMMON NAME: Dai (Ocurahui, Sierra Surotato, Sinaloa, Mexico), Prairie Acacia, Tu Ntoo (N. Mixteco). DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (20 inches to 26 feet in height); the smooth bark is gray; the stems are reddish; the flowers are cream, green, rose, dull white or white; flowering generally takes place between early July and early December (additional records: one for late January, one for late February, two for late March, two for early May, one for mid-May, one for late May and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; barrancas; canyons; along rocky ridges; along ridgetops; clearings in woodlands; foothills; hills; hilltops; hillsides; rocky slopes; plains; rocky flats; sandy basins; valley floors; along grassy roadsides; rocky draws; ravines; along streams; riverbeds; in sandy washes; within rocky drainages; along watercourses; rocky terraces; lowlands; floodplains, and disturbed areas growing in damp and dry rocky, rocky-sandy and sandy ground and sandy loam ground, occurring from 100 to 8,200 feet in elevation in the in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Acacia angustissima* var. *filicioides* is native to southwest-central and southern North America. *30 (species), 43 (020610), 46 (species, Pages 398-399), 48 (species), 63 (020610 - no record of this variety), **85** (020610), 91 (species), 115 (color presentation of the species)*

***Acacia angustissima* (P. Miller) C.E. Kuntze var. *suffrutescens* (J.N. Rose) D. Isely: Prairie Acacia**

SYNONYMY: *Acacia angustissima* (P. Miller) C.E. Kuntze var. *cuspidata* (D.F. von Schlechtendal) L.D. Benson, *Acacia cuspidata* D.F. von Schlechtendal. COMMON NAMES: Barbus de Chivo, Cantemo, Fern Acacia, Guajillo, Palo de Pulque (Hispanic), Prairie Acacia, Siraku K'amataraku (Purépecha), Timbe (Hispanic), Timben (Hispanic), Timbre (Hispanic), White-ball Acacia, Whiteball Acacia. DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (8 inches to 14 feet in height, plants were reported that were 16 inches in height and 32 inches in width); the leaves are dark green; the flowers are cream-white, white or white-cream; flowering generally takes place between late May and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; mesas; rocky cliffs; rocky canyons; bouldery and rocky canyon bottoms; rocky talus; ledges; rocky and gravelly-clayey ridges; foothills; rocky hills; rocky and gravelly-sandy-loamy hillsides; rocky, rocky-gravelly, rocky-clayey-loamy and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; clayey flats; silty valley floors; along rocky roadsides; along streams; gravelly creeks; along and in rocky-sandy washes; drainage ways; sandy gravelly-loamy banks of washes; edges of streams and washes; sandy-loamy benches; bottomlands; along ditches; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam and sandy loam ground; gravelly clay and clay ground, and silty ground, occurring from 2,200 to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the leaves are fernlike. Quail feed on the seeds. *Acacia angustissima* var. *suffrutescens* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph of species), 30 (species), 43 (070709), 46 (Pages 398-399), 48 (species), 63 (020710), **85** (020610), 91 (species), 115 (color presentation of the species)*

***Acacia constricta* G. Bentham: Whitethorn Acacia**

SYNONYMY: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger. COMMON NAMES: All-thorn Acacia, Chaparo Prieta, Chaparro Prieto, Common Whitethorn, Garabato, Gidag (Tohono O'odham), Gigantillo, Huisache, Largoncillo, Mescat Acacia, Twinthorn Acacia, Vara Prieta, Vinorama, Whitethorn Acacia, White Thorn, Yellow Cat Claw. DESCRIPTION: Terrestrial perennial deciduous (drought and cold) shrub or tree (1 to 20 feet in height with crowns to about the same in width, one plant was described as being 8 feet in height with a crown 8 feet in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the spines on the branches and stems are gray or white; the small pinnate leaves are green; the small flowers have been described as being golden, golden-yellow, orange-yellow, light yellow, yellow or yellowish-orange; flowering generally takes place between late March and late October (additional records: two for early March and one for late December); the seedpods are brown, purple-red, reddish or rusty-brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; escarpments; canyons; canyon sides; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery hilltops; rocky and gravelly hillsides; rocky, rocky-clayey-loamy and clayey-loamy slopes; gravelly bajadas; rock outcrops; amongst boulders; sandy-loamy plains; gravelly flats; valleys; coastal plains; along rocky, rocky-gravelly-loamy, rocky-gravelly-clayey loam, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey loam and sandy roadsides; along and in rocky arroyos; bottoms of arroyos; rocky gulches; along streambeds; creeks; along and in sandy creekbeds; rivers; along and in gravelly, gravelly-sandy, sandy and silty-clayey washes; drainage ways; swales; along gravelly-sandy and sandy banks of streams, creeks, rivers and washes; along edges of washes; rocky margins of arroyos and washes; mudflats; benches; alluvial terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and silty clay ground, occurring from 1,100 to 6,500 feet (infrequently as low as 500 feet and as high as 9,200 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be

an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. Whitethorn Acacia is used for food (but not extensively) by the Desert Mule Deer (*Odocoileus hemionus*) and Scaled Quail (*Callipepla squamata*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Bailey's Pocket Mice (*Chaetodipus baileyi*) and Rock Pocket Mice (*Chaetodipus intermedius*) as well as a variety of other birds and mammals feed on the seeds. *Acacia constricta* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (080409), 46 (Page 399), 48, 53 (note under *Acacia farnesiana*), 63 (020710 - color presentation), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), **85** (020710 - color presentation), **89**, 91, 115 (color presentation), 134, **WTK** (August 12, 2005)*

***Acacia constricta* G. Bentham var. *constricta*: Whitethorn Acacia**

SYNONYMY: (for *Acacia constricta*: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger). COMMON NAMES: All-thorn Acacia, Chaparo Prieta, Chaparro Prieto, Common Whitethorn, Garabato, Gidag (species, Tohono O'odham), Gigantillo, Huisache, Largoncillo, Mescat Acacia, Twinthorn Acacia, Vara Prieta, Vinorama, Whitethorn Acacia, White Thorn, Yellow Cat Claw. DESCRIPTION: Terrestrial perennial deciduous (drought and cold) shrub or tree (1 to 20 feet in height with crowns to about the same in width, one plant was described as being 8 feet in height with a crown 8 feet in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the spines on the branches and stems are gray or white; the small pinnate leaves are green; the spines are gray or white; the small flowers are golden, golden-yellow, orange-yellow or yellow; flowering generally takes place between late March and late October (additional records: two for early March and one for late December); the seedpods are brown, purple-red or reddish. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery hilltops; rocky and gravelly hillsides; rocky and rocky-clayey-loamy slopes; gravelly bajadas; rock outcrops; amongst boulders; sandy-loamy plains; gravelly flats; valleys; coastal plains; along rocky, rocky-gravelly-loamy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy and sandy roadsides; along and in rocky arroyos; bottoms of arroyos; rocky gulches; along streambeds; creeks; along and in sandy creekbeds; gravelly-sandy rivers; along and in gravelly, gravelly-sandy, sandy and silty-clayey washes; drainage ways; along edges of washes; rocky margins of arroyos and washes; gravelly-sandy and sandy banks of streams, creeks, rivers and washes; benches; terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly clayey loam, sandy loam and loam ground, and silty clay ground, occurring from 1,200 to 6,500 feet (infrequently to as low as 500 feet and to as high as 9,200 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. Whitethorn Acacia is used for food (but not extensively) by the Desert Mule Deer (*Odocoileus hemionus*) and Scaled Quail (*Callipepla squamata*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Bailey's Pocket Mice (*Chaetodipus baileyi*) and Rock Pocket Mice (*Chaetodipus intermedius*) as well as a variety of other birds and mammals feed on the seeds. *Acacia constricta* var. *constricta* is native to southwest-central and southern North America. *5, 6, 13, 26 (color photograph of species), 28 (color photograph of species), 43 (080409), 46 (species, Page 399), 48 (species), 53 (species note under *Acacia farnesiana*), 63 (020710), 68, 80 (The species, *Acacia constricta*, is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-

compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), **85** (020710), 91, 115 (color presentation of the species), 134, **WTK** (October 28, 2009)*

***Acacia constricta* G. Bentham var. *paucispina* E.O. Wooton & P.C. Standley: Whitethorn Acacia**

SYNONYMY: (for *Acacia constricta*: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger). COMMON NAMES: Chaparro Prieto, Common Whitethorn, Garabato, Gidag (species, Tohono O'odham), Gigantillo, Huisache, Largoncillo, Mescat Acacia, Vara Prieta, Vinorama, Whitethorn Acacia, White Thorn. DESCRIPTION: Terrestrial perennial deciduous (drought and cold) shrub or tree (2 to 18 feet in height with a crown to about the same in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the small fragrant flowers are orange-yellow or yellow; flowering generally takes place between late March and late October (flowering records for early June, mid-June and late July); the seedpods are brown, purple-red or reddish. HABITAT: Within the range of this species it has been reported from mesas; canyons; ridges; gravelly hills; bouldery hilltops; rocky slopes; bajadas; amongst boulders; gravelly flats; rocky-gravelly-loamy and gravelly-loamy roadsides; along arroyos; along washes; swales; floodplains, and riparian areas growing in dry bouldery, rocky and gravelly ground and rocky-gravelly loam and gravelly loam ground, occurring from 2,000 to 3,700 feet (infrequently to 9,000 feet) in elevation in the forest, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. This variety is spineless. *Acacia constricta* var. *paucispina* is native to southwest-central and southern North America. *5, 6, 13, 26 (color photograph of species), 28 (color photograph of species), 43 (080409), 46 (Page 399), 48 (species), 53 (species note under *Acacia farnesiana*), 63 (020710), 68, 80 (The species, *Acacia constricta*, is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), 85 (020710), 91, 115 (color presentation of the species), 134, **HR***

Acacia cuspidata (see *Acacia angustissima* var. *suffructescens*)

Acacia filiculoides (see footnote 89 under *Acacia angustissima*)

***Acacia greggii* A. Gray (var. *greggii* is the variety reported as occurring in Arizona): Catclaw Acacia**

SYNONYMY: (for *A.g.* var. *greggii*: *Acacia greggii* A. Gray var. *arizonica* D. Isely). COMMON NAMES: Acacia, Algarroba, Arizona Acacia (for var. *greggii*), Cat Claw, Cat Claw Acacia, Catclaw, Catclaw Acacia, Cat's-claw, Devil's Catclaw, Devil's Claw, Devil's-claw, Devilsclaw, Devil's-claw Acacia, Di:s (Seri), Gatuno, Gregg Catclaw, Gregg's Acacia, Tearblanket, Tepame, Tesota, Texas Catclaw, Texas Mimosa, Texas-mimosa, Una de Gato, Wait-a-minute, Wait-a-minute Bush, Wright Acacia (for var. *wrightii*). DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 35 feet in height with a broad crown, one plant was reported as being 6½ feet in height with a crown 10 feet in width, one plant was reported as being 13 feet in height with a crown 16½ feet in width); the bark is gray-black or red-brown; the leaves are gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, dull white, white, pale yellow, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and early August (additional records: two for late August, one for mid-September, two for late September, one for early October, three for mid-October, one for early November, one for mid-November, one for early December

and one for late December); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; gravelly mesas; rocky canyons; rocky and sandy canyon bottoms; gorges; rocky bluffs; rocky and sandy ridges; ridgetops; foothills; rocky hills; gravelly hilltops; rocky, gravelly and gravelly-loamy hillsides; bedrock, rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy and sandy slopes; alluvial fans; bajadas; amongst boulders; debris flows; plains; sandy flats; basins; valley floors; loamy valley bottoms; coastal plains; along gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along and in arroyos; bottoms of arroyos; draws; ravines; seeps; springs; along streams; along creeks; along sandy and sandy-silty creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; along drainage ways; along rocky, gravelly-sandy, gravelly-silty, sandy and sandy-silty banks of arroyos, streams, creeks, rivers and washes; along sandy edges of arroyos, creeks and washes; margins of washes; shorelines; sand bars; shelves; gravelly-sandy and sandy terraces; sandy bottomlands; lowlands; sandy-loamy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and gravelly silty and sandy silty ground, occurring from slightly above sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and for making perfumed sachets. Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material to a wide variety of species of wildlife. *Acacia greggii* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, 18, 26 (color photograph), 28 (color photograph), 43 (020710), 46 ("This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the cloths and lacerating the flesh.", Page 398), 48 ("A good honey plant but a poisonous weed on range lands."), 52, 53, **56**, **57**, 58, 63 (020710 - color presentation), 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods." See text for additional information.), 85 (020710 - color presentation), **89**, 91, 115 (color presentation), 127*

Acacia greggii var. *arizonica* (see *Acacia greggii* var. *greggii*)

***Acacia greggii* A. Gray var. *greggii*: Catclaw Acacia**

SYNONYMY: *Acacia greggii* A. Gray var. *arizonica* D. Isely. COMMON NAMES: Acacia, Algarroba, Arizona Acacia (applied to var. *greggii*), Cat Claw, Cat Claw Acacia, Catclaw, Catclaw Acacia, Cat's-claw, Devil's Catclaw, Devil's Claw, Devil's-claw, Devilsclaw, Di:s (Seri), Gatuno, Gregg Catclaw, Gregg's Acacia, Tearblanket, Tepame, Tesota, Texas Catclaw, Texas Mimosa, Una de Gato, Wait-a-minute, Wait-a-minute Bush. DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 25 feet in height with a broad crown); the bark is gray-black or red-brown; the leaves are gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, white, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and mid-July (additional record: one for mid-October); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; rocky and sandy canyon bottoms; rocky bluffs; rocky and sandy ridges; ridgetops; hillsides; rocky, rocky-clayey-loamy, sandy and loamy slopes; amongst boulders; alluvial fans; sandy flats; valley floors; gravelly-sandy-clayey-loamy and sandy roadsides; sandy edges of arroyos; draws; ravines; along streams; along creeks; along rivers; along gravelly and sandy washes;

within drainages; along banks of rivers and washes; along edges of washes; margins of arroyos; floodplains; mesquite bosques, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and gravelly clay ground, occurring from slightly above sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. The species, *Acacia greggii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and for making perfumed sachets. Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material to a wide variety of species of wildlife. *Acacia greggii* var. *greggii* is native to southwest-central and southern North America. *5, 6, 13 (species, color photograph of species), **16** (*Acacia greggii* Gray var. *arizonica* Isely), 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species), 43 (020710), 46 (species, "This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the clothes and lacerating the flesh."), 48 (species, "A good honey plant but a poisonous weed on range lands.", Page 398), 52 (species) 53, (species), 63 (020710), 80 (The species is listed as a Secondary Poisonous Range Plant. "Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods." See text for additional information.), 85 (020710), 91 (species), 115 (color presentation of the species), 127 (species), **WTK** (October 28, 2009)*

Acaciella angustissima (see *Acacia angustissima*)

***Astragalus allochrous* A. Gray: Halfmoon Milkvetch**

COMMON NAMES: Crazyweed, Halfmoon Locoweed, Halfmoon Milkvetch, Loco, Loco Weed, Locoweed, Poisonvetch, Rattleweed. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (1 to 2 feet in length); the stems may be dull red; the leaves are dark gray-green or green; the flowers may be blue, blue-purple, blue-violet, creamy, lavender-white, magenta-purple, magenta-violet, magenta & white, purple, purple & whitish-yellow, pale red-violet, red-violet or yellowish; flowering generally takes place between early March and late May (additional records: one for mid-June, one for mid-September, two for mid-October and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky canyons; sandy canyon bottoms; bluffs; bouldery ridges; sandy cinder cones; bouldery, rocky-sandy and cindery ridges; sandy cinder cones; foothills; hills; rocky hilltops; bouldery-rocky and gravelly hillsides; rocky, cindery, gravelly and clayey slopes; amongst rocks; sandy lava flows; breaks; plains; cindery flats; valley floors; valley bottoms; along rocky, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy roadsides; springs; around and in sandy streams; along creeks; along gravelly-sandy creekbeds; along rivers; in cobbly-sandy, gravelly and sandy washes; sandy banks of streams, rivers and washes; benches; sandy and loamy bottomlands; sandy floodplains; gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and sandy loam ground; clayey ground, and silty ground, occurring from 1,500 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a ceremonial item. *Astragalus allochrous* is native to southwest-central and southern North America. *5, 6, 43 (020810), 46 (Page 463), 58, 63 (020810 - color presentation), 68, 80 (This species is listed as a Major Poisonous Range Plant. "Poisonings by *Astragalus* and *Oxytropis* are similar and are of three types. Some species cause typical loco poisoning. Others pick up poisonous minerals, such as selenium, and cause

mineral poisoning. A third type of poisoning causes respiratory problems, in addition to other loco symptoms, and death by asphyxiation. The toxic principle of typical loco poisoning has never been specifically isolated, though an alkaloid-like substance given the name of "locoine" has been proven to cause typical symptoms. ... Animals ordinarily will not eat loco unless feed is scarce, but animals forced to eat the plants become addicted and will eat the loco plants even when good forage is available." See text for additional information.), **85** (020810), 127*

***Astragalus allochrous* A. Gray var. *playanus* (W. Jones) D. Isely: Halfmoon Milkvetch**

SYNONYMY: *Astragalus wootoni* (alternate spelling: *A. wootonii*) E.P. Sheldon, *Astragalus wootoni* E.P. Sheldon var. *typicus* R.C. Barneby. COMMON NAMES: Crazyweed, Loco, Halfmoon Milkvetch, Loco Milk Vetch, Loco Weed, Locoweed, Poisonvetch, Rattleweed, Western Loco, Wooton Loco, Wooton's Milk-vetch. DESCRIPTION: Terrestrial annual or biennial forb/herb (12 to 16 inches in length)the stems may be reddish; ; the leaflets are gray or gray-green; the flowers are lavender-white, pink-lavender, purple, purplish & white, reddish, red-violet, reddish-violet, rose, violet or whitish; flowering generally takes place between late February and mid-June (additional records: one for early January, August flowering has also been reported). HABITAT: Within the range of this species it has been reported from mountains, mesas, gravelly-sandy canyons; canyon bottoms; rocky-sandy ridges; cindery flanks of cinder cones; sandy foothills; hills; rocky and gravelly-clayey hillsides; bouldery-sandy-silty, rocky, cobbly-sandy, cindery and gravelly slopes, rocky outcrops; sandy bajadas; gravelly-sandy pediments; plains, gravelly and sandy flats, basin bottoms; sandy valley floors; along railroad right-of-ways; along rocky, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; within sandy arroyos; sandy draws; seeps; along streams; sandy streambeds; along creeks; along rivers; riverbeds; along and in rocky and sandy washes; in drainage ways; sandy edges of arroyos; channel bars; terraces; sandy bottomlands; lowlands; sandy floodplains; mesquite bosques; along canals; bouldery riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, shaley, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and bouldery-sandy silty and bouldery silty ground, occurring from 1,300 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Astragalus allochrous*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a ceremonial item. *Astragalus allochrous* var. *playanus* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Astragalus wootonii* Sheldon), 43 (020810), 46 (recorded as *Astragalus wootoni* Sheldon, Page 463 and *Astragalus wootoni* Sheldon var. *typicus* Barneby, Page 463), 58, 63 (020810), 68, **77**, 80 (The species is listed as a Major Poisonous Range Plant. "Poisonings by *Astragalus* and *Oxytropis* are similar and are of three types. Some species cause typical loco poisoning. Others pick up poisonous minerals, such as selenium, and cause mineral poisoning. A third type of poisoning causes respiratory problems, in addition to other loco symptoms, and death by asphyxiation. The toxic principle of typical loco poisoning has never been specifically isolated, though an alkaloid-like substance given the name of "locoine" has been proven to cause typical symptoms. ... Animals ordinarily will not eat loco unless feed is scarce, but animals forced to eat the plants become addicted and will eat the loco plants even when good forage is available." See text for additional information.), **85** (020810 - color presentation), 127 (species)*

***Astragalus nuttallianus* A.P. de Candolle: Smallflowered Milkvetch**

COMMON NAMES: Locoweed, Nuttall Locoweed, Nuttall Milkvetch, Small-flowered Milkvetch, Smallflowered Milkvetch, Texas-pea, Turkeypeas. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 to 4 inches in height with stems 1½ to 21 inches in length, one plant was described as being 4 inches in height and 12 inches in width, plants were described as being 4 inches in height and 16 inches in width); the foliage is grayish; the flowers may be pale blue, blue, pale bluish, blue-indigo, blue-lavender, blue & purple, blue-violet, blue-white, cream-bluish, pale lavender, lavender, lavender & white, maroon-lavender; pink, light purple, purple, purple-blue, purple & white, red-violet, pale violet,

white, white tinged with lavender, white tinged with purple or whitish; flowering generally takes place between late January and early July (additional records: one for early January, one for late January, one for early August, one for mid-August, two for early October, one for mid-October, three for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; volcanic cones; rocky and gravelly mesas; plateaus; rock cliffs; along canyon rims; along rocky canyons; gravelly and sandy canyon bottoms; talus slopes; bases of cliffs; chalky bluffs; knolls; rocky ledges; rocky ridges; foothills; rocky, stony-gravelly and rocky-clayey hills; rocky and sandy hillsides; rocky, rocky-gravelly, rocky-clayey, gravelly, sandy and sandy-clayey slopes; alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava fields; sand hills; sand dunes; sandy and sandy-silty plains; rocky, cindery, gravelly, sandy-clayey and sandy-clayey-loamy flats; basins; valley floors; along sandy railroad right-of-ways; along rocky, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy and sandy-silty roadsides; rocky, gravelly and sandy arroyos; gravelly bottoms of arroyos; bottoms of draws; gulches; along streams; streambeds; along creeks; along and in gravelly and gravelly-sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy drainage ways; silty lakebeds; sandy depressions; sandy-clayey swales; sandy and silty-loamy banks of creeks and rivers; gravel bars; gravelly and sandy beaches; rocky and sandy benches; shorelines; rocky shelves; terraces; sandy bottomlands; sandy floodplains; clayey ditches; gravelly-sandy and sandy riparian areas; waste places, and sandy disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly loam, gravelly-clay loam, sandy loam, sandy-clay loam, silty loam, humusy loam and loam ground; rocky clay, sandy clay and clay ground; and gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* is native to south-central and southern North America. *5, 6, **16**, 43 (070709), 46 (Page 468), 58, 63 (020810 - color presentation), 68, **85** (020810 - color presentation), **89***

***Astragalus nuttallianus* A.P. de Candolle var. *austrinus* (J.K. Small) R.C. Barneby: Smallflowered Milkvetch**

COMMON NAMES: Locoweed, Nuttall Locoweed, Nuttall Milkvetch, Rattleweed, Small-flowered Milkvetch, Smallflowered Milkvetch. DESCRIPTION: Terrestrial annual or perennial forb/herb (the species, *Astragalus nuttallianus*, has been recorded as being 2 to 4 inches in height with stems 1½ to 21 inches in length); the flowers are pale blue, bluish, blue-purple, blue & white, pale lavender & white, lavender, lavender & white, dull pink, dull pink & white, pink-purple, pink-purple & white, pale purple, purple, red-violet, pale violet, pale violet & white, white & purple or whitish; flowering generally takes place between early March and late May (additional records: one for late January, one for early August and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; foothills; hills; rocky and sandy hillsides; rocky, rocky-gravelly, gravelly, sandy-loamy and loamy slopes; gravelly bajadas; pediments; rocky outcrops; sand dunes; shaley-sandy plains; gravelly and sandy-clay-loamy flats; gravelly-sandy bowls; basins; silty valley floors; along railroad right-of-ways; gravelly roadbeds; along gravelly-loamy, gravelly-clayey-loamy and sandy roadsides; rocky and sandy arroyos; gravelly bottoms of arroyos; draws; gulches; along streams; in gravelly-sandy creekbeds; in riverbeds; along and in rocky-gravelly, gravelly and sandy washes; sandy banks of creeks and rivers; sandy edges of creeks; shorelines; rocky shelves; along sandy bottomlands; riparian areas and waste places growing in moist and dry rocky, rocky-gravelly, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, humusy loam and loam ground, and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *austrinus* is native to southwest-central and southern North America. *5, 6, 15, 43 (070709), 46 (species, Page 468), 63 (020810 - color presentation), 68 (species), 77, **85** (020810 - color presentation of dried material)*

***Astragalus nuttallianus* A.P. de Candolle var. *imperfectus* (P.A. Rydberg) R.C. Barneby: Turkeypeas**

COMMON NAMES: Locoweed, Milk-vetch, Nuttall Locoweed, Nuttall Milkvetch, Smallflowered Milkvetch, Turkeypeas. DESCRIPTION: Terrestrial annual or perennial forb/herb (4 to 6 inches in height); the foliage is grayish; the flowers may be blue, blue-violet, lavender & white, purple, white or whitish; flowering generally takes place between late January and late May (additional records: one for early October, two for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; volcanic cones; rock cliffs; gravelly-sandy canyons; gravelly canyon bottoms; gorges; talus slopes; bases of cliffs; knobs; ledges; foothills; rocky and stony-gravelly hills; rocky hillsides; rocky and gravelly slopes; gravelly bajadas; rock outcrops; amongst boulders and rocks; lava fields; rocky, cindery and gravelly flats; stony and sandy valley floors; along gravelly-sandy-silty roadsides; gravelly arroyos; gravelly bottoms of arroyos; along creeks; creekbeds; along rivers; along gravelly and sandy washes; sandy beaches; terraces; sandy riparian areas growing in dry desert pavement; bouldery, rocky, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, sandy loam and clayey loam ground, and gravelly-sandy silty ground, occurring from 600 to 9,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *imperfectus* is native to southwest-central and southern North America. *5, 6, 43 (070709), 46 (Page 468), 63 (020810), 68 (species), **85** (020810 - color presentation of dried material)*

Astragalus wootoni (see *Astragalus allochrous* var. *playanus*)

Astragalus wootonii (see *Astragalus allochrous* var. *playanus*)

Astragalus wootoni var. *typicus* (see *Astragalus allochrous* var. *playanus*)

***Caesalpinia gilliesii* (N. Wallich ex W.J. Hooker) N. Wallich *ex* D.N. Dietrich: Bird-of-paradise Shrub**

SYNONYMY: *Poinciana gilliesii* N. Wallich ex W.J. Hooker. COMMON NAMES: Bird of Paradise, Bird-of-paradise, Bird of Paradise Flower, Bird-of-paradise Flower, Bird-of-paradise-flower, Bird of Paradise Shrub, Bird-of-paradise Shrub, Cat's-claw, Desert Bird-of-paradise, Mexican Bird of Paradise, Mexican Bird-of-paradise, Mysorethorn, Paradise Caesalpinia, Paradise Poinciana, Poinciana, Yellow Bird of Paradise, Yellow Bird-of-paradise. DESCRIPTION: Terrestrial perennial deciduous or evergreen vine, shrub or tree (30 inches to 13 feet in height with a crown to 8 feet in width); the leaves are pale gray-green; the flowers are pale yellow, yellow or yellow-green with purplish-red, dark purple-red, red or rose-red filaments and pale orange-red anthers; flowering generally takes place between early April and late September (additional records: 2 for early February, two for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; canyons; canyon bottoms; foothills; hillsides; rocky slopes; valley floors; along railroad right-of-ways; along rocky and rocky-gravelly-sandy-loamy, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy roadsides; within arroyos; gulches; rocky and sandy streambeds; along creeks; riverbeds; along and in rocky and sandy washes; clayey depressions; banks of rivers; edges of vernal pools; alluvial terraces; sandy bottomlands; lowlands; sandy floodplains; bosques; stock tanks; catchments; along ditches; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly loam and gravelly-sandy loam ground; clay ground, and humus ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. The pods and seeds of this plant are reported to be poisonous. *Caesalpinia gilliesii* is native to western and southern South America. *5, 6, 13, 18, 26 (color photograph), 28, 43 (080409), 46 (Page 409), 63 (020910 - color presentation), **77**, 80 (This species is listed as a Poisonous Cropland and Garden

Plant. “The pods of this showy shrub cause severe gastritis in humans and animals but both usually recover.”), **85** (020910 - color presentation), **89** (recorded as *Poinciana pulcherrima* Sw. var. *flava*), 97*

***Caesalpinia pulcherrima* (C. Linnaeus) O. Swartz: Pride-of-Barbados**

SYNONYMY: *Poinciana pulcherrima* C. Linnaeus. COMMON NAMES: Barbados Flower-fence, Barbados-pride, Dwarf Poinciana, Flower Fence, Mexican Bird-of-paradise, Paradise-flower, Pride of Barbados, Pride-of-Barbados, Red Bird of Paradise, Tabachín (Spanish), Tabachin del Monte, Tacapachi (Guarijio), Tauachin del Monte, Tavachin. DESCRIPTION: Terrestrial perennial deciduous (evergreen in mild winters or warm climates) shrub or tree (3 to 20 feet in height); the branches may be yellowish-brown; flowers are orange, orange-red, orange-red & yellow, orange-yellow, red, red-orange, salmon, yellow or yellow-orange with deep maroon filaments; flowering generally takes place between late January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; barrancas; rocky canyons; canyon bottoms; ridges; foothills; hills; rocky hillsides; slopes; rocky plains; flats; valley floors; along roadsides; along and in stony and gravelly arroyos; bottoms of arroyos; along and in sandy-loamy washes; drainage ways; banks of rivers; edges of ravines; along rocky margins of arroyos; floodplains; bosques; riparian areas, and disturbed areas growing in wet and dry rocky, stony and gravelly ground and sandy loam ground, occurring from sea level to 3,100 feet in elevation in the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. The fruit is poisonous. *Caesalpinia pulcherrima* may be native to southern North America (Mexico and the West Indies) but its native origin is unknown. *5, 6, 18, 26 (color photograph), 43 (020910), 46 (no record of species), 63 (020910 - (forma *flava* (O. Degener) H. St. John is not recognized by USDA-NRCS), color presentation), **85** (020810 - reported as being in Tucson by J.J. Thornber on 30 May 1903, color presentation), **89** (possibly recorded as *Poinciana pulcherrima* Sw. var. *flava*)*

***Calliandra eriophylla* G. Bentham: Fairyduster**

SYNONYMY: *Calliandra eriophylla* G. Bentham var. *eriophylla*. COMMON NAMES: Cabelleto de Angel, Cabeza Angel, Desert Fairy-duster, Fairy Duster, Fairy-duster, Fairyduster, False Mesquite, False Mesquite Calliandra, Guajillo, Hairy-leaved Calliandra, Huajillo, Mesquitella (Spanish), Mesquitilla, Mock Mesquite. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (4 inches to 5 feet in height, one plant was described as being 40 inches in height with a crown 80 inches in width); the stems are bluish, light gray, whitish or white-gray; the leaves may be leaves grayish, dark green or red; the flowers are cream-white, pink, pink-red, pink-white, purple, red, red and white, reddish-purple, rose or violet-red; flowering generally takes place between early February and mid-June (additional records: two for mid-January, four for mid-August, two for late August, one for early September, one for mid-September, one for early October, three for mid-October, four for late October, two for early November, one for mid-November, two for late November, one for early December, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky peaks; mesas; plateaus; rocky canyons; along canyon bottoms; buttes; knolls; sandy ridges; rocky ridgetops; rocky, shaley-sandy and gravelly-clayey-loamy foothills; rocky hills; hilltops; rocky hillsides; along bedrock, bouldery, rocky, rocky-clayey, gravelly and gravelly-sandy-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; boulder fields; interior dunes; plains; rocky, gravelly and sandy flats; basins; valley floors; along rocky and sandy roadsides; along rocky-sandy arroyos; within gullies; around seeps; around springs; around seeping streams; along and in gravelly and sandy washes; within bouldery drainage ways; along water courses; rocky banks of arroyos and lakes; edges of washes and drainage ways; shores of lakes; gravelly terraces; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley-sandy, gravelly and sandy ground; pebbly-clayey loam, gravelly-sandy loam, gravelly-clayey loam and sandy loam ground, and rocky clay ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is a soil binder. This plant was reported to have

been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Fairy Duster is browsed by wildlife and found to be highly palatable by Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*), and hummingbirds have been observed visiting the flowers. *Calliandra eriophylla* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18, 28 (color photograph), 43 (080409), 46 (Page 397), 48, 58, 63 (020910 - color presentation), 77 (color photograph #32), **85** (020910 - color presentation), 86 (color photograph), **89**, 91, 115 (color presentation), 127, **HR**, **WTK** (October 28, 2009)*

Calliandra eriophylla var. *eriophylla* (see *Calliandra eriophylla*)

Cassia bauhinioides (see *Senna bauhinioides*)

Cassia bauhinioides var. *arizonica* (see *Senna bauhinioides*)

Cassia covesii (see *Senna covesii*)

Cercidium floridum (see *Parkinsonia florida*)

Cercidium floridum subsp. *floridum* (see *Parkinsonia florida*)

Cercidium microphyllum (see *Parkinsonia microphylla*)

Cercidium torreyanum (see footnote 89 under *Parkinsonia florida*)

***Coursetia glandulosa* A. Gray: Rosary Babybonnets**

SYNONYMY: *Coursetia microphylla* A. Gray. COMMON NAMES: Arí (Hispanic), Baby Bonnets, Chino, Chipile, Chipilillo, Coursetia, Cousamo, Lac Bush, Rosary Babybonnets, Samo (Tarahumara), Samo Prieto, Samota, Samotum (Samodum or úsapdum - usap is the word used for the sap of this plant, Pima Bajo), Sámu (Hispanic), Tepechipile, Zamota (Hispanic). DESCRIPTION: Terrestrial perennial (winter deciduous in Arizona) shrub (3 to 20 feet in height); the bark on the slender branches is light gray, grayish or gray; the leaves are grayish-green; the flowers may be cream & yellow, lavender & cream, lemon-yellow, pink, white, white-yellow, pale yellow, yellowish or yellow & white often tinged with lavender, pink, purple or red; flowering generally takes place between early December and late May (additional records: one for late June and one for mid-November); the mature seed pods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; rocky sides of canyons; bouldery and rocky canyon bottoms; bases of cliffs; ridges; foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bedrock and rocky slopes; gravelly alluvial fans; bajadas; rock outcrops; amongst boulders and rocks; sandy-loamy plains; flats; basins; sandy valley floors; coastal flats; roadsides; rocky arroyos; rocky and sandy bottoms of arroyos; along bottoms of ravines; springs; along rocky streams; along and in rocky, gravelly-sandy, sandy and sandy-loam washes; drainages; rocky edges of streambeds and washes; rocky margins of arroyos, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from sea level to 4,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial sealant crop (the transparent yellowish-brown gum was mixed with adobe to make jars of syrup air tight). An orange-colored lac may be observed on the stems of the plant that is produced by the feeding of an insect in the genus *Tachardiella*. The Broad-billed Hummingbird (*Cynanthis latirostris*) has been observed visiting the flowers. *Coursetia glandulosa* is native to southwest-central and southern North America. *5, 6, 10, 13, 15, 28 (recorded as *Coursetia microphylla*, color photograph), 30, 43 (020910), 46 (recorded as *Coursetia microphylla* Gray, Page 443), 63 (020910 -

color presentation of seeds), 77 (color photograph #33), **85** (020910 - color presentation), 91, 115 (color presentation), 127*

Coursetia microphylla (see *Coursetia glandulosa*)

***Dalea neomexicana* (A. Gray) V.L. Cory (var. *neomexicana* is the variety reported as occurring in Arizona): Downy Prairie Clover**

COMMON NAMES: Downy Prairie Clover, New Mexico Dalea, New Mexican Indigo Pea. DESCRIPTION: Terrestrial perennial forb/herb (2 to 12 inches in height); the leaves are blue-green; the flowers may be lavender, lavender & dull lavender, pink, purple, purple & white, white or white tinged with red-violet; flowering generally takes place between mid-February and late November (Kearney and Peebles in Arizona Flora describes the flowering period as being December to May); the mature fruits are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; canyons; ridges; rocky and gravelly hills; gravelly-clayey-loamy and sandy hillsides; rocky bases of mountains and hills; sandy slopes; bajadas; valley floors; along rocky, gravelly and gravelly-loamy roadsides; bottoms of arroyos; along creekbeds; sandy washes; drainages; floodplains, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly loam and gravelly-clayey loam ground, and silty ground, occurring from 400 to 5,300 feet in elevation in the grassland and desertscrub ecological formations. NOTE: *Dalea neomexicana* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (020910), 46 (Pages 436-437), 63 (020910 - color presentation), 77, **85** (020910 - color presentation)*

Dalea parryi (see *Marina parryi*)

***Dalea pogonathera* A. Gray (var. *pogonathera* is the variety reported as occurring in Arizona): Bearded Prairie Clover**

COMMON NAMES: Bearded Dalea, Bearded Pogonanthera, Bearded Prairie Clover, Herba del Corazon, Heirba del Corazo, Pea-bush. DESCRIPTION: Terrestrial perennial forb/herb (8 inches to 2 feet in height); the flowers (a spike 2 to 4 inches in length) may be pale blue-lavender, bluish-purple, brown, lavender, pink, light purple, purple, violet, white or yellow; flowering generally takes place between mid-March and mid-October (additional records: one for mid-February, one for early November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; stony talus; rocky ridges; foothills; rocky and gravelly hills; rocky, rocky-gravelly and rocky-sandy hillsides; bedrock, rocky, rocky-sandy-clayey, stony-clayey, gravelly and gravelly-sandy slopes; bajadas; rocky and gravelly piedmonts; rocky outcrops; amongst rocks; rocky flats; rocky valley floors; along bouldery-rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-gravelly-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy and sandy roadsides; arroyos; rocky draw; rocky gullies; rocky-gravelly streambeds; along creeks; washes; drainages; edges of gullies; terraces; floodplains, and disturbed areas growing in dry rocky desert pavement; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, gravelly-sandy loam, gravelly loam and gravelly-clayey loam ground; rocky-sandy clay, stony clay and gravelly clay ground, and sandy silty ground, occurring from 300 to 8,000 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: *Dalea pogonathera* is native to southwest-central and southern North America. This plant may be an attractive component of a restored native habitat. *5, 6, 15, 18 (genus), 43 (020910), 46 (Page 438), 58, 63 (020910 - color presentation), 77, 85 (020910 - color presentation of dried material), **89***

***Desmanthus covillei* (N.L. Britton & J.N. Rose) I.L. Wiggins ex B.L. Turner: Coville's Bundleflower**

COMMON NAMES: Bundleflower, Coville Bundleflower, Coville's Bundleflower, Hiitepoa (Yaqui). DESCRIPTION: Terrestrial perennial drought deciduous forb/herb or subshrub (13 inches to 8

feet in height); the leaves are green; the flowers are cream, white, yellow, yellowish-green, yellowish-white or yellowish & white; flowering generally takes place between late July and late October (additional records: one for mid-January, one for mid-February, one for late March, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyonsides; rocky, rocky-sandy and sandy canyon bottoms; rocky hills; rocky peaks (cerros); bouldery and rocky hillsides; rocky, rocky-clayey and cobbly slopes; bajadas; amongst boulders and rocks; plains; flats; valley bottoms; coastal plains; gravelly roadsides; arroyos; waterholes; sloughs; edges of ponds; rocky-sandy margins of watercourses; benches; riparian areas, and disturbed areas growing in wet and dry bouldery, rocky, rocky-sandy, cobbly, gravelly, pebbly, gravelly, gravelly-sandy and sandy ground and rocky clay ground, occurring from sea level to 3,900 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: This plant is sometimes described as being a small rounded shrub with dense foliage. Maso (Yaqui name for the White-tailed Deer) reportedly browse this plant. *Desmanthus covillei* is native to southwest-central and southern North America. *5, 6, **8**, 43 (021010 - *Desmanthus covillei* (N.L. Britton & J.N. Rose) I.L. Wiggins in B.L. Turner), 46 (genus - no record of species, Page 401), 63 (021010), 77, 85 (021010 - color presentation of dried material), 91*

Hoffmanseggia densiflora (see footnote 46 under *Hoffmannseggia glauca*)

Hoffmannseggia densiflora (see *Hoffmannseggia glauca*)

***Hoffmannseggia glauca* (C. Gómez de Ortega) I.J. Eifert: Indian Rushpea**

SYNONYMY: *Hoffmannseggia* (alternate spelling: *Hoffmanseggia*) *densiflora* G. Bentham. COMMON NAMES: Camote de Raton (Mouse's Sweet Potato), Camote-de-raton, Hog Potato, Hog-potato, Hogpotato, Indian-potato, Indian Rush-pea, Indian Rushpea, Mesquite Weed, Pignut, Shoe String Weed, Shoestring Weed, Sicklepod Rushpea, Shahd (Pima). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 12 inches in height, one "patch" was described as being 20 feet in diameter); the flowers may be golden-yellow, maroon & orange, orange, orange & red, orangish-red, orange-yellow, orangish-yellow, reddish-orange, yellow, dull yellow, dark yellow, yellow-orange, yellow & orange or yellow & red, the anthers may be purple or red; flowering generally takes place between late February and mid-November. HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; canyons; ridges; foothills; rocky-gravelly-loamy hills; gravelly-loamy hillsides; rocky-clayey and sandy-loamy slopes; sandy lava flows; sandy lava beds; clayey breaks; sandy prairies; sandy-loamy plains; sandy and clayey flats; basin bottoms; sandy and clayey valley floors; railroad right-of-ways; cobbly-loamy roadbeds; along rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-sandy-silty, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, clayey and clayey-loamy roadsides; arroyos; draws; creekbeds; along and in sandy and clayey-loamy washes; drainages; sandy dry lakes; lakebeds; sandy and clayey playas; cienegas; swamps; sandy-silty depressions; grassy swales; along sandy edges of lakes, marshes and swales; alluvial terraces; channel bars; floodplains; mesquite bosques; stock tanks; silty ditches; ditch banks; clayey riparian areas; waste places, and disturbed areas growing in moist and dry rocky, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, gravelly-loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and clayey loam ground; rocky clay, gravelly clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from areas located below sea level to 7,600 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Indian Rushpea provides food for quail and Whitetail Deer (*Odocoileus virginianus couesi*). *Hoffmannseggia glauca* is native to southwest-central and southern North America and western and southern South America. *5, 6, **16**, 43 (021010), 46 (recorded as *Hoffmanseggia densiflora* Benth., Pages 408-409), **57**,

63 (021010), 68, 77, 85 (021010 - color presentation), 86 (color photograph), **89** (recorded as *Hoffmanseggia stricta* Benth.), 101 (color photograph), 115 (color presentation), 127*

Hoffmannseggia stricta (see footnote 89 under *Hoffmanseggia glauca*)

Hosackia brachycarpa (see *Lotus humistratus*)

Hosackia humilis (see footnote 89 under *Lotus strigosus* var. *tomentellus*)

Hosackia tomentella (see *Lotus strigosus* var. *tomentellus*)

***Lathyrus pusillus* S. Elliott: Tiny Pea**

COMMON NAMES: Low Pea, Low Pea Vine, Low Peavine, Singletary Pea, Singletary Vetchling, Tiny Pea, Tiny Pea Vine. DESCRIPTION: Terrestrial annual forb/herb or vine; the flowers are light violet-blue; one flowering record for late April. HABITAT: Within the range of this species it has been reported from rocky hills growing in dry rocky and sandy ground, occurring between 2,300 to 3,100 feet in elevation in the woodland and desertscrub ecological formations. NOTES: EXOTIC Plant. *Lathyrus pusillus* is native to native to south-central North America. *5, 6, 46 (genus, no record of species, Pages 477-479), 48 (genus), 63 (021010), 80 (Species in the genus *Lathyrus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These perennial forbs have been suspected of causing lameness in livestock in other states but plants are probably too rare to cause poisoning in Arizona."), 85 (021010), **89***

***Lotus humistratus* E.L. Greene: Foothill Deervetch**

SYNONYMY: *Hosackia brachycarpa* G. Bentham. COMMON NAMES: Bird's Foot Lotus, Colchita, Deer Vetch, Deer-vetch, Foothill Deervetch, Hill Deervetch, Hill Lotus, Foothill Deervetch, Maresfat, Short Podded Lotus. DESCRIPTION: Terrestrial annual forb/herb (4 to 18 inches in height or length); the leaves are gray-green or green; the small flowers are orange, orange-yellow, yellow, yellow-orange , yellow & orange-red and yellow & red; flowering generally takes place between late January and mid-June (additional records: one for late August and one for early October); the mature pods are brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; plateaus; cliffs; rocky, rocky-gravelly and stony canyons; sandy-loamy canyon bottoms; scree; bluffs; rocky and clayey-loamy ridges; rocky and clayey ridgetops; ridgelines; rocky-sandy meadows; foothills; bases of foothills; bedrock, rocky and clayey hills; clayey hilltops; rocky, rocky-gravelly-loamy, rocky-pebbly-sandy-silty, stony, cobbly-sandy-loamy, gravelly and clayey hillsides; rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cobbly-sandy-loamy, gravelly, clayey and clayey-loamy slopes; rocky-sandy and sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks; clay lenses; plains; rocky-sandy, gravelly, gravelly-sandy, sandy and clayey flats; benchlands; clayey basins; gravelly-sandy-loamy, sandy and clayey valley floors; along rocky, gravelly and silty roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; gulches; gullies; along seeping washes; springs; along streams; sandy soils along creeks; bouldery-rocky, stony, cobbly, gravelly, gravelly-sandy and sandy creekbeds; sandy soils along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within drainage ways; along rocky-silty, gravelly-loamy and sandy banks of streams, streambeds, rivers and washes; gravel bars; clayey benches; terraces; sandy and loamy bottomlands; cobbly-sandy and sandy floodplains; along canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet and dry bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; clay ground, and rocky-pebbly-sandy silty, rocky-silty and silty ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North

America; it was noted as having been used as a drug or medication. *Lotus humistratus* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (071009), 46 (Page 427), 48 (genus), 58, 63 (021010 - color presentation of seeds), 77, **85** (021010 - color presentation), 86 (color photograph), **89** (recorded as *Hosackia brachycarpa* Benth.), 115 (color presentation), 127*

***Lotus strigosus* (T. Nuttall) E.L. Greene (var. *tomentellus* D. Isely is the variety reported from Arizona): Strigose Bird's-foot Trefoil**

SYNONYMY: (for *L.s*. var. *tomentellus*: *Hosackia tomentella* (E.L. Greene) L. Abrams, *Lotus tomentellus* E.L. Greene). COMMON NAMES: Annual Lotus, Bishop's Lotus, Desert Deervetch, Desert Lotus, Greene's Desert Deervetch, Hairy Deer Vetch, Hairy Lotus, Strigose Bird's-foot Trefoil, Strigose Bird's-foot-trefoil. DESCRIPTION: Terrestrial annual forb/herb (prostrate, ascending and clambering stems 2 to 10 inches in length, one prostrate plant mat was described as being 2½ inches in height and 16 inches to 2 feet in width, prostrate to ascending plants were described as being 8 inches to 1 foot in height and 1 foot in width); the herbage is gray-green; the leaves are grayish; the flowers are pale golden-yellow, orange-yellow, pale yellow, yellow and yellow-orange & reddish-orange aging to cream-orange, cream-yellow, orange, orange-red, orange-yellow, red, reddish or yellow-orange; flowering generally takes place between early February and late June (additional records: two for mid-January, one for late January, one for late August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; bedrock, bouldery and rocky mountainsides; sandy mesas; plateaus; canyons; bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly-sandy, gravelly-sandy-loamy, sandy and sandy-loam canyon bottoms; clayey-loamy and silty-loamy ridges; along sandy-loamy and clayey-loamy ridgetops; bouldery meadows; cindery cinder cones; foothills; bouldery, rocky, loamy and silty-loamy hills; rocky and rocky-clayey-loamy hilltops; rocky hillsides; rocky-cobbly bases of hills; escarpments; along bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy-loamy, gravelly, gravelly-loamy, sandy-loamy, clayey-loamy, loamy, loamy-clayey and clayey slopes; rocky-sandy-loamy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks, rocky coves; lava fields; sand hills; sand dunes; bajadas; clayey banks; rocky berms; plains; rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and loamy flats; basins; along rocky, gravelly, gravelly-sandy, sandy, clayey and silty roadsides; within sandy arroyos; sandy draws; springs; along streams; rocky-sandy streambeds; along creeks; along sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, stony-sandy-silty, gravelly, gravelly-sandy and sandy washes; sandy drainages; gravelly drainage ways; muddy, gravelly and sandy banks of arroyos, creeks, rivers, washes and lakes; edges of marshes; margins of washes; gravel bars; benches; sandy cutbanks; gravelly-sandy and sandy terraces; loamy bottomlands; floodplains; bouldery-gravelly-sandy, rocky-gravelly-sandy and rocky-sandy riparian areas; recently burned areas in woodlands and chaparral, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, loamy clay and clay ground, and stony-sandy silty and silty ground, occurring from sea level to 7.600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lotus strigosus* is native to southwest-central and southern North America. *5, 6, 15, 16 (recorded as *Lotus tomentellus* Greene), 28 (recorded as *Lotus tomentellus*, color photograph), 43 (021110), 46 (recorded as *Lotus tomentellus* Greene, Page 427), 48 (genus), 63 (021010 - color presentation), 77, **85** (021110), 115 (color presentation of *L.s.* var. *tomentellus*), 127*

***Lotus strigosus* (T. Nuttall) E.L. Greene var. *tomentellus* D. Isely: Strigose Bird's-foot Trefoil**

SYNONYMY: *Hosackia tomentella* (E.L. Greene) L. Abrams, *Lotus tomentellus* E.L. Greene. COMMON NAMES: Annual Lotus, Desert Deer Vetch, Desert Deer-vetch, Desert Deervetch, Desert

Lotus, Greene's Desert Deervetch, Hairy Deer Vetch, Hairy Lotus, Strigose Bird's-foot Trefoil. DESCRIPTION: Terrestrial annual forb/herb (prostrate stems 2 to 10 inches in length); the herbage is gray-green; the flowers are light yellow or yellow; flowering generally takes place between mid-January and late May (additional record: one for early September). HABITAT: Within the range of this species it has been reported from mountains; bedrock, bouldery and rocky mountainsides; mesas; canyons; bouldery, rocky and sandy-loamy canyon bottoms; foothills; bouldery and sandy hills; rocky hilltops; bouldery-sandy and rocky hillsides; along bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy slopes; alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks, lava fields; sand hills; sand dunes; plains; gravelly, gravelly-sandy and sandy flats; sandy coastal flats; along rocky, sandy and silty roadsides; rocky arroyos; sandy draws; springs; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; gravelly drainage ways; backwater playas; gravelly banks; gravel bars; rocky benches; sandy terraces; loamy bottomlands; floodplains; along canals; canal banks, and riparian areas growing in damp and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground; silty ground, and chalky ground, occurring from sea level to 4,400 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: The species, *Lotus strigosus*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The foliage may appear to be somewhat succulent. *Lotus strigosus* var. *tomentellus* is native to southwest-central and southern North America. *5, 6, 15, **16** (*Lotus tomentellus* Greene), 28 (recorded as *Lotus tomentellus*, color photograph), 43 (021010), 46 (recorded as *Lotus tomentellus* Greene, Page 427), 48 (genus), 63 (021010), 77, **85** (021110 - color presentation of dried material), **89** (recorded as *Hosackia humilis* (Greene) Abrams), 115 (color presentation), 127 (species)*

Lotus tomentellus (see *Lotus strigosus* var. *tomentellus*)

***Lupinus concinnus* J.G. Agardh: Bajada Lupine**

COMMON NAMES: Annual Lupine, Bajada Lupine, Bluebonnet, Elegant Lupine, Lupine, Scarlet Lupine. DESCRIPTION: Terrestrial annual forb/herb (3 to 18 inches in height); the woolly herbage is grayish or gray-green; the flowers may be blue, blue-magenta, blue-purple, blue &white, blue & light yellow, deep blue-purple & white, cream & purple, cream & rose-purple, pale lavender, dark lavender, lavender-pink, lavender-purple, lavender-rose, lavender & white, magenta-lavender, pink, pinkish-blue, pink-lavender, pink-purple & white-cream, pink-purple &white tinged with lavender, pink & white, light purple & yellow, purple, purplish, purple-lavender, purple-magenta, purple-magenta & white, purple-pink, purple & white, purple & yellow, red-purple, reddish-purple, violet, white rimed with pink, yellow & pink or yellowish-purplish; flowering generally takes place between late February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly, sandy and sandy-clayey-loamy mesas; rocky canyons; rocky and sandy canyon bottoms; chasms; bases of cliffs; clayey ridges; sandy ridgetops; ridgelines; openings in forests; sandy foothills; rocky hills; sandy hillsides; along bouldery, rocky, rocky-gravelly-sandy, gravelly, clayey-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; amongst boulders and rocks; blow-sand deposits; sandy banks; sandy and sandy-silty plains; gravelly and sandy flats; basins; sandy-silty valley floors; along gravelly, gravelly-sandy and sandy roadsides; within arroyos; gulches; around streams; rocky streambeds; along creeks; along and in gravelly-sandy and gravelly-silty creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky drainage ways; sandy banks of arroyos, creeks, rivers and washes; along cobbly edges of rivers and washes; along margins of washes; gravelly and sandy benches; sandy terraces; gravelly and loamy bottomlands; rocky-sandy, cobbly-sandy, gravelly and sandy floodplains; along ditches; along gravelly-clayey-loamy banks of ditches; rocky-sandy, gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-clayey loam, sandy loam,

sandy-clayey loam, clayey loam and loam ground; rocky clay, cobbly clay, loamy clay and clay ground, and gravelly silty and sandy silty ground, occurring from 200 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus concinnus* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph), 43 (021110), 46 (Page 417), 48 (genus), 58, 63 (021110 - color presentation), **77** (color photograph #80), 80 (Some, but not all, species of the genus *Lupinus* are considered to be Secondary Poisonous Range Plants. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (021210 - color presentation), 115 (color presentation), **89***

Lupinus leptophyllus (see footnote 89 under *Lupinus sparsiflorus*)

***Lupinus sparsiflorus* G. Bentham: Coulter's Lupine**

COMMON NAMES: Arizona Lupine, Coulter Lupine, Coulter's Lupine, Desert Lupine, Loose-flowered Lupine, Lupine, Mojave Lupine, Tash Mahad (or possibly Tash Mahot - River Pima). DESCRIPTION: Terrestrial annual forb/herb (6 to 32 inches in height, one plant was described as being 11 inches in height and 12 inches in width); the leaves are dark green; the flowers may be light blue-lavender-white, blue, dark blue, blue-lavender, blue-lavender-reddish, blue-lilac, blue-purple, blue-violet, blue & white, magenta-pink, magenta-pink with a yellow spot on the banner, magenta & purple, pinkish, pinkish-lavender, light purple, purple, purplish-blue, violet, deep violet, violet-blue or white; flowering generally takes place between early January and late June (additional records: three for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy rims of canyons; cliffs; rocky and rocky-gravelly canyons; along sandy-loamy canyon bottoms; scree; talus slopes; buttes; rocky and sandy ridges; ridgetops; clearings in forests; sandy meadows; gravelly-sandy and sandy foothills; rocky hills; rocky hilltops; rocky and sandy hillsides; rocky, stony, cobbly-sandy-loamy, gravelly, sandy and sandy-loam slopes; rocky alluvial fans; gravelly bajadas; gravel slides; rocky outcrops; amongst rocks; gravelly plains; gravelly and sandy flats; basins; sandy valley floors; along railroad right-of-ways; along rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey roadsides; within arroyos; within gravelly-silty draws; along gravelly-loamy ravines; springs; along streams; rocky-sandy streambeds; along creeks; along and in gravelly-sandy creekbeds; sandy riverbeds; along and in bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy washes; drainages; within cobbly, gravelly, sandy and sandy-loamy drainage ways; along sandy and sandy-clayey banks of arroyos, streams, rivers and drainage ways; rocky edges of rivulets and washes; margins of washes; sand bars; gravelly benches; gravelly and sandy terraces; sandy and loamy bottomlands; cobbly and cobbly-sandy floodplains; ditches; bouldery, rocky-clayey, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty and gravelly silty ground, occurring from 100 to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph), 43 (071409), 46 (Page 416), 48 (genus), 58, 63 (021210 - color presentation), 77 (color photograph #81), 80 (This species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most

poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (021210 - color presentation), 86 (color photograph), **89** (recorded as *Lupinus leptophyllus* Benth.), 115 (color presentation)*

***Lupinus sparsiflorus* G. Bentham subsp. *mohavensis* C.T. Dziekanowski & D.B. Dunn: Coulter's Lupine**

SYNONYMY: *Lupinus sparsiflorus* G. Bentham var. *mohavensis* (C.T. Dziekanowski & D.B. Dunn) S.L. Welsh. COMMON NAME: Coulter Lupine, Coulter's Lupine, Mojave Lupine. DESCRIPTION: Terrestrial annual forb/herb (8 to 20 inches in height); the leaves are dark green; the flowers may be blue, blue-purple, blue-white, lilac, purple, purple & white or white; flowering generally takes place between mid-January and mid-May (additional records: one for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; rocky canyons; canyon bottoms; bases of cliffs; buttes; ridgetops; clearings in forests; foothills; rocky hills; rocky hillsides; rocky, gravelly and sandy slopes; bajadas; gravel slides; lava fields; sandy flats; sandy valley floors; rocky, gravelly, gravelly-sandy and sandy roadsides; gullies; springs; sandy streambeds; creeks; along and in rocky, rocky-sandy, gravelly, sandy and silty washes; gravelly-sandy banks of rivers; shores of lakes; sandy beaches; sandy terraces; bottomlands; sandy mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam ground, and silty ground, occurring from 800 to 6,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* subsp. *mohavensis* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (species, color photograph of species), 43 (071409), 46 (species, Page 416), 48 (genus), 63 (021210), 80 (The species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (021210), 86 (species, color photograph of species), 115 (color presentation of the species)*

Lupinus sparsiflorus var. *mohavensis* (see *Lupinus sparsiflorus* subsp. *mohavensis*)

***Marina parryi* (J. Torrey & A. Gray) R.C. Barneby: Parry's False Prairie-clover**

SYNONYMY: *Dalea parryi* J. Torrey & A. Gray. COMMON NAMES: Parry Dalea, Parry Indigo Pea, Parry Marina, Parry False Prairie-clover, Parry's False Prairie-clover, Parry's False Prairieclover, Parry's Indigobush, Silk Dalea. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 50 inches in height, one plant was described as being 16 inches in height with a crown 16 inches in width, plants were described as being 30 inches in height with a crown 40 inches in width); the reddish-purple stems are more or less woody; the leaves are gray-green or green; the flowers are blue, blue-violet, blue & white, dark blue-indigo, indigo, indigo-blue, indigo & blue-purple, deep indigo, deep indigo-violet, magenta-violet, purple, purplish, purple-blue, purple-indigo, purple & white, violet or yellow; flowering generally takes place between late December and early June and again from late August to early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; rocky canyon sides; rocky, gravelly and gravelly-sandy canyon

bottoms; rocky talus; rocky ridgetops; foothills; hills; hilltops; rocky, rocky-sandy and sandy hillsides; along bouldery, rocky, stony, gravelly, gravelly-loamy, sandy and sandy-silty slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; sand dunes; gravelly-sandy outwash fans; gravelly-sandy-loamy and sandy plains; rocky, gravelly, gravelly-sandy and sandy flats; basins; sandy valley floors; beach dunes; coastal shores; along gravelly and silty-clayey roadsides; along and in rocky, gravelly-sandy-loamy and sandy arroyos; along sandy-silty bottoms of arroyos; gulches; rocky gullies; silty springs; along streams; streambeds; creekbeds; along and in rocky, gravelly and sandy washes; within drainage ways; silty depressions; along sandy banks of arroyos, creeks and lakes; gravelly-sandy and sandy edges of washes and tinajas; mudflats; gravel and sand bars; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 4,700 feet in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Marina parryi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Dalea parryi*, color photograph), 43 (021210), 46 (recorded as *Dalea parryi* Torr. & Gray, Page 436), 63 (021210 - color presentation), 77, **85** (021210 - color presentation), 115 (color presentation), **89** (recorded as *Dalea parryi* T. & G.)*

Medicago hispida (see *Medicago polymorpha*)

***Medicago polymorpha* C. Linnaeus: Burclover**

SYNONYMY: *Medicago hispida* J. Gaertner, *Medicago polymorpha* C. Linnaeus var. *vulgaris* (G. Bentham) L.H. Shinners. COMMON NAMES: Bur Clover, Bur-clover, Burclover, Bur Medic, Burr Clover, California Bur Clover, California Bur-clover, California Burclover, Carretilla (Hispanic), Carretón de Amores (Spanish), Hairy Medic, Luzerne Hérissée (French), Medic, Rauher Schneckenklee (German), Toothed Bur-clover, Toothed Medic, Trébol de Carretilla (Spanish), Uirhijpiku Sapichu (Purépecha). DESCRIPTION: Terrestrial annual or perennial mat-forming forb/herb or vine (prostrate or ascending stems 4 inches to 2 feet in length); the foliage is bright green; the flowers are yellow; flowering generally takes place between late January and late June (additional records: one for mid-July, two for late July, two for mid-August and one for early October, possibly other times when the plant has adequate moisture); the mature spiny pods are brown or straw. HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; canyons; bouldery-gravelly-sandy and sandy canyon bottoms; bluffs; clayey ridgetops; meadows; foothills; hills; hilltops; rocky hillsides; loamy and clayey slopes; sand dunes; rocky and clayey banks; clay lenses; clayey flats; valley floors; coastal dunes; coastal strands; along rocky, gravelly-sandy-clayey-loamy, gravelly loam, gravelly-clayey-loamy, sandy and sandy-loamy roadsides; springs; along streams; along bouldery creeks; gravelly-sandy creekbeds; riverbeds; along sandy washes; within sandy drainage ways; cienegas; freshwater marshes; grassy swales; sandy margins of creeks and vernal pools; sandy benches; sandy terraces; sandy bottomlands; rocky and sandy floodplains; along ditches; bouldery-gravelly-sandy riparian areas; waste places; recently burned areas in woodlands, coastal sage scrub and chaparral, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly-sandy, rocky, shaley, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground, and rocky clay, gravelly clay and clay ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland; desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Medicago polymorpha* is native to northern, central, eastern and southern Europe; western, central and southern Asia, and northern Africa. *5, 6, **16** (recorded as *Medicago polymorpha* L. var. *vulgaris* (Benth.) Shinners), 28 (recorded as *Medicago hispida*, color photograph), 30, 43 (021210), 46 (recorded as *Medicago hispida* Gaertn., Page 421), 58, 63 (021210 - color presentation), 68 (recorded as *Medicago hispida* Baerin.), **77** (recorded as *Medicago polymorpha* L. var. *vulgaris* (Benth.) Shinners), 80 (This species is listed as a Poisonous Cropland and Garden Plant. “Alfalfa and Bur Clover may cause

photosensitization, saponin and nitrate poisoning, and bloat."), **85** (021310 - color presentation of dried material), 101 (note under *Medicago lupulina* L.), **89** (recorded as *Medicago hispida* Gaertn.), 127*

Medicago polymorpha var. *vulgaris* (see *Medicago polymorpha*)

***Medicago sativa* C. Linnaeus: Alfalfa**

COMMON NAMES: Alfalfa, Alfalfa Amarilla (Spanish - subsp. *falcata*), Alfalfa Sueca (Spanish - subsp. *falcata*), Alfalfa Verdadeira (Portuguese - subsp. *falcata*), Alfafa-de-provença (Portuguese - subsp. *falcata*), Alfalfa-falciforme (Portuguese - subsp. *falcata*), Blaue Luzerne (German - subsp. *sativa*), Burgundy Trefoil, Hayalimna:we (Zuni - "grass that keeps growing", refers to the ability of the plant to re-grow from the roots after cutting), Lucerne, Luzerna (Portuguese - subsp. *sativa*), Luzerna-de-sequeiro (Portuguese - subsp. *falcata*), Luzerne (German - subsp. *sativa*), Luzerne de Suède (French - subsp. *falcata*), Luzerne Jaune (French - subsp. *falcata*), Mielga (Spanish - subsp. *sativa*), Murasaki-umagoyashi (transcribed Japanese - subsp. *sativa*), Purple Medic, Sichelklee (German - subsp. *falcata*), Sichelluzerne (German - subsp. *falcata*), Sickle Alfalfa (subsp. *falcata*), Sickle Medic (subsp. *falcata*), Snailclover, Yellow Alfalfa (subsp. *falcata*), Yellow Lucerne (subsp. *falcata*), Yellow-flower Alfalfa (subsp. *falcata*). DESCRIPTION: Terrestrial annual or perennial forb/herb (8 inches to 3 feet, one record for 5 feet, in height); the leaves are dark green; the flowers are blue, blue-purple, blue-deep purple, bluish-purple, blue-violet, light lavender-purple, lavender, purple, purplish, dark purple, purple-blue, purple-violet, violet, violet-blue or white; flowering generally takes place between mid-March and late October. HABITAT: Within the range of this species it has been reported from mountains; along mesas; canyons; clearings in forests; gravelly-clayey-loamy meadows; rocky and sandy-loamy hills; hillsides; gravelly slopes; benchlands; sandy flats; basins; valley floors; along railroad right-of-ways; along rocky-gravelly-loamy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and sandy-clayey-loamy roadsides; arroyos; along creeks; rocky-gravelly-sandy and sandy riverbeds; along washes; depressions; swales; along banks of creeks and rivers; muddy edges of streams and creeks; margins of cienegas; silty-loamy terraces; sandy terrace banks; lowlands; floodplains; along fencelines; along and in ditches; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravely loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, silty loam and loam ground, and gravelly-sandy clay ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fodder, as a spice (placed in cooking pits, above and below black tree lichen and camas, to add sweet flavor) and as a drug or medication. *Medicago sativa* is native to northern, central, eastern, and southern Europe; Asia, and northern Africa. *5, 6, 28 (color photograph), 43 (021210), 46 (Pages 420-421), **56**, **57**, 63 (021210 - color presentation), 68, 77, 80 (The species is listed as a Poisonous Cropland and Garden Plant. "Alfalfa and Bur Clover may cause photosensitization, saponin and nitrate poisoning, and bloat."), **85** (021310 - color presentation), 115 (color presentation), 127*

Melilotus indica (see *Melilotus indicus*)

***Melilotus indicus* (C. Linnaeus) C. Allioni: Annual Yellow Sweetclover**

SYNONYMY: *Melilotus indica* (C. Linnaeus) C. Allioni, orth. var. COMMON NAMES: Alfalfilla, Annual Yellow Sweet Clover, Annual Yellow Sweetclover, Haacoz (Seri), Indian Sweet-clover, Indian Sweetclover, Kleinblütiger Steinklee (German), Mélilot des Indes (French), Senji (India), Small Melilot, Sour Clover, Sour-clover, Sourclover, Sweetclover, Trevo-de-cheiro (Portuguese), Yellow Sweet-clover. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 3 feet in height); the flowers are white or yellow fading to pink; flowering generally takes place between late January and mid-August (additional records: two for late September, two for early October, one for late October and one for late

December). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bouldery-gravelly-sandy canyon bottoms; clayey ridgetops; meadows; bouldery, rocky and sandy hillsides; bouldery-sandy, sandy-clayey-loamy and clayey slopes; rocky outcrops; bouldery and clayey flats; sandy basin bottoms; valley floors; coastal dunes; along sandy roadsides; gravelly-sandy arroyos; bottoms of arroyos; bottoms of draws; within gullies; along bottoms of gullies; seeps; springs; along streams; along creeks; rocky creekbeds; along rivers; sandy riverbeds; along and in washes; bouldery-rocky drainages; ponds; boggy areas; cienegas; clayey freshwater and saltwater marshes; depressions; sandy banks of streams and lakes, rivers and lakes; along sandy edges of creeks and washes; margins of washes; along shores of lakes and lagoons; cobbly and sandy terraces; loamy bottomlands; along sandy floodplains; along canals; along and in ditches; ditch banks; bouldery-gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and damp bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; sandy-clayey loam and loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a toy or in games, as a drug or medication and as an insecticide (used in beds as a bed bug repellent). *Melilotus indica* is native to southern Europe; western, central and southern Asia, and northern Africa. *5, 6, **16**, 43 (021310), 46 (genus, no record of species, Page 420), **56**, **57**, 58, 63 (021310 - color presentation), 68, **77**, 80 (Species in the genus *Melilotus* are considered to be Poisonous Cropland and Garden Plant. "Moldy, and sometimes non-moldy, hay of this legume may reduce the ability of the blood to clot and animals may die of internal or external hemorrhage."), **85** (021310 - color presentation of dried material), **89** (recorded as *Melilotus indica* (L.) All.), 101 (note under *Melilotus officinalis*), 115 (color presentation), 127*

Mimosa filicioides (see *Acacia angustissima* var. *filicioides*)

***Nissolia schottii* (J. Torrey) A. Gray: Schott's Yellowhood**

COMMON NAMES: Schott Yellowhood, Schott's Yellowhood. DESCRIPTION: Terrestrial perennial forb/herb or vine (twining stems 9 to 16 feet in length); the flowers are orange-yellow or yellow; flowering generally takes place between mid-July and early October (additional records: one for mid-March, one for late March and one for late May, flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; flanks of mountains; rocky canyons; rocky-sandy canyon bottoms; ledges; ridges; ridgetops; foothills; stony and gravelly hills; rocky hillsides; bedrock, bouldery, rocky and gravelly slopes; bottoms of slopes; bases of boulders; cobbly plains; gravelly-sandy flats; basins; coastal plains; along roadsides; arroyos; bottoms of arroyos; along rocky draws; along streams; along and in washes; gravelly banks of arroyos; rocky benches, and rocky and gravelly riparian areas growing in dry bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This woody vine may be an attractive component of a restored native habitat, and it is often found climbing over or up through shrubs and small trees. The stems, leaves and flowers are browsed by quail and White-tailed Deer (*Odocoileus virginianus couesi*). *Nissolia schottii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (021310 - *Nissolia schottii* A. Gray), 46 (Page 472), 58, 63 (021310 - color photograph of seedpod), 77, **85** (021310 - color presentation of dried material), **89***

***Olneya tesota* A. Gray: Desert Ironwood**

COMMON NAMES: Arizona Ironwood, Comitin, Desert Iron Wood, Desert Ironwood, Ho Id Cam (Pima), Ironwood, Palo de Hierro, Palo-de-hierro, Palo Fierro, Tesota. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (10 to 33 feet in height); the bark is gray; the twigs are gray, green or yellow-green becoming light brown; the leaves are bluish-green, gray or gray-green; the flowers may be (½ inch in length) blue & white, lavender, pink, pink-lavender, purplish, rose-purple & whitish, violet,

white or yellowish; flowering generally takes place between early April and late June (additional records: one for early January, one for early March and one for mid-July) with flowering lasting for a few weeks, the mature seedpods (2 to 2½ inches in length) are brown. HABITAT: Within the range of this species it has been reported from desert mountains; rocky mountaintops; gravelly and sandy mesas; rocky and sandy canyons; canyon bottoms; along bluffs; buttes; ridges; ridgetops; rocky foothills; hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; rocky outcrops; amongst boulders; sand dunes; plains; rocky, gravelly and sandy flats; valley floors; roadsides; rocky and sandy arroyos; around seeping streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along gravelly-sandy and sandy banks of washes; along edges of washes; margins of washes; shores of oceans; benches; terraces; floodplains, and gravelly riparian areas growing in dry desert pavement and bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 3,200 feet in elevation in the scrub and desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as fuel, tools, and for musical instruments. The trees are browsed by Bighorn Sheep (*Ovis canadensis*). Hummingbirds including the Costa's Hummingbird (*Calypte costae*), Carpenter Bees (*Xylocopa* spp.) and the Solitary Bee (*Centris pallida*) have been observed visiting the flowers. The seeds are an important food for the Desert Wood Rat (*Neotoma lepida*) and other desert animals. *Olneya tesota* is native to southwest-central and southern North America. *5, 6, 10, 13, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (021310), 46 (Pages 442-443), 48, 52 (color photograph), 53, 63 (021310 - color presentation), 77, **85** (021310 - color presentation), **89**, 91, 115 (color presentation), 127, **WTK** (May 27, 2005)*

***Parkinsonia aculeata* C. Linnaeus: Jerusalem Thorn**

COMMON NAMES: Arrêtenègre (French), Bacapore, Bagota, Barbados Flowerfence, Cina-cina (Portuguese), Espinheiro-de-Jerusalém (Portuguese), Espinho-de-jerusalém (Portuguese), Espinillo (Spanish), Guacoporo, Horse Bean, Horsebean, Jerusalem Thorn, Jerusalem-thorn, Jerusalemdorn (German), Junco, Long-leaf Paloverde, Mexican Palo Verde, Mexican Paloverde, Mezquite Verde, Palo de Rayo (Spanish), Palo Verde Mejicano (Spanish), Retaima, Retama, Rosa-da-turquia (Portuguese), Sessaban (transliterated Arabic), Turco (Portuguese). DESCRIPTION: Terrestrial perennial drought- and possibly cold-deciduous shrub or tree (10 to 40 feet in height); the older bark is brown or gray; the younger bark, branches and twigs are green or yellow-green; the leaves are green; the flowers (¾ to 1 inch in width) are golden-yellow, orange, yellow, yellow with orange or red spots or golden-yellow; flowering generally takes place between mid-February and early July (additional records: two for late July, four for early August, one for mid-August, two for late August, one for mid-September, two for late September, one for mid-October, three for late October, one for mid-September, one for early October, one for late October, one for early November, one for mid-November and one for late November) with the bloom generally lasting 3 to 4 weeks; the mature seedpods (2 to 4 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and gravelly canyons; canyon bottoms; foothills; bouldery hills; hillsides; rocky-gravelly-sandy-clayey-loamy slopes; bajadas; gravelly and sandy alluvial fans; sand hummocks; sandy plains; sandy flats; basin bottoms; valley floors; coastal flats; railroad right-of-ways; along rocky-gravelly, gravelly and sandy-loamy roadsides; along sandy-silty arroyos; bottoms of arroyos; along streams; along rocky streambeds; along rivers; rocky-cobbly-sandy and sandy riverbeds; along and in sandy and silty washes; along watercourses; clayey pondbeds; banks of creeks and rivers; edges of ponds; shores of rivers; beaches; terraces; bottomlands; gravelly-sandy and sandy-silty-clayey floodplains; bosques; along canals; along canal banks; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam and sandy loam ground; sandy-silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 4,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was observed as an

escaped and naturalized ornamental. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This plant may be an attractive component of a restored native habitat; however, outside of its native range it may become weedy, especially so in riparian areas and along roadsides. In Arizona, the Jerusalem Thorn is native to the Castle Dome Mountains in Yuma County and the foothills of the Baboquivari, Coyote and Quinlan Mountains in Pima County. The foliage and pods are browsed by wildlife. *Parkinsonia aculeata* is native to southwest-central and southern North America. *5, 6, 13, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (021310), 46 (Page 407), 48, 52 (color photograph), 53, **56**, **57**, 58, 63 (021310 - color presentation), 77, 80 (This species is listed as a Poisonous Cropland and Garden Plant. "This ornamental shrub or small tree has been reported to accumulate toxic levels of nitrate."), **85** (021310 - color presentation), 91, 115 (color presentation), 127, **WTK** (October 28, 2009)*

***Parkinsonia florida* (G. Bentham ex A. Gray) S. Watson: Blue Paloverde**

SYNONYMY: *Cercidium floridum* G. Bentham, *Cercidium floridum* G. Bentham var. *floridum*. COMMON NAMES: Blue Palo Verde, Blue Palo-verde, Blue Paloverde, Caro (Mayo), Palo Verde (Spanish for Green Pole, Green Stick or Green Tree), Paloverde, Stedak U'us (Pima), Studuk U'us (Bajo Pima). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (40 inches to 40 feet in height); the bark may be blue-green, green, yellow or yellow-green, and gray on the older trunks; the leaves are blue-green; the flowers (¾ to 1 inch in width) are yellow or seldom white; flowering generally takes place between early March and mid-June (additional records: two for early February, two for mid-August, two for early September, one for late September, one for early October, two for mid-October, one for late October, two for early November, one for mid-November and one for early December); the mature fruits (1½ to 4 inches in length) are light brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; along canyons; canyon walls; sandy canyon bottoms; buttes; gravelly-clayey ridges; foothills; rocky, rocky-sandy, gravelly-loamy and sandy hills; bajadas; rocky, rocky-sandy and sandy slopes; sand hills; sand dunes; rocky-sandy, cindery, sandy and sandy-silty flats; valley floors; valley bottoms; coastal slopes; along rocky-gravelly-sandy, gravelly-sandy and sandy roadsides; along gravelly arroyos; along sandy bottoms of arroyos; rocky draws; seeps; streambeds; creekbeds; along rivers; along riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; watercourses; playas; along rocky and sandy banks of arroyos, rivers and washes; edges of draws and washes; margins of rivers and washes; gravelly sand bars; benches; gravelly terraces; loamy bottomlands; clayey lowlands; sandy-loamy floodplains; mesquite bosques; fencerows; catchments; stock tanks; along canals; along canal banks; gravelly-sandy riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly-sandy, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; gravelly clay and clay ground, and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it has a very showy display of yellow flowers in very showy in late March and April. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used for shelter and for tools. The Blue Paloverde may be useful in controlling erosion. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*) and other wildlife browse the fruits, leaves and twigs and the seeds are eaten by birds and rodents and used by Bruchid Beetles. *Parkinsonia florida* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Cercidium floridum* Bentham, color photograph of habitat Plate S.2), 15, **16** (recorded as *Cercidium floridum* Benth.), 18, 26 (recorded as *Cercidium floridum*, color photograph), 28 (recorded as *Cercidium floridum*, color photograph), 43 (021310 - *Cercidium floridum* Benth. ex A. Gray, *Parkinsonia florida* S. Watson), 46 (recorded as *Cercidium floridum* Benth., Page 407), 48, 52 (recorded as *Cercidium floridum* Benth. ex Gray, color photograph), 53 (recorded as *Cercidium floridum* Benth.), **56**, **57**, 58, 63 (021310 - color presentation), 77 (recorded as *Cercidium floridum* Benth.), **85** (021410 - color presentation), 86 (recorded as *Cercidium*

floridum, color photograph), **89** (recorded as *Cercidium torreyanum* (Wats.) Sargent), 91 (recorded as *Cercidium floridum* Benth.), 115 (color presentation), 127, **WTK** (May 27, 2005)*

***Parkinsonia microphylla* J. Torrey: Yellow Paloverde**

SYNONYMY: *Cercidium microphyllum* (J. Torrey) J.N. Rose & I.M. Johnston. COMMON NAMES: Dipua, Foothill Palo Verde, Foothill Paloverde, Hillside Paloverde, Horsebean, Kuk Cehedagi (Tohono O'odham), Little Horsebean, Littleleaf Horsebean, Little Leaf Paloverde, Little-leaf Palo Verde, Little-leaf Palo-verde, Little-leaf Paloverde, Littleleaf Palo Verde, Littleleaf Paloverde, Palo Verde (Spanish for Green Pole, Green Stick or Green Tree), Palo-verde, Paloverde, Yellow-Palo-verde, Yellow Paloverde. DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (40 inches to 26 feet in height with a crown diameter of 12 to 18, one plant was described as being 6 feet in height and 7 feet in width, one plant was described as being 9 feet in height and width, one plant was described as being 16 feet in height and width); the bark is green, olive-green or yellow-green, and gray on older trunks; the ends of the leafy branchlets are spine-like; the small leaflets are green, greenish-gray or yellow-green; the flowers (½ inch in width) are lemon-yellow, whitish & yellow, yellow, yellow-green or yellow & white; the styles are pale yellow or pale yellow-green; the filaments are pale yellow or pale yellow-green; the anthers are orange; flowering generally takes place between mid-March and mid-June (additional records: one for mid-August and one for mid-October); the mature seedpods (2 to 3 inches in length) are light brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mesas; cliffs; rocky walls; rocky canyons; canyon walls; canyon bottoms; bluffs; buttes; ledges; ridges; bouldery and rocky foothills; bases of foothills; rocky hills; rocky hillsides; rocky and sandy slopes; alluvial fans; rocky, gravelly and gravelly-silty bajadas; boulder fields; bouldery and rocky outcrops; plains; gravelly and sandy flats; valley floors; sandy valley bottoms; along rocky and gravelly roadsides; within gravelly-sandy arroyos; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; rocky-sandy banks of arroyos and rivers; along edges of washes; margins of arroyos and washes; rocky sand bars; coves; gravelly terraces; floodplains; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, gravelly, gravelly-sandy and sandy ground; sandy loam, clay loam and loam ground; clay ground, and gravelly silty ground, occurring from sea level to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be more than 400 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. To reduce water loss during extended periods of drought a tree may undergo a natural drought-pruning process where entire branches die back The Foothill Paloverde is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*) and provides a sheltered microhabitat in which other desert plants are able to become established. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*), jackrabbits and other small mammals browse the fruits, leaves and twigs; the Collard Peccary (*Peccari tajacu*) feed on the fruit, and the seeds are used by Bruchid Beetles. The Foothill Paloverde is considered a significant foraging site for birds; it is used as a nesting site by the Black-tailed Gnatcatcher (*Polioptila melanura*) and Verdins, and as a roosting site by Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. *Parkinsonia microphylla* is native to southwest-central and southern North America. *5, 6, 10, 13 (recorded as *Cercidium microphyllum*, color photograph in habitat Plate T.1), 15, **16** (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 18, 26 (recorded as *Cercidium microphyllum*, color photograph), 28 (recorded as *Cercidium microphyllum*, color photograph), 43 (021410 - *Cercidium microphyllum* Rose & I.M. Johnst.), 46 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnston, Page 407), 48, 52 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnst., color photograph), 53 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 63 (021410 - color presentation), 77 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), **85** (021410 - color presentation), 86 (note under *Cercidium floridum*), **89**, 91 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnston), 115 (color presentation), 127, 134, **HR**, **WTK** (May 27, 2005)*

Poinciana gilliesii (see *Caesalpinia gilliesii*)

Poinciana pulcherrima (see *Caesalpinia pulcherrima*)

Poinciana pulcherrima var. *flava* (see footnote 89 under *Caesalpinia gilliesii*)

***Prosopis glandulosa* J. Torrey var. *glandulosa*: Honey Mesquite**

SYNONYMY: *Prosopis juliflora* (O. Swartz) A.P. de Candolle var. *glandulosa* (J. Torrey) T.D. Cockerell. COMMON NAMES: Common Mesquite, Honey Mesquite, Mesquite, Mizquitl. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (4 to 30 feet in height); the flowers are cream-yellow; flowering generally takes place between late March and late June (additional records: two for mid-July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; bluffs; rocky ridges; hills; rocky hillsides; alluvial fans; clayey breaks; plains; sandy flats; valley floors; along gravelly-loamy and clayey roadsides; seeps; springs; along streams; along rivers; sandy riverbeds; along and in washes; benches; sandy bottomlands; floodplains, and stock tanks growing in dry desert pavement; rocky, gravelly-sandy and sandy ground; gravelly loam, clayey loam and loam ground, and sandy clay and clay ground, occurring from 100 to 6,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: Possibly an EXOTIC Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, beverage and/or fiber crop; it was also noted as having been used as a fuel and for tools. *Prosopis glandulosa* var. *glandulosa* is native to southwest-central and southern North America (an area ranging from southeastern Colorado to Kansas, Texas and eastern Mexico). *5, 6, 10, 13, 18 (species), 26 (color photograph), 28 (color photograph), 43 (021410), 46 (genus and *Prosopis juliflora* (Swartz) DC., Pages 401-402), 52 (species, color photograph of species), 53 (recorded as *Prosopis juliflora* (Sw.) DC.), **56** (noted as having been planted) **57**, 63 (021410), **85** (021510), 101 (color photograph of species, species), 127*

Prosopis juliflora var. *glandulosa* (see *Prosopis glandulosa* var. *glandulosa*)

Prosopis juliflora var. *velutina* (see *Prosopis velutina*)

Prosopis odorata (see footnote under *Prosopis pubescens*)

***Prosopis pubescens* G. Bentham: Screwbean Mesquite**

COMMON NAMES: Fremont Screwbean, Screw-bean, Screwbean, Screwbean Mesquite, Screwpod Mesquite, Tornillo (Spanish for screw). DESCRIPTION: Terrestrial perennial winter deciduous shrub or tree (3 to 33 feet in height, one shrub was described as being 10 to 12 feet in height and width); the bark is light brown or reddish; the twigs are gray; the leaves are gray, green or yellowish-green; the flowers (cylindrical spikes 1 to 3 inches in length) are creamy, greenish-white, greenish-yellow or yellow and are usually found in dense clusters; flowering generally takes place between late April and late October (additional record: one for early December); the mature seedpods are tightly coiled spirals (1 to 1½ inches in length) are light brown or pale yellow. HABITAT: Within the range of this species it has been reported from mountains; hillsides; bajadas; loamy flats; basins; valley floors; along gravelly-loamy roadsides; arroyos; gullies; ravines; seeps; around and in springs; along streams; streambeds; creeks; along rivers; riverbeds; in gravelly and sandy washes; along major watercourses; oases; ponds; sinks; waterholes; marshy areas; gravelly banks of creeks, rivers and marshes; along shores of rivers and lakes; terraces; bottomlands; gravelly-sandy-silty floodplains; lowlands; along mesquite bosques; along canals; along and in ditches; sandy-loamy ditch banks, and gravelly, gravelly-sandy-silty and sandy-loamy riparian areas growing in muddy and wet, moist and dry rocky-sandy, shaley, gravelly and sandy ground; gravelly loam, sandy loam, silty-clayey loam and loam ground; clay ground; rocky-clayey silty, gravelly-

sandy silty and sandy silty ground, and powdery soils, occurring from below sea level (-75) to 5,500 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a guide for determining a planting season, as fuel, as tools and as a drug or medication. The Screwbean Mesquite provides food and shelter for many species of wildlife. The seedpods are eaten by Coyotes (*Canis latrans*), rodents, Gambel's Quail (*Callipepla gambelii*), Mearn's Quail (*Cyrtonyx montezumae*), roadrunners, rodents, and the leaves and/or seedpods may be eaten by deer, Hooded Skunks (*Mephitis macroura*), Ravens, White-winged Doves (*Zenaida asiatica*). The Screwbean Mesquite may require the presence of a fairly shallow water table, possibly to within 12 to 13 feet, and may be killed by flooding in bottomlands. The Screwbean Mesquite has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Prosopis pubescens* is native to southwest-central and southern North America. *5, 6, 13, 18, 26, 28 (color photograph), 43 (021510), 46 (Page 402), 48, 52 (color photograph), 53, 63 (021610 - color presentation), **85** (021610 - color presentation), **89** (recorded as *Prosopis odorata* Torr. & Frem.), 91, 127*

***Prosopis velutina* E.O. Wooton: Velvet Mesquite**

SYNONYMY: *Prosopis juliflora* (O. Swartz) A.P. de Candolle var. *velutina* (E.O. Wooton) C.S. Sargent. COMMON NAMES: Algarroba, Chachaca, Fluweelprosopis (Afrikaans), Kvi (or possibly Kui - Tohono O'odham), Mesquite, Mezquite, Mizquitl, Velvet Mesquite. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (2 to 56 feet in height, one plant was reported to be 6½ feet in height with a canopy 6½ feet in width, one plant was reported to be 13 feet in height with a canopy 16½ feet in width, one tree was reported to be 20 feet in height and 40 feet in width); the bark on the trunk and older branches is dark brown, dark brownish-green or dark gray; the leaves are gray-green; the flowers (cylindrical spikes 2 to 5 inches in length) are cream, cream-yellow, green-yellow, greenish-white, pale yellow, yellow, yellow-green or yellowish-green; flowering generally takes place between mid-March and late August (additional records: one for early October and one for early November); the mature seedpods (3 to 8 inches in length) are red, tan, yellow or mottled. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; along sandy canyon bottoms; rocky bases of cliffs; buttes; rocky and sandy ridges; foothills; rocky hills; rocky hillsides; rocky and rocky-loamy slopes; alluvial fans; gravelly bajadas; rocky outcrops; rocky plains; gravelly and sandy flats; sandy valley

floors; valley bottoms; along rocky-gravelly-loamy, gravelly-clayey-sandy-loamy and silty-clayey roadsides; along and in sandy arroyos; rocky-gravelly-loamy draws; seeps; springs; around seeping streams; along streams; along rocky streambeds; along creeks; creekbeds; along rivers; along rocky-sandy riverbeds; along and in rocky, gravelly-sandy and sandy washes; along drainages; within drainage ways; playas; cienegas; banks of streams, creeks and rivers; gravelly and sandy edges of rivers, washes and ponds; sandy-loamy benches; gravelly and gravelly-sandy terraces; bottomlands; floodplains; mesquite bosques; along fencelines; around stock tanks; around reservoirs; along canals; canal banks; in ditches; along ditch banks; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly-clayey-sandy loam, sandy loam, clayey loam and loam ground; silty clay ground, and sandy silty, clayey silty and silty ground, occurring from 100 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may live to be more than several hundred years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber and/or dye or paint (boiled resin used as a pottery paint) crop; it was also noted as having been used as fuel, as a tool, as toys, as a drug or medication and as a guide for determining a planting season. The Velvet Mesquite is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*). Much of the mesquite forest (bosques) originally found along the desert water courses have been lost to fuel wood cutting and clearing for agricultural fields and commercial and residential development. Velvet Mesquite Bosques were small, open, park-like woodlands with the Velvet Mesquite often occurring in nearly pure stands and interspersed with other common species such as the Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Mexican Elder (*Sambucus nigra* subsp. *canadensis*), Desert Hackberry (*Celtis ehrenbergiana*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Wolfberry (*Lycium* spp.), Four-wing Salt-bush (*Atriplex canescens*) and Vine Mesquite Grass (*Panicum obtusum*). The Velvet Mesquite provides food and shelter for many species of wildlife. The plant is a food source for quail, Desert Mule Deer (*Odocoileus hemionus crooki*) and Desert Bighorn Sheep (*Ovis canadensis mexicana*). Coyotes (*Canis latrans*), Round-tailed Ground Squirrels (*Spermophilus tereticaudus*), Desert Cottontails (*Sylvilagus audubonii*) and many other wild animals feed on the seed pods. Velvet Mesquite is the host for a Drywood Termite (*Incisitermes banksi*). Bruchid Beetles feed on the fruits and seeds. *Prosopis velutina* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooton) Sarg., color photograph), 15, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (071609), 46 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooton) Sarg., Page 402), 48, 52 (color photograph), 53 (species, recorded as *Prosopis juliflora* (Sw.) DC.), **56**, **57**, 58, 63 (021610), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Heavy, long-continued consumption of pods and leaves of these common desert shrubs may cause rumen impaction and poisoning."), **85** (021610 - color presentation), 91), **89**, 115 (color presentation), 127, 134, ADS (Arizona Daily Star, Sunday, July 26, 2009, Tucson & Region, B1: Mesquite Pods are of Consuming Interest), **WTK** (May 27, 2005)*

***Senna bauhinioides* (A. Gray) H.S. Irwin & R.C. Barneby: Twinleaf Senna**

SYNONYMY: *Cassia bauhinioides* A. Gray, *Cassia bauhinioides* A. Gray var. *arizonica* B.L. Robinson ex J.F. MacBride. COMMON NAMES: Bauhinia Senna, Senna, Shrubby Senna, Twinleaf Senna, Two-leaf Desert Senna, Two-leaved Senna. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 inches to 2 feet in height); the leaves are grayish; the flowers are orange-yellow, white, yellow, dark yellow, pale yellow-orange, yellow-light orange, yellow-orange or yellowish-orange; flowering generally takes place between mid-April and early November (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; grassy mesas; gravelly cliffs; canyons; rocky and rocky clayey ridges; foothills; sandy hills; hilltops; stony and gravelly hillsides; escarpments; rocky and sandy-loamy slopes; gravelly bajadas; rocky outcrops; sand dunes; tablelands; plains; rocky, sandy and sandy-loamy flats; valley floors; along rocky-

gravelly-sandy-loamy, gravelly-clayey, gravelly-clayey-loamy and sandy-loamy roadsides; in arroyos; draws; gulches; gullies; creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; drainages; depressions; fringes of playas; sandy beaches; benches; terraces; floodplains; riparian areas, and disturbed areas growing in damp and dry rocky desert pavement; rocky, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground, and rocky clay and gravelly clay ground, occurring from 2,000 to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Senna bauhinioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (021610 - *Cassia bauhinioides* A. Gray var. *arizonica* B.L. Robins.), 46 (recorded as *Cassia bauhinioides* Gray, Page 406 and *Cassia bauhinioides* Gray var. *arizonica* Robins., Page 406), 58 (recorded as *Cassia bauhinioides* Gray var. *arizonica* Robins.), 63 (021610 - color presentation), 68, 77 (color photograph #35), 85 (021610 - color presentation of dried materials), 86 (recorded as *Cassia bauhinioides*, color photograph), **89** (recorded as *Cassia bauhinioides* Gray)*

***Senna covesii* (A. Gray) H.S. Irwin & R.C. Barneby: Coves' Cassia**

SYNONYMY: *Cassia covesii* A. Gray. COMMON NAMES: Coves Cassia, Coves' Cassia, Cove Senna, Dais, Daisillo, Desert Senna, Hojasen, Kau Ohasen (Yaqui), Rosemaria, Rattlebox, Rattlebox Senna, Rattleweed, Senna. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (10 to 32 inches in height); the leaves are gray or gray-green; the flowers (½ to 1 inch in width) golden, orange-yellow, rusty-yellow, pale yellow, yellow, yellow-orange or yellow with reddish veins; flowering generally takes place between early March and early December (additional records: one for early February and two for mid-February); the mature seedpods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyonsides; gravelly canyon bottoms; along rocky and rocky-sandy ridges; ridgetops; foothills; rocky hills; rocky and sandy hillsides; along rocky, rocky-gravelly, rocky-clayey and gravelly slopes; alluvial fans; gravelly bajadas; amongst grasses; sandy-loamy plains; gravelly, sandy and silty flats; basins; valley floors; along rocky, gravelly, gravelly-sandy and sandy roadsides; sandy bottoms of arroyos; gulches; along streams; streambeds; creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; gravelly drainage ways; waterholes; around ponds; gravelly-sandy banks of rivers and washes; margins of washes; gravel bars; sandy beaches; sandy loamy benches; gravelly terraces; sandy, sandy-loamy, loamy and silty floodplains; mesquite bosques; gravelly and sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-clayey loam and loam ground; rocky clay ground, and silty ground, occurring from sea level to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Cove Cassia is a larval food plant of the Cloudless Sulfur (*Phoebis sennae*) and Sleepy Orange (*Eurema nicippe*) and is used for food by Gambel's Quail (*Callipepla gambelii gambelii*). *Senna covesii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Cassia covesii*, color photograph), 43 (021710), 46 (recorded as *Cassia covesii* Gray, Page 406), 63 (021710), 68, 77, 82, **85** (021710 - color presentation), **89** (recorded as *Cassia covesii* Gray), 115 (color presentation), **HR** *

***Sphinctospermum constrictum* (S. Watson) J.N. Rose: Hourglass Peaseed**

COMMON NAME: Hourglass Peaseed, Tight Sphincter Seed. DESCRIPTION: Terrestrial annual forb/herb (6 to 9 inches in height); the stems are delicate; the inconspicuous flowers are light blue, cream, lavender, pale purple or purple; flowering generally takes place between mid-August and early October (flowering beginning as early as July has been reported); the seeds are shaped like an hourglass. HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky hills; rocky hilltops; rocky hillsides; rocky slopes; rocky outcrops; grassy flats; cobbly roadbeds; roadsides; along sandy washes; floodplains, and sandy riparian areas growing in dry rocky, cobbly and sandy

ground, occurring from 100 to 5,600 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Sphinctospermum constrictum* is native to southwestern and southern North America. *5, 6, **16**, 43 (021710), 46 (Page 444), 63 (021710 - color presentation of seed), **77**, **85** (021710 - color presentation)*

Vachellia constricta (see *Acacia constricta*)

Vicia exigua (see *Vicia ludoviciana*)

Vicia hassei (see footnote 89 under *Vicia ludoviciana* subsp. *ludoviciana*)

***Vicia ludoviciana* T. Nuttall (subsp. *ludoviciana* is the subspecies reported as occurring in Arizona): Louisiana Vetch**

SYNONYMY: (for *V.l.* var. *ludoviciana*: *Vicia exigua* T. Nuttall). COMMON NAMES: Deer-pea Vetch, Deerpea Vetch, Louisiana Vetch, Slender Vetch, Slim Vetch, Vetch. DESCRIPTION: Terrestrial annual forb/herb or vine (twining stems 4 inches to 3 feet in height/length); the flowers are pale blue, blue, pale blue-lavender, blue & white, cream, cream & purple, light lavender, lavender, lavender-white, pink, pinkish; pinkish-purple, pinkish, pinkish-white, light purple, violet, violet & white, white, white & blue-lavender or white-lavender; flowering generally takes place between late February and late May (additional records: three for early February, one for early July, two for mid-July, one for mid-August and one for mid- September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; rock cliffs; bouldery canyons; canyon bottoms; talus slopes; bases of cliffs; crevices in lava flows; ledges; ridges; rocky ridgetops; foothills; rocky hills; bouldery, rocky, rocky-clayey and gravelly-sandy hillsides; rocky, rocky-gravelly, rocky-clayey, stony, gravelly, gravelly loamy, sandy and clayey slopes; bedrock bajadas; rocky outcrops; amongst boulders and rocks; amongst grasses; sandy lava flows; lava fields; sand dunes; clay lenses; loamy and clayey flats; basins; valley floors; railroad right-of-ways; along rocky-sandy and gravelly roadsides; gullies; seeps; springs; along sandy streams; along and in streambeds; along creeks; along rivers; along and in rocky, rocky-gravelly, rocky-loamy, gravelly-loamy and sandy washes; in sandy drainages; sandy banks of arroyos, streams and washes; edges of washes; sandy-silty and silty depressions; banks of creeks; cobbly edges of washes; benches; mesquite bosques; loamy floodplains; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, stony, cobbly, gravelly and sandy ground; rocky loam, gravelly loam, sandy loam and loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 600 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vicia ludoviciana* is native to south-central and southern North America. *5, 6, **16**, 43 (021810), 46 (recorded as *Vicia exigua* Nutt., Page 477), 48 (genus), 58, 63 (021810 - color presentation of seeds), 77, 80 (Species of the genus *Vicia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Cultivated species of Vetch may cause liver damage, cyanide poisoning, and photosensitization, but native species have not been incriminated.” and also Poisonous Cropland and Garden Plants. “Species of Vetch occasionally develop lethal concentrations of cyanogenetic glycosides or produce photosensitization but are rarely responsible for deaths.”), **85** (021810 - color presentation)*

***Vicia ludoviciana* T. Nuttall subsp. *ludoviciana*: Louisiana Vetch**

SYNONYMY: *Vicia exigua* T. Nuttall. COMMON NAMES: Deer-pea Vetch, Deerpea Vetch, Louisiana Vetch, Slender Vetch, Slim Vetch, Vetch. DESCRIPTION: Terrestrial annual forb/herb or vine (sprawling or twining stems 4 inches to 3 feet in height/length); the flowers are pale blue, pale blue & white, blue, bluish-purple, bluish-white, blue & white, cream, cream & purple, light lavender, lavender, lavender-white, pink, pinkish; pinkish-purple, pinkish, pinkish-white, pale purple, purplish-blue, sky blue, violet, violet & white, white, white & blue-lavender or white-lavender; flowering generally takes place between early March and late May (additional records: one for early February, one for early July, two for

mid-July, one for mid-August and one for mid- September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rock cliffs; canyons; bouldery, rocky and gravelly-sandy canyon bottoms; talus slopes; bases of cliffs; crevices in lava flows; grassy bluffs; buttes; knolls; ledges; rocky ridgetops; foothills; rocky hills; bouldery, rocky, rocky-gravelly and rocky-clayey hillsides; rocky escarpments; rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-loamy, rocky-clayey, stony, gravelly, gravelly-loamy, sandy, loamy and clayey slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava fields; gravelly-sandy prairies; loamy and clayey flats; basins; valley floors; railroad right-of-ways; along rocky-gravelly-loamy, rocky-loamy, rocky-sandy, gravelly, sandy-loamy and clayey-loamy roadsides; within rocky and sandy arroyos; gullies; seeps; along sandy streams; along and in streambeds; along creeks; along rivers; along sandy-loamy riverbeds; along and in rocky, rocky-gravelly, rocky-loamy, gravelly-loamy and sandy washes; within sandy drainage ways; in rocks around ponds; swampy areas; banks of streams and washes; edges of washes; sandy-silty and silty depressions; bottomlands; loamy floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 300 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vicia ludoviciana* subsp. *ludoviciana* is native to south-central and southern North America. *5, 6, 15, 43 (021810), 46 (recorded as *Vicia exigua* Nutt.), 48 (genus), 58 (recorded as *Vicia ludoviciana* Nutt.), 63 (021810 - color presentation of seeds), 77 (recorded as *Vicia ludoviciana* Nutt.), 80 (Species of the genus *Vicia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Cultivated species of Vetch may cause liver damage, cyanide poisoning, and photosensitization, but native species have not been incriminated.” and also Poisonous Cropland and Garden Plants. “Species of Vetch occasionally develop lethal concentrations of cyanogenetic glycosides or produce photosensitization but are rarely responsible for deaths.”), **85** (021810), **89** (recorded as *Vicia hassei* Wats.)*

Fouquieriaceae: The Ocotillo Family

***Fouquieria splendens* G. Engelmann: Ocotillo**

SYNONYMY: *Fouquieria splendens* G. Engelmann subsp. *splendens* G. Engelmann. COMMON NAMES: Albarda, Barda, Barda, Candle Bush, Candlewood, Coach Whip, Coach-whip, Coachwhip, Coachwhip Cactus, Flamingsword, Jacob’s Staff, Monkey-tail, Ocotillo, Ocotillo del Corral, Slimwood, Vine-cactus, Vine Cactus. DESCRIPTION: Terrestrial perennial cold- and drought-deciduous semi- and stem-succulent shrub (5 to 33 feet in height with a crown width of 5 to 15 feet); the stems (cluster of 5 to 100 wand-like stems branching from the base) are gray, gray & dark gray, gray-green or green; the leaves are green; the flowers (2 to 10 inch long clusters at the tips of the stems) may be coral-red, cream, cream-white, orange, orange-red, pinkish-purple, red, reddish-orange, red & yellow, salmon, scarlet, scarlet-coral, white or yellow; flowering generally takes place over a period of 50 to 60 days between early February and early June (additional records: two for late June, two for early July, one for mid-July, one for late July, one for early August, one for late August, two for mid-September, one for late September, one for mid-October, two for late October, two for early November and two for early December); the mature fruits are capsules containing winged seeds. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly-sandy and sandy mesas; crags; canyon rims; cliffs; bouldery and rocky canyons; crevices in rocks; gravelly ridges; rocky ridgetops; ridgelines; foothills; rocky and rocky-sandy hills; rocky hilltops; rocky and gravelly hillsides; bedrock, bouldery-cobbly, rocky, rocky-gravelly, shaley-sandy, stony, gravelly, gravelly-sandy and gravelly-loamy slopes; alluvial fans; rocky and sandy bajadas; rocky outcrops; amongst boulders; lava flows; sand hills; sand dunes; dune swales; gravelly outwash fans; gravelly and sandy plains; gravelly and gravelly-sandy flats; basins; rocky and sandy valley floors; valley bottoms; along gravelly roadsides; rocky arroyos; gullies; along rivers; along sandy washes; bedrock, bouldery-cobbly and sandy banks of rivers and

washes; rocky-sandy shores of lakes; benches; along floodplains and riparian areas growing in dry desert pavement; bouldery, bouldery-cobbly, rocky, rocky-gravelly, rocky-sandy, shaley-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a fuel, tool, drug or medication, ceremonial item and as an ornamental landscape plant. Older plants may be 150 to 200 years of age. This "vase-shaped" plant has been described by Benson and Darrow as being "one of the most distinctive shrubs in the Southwestern Deserts, and it is one of the plants giving outstanding character to the flora of the region". Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Mule Deer (*Odocoileus hemionus*) and Whitetailed Deer (*Odocoileus virginianus* subsp. *couesi*) browse this plant. The Broad-billed Hummingbird (*Cynanthus latirostris*), Butterflies, Carpenter Bee (*Xylocopa californica*), Costa's Hummingbird (*Calypte costae*), Finches, Orioles, Rufous Hummingbird (*Selasphorus rufus*), Solitary Bees, Syrphid Flies, Verdins, and Warblers have been observed visiting the flowers. The Ocotillo is a preferred food plant of the Costa's Hummingbird. *Fouquieria splendens* is native to southwest-central and southern North America. *5, 6, 10, 13 (color photograph: Plate N), 15, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (080309), 45 (color photograph), 46 (Page 640), 48, 58, 63 (021810 - color presentation), 77 (color photograph #27), **85** (021810 - color presentation), 86 (color photograph), **89**, 91, 106 (021810 - color presentation), 107, 115 (color presentation), 127, **WTK** (August 12, 2005)*

Fouquieria splendens subsp. *splendens* (see *Fouquieria splendens*)

Fumariaceae: The Fumitory Family

***Corydalis aurea* C.L. von Wildenow: Scrambled Eggs**

COMMON NAMES: Corydalis Dorée, Dutchman's Breeches, Fitweed, Fumitory, Golden Corydalis, Golden Smoke, Mountain Corydalis, Scrambled Eggs. DESCRIPTION: Terrestrial annual or biennial forb/herb (4 inches to 2 feet in height and as it ages may become prostrate); the leaves are bluish-green, gray-green, light green or silvery-bluish-green; the flowers (3/8 to3/4 inch in length) are golden, golden-yellow, pale yellow, yellow, dark yellow tinged with dark red, yellow fringed with red or yellowish-orange; flowering generally takes place between early February and mid-September (additional records: one for mid-October, one for mid-December and two for late December); the seedpods (½ to 1 inch in length) are bluish-green. HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; gravelly-loamy mountainsides; sandy mesas; gravelly-loamy plateaus; canyon rims; cliffs; along rocky canyons; canyonsides; along rocky-clayey, sandy and clayey canyon bottoms; chasms; shaley scree; talus; bases of cliffs; crevices in rocks; rocky and gravelly bluffs; rocky ledges; rocky ridges; meadows; rocky foothills; hills; rocky and gravelly hillsides; bouldery, rocky, rocky-loamy, stony, gravelly, gravelly-sandy, sandy, sandy-loamy, loamy and clayey slopes; rocky outcrops; amongst boulders and rocks, bases of rocks; sandy lava flows; sand hills; stabilized sand dunes; rocky, sandy, sandy-clayey and clayey prairies; rocky, cindery, sandy-loamy and sandy flats, clayey basins; valley floors; valley bottoms; along railroad right-of-ways, along rocky, rocky-sandy, gravelly, sandy, sandy-clayey and loamy roadsides, within rocky and sandy arroyos; draws, gulches; gullies; within ravines; seeps; springs; along streams; along and in rocky-gravelly-sandy and sandy streambeds; in sandy along creeks; creekbeds; in sand along rivers; riverbeds; along and in rocky, cobbly and sandy washes; within drainages; watercourses; lakebeds; bouldery cienegas; rocky-gravelly-sandy-clayey and sandy depressions; swales; along rocky and sandy banks of gullies, streams, creeks, rivers and washes; along margins of creeks and lakes; rocky and sandy shores; terraces; sandy bottomlands; sandy and silty floodplains; rocky mesquite bosques; ditches; along clayey-loamy banks of canals; gravelly-sandy and

sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, rocky loam, rocky-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-gravelly-sandy clay, sandy clay, silty clay and clay ground, and silty ground, occurring from 1,500 to 11,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used as a drug or medication and as a fertilizer (cold infusion used to soak watermelon seeds in, in order to increase production). *Corydalis aurea* is native to northwestern, northern, central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (072109), 46 (placed in the Papaveraceae, Page 325), 58, 63 (021810 - color presentation), 68 (placed in the Papaveraceae), **77**, 80 (This species is listed as a Secondary Poisonous Range Plant. "Golden Corydalis has been reported to contain up to 10 alkaloids. The plant is relished by sheep and as little as 2% of the animal's weight will cause symptoms, and less than 5% can be fatal. Cattle and horses also may be poisoned. This plant probably causes some losses in Arizona to both livestock and game." See text for additional information.), **85** (021810 - color presentation, also recorded as *Corydalis aurea* subsp. *aurea*), 86 (color photograph), 115 (color presentation), 127*

Corydalis aurea subsp. *aurea* (see footnote 85 under *Corydalis aurea*)

Corydalis aurea subsp. *occidentalis* (see *Corydalis curvisiliqua* subsp. *occidentalis*)

Corydalis aurea var. *occidentalis* (see *Corydalis curvisiliqua* subsp. *occidentalis*)

***Corydalis curvisiliqua* G. Engelmann ex A. Gray subsp. *occidentalis* (G. Engelmann ex A. Gray) W.A. Weber: Curvepod Fumewort**

SYNONYMY: *Corydalis aurea* C.L. von Willdenow subsp. *occidentalis* (G. Engelmann ex A. Gray) G.B. Ownbey, *Corydalis aurea* C.L. von Willdenow var. *occidentalis* G. Engelmann ex A. Gray. COMMON NAMES: Curvepod Corydalis, Curvepod Fumewort. DESCRIPTION: Terrestrial annual or biennial forb/herb (8 to 20 inches in height); the flowers are yellow; flowering generally takes place between late February and late August. HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy plateaus; canyons; pockets of soil in bedrock; meadows; foothills; rocky hills; rocky hilltops; gravelly hillsides; bedrock, rocky, rocky-sandy, rocky-clayey, gravelly, sandy and humusy slopes; bajadas; rock outcrops; prairies; plains; sandy flats; basins; along railroad right-of-ways; along gravelly, sandy and loamy roadsides; sandy draws; gulches; gullies; along streams; along rocky and sandy streambeds; along creeks; cobbly creekbeds; riverbeds; along and in rocky and sandy washes; cienegas; sandy and clayey depressions; banks of gulches and washes; edges of cienegas; along margins of streams, rivers and washes; shores of lakes; benches; terraces; sandy bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, cobbly, cindery, gravelly and sandy ground; rocky-sandy loam, sandy loam and loam ground; rocky clay and clay ground, and humusy ground, occurring from 900 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Corydalis curvisiliqua* subsp. *occidentalis* is native to south-central and southern North America. *5, 6, 15 (recorded as *Corydalis aurea* Willd. subsp. *occidentalis* (Engelm.) G.B. Ownbey placed in the Papaveraceae), 28 (recorded as *Corydalis aurea*, color photograph), 43 (021910), 46 (recorded as *Corydalis aurea* Willd. subsp. *occidentalis* (Engelm.) G.B. Ownbey placed in the Papaveraceae, Page 325), 63 (021910), 68 (recorded as *Corydalis aurea*), 80 (The species, *Corydalis aurea*, is listed as a Secondary Poisonous Range Plant. "Golden Corydalis has been reported to contain up to 10 alkaloids. The plant is relished by sheep and perhaps as little as 2% of the animal's weight will cause symptoms, and less than 5% can be fatal. Cattle and horses also may be poisoned. This plant probably causes some losses in Arizona to both livestock and game." See text for additional information.), **85** (021910 - color

presentation of dried material), 86 (recorded as *Corydalis aurea*, color photograph), **89** (recorded as *Corydalis aurea* Wild. var. *occidentalis* Engelm.)*

***Fumaria parviflora* J.B. de Lamarck: Fineleaf Fumitory**

COMMON NAMES: Fine-leaf Fumitory, Fine-leaved Fumitory, Fineleaf Fumitory, Fumitory, Hierba de la Culebra (Chili), Hierba del Lagarto (Chili), Indian Fumitory, Smallflower Fumitory. DESCRIPTION: Terrestrial annual forb/herb (to 2 feet in height); the flowers are cream, cream with purple tips, pink, purple, white or white with pink-purple, light purple, purple or purplish tips; based on few flowering records located flowering generally takes place between early January and mid-September (flowering records: one for early January, two for late February, one for early March, one for mid-March, one for March flowering, one for early April, one for mid-April and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; plateaus; in crevices; hills; slopes; basins; sandy valley floors; along roadsides; arroyos; washes; drainages; sandy banks of riverbeds; margins of rivers and washes; waste places, and disturbed areas growing in dry sandy ground and loam ground, occurring from sea level to 6,600 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Fumaria parviflora* may be native to northern, central, eastern and southern Europe; western and central Asia, and northern Africa; however, the exact native range is obscure. *5, 6, 43 (021910), 46 (Supplement, Page 1050), 63 (021910 - color presentation of seeds), **85** (021910)*

Gentianaceae: The Gentian Family

***Centaurium arizonicum* (A. Gray) A.A. Heller: Arizona Centaury**

SYNONYMY: *Centaurium calycosum* (S.B. Buckley) M.L. Fernald (var. *arizonicum* (A. Gray) I. Tidestrøm is the variety reported as occurring in Arizona). COMMON NAMES: Arizona Centaury, Buckley's Centaury, Canchalagua, Centaury, Rosita. DESCRIPTION: Terrestrial annual or biennial forb/herb (5 to 32 inches in height, plants 12 inches in height and 8 inches in width were observed and recorded); the leaves are light green or yellow-green; the flowers (to 1 inch in diameter) may be cerise-pink, lavender, magenta, magenta-purple with a white throat, orangish-dark pink, pink, pink-purple, pink & white, pink & yellow, pinkish-purple, purple-pink, rose-pink, rose-purple & yellow, scarlet, violet or rarely white, the anthers are yellow; flowering generally takes place between late March and late October (additional records: one for early January, one for mid-February, one for mid-November and one for mid-December, flowering year-round in favorable locations has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; bases of cliffs; meadows; hillsides; slopes; bases of slopes; amongst rocks; prairies; flats; along rocky-sandy-loamy roadsides; sandy draws; within gulches; silty ravines; seeps; around and in springs; in sand along streams; along sandy streambeds; in gravel along creeks; within rocky-gravelly creekbeds; along rivers; riverbeds; along and in gravelly and sandy washes; along sandy drainages; around pools; cienegas; within marshy areas; along (sandy-loamy) banks of streams, streambeds and rivers; along edges of seeps, creeks and rivers; margins of creeks; shores of rivers; sand bars; mud banks; rocky beaches; grassy bottomlands; sandy floodplains; along ditches; stock tanks; riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, rocky-gravelly, gravelly and sandy ground; rocky-sandy loam and sandy loam ground; silty clay ground, and silty ground, occurring from 150 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Variety *arizonicum* is the variety of *Centaurium calycosum* reported as occurring in Arizona. *Centaurium arizonicum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Centaurium calycosum* (Buckl.) Fern.), 28 (recorded as *Centaurium calycosum*, color photograph), 43 (081810 - *Centaurium calycosum* Fernald), 46 (recorded as *Centaurium calycosum* (Buckl.) Fern., Page 646), 63 (081810), 77 (recorded as *Centaurium calycosum* (Buckl.) Fern., color photograph #28), **85** (081810 - color presentation), 86*

Centaurium calycosum (see NOTES under *Centaurium arizonicum*)

Centaurium calycosum var. *arizonicum* (see *Centaurium arizonicum*)

Geraniaceae: The Geranium Family

***Erodium cicutarium* (C. Linnaeus) C.L. L'Héritier de Brutelle ex W. Aiton (subsp. *cicutarium* is the subspecies reported as occurring in Arizona): Redstem Stork's Bill**

COMMON NAMES: Afilaree, Agujitas (Hispanic), Alfilaree, Alfilaria, Alfilerilla, Alfirerillo (Hispanic), Arete (Hispanic), Clocks, Common Stork's Bill, Cranesbill, Cutleaf Filaree, Filaree, Heron-bill, Heronbill, Heron's-bill, Pikuku Jasi (Purépecha), Pin-clover, Pinclover, Pingrass, Purple Filaree, Red-stem Filaree, Redstem Filaree, Redstem Stork's Bill, Redstem Stork's-bill, Storksbill, Semuchi (Hispanic), Storksbill. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate to 1 foot in height/length); the flowers may be blue, blue-violet, fuchsia, lavender, lavender-pink, lilac, magenta, magenta-lavender, magenta-rose, pink, pink-lavender, pink-magenta, pink-purple, pinkish-violet, purple, purple-pink, rose-lavender or violet; flowering generally takes place between late December and early August (additional records: one for late August, one for early September, two for late September, five for early October, one for mid-October and one for early November). HABITAT: Within the range of this species it has been reported from rocky mountains; bouldery mountainsides; gravelly, gravelly-sandy and sandy mesas; plateaus; along and in rocky canyons; bouldery-gravelly-sandy canyon bottoms; clayey-cindery talus slopes; buttes; knolls; rocky ledges; bouldery and gravelly ridges; ridgetops; meadows; cinder cones; rocky and sandy foothills; bouldery and rocky hills; rocky-gravelly hilltops; bouldery, rocky, rocky-gravelly and gravelly hillsides; bouldery, rocky, rocky-pebbly-clayey-loamy, rocky-loamy, rocky-loamy-clayey, rocky-clayey, stony, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-clayey-loamy, loamy and clayey slopes; rocky alluvial fans; sandy bases of alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst rocks; lava flows; sand and sandy-clayey dunes; steppes; prairies; plains; gravelly, gravelly-sandy, sandy and loamy flats; rocky basins; valley floors; valley bottoms; coastal plains; along cindery railroad right-of-ways; rocky roadbeds; along rocky, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; along rocky-sandy arroyos; along bottoms of arroyos; gravelly draws; gulches; ravines; seeps; springs; along streams; streambeds; along creeks; along sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in sandy and silty drainages; in rocks around ponds; silty lakebeds; gravelly depressions; swales; banks of rivers, ponds and lakes; rocky, sandy and muddy edges of springs and washes, salt marshes and washes; shores of lakes; rocky-sandy and stony loamy benches; rocky terraces; sandy and loamy bottomlands; sandy floodplains, mesquite bosques; margins of stock tanks; along ditches; recently burned areas; riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-pebbly-clayey loam, rocky loam, stony loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam and loam ground, and rocky clay, rocky-loamy clay, gravelly clay, sandy clay and clay ground, occurring from sea level to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as fodder, for protection (dried and powdered plant parts were mixed with watermelon seeds during storage and planting to prevent disease), as a drug or medication and as a ceremonial item. The fruits are collected by Harvester Ants. *Erodium cicutarium* is native to northern, central, eastern and southern Europe; northern, western, central and southern Asia, and northern Africa. *5, 6, 15, **16**, 22 (color photograph), 28 (color photograph), 30, 43 (021910 - *Erodium cicutarium* (L.) L'Hér. ex Aiton), 46 (Page 486), **57**, 58, 63 (021910 - color presentation), 77, 80 (This

species is listed as a Secondary Poisonous Range Plant. “Filaree is a valuable forage plant that furnishes good forage in both the green and dry state. However, plants occasionally develop high concentrations of nitrate that may cause loss of livestock. In Arizona, there have been several instances of heavy death loss in cattle showing typical symptoms of nitrate poisoning that have been associated with high nitrate content in Filaree plants. ... Danger is highest during the flush period of growth. ... Control of Filaree is not generally desirable because of its forage value, therefore, animals may need to be moved to less dangerous pastures during the critical period.” See text for additional information.), **85** (021910 - C.H. Bowen reported the following in a collection record dated May 13, 1920: “This plant is a native of the Mediterranean region having spread from there over large portions of Europe, Asia, Africa and North and South America. It is believed to have been introduced into the western hemisphere by the early Spanish explorers either in Mexico or Central America and later in California from whence it has spread over considerable areas principally in California, Nevada, Utah, Arizona and New Mexico. It seems to thrive best between elevations of 1500 and 4500 feet and where abundant is often considered to double the spring carrying capacity of the range. Relished by all classes of stock especially by sheep.”, color presentation), 86 (color photograph), **89**, 101 (color photograph), 115 (color presentation), 127*

***Erodium texanum* A. Gray: Texas Stork’s Bill**

COMMON NAMES: Alfilerilla, Bull Filaree, Desert Storksbill, Desert Stork’s Bill, False Filaree, Heron Bill, Heron-bill, Heron’s Bill, Large-flowered Stork’s Bill, Pine Needle, Stork’s Bill, Texas Filaree, Texas Fillarie, Texas Stork’s Bill, Tufted Filaree. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate to ascending 2 inches to 2 feet in height/length); the basal rosette leaves are green with red spots; the flowers may be lavender, magenta, pink-purple, purple-magenta, reddish-purple, rose-magenta, purple, purplish-red, rose-magenta, rose-pink, violet or violet-red; flowering generally takes place between late January and mid-May (additional records: one for early June, one for mid-September and one for early October); the fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; pebbly-sandy-silty and sandy mesas; stony canyons; gorges; bases of cliffs; buttes; rocky ledges; rocky and chalky ridges; ridgetops; meadows; foothills; rocky and sandy hills; hillsides; bouldery, bouldery-gravelly, rocky, rocky-cobbly-sandy, rocky-loamy, stony, gravelly, gravelly-sandy-loamy and sandy slopes; rocky-sandy, gravelly, gravelly-loamy and sandy bajadas; bouldery and rocky outcrops; amongst boulders; sandy lava flows; sandy lava fields; dunes; berms; prairies; gravelly, sandy-loamy clayey-loamy plains; rocky, stony, stony-chalky, gravelly, pebbly-sandy-silty and sandy flats; basins; valley floors; along gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; rocky arroyos; bottoms of arroyos; gulches; gullies; creekbeds; riverbeds; along and in gravelly, sandy and sandy-silty washes; along gravelly drainages; silty lakebeds; marshes; silty depressions; swales; banks of creeks and creekbeds; benches; gravelly, gravelly-sandy and gravelly-sandy-loamy terraces; beds of silty-clayey impoundments; margins of stock tanks; canals; canal banks; sandy riparian areas, and disturbed areas growing in muddy and damp and dry rocky and sandy desert pavement; bouldery, bouldery-gravelly, rocky, rocky-cobbly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; silty clay ground; pebbly-sandy silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: These low growing and sprawling or widely spreading plants may be an attractive component of a restored native habitat. The Texas Stork’s Bill is browsed by food by quail. *Erodium texanum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022010), 46 (Page 486), 58, 63 (022010 - color presentation), 77 (color photograph #76), **85** (022110 - color presentation), 86 (note), **89**, 115 (color presentation)*

Hydrophyllaceae: The Waterleaf Family

Ellisia torreyi (see footnote 89 under *Eucrypta micrantha*)

***Eucrypta chrysanthemifolia* (G. Bentham) E.L. Greene (var. *bipinnatifida* (J. Torrey) L. Constance is the variety reported as occurring in Arizona): Spotted Hideseed**

COMMON NAMES: Common Eucrypta, Green Spotted Hideseed, Spotted Hideseed, Torrey Eucrypta. DESCRIPTION: Terrestrial annual forb/herb (sprawling or trialing stems 4 to 40 inches in height); the bell-shaped flowers are pale blue, blue, cream-white, lavender, pale purple, white or white-blue; flowering generally takes place between mid-January and early June (additional records: four for late June and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; rock cliffs; rocky canyons; canyon walls; along rocky, sandy and sandy-loamy canyon bottoms; talus; bases of cliffs; crevices in rocks; buttes; rocky knobs; ledges; rocky ridges; ridgetops; sandy meadows; bouldery and rocky hills; stony-sandy-silty and clayey hilltops; rocky and clayey hillsides; bouldery, rocky, rocky-gravelly, gravelly, gravelly-loamy, gravelly-clayey, sandy and clayey slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; sandy bajadas; amongst boulders and rocks, rocky and shaley outcrops; amongst boulders and rocks; bases of boulders; sand dunes; sandy-loamy and clayey plains; gravelly and sandy flats; basins; sandy valley floors; coastal plains; along rocky and rocky-gravelly roadsides; arroyos; gullies; ravines; seeps; springs; along seeping streams; along creeks; along sandy creekbeds; along rivers; along and in rocky-sandy, gravelly-sandy, gravelly-sandy-silty and sandy washes; within drainages; vernal pools; rocky depressions; along banks of washes; along rocky edges of streams and rivers; shores of lakes; benches; sandy terraces; floodplains; riparian areas and disturbed areas growing in the shade of rocks or shrubs or trees in dry bouldery, bouldery-stony-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground; gravelly clay and clay ground, and stony-sandy silty and gravelly-sandy silty ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage may be sweet-scented. *Eucrypta chrysanthemifolia* is native to southwest-central and southern (Baja California) North America. *5, 6, 15, **16**, 43 (072209), 46 (Page 698), 63 (022110), 77, **85** (022110 - color presentation of dried material)*

***Eucrypta micrantha* (J. Torrey) A.A. Heller: Dainty Desert Hideseed**

COMMON NAMES: Dainty Desert Hideseed, Peluda, Small-flower Eucrypta, Smallflower Eucrypta, Small-flower Eucrypta Small-flowered Eucrypta. DESCRIPTION: Terrestrial annual forb/herb (stems may appear to be vining, 2 inches to 1 foot in height); the leaves are dark green; the cup-shaped flowers may be pale blue-purple, blue, blue-magenta, blue-purple, pale lavender, pale pink-lavender, purple, reddish-purple with a yellow throat, pale violet, violet or white; the anthers are blue; flowering generally takes place between mid-January and mid-June (additional record: one for late October). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; cliffs; along canyons; rocky canyon walls; bouldery and rocky canyon bottoms; bases of cliffs; knolls; ledges; rocky ridges; bouldery ridgetops; cinder cones; foothills; rocky and gravelly-sandy hills; rocky and sandy-loamy hillsides; bases of hillsides; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-loamy, gravelly-silty and sandy slopes; alluvial fans; sandy bajadas; amongst boulders and rocks; bases of rocks; lava flows; sand hills; sand dunes; sandy plains; gravelly flats; basins; valley floors; along railroad right-of-ways; along gravelly roadsides; within rocky, rocky-sandy and sandy arroyos; along draws; gulches; ravines; along streams; along rivers; along and in rocky, rocky-sandy, rocky-silty, cobbly-silty-loamy, gravelly, gravelly-sandy and sandy washes; along drainages; lakebeds; sandy and clayey depressions; along gravelly-sandy and sandy banks of rivers and washes; edges of washes and lakes; sand bars; benches; gravelly terraces; sandy bottomlands; floodplains; riparian areas, and disturbed areas often growing in the shade of boulders, rocks, shrubs and trees in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, cobbly-silty loam, gravelly loam, sandy loam, sandy-clayey loam and silty loam ground; rocky-clayey and clayey ground, and rocky silty, gravelly-sandy silty and gravelly silty ground, occurring from 100 to 8,300 feet in

elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eucrypta micrantha* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (022110), 46 (Page 697), 58, 63 (022110 - color presentation), 77, **85** (022110 - color presentation), **89** (recorded as *Ellisia torreyi* Gray), 115 (color presentation)*

***Nama hispidum* A. Gray: Bristly Nama**

SYNONYMY: *Nama hispidum* A. Gray var. *mentzelii* A. Brand, *Nama hispidum* A. Gray var. *revolutum* W.L. Jepson, *Nama hispidum* A. Gray var. *spathulatum* (J. Torrey) C.L. Hitchcock. COMMON NAMES: Bristly Nama, Hispid Nama, Hohr-oohit (Seri), Morada, Purple Mat, Purple Roll-leaf, Rough Nama, Sand Bells, Sandbells. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 1 foot in height and up to 16 inches in width, plants were reported that were 3½ inches in height and 7 inches in width, plants were reported that were 3 inches in height and 9½ inches in width, plants were reported that were 4 inches in height and width, plants were reported that were 4 inches in height and 8 inches in width,, one plant was reported to be 6 inches in height and 3½ inches in width, one plant was reported to be 10 inches in height and 12 inches in width); the leaves are pale green or white; the flowers may be blue, blue-purple, dark blue, pale lavender, lavender, lavender-pink, magenta, pink-purple, pinkish-lavender, pinkish-magenta, pinkish-purple, purple, purple-magenta; purple-white, red-purple, rose, rose-magenta, violet, violet-blue or white; flowering generally takes place between late January and early November (additional records: two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; cobbly-gravelly-loamy mountainsides; gravelly-sandy-loamy and sandy mesas; plateaus; escarpments; canyons; sandy canyon bottoms; talus slopes; knolls; sandy foothills; sandy hills; rocky-sandy hilltops; bedrock, rocky, sandy and sandy-clayey-loamy slopes; gravelly and sandy alluvial fans; sandy bajadas; lava flows; lava beds; sand hills; sand dunes; sand hummocks; sandy-clayey prairies; sandy plains; gravelly, gravelly-loamy, sandy and sandy-clayey-loamy flats; sandy valley floors; coastal plains; beach dunes; along gravelly, gravelly-sandy, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy and clayey roadsides; rocky, sandy and sandy-loamy arroyos; sandy bottoms of arroyos; rocky, gravelly and sandy draws; sandy bottoms of draws; ravines; along streams; along sandy streambeds; along creeks; along sandy rivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and clayey washes; sandy-silty playas; swales; along sandy and silty banks of streams, rivers and washes; along gravelly-sandy edges of streams and playas; rocky-sandy shores of lakes; sandy beaches; benches; terraces, sandy bottomlands; lowlands; cobbly, cobbly-silty, sandy, clayey and silty floodplains; margins of stock tanks; canal walls; along ditches; ditch banks; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; sandy clay, silty clay and clay ground; cobbly silty, gravelly-sandy silty, sandy silty and silty ground, and silty powdery ground, occurring from sea level to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Nama hispidum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022110 - *Nama hispida* A. Gray, *Nama hispida* A. Gray var. *mentzelii* Brand, *Nama hispidum* A. Gray var. *revoluta* Jepson and *Nama hispida* A. Gray var. *spathulata* (Torr.) C.L. Hitchc.), 46 (Page 706), 58, 63 (022110 - color presentation), **77**, **85** (022210 - color presentation), **89** (recorded as *Nama hispidus* Gray), 115 (color presentation), 127*

Nama hispidum var. *mentzelii* (see *Nama hispidum*)

Nama hispidum var. *revolutum* (see *Nama hispidum*)

Nama hispidum var. *spathulatum* (see *Nama hispidum*)

Nama hispidus (see footnote 89 under *Nama hispidum*)

Nemophila arizonica (see *Pholistoma auritum* var. *arizonicum*)

***Phacelia affinis* A. Gray: Limestone Phacelia**

COMMON NAMES: Caterpillar Weed, Limestone Phacelia, Limestone Scorpion-weed, Limestone Scorpionweed, Purple Bell, Purple Bell Phacelia, Purplebell Phacelia. DESCRIPTION: Terrestrial annual forb/herb (2 to 12 inches in height); the herbage is gray-green or green, the flowers are pale blue, light blue-purple, blue, blue-purple, bluish, bluish-white, pale lavender-purple, pale lavender, lavender, pale pink, pale pinkish-lavender, purple, red-purple, white (aging blue/purple), whitish or yellowish-white; flowering generally takes place between late February and early July (additional record: one for early February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; rock walls; canyons; rocky, sandy and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; rocky ridges; ridgetops; foothills; gravelly hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy-loamy, gravelly, gravelly-silty, sandy, sandy-silty and silty slopes; alluvial fans; bajadas; bedrock, boulder and rocky outcrops; amongst rocks; pebbly plains; sandy and sandy-silty flats; valley floors; arroyos; seeps; along streams; along and in gravelly-sandy creekbeds; along and in sandy washes; drainages; banks of arroyos and washes; along margins of washes; benches; sandy-loamy interfluves; terraces; sandy floodplains; riparian areas, and recently burned areas in woodlands sometimes reported as growing in shaded areas in dry bouldery, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-sandy loam, sandy loam and silty loam ground; clay ground, and gravelly silty, sandy silty and silty ground, occurring from 400 to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Phacelia affinis* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (022210), 46 (Page 702), 58, 63 (022210), **77**, **85** (022210 - color presentation)*

Phacelia ambigua (see *Phacelia crenulata* var. *ambigua*)

Phacelia ambigua var. *ambigua* (see footnote 85 under *Phacelia crenulata* var. *ambigua*)

***Phacelia arizonica* A. Gray: Arizona Phacelia**

SYNONYMY: *Phacelia popei* J. Torrey & A. Gray var. *arizonica* (A. Gray) J.W. Voss. COMMON NAMES: Arizona Phacelia, Arizona Scorpion-weed, Arizona Scorpionweed, Caterpillar Weed. DESCRIPTION: Terrestrial perennial forb/herb (1 to 16 inches in height); the flowers may be light blue, pale bluish-purple, blue-purple, blue-purplish, pale lavender, lavender, lavender-white, pale pink-lavender, pink, pale purple, pale purplish, purple, dusty rose, pale violet, white, whitish, white with a lavender tinge or white with a pale maroon center; the filaments are mauve; the anthers are blue; flowering generally takes place between late February and mid-May (additional records: one for early February, one for early June, two for mid-July, three for early September and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; gravelly canyons; sandy canyon bottoms; ledges; foothills; rocky hills; hilltops; rocky and gravelly slopes; rocky-sandy and sandy alluvial fans; bajadas; amongst grasses; lava flows; plains; sandy flats; valley floors; rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and loamy roadsides; gravelly bottoms of arroyos; gravelly streambeds; along creeks; along rivers; riverbeds; along rocky-gravelly, gravelly and sandy washes; drainages; cobbly-sandy-loamy swales; sandy banks of washes; gravel bars; terraces; lowlands; along sandy floodplains; sandy mesquite woodlands; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly-sandy, clayey loam and loam ground, and gravelly-sandy silty ground, occurring from 1,500 to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native

habitat. *Phacelia arizonica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (072209), 46 (Page 703), 58, 63 (022210 - color presentation), 77, 85 (022210 - color presentation), **89***

Phacelia caerulea (see *Phacelia coerulea*)

***Phacelia campanularia* A. Gray (var. *campanularia* is the variety reported as occurring in Arizona): Desertbells**

COMMON NAMES: California Bluebell, Charlotte's Phacelia, Desertbells, Desert Canterberry Bells. DESCRIPTION: Terrestrial annual forb/herb (2 to 30 inches in height and about the same in width); the leaves are gray-green; the bell-shaped flowers are blue, blue-purple, blue-violet, dark blue, deep blue-violet, bluish-purple, indigo, purple-cream, dark purple, violet or deep violet; flowering generally takes place between early March and early June (additional records: one for late January, four for mid-February, one for late June, two fro early October and two for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; gravelly-sandy canyon bottoms; rocky talus slopes; crevices in rocks; ridges; foothills; bouldery hills; rocky hillsides; bases of hills; bedrock, bouldery-rocky-gravelly-sandy, bouldery-gravelly-sandy, rocky, gravelly and sandy slopes; gravelly and sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; bases of rocks; blow-sand deposits; rocky-sandy outwash fans; rocky-sandy debris flows; gravelly flats; sandy valley floors; along sandy roadsides; along sandy creekbeds; along and in bouldery, bouldery-rocky-gravelly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly-sandy and sandy washes, and disturbed areas growing in dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 1,000 to 5,200 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: EXOTIC Plant. *Phacelia campanularia* is native to southwest-central (California) North America. *18, 28, 43 (022310), 46 (genus, no record of this species, Page 698), 63 (022310 - color presentation), **77**, **85** (022310 - color presentation), 86 (color photograph), 115 (color presentation)*

***Phacelia coerulea* E.L. Greene: Skyblue Phacelia**

SYNONYMY: *Phacelia caerulea* E.L. Greene [orthographic variant]. COMMON NAMES: Blue Phacelia, Caterpillar Weed, Skyblue Phacelia, Skyblue Scorpionweed. DESCRIPTION: Terrestrial annual forb/herb (6 to 20 inches in height); the flowers are pale blue-violet, blue, bluish-purple, pale lavender, pale lavender-white, lavender, lavender-white, magenta, purple, pale violet, violet or whitish; flowering generally takes place between late February and late May. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery mountainsides; mesas; along rocky canyons; canyon bottoms; rocky talus slopes; knolls; along rocky ridges, ridgetops; foothills; rocky and gravelly hills; hilltops; rocky and rocky-gravelly hillsides; rocky, rocky-gravelly, gravelly-loamy, loamy and clayey slopes; gravelly bajadas; amongst rocks; sandy lava flows; gravelly and silty flats; valley floors; railroad right-of-ways, along rocky, rocky-gravelly, gravelly and sandy roadsides; rocky arroyos; draws; along streams; sandy creekbeds; riverbeds; along and in gravelly-sandy and sandy washes; drainages; gravelly banks of draws; channel bars; sandy-loamy terraces; floodplains, and sandy riparian areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and loam ground; clay ground, and silty ground, occurring from 900 to 7,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Phacelia coerulea* is native to southwest-central and southern North America. *5, 6, 15, 43 (022310 - *Phacelia coerulea* Auct.), 46 (Page 704), 58, 63 (022410 - color presentation), 77, **85** (022410 - color presentation)*

***Phacelia crenulata* J. Torrey ex S. Watson: Cleftleaf Wildheliotrope**

COMMON NAMES: Caterpillar Weed, Cleftleaf Wildheliotrope, Common Phacelia, Desert Heliotrope, Scalloped Phacelia, Scorpion-weed, Wild-heliotrope. DESCRIPTION: Terrestrial annual

forb/herb (3 to 18 inches in height); the leaves are dark green; the bell-shaped flowers may be blue, blue-lavender, blue-magenta, blue-purple, dark blue-violet, cream-white, indigo-purple, lavender-blue-purple, lavender-purple, magenta-lavender, pink-purple, purple, purple-blue, purple-white, rose-purple, pale violet, violet, violet-purple, violet-white or white; flowering generally takes place between early January and early July (additional records: one for early August, one for early September, one for mid-October and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-clayey mountainsides; rocky mesas; plateaus; gravelly rims of canyons; cliffs; canyons; scree; talus slopes; bases of cliffs; buttes; bouldery-gravelly knolls; ledges; bouldery-gravelly, rocky and clayey ridges; ridgetops; cinder cones; foothills; rocky hills; rocky-gravelly hilltops; rocky, rocky-gravelly and gravelly hillsides; along sandy escarpments; bouldery, rocky, rocky-sandy-loamy, shaley, shaley-stony, cindery, gravelly, gravelly-sandy, sandy and clayey slopes; rocky alluvial fans; gravelly and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand dunes; sandy outwash fans; barren breaks; plains; gravelly, gravelly-sandy, sandy, loamy and silty flats; basins; sandy valley floors; railroad right-of-ways; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; arroyos; draws; gulches; gullies; along creeks; creekbeds; along rivers; sandy riverbeds; along and in bouldery, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty lakebeds; depressions; gravelly and sandy banks of rivers and washes; shores of lakes; sandy beaches; benches; gravelly and gravelly-sandy terraces; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-stony, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly-silty loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted that it was used as a veterinary aid. *Phacelia crenulata* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (022410), 46 (Page 704), 63 (022410 - color presentation), 77, 80 (Phacelia (*Phacelia crenulata* and *Phacelia pedicellata*) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “These annual forbs have caused liver damage in horses, hogs and cattle. Also their glandular hairs may cause severe dermatitis to susceptible persons.”), **85** (022410 - color presentation), **89**, 115 (color presentation), 127*

***Phacelia crenulata* J. Torrey ex S. Watson var. *ambigua* (M.E. Jones) J.F. Macbride: Purplestem Phacelia**

SYNONYMY: *Phacelia ambigua* M.E. Jones. COMMON NAMES: Caterpillar Plant, Caterpillar Weed, Caterpillar-weed, Notch-leaf Phacelia, Notch-leaved Phacelia, Phacelia, Purplestem Phacelia, Purplestem Scorpionweed, Scorpion-weed, Wild Heliotrope, Wild-heliotrope, Ytamoosh-oohit (Desert Tortoise Food). DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); the flowers may be blue, blue-lavender, blue-purple, blue-violet, lavender, lavender-blue, purple or violet; flowering generally takes place between early January and early June (additional records: one for early September, one for late November, one for early December and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and gravelly mesas; canyons; along gravelly canyon bottoms; bases of cliffs; crevices in rocks; ledges; ridges; foothills; hills; rocky, rocky-gravelly and gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-loamy and gravelly slopes; rocky and sandy alluvial fans; bajadas, amongst rocks; sandy lava fields; sand dunes; breaks; plains; rocky-gravelly-sandy, gravelly, sandy and loamy flats; basins; stony valley floors; along rocky, gravelly-sandy and sandy roadsides; arroyos; rocky draws; gulches; gravelly springs; along creeks; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; gravelly, gravelly-sandy and sandy banks of rivers and washes; edges of washes; along shores of lakes; gravelly sandbars; benches; rocky shelves; along edges and banks of canals; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and

sandy ground; rocky loam, gravelly loam, clayey loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Phacelia crenulata*, was reported to have been utilized by native peoples of North America; it was noted that it was used as a veterinary aid. *Phacelia crenulata* var. *ambigua* is native to southwest-central and southern North America. *5, 6, 28 (color photograph of the species), 43 (022410), 46 (Page 704), **56** (recorded as *Phacelia ambigua* M.E. Jones), **57** (recorded as *Phacelia ambigua* M.E. Jones), 63 (022410 - color presentation), 80 (Phacelia (*Phacelia crenulata* and *Phacelia pedicellata*) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "These annual forbs have caused liver damage in horses, hogs and cattle. Also their glandular hairs may cause severe dermatitis to susceptible persons."), **85** (022410 - also recorded as *Phacelia ambigua* var. *ambigua* M.E. Jones, color presentation), 115 (color presentation of the species), 127 (species)*

***Phacelia distans* G. Bentham: Distant Phacelia**

SYNONYMY: *Phacelia distans* G. Bentham var. *australis* A. Brand. COMMON NAMES: Blue Phacelia, Caterpillar Phacelia, Caterpillar Weed, Distant Phacelia, Distant Scorpion-weed, Fern-leaf Phacelia, Scorpion-weed, Wild Heliotrope. DESCRIPTION: Terrestrial annual or perennial forb/herb (3 to 40 inches in height, one plant was reported to be 20 inches in height and 20 inches in width); the fern-like leaves are green, the flowers may be light blue-purple, blue, blue-lavender, blue-lavender-purple, blue-pink, blue-purple, blue-violet, bluish-lavender, bluish-white, pale lavender, lavender, lavender-blue, lavender-pink, light purple, purple, purplish-blue, dark purplish-blue, pale violet, violet-blue or white; flowering generally takes place between mid-January and late June (additional records: one for mid-July, one for late July, one for early August, one for early September, two for early November, one for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly-loamy mesas; sandy plateaus; rocky and rocky-silty canyons; bouldery, rocky, rocky-sandy, gravelly-sandy and sandy canyon bottoms; chasms; scree; bases of cliffs; rocky knobs; rocky ridges; sandy ridgetops; meadows; foothills; bouldery and rocky hills; hilltops; bouldery and rocky hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and silty-clayey slopes; rocky, rocky-gravelly, rocky-sandy and rocky-sandy-loamy alluvial fans; gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; sand dunes; sandy-loamy plains; gravelly, gravelly-sandy, sandy and clayey flats; basins; rocky and gravelly valley floors; coastal plains; sandy coastal strands; sandy railroad right-of-ways; along gravelly and sandy roadsides; along arroyos; along bottoms of arroyos; rocky draws; ravines; seeps; springs; along streams; sandy streambeds; along creeks; creekbeds; along and in bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; in gravelly-sandy and sandy drainages; sandy lakebeds; ponds; bogs; rocky-sandy depressions; sandy banks of arroyos, streams, creeks, rivers and washes; along gravelly-sandy edges of streams and washes; margins of washes; along rocky-sandy and rocky-loamy benches; sandy and silty-loamy terraces; loamy bottomlands; sandy floodplains; along canals; bouldery-sandy and sandy riparian areas; recently burned areas of woodland, chamise chaparral and sage scrub, and disturbed areas often reported as growing in the shade of boulders, shrubs and trees in moist and dry desert pavement; bouldery, bouldery-gravelly-sandy bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; silty clay and clay ground, and rocky silty ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Phacelia distans* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (022410 - *Phacelia distans* var. *australis* Brand), 46 (Page 703), 58, 63 (022410 - color presentation), 77

(color photograph 29), **85** (022410 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Phacelia distans var. *australis* (see *Phacelia distans*)

***Phacelia parryi* J. Torrey: Parry's Phacelia**

COMMON NAMES: Parry Phacelia, Parry's Phacelia, Parry Scorpion-weed. DESCRIPTION: Terrestrial annual forb/herb (8 to 30 inches in height); the stems may be red; the flowers are blue, deep blue, blue-violet, indigo blue, navy blue, purple, purple with white spots, dark purple, violet or deep violet; flowering generally takes place between early March and mid-July (additional records: one for mid-February and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; canyons; loamy canyonsides; sandy canyon bottoms; cobbly-sandy-loamy ridges; ridgetops; clayey foothills; rocky hills; rocky hillsides; rocky , rocky-sandy, rocky-clayey, cobbly-sandy-loamy, gravelly and loamy slopes; gravelly and sandy flats; valley floors; coastal slopes; coastal flats; along silty-loamy roadsides; arroyos; along creekbeds; riverbeds; along gravelly, gravelly-sandy and sandy washes; within drainages; banks of streams and streambeds; edges of rivers and washes; sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, silty loam and loam ground, and rocky clay and clay ground, occurring from sea level to 3,100 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC Plant. *Phacelia parryi* is native to southwestern and southern North America. *5, 6, **16**, 43 (022510), 46 (genus, Page 698), 63 (022510 - color presentation), 85 (022510 - color presentation of habitat)*

Phacelia popei var. *arizonica* (see *Phacelia arizonica*)

***Pholistoma auritum* (J. Lindley) N. Lilja var. *arizonicum* (M.E. Jones) L. Constance: Arizona Fiestaflower**

SYNONYMY: *Nemophila arizonica* M.E. Jones. COMMON NAMES: Arizona Fiestaflower, Arizona Pholistoma, Blue Fiesta Flower, Sticky Waterleaf. DESCRIPTION: Terrestrial annual forb/herb or vine (clambering, sprawling or trailing stems 3 to 40 inches in height/length); the flowers are blue, lavender, purple, purple-blue or white; flowering generally takes place between mid-January and mid-May (additional records: one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; canyon bottoms; bases of cliffs; crevices in boulders and rocks; sandy bluffs; ledges; ridges; bouldery-shaley foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery and rocky slopes; rocky outcrops; amongst boulders and rocks; basins; roadsides; along arroyos; ravines; seeps; springs; along streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along banks of washes; loamy bottomlands; floodplains, and riparian areas sometimes growing beneath shrubs and trees and shaded sheltered areas in moist, damp and dry bouldery, bouldery-shaley, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy soils and rocky loam soils, occurring from 500 to 6,000 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTE: *Pholistoma auritum* var. *arizonicum* is native to southwest-central and southern North America. *5, 6, 43 (022510), 46 (Page 697), 63 (022510), 77, 85 (022610), **89** (recorded as *Nemophila arizonica* Jones), 115 (color presentation of the species)*

Juglandaceae: The Walnut Family

***Juglans major* (J. Torrey) A.A. Heller: Arizona Walnut**

SYNONYMY: *Juglans microcarpa* J.L. Berlandier var. *major* (J. Torrey) L.D. Benson, *Juglans rupestris* G. Engelmann ex J. Torrey var. *major* J. Torrey. COMMON NAMES: Arizona Black Walnut, Arizona Walnut, Nogal (Spanish, the small nut is known in Spanish as "nogales"), Nogal Cimarrón

(Hispanic), Nogal Encarcelado (Hispanic), Nogal Silvestre (Spanish), Walnut. DESCRIPTION: Terrestrial perennial deciduous tree (5 to 66 feet in height with a rounded crown that may be of about the same width as the height of the tree, one tree was reported to be 5 feet in height with a crown 4 feet in width, one tree was reported to be 7 feet in height with a crown 5 feet in width, one tree was reported to be 23 feet in height with a crown 26 feet in width); the trunk may be up to 4 feet in diameter; the older bark is gray, dark gray, grayish-brown or dark gray-brown; the pinnately compound leaves (7 to 14 inches in length) are green or yellow-green; the flowers (with male and female catkins in separate catkins or spikes) are greenish or yellowish; flowering generally takes place between mid-March and late June (additional records: one for mid-July, one for late July, one for early September and one for mid-September); the mature fruits (1 to 1½ inches in diameter) are rusty-green or yellow-green and ripen between July and September. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; along and in rocky and gravelly-sandy canyons; rocky canyonsides; along bouldery and cobbly canyon bottoms; sandy bases of cliffs; ledges; rocky ridges; foothills; hills; hilltops; rocky hillsides; rocky escarpments; rocky, loamy and silty slopes; amongst boulders and rocks; flats; glens; along valley bottoms; along rocky, rocky-sandy and gravelly roadsides; sandy arroyos; sandy bottoms of arroyos; within draws; gulches; ravines; springs; along streams; bouldery-loamy and rocky streambeds; along creeks; along and in sandy creekbeds; along rivers; along riverbeds; along rocky, stony and sandy washes; drainages; along watercourses; silty banks of streams, creeks and rivers; edges of washes and drainage ways; sand bars; sandy benches; terraces; bottomlands; along gravelly-sandy floodplains; mesquite bosques; along ditches; bouldery, gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in well drained moist and dry bouldery, rocky, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery loam, cobbly-sandy loam, gravelly loam and loam ground; silty ground, and humusy ground, occurring from 2,000 (the Flora of North America reports occurrences for *Juglans major* var. *major* as low as 984 feet) to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is considered to be a valuable shade tree. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber (building materials) and/or dye (brown) and paint (black) crop. Consider using the Arizona Walnut as a specimen plant in a large area and in the re-vegetation of riparian areas. Once past the seedling stage the Arizona Walnut has a growth rate of about one foot per year and may live to be 400 years of age. Note that the Arizona Walnut requires deep soil and moderate water. Walnut trees are susceptible to aphid infestations that produce considerable amounts of honeydew. Birds, squirrels and other wildlife eat the fruits and the tree provides habitat for wildlife including cavities that are used by the Acorn Woodpecker (*Melanerpes formicivorus*). The Arizona Walnut has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde

(*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Juglans major* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Juglans microcarpa* Berlandier var. *major* (Torrey) L. Benson), 15, 18, 28 (color photograph), 30, 43 (080409), 46, 48, 52 (color photograph), 53, 58, 63 (022610 - color presentation), 85 (022610 - color presentation), **89**, 127*

Juglans microcarpa var. *major* (see *Juglans major*)

Juglans rupestris var. *major* (see *Juglans major*)

Krameriaceae: The Ratany Family

Krameria canescens (see footnoe 89 under *Krameria grayi*)

***Krameria erecta* C.L. von Wildenow ex J.A. Schultes: Littleleaf Ratany**

SYNONYMY: *Krameria parviflora* G. Bentham. COMMON NAMES: Chacate, Coashui, Littleleaf Krameria, Little-leaf Kramaria, Littleleaf Ratany, Pima, Pima Ratany, Purple Heather, Range Ratany, Range Ratany, Range Rhatany, Small-flower Ratany, Spiny Little-leaf Kramaria, Sticky Little-leaf Kramaria, Wood Ratany. DESCRIPTION: Terrestrial perennial subshrub or shrub (2 to 40 inches (possibly to 79 inches) in height, one plant was reported to be 8 to 10 inches in height and 3 feet in width, one plant was reported to be 12 inches in height and 16 inches in width, one plant was reported to be 20 inches in height and 6½ feet in width); the older stems may be gray or greenish; the leaves are blue-gray-green, gray, gray-green, gray-red or greenish; the flowers may be burgundy, lavender-purple, magenta, maroon, maroon-magenta, maroon-purple, maroon-red, pink, pink-purple, purple, dark purple, purple-magenta, purple-pink, purple-red, reddish, red-purple, reddish-violet, rose-pink, rose-purple, scarlet-purple, violet-red and white turning pink; flowering generally takes place between early March and late November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, sandy and sandy-loamy mesas; along cliffs; bouldery and rocky canyons; canyon sides; rocky canyon bottoms; buttes; clayey knolls; sandy ledges; rocky and rocky-gravelly ridges; bouldery and rocky ridgetops; rocky-gravelly ridgelines; foothills; rocky, gravelly and sandy hills; rocky-gravelly hilltops; rocky, rocky-sandy, rocky-sandy-loamy and gravelly hillsides; bedrock, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; lava flows; sand dunes; gravelly, gravelly-sandy-loamy, gravelly-loamy and sandy plains; rocky, gravelly, pebbly-sandy and sandy flats; basins; valley floors; gravelly-loamy roadsides; arroyos; along bottoms of arroyos; rocky draws; gulches; along creeks; along rivers; along and in rocky-gravelly, gravelly and sandy washes; along and in rocky drainages; playas; depressions; banks of rivers and washes; sandy edges of washes and drainage ways; benches, and riparian areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, pebbly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; silty clay and clay ground; sandy silty ground, and chalky ground, occurring from sea level to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts with other Littleleaf Ratany plants, as well as, other species. This plant is browsed by Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and pocket mice, rattlesnakes, whiptails and other animals use the

plant for cover. *Krameria erecta* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (022610 - *Krameria erecta* Wild. ex Schult., *Krameria erecta* Wild. *ex* Schult. & Schult.f.), 46 (recorded as *Krameria parviflora* Benth., Page 404), 48 (genus), 58, 63 (022610 - color presentation), 77 (color photograph #30), **85** (022610 - color presentation), **89** (recorded as *Krameria glandulosa* Rose), 115 (color presentation), 127, **HR** *

***Krameria grayi* J.N. Rose & J.H. Painter: White Ratany**

COMMON NAMES: Chacate, Cosahui, Crimson-beak, Gray's Krameria, Gray Ratany, Gray's Ratany, Range Ratany, Ratany, White Ratany, White Rhatany. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 5 feet in height and to 5 feet in width, one plant was reported to be 18 inches in height with a crown 24 inches in width, one plant was reported to be 2 feet in height with a crown 30 inches in width, one plant was reported to be 28 inches in height with a crown 40 inches in width, one plant was reported to be 30 inches in height with a crown 36 inches in width, one plant was reported to be 4 feet in height with a crown 5 feet in width); the foliage is blue-gray, blue-green, gray, grayish-purple or purple, the flowers may be lavender, deep lavender, magenta, maroon, maroon-purple, pink, pinkish-purple, light purple fading to white, purple, dull raspberry-red, red-purple, red-violet, reddish-purple, rose, rose-purple, violet, violet-purple or white turning pink or purple; flowering generally takes place between mid-March and mid-July and again between early September and late November (additional records: one for mid-February, two for mid-August and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; bouldery canyons; rocky canyon bottoms; rocky talus slopes; rocky ledges; ridges; rocky ridgetops; bouldery and rocky foothills; rocky and gravelly-sandy hills; hilltops; rocky and gravelly hillsides; bedrock, bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, gravelly and sandy slopes; gravelly-sandy and sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders; sand dunes; sandy plains; rocky, gravelly, sandy and sandy-clayey-loamy flats; loamy basins; sandy valley floors; beach dunes; along rocky roadsides; along arroyos; rocky gullies; around seeping streams; along and in gravelly, gravelly-sandy and sandy washes; cienegas; swampy areas; benches; rocky terraces; bottomlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, shaley, gravelly, gravelly-sandy and sandy ground and sandy-clayey loam and loam ground, occurring from sea level to 4,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts with other White Ratany plants, as well as, other species. White Ratany is browsed by Black-tailed Jack Rabbits (*Lepus californicus*), Desert Bighorn Sheep (*Ovis canadensis mexicana*), Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and the Scaled Quail (*Callipepla squamata*) feeds on the seeds. *Krameria grayi* is native to southwest-central and southern North America. *5, 6, 13, **16**, 28 (color photograph), 43 (022610), 46 (Page 404), 48 (genus), 63 (022610 - color presentation), 77, **85** (022610 - color presentation), **89** (recorded as *Krameria canescens* Gray), 115 (color presentation), 127, **WTK** (August 12, 2005)*

Krameria glandulosa (see footnote 89 under *Krameria erecta*)

Krameria parviflora (see *Krameria erecta*)

Lamiaceae (Labiatae): The Mint Family

***Hedeoma nana* (J. Torrey) J.I. Briquet: Dwarf False Pennyroyal**

COMMON NAMES: Dwarf False Pennyroyal, False Pennyroyal, Low Hedeoma, Mock-pennyroyal, Oregano, Penny Royal. DESCRIPTION: Terrestrial annual or perennial forb/herb (4 to 16 inches in height, one plant was reported to be 9 inches in height and 12 inches in width); the flowers may be albino, blue, blue-lavender, light lavender, lavender, lavender-blue, lavender-pink, magenta-purple, light pink, pink, pinkish, pinkish-purple, light purple, purple, purple-blue, rose-purple, white, whitish-lavender or whitish-purple; flowering generally takes place between mid-February and late October. HABITAT: Within the range of this species it has been reported from mountains; cliffs; canyon rims; along bouldery and rocky canyons; sandy canyon walls; canyonsides; along bouldery, bouldery-rocky, rocky, gravelly and sandy canyon bottoms; crevices in bedrock and boulders; buttes; rocky ledges; bedrock and bouldery ridges; rocky ridgetops; foothills; rocky hills; rocky and rocky-sandy hillsides; bedrock, bouldery, rocky, stony, gravelly-loamy and sandy-clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; rocky plains; gravelly flats; basins; rocky valley floors; along rocky-gravelly roadsides; arroyos; stony draws; springs; along streams; along creeks; rocky and stony creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; bouldery and bouldery-rocky drainages; marshes; banks of streams and creeks; borders of washes; edges of lakes; terraces; gravelly bottomlands; floodplains; riparian areas and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, pebbly, gravelly and sandy ground; gravelly loam and sandy-clayey loam ground, and silty ground, occurring from 400 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. The crushed herbage is very aromatic. *Hedeoma nana* is native to southwest-central and southern North America. *5, 6, 15, 43 (022710), 46 (recorded as *Hedeoma nanum* (Torr.) Briq., Page 745), 63 (022710 - color presentation), **77**, **85** (022710 - color presentation of dried material), 127*

Hedeoma nanum (see footnote 46 under *Hedeoma nana*)

***Hyptis emoryi* J. Torrey: Desert Lavender**

COMMON NAMES: Bee Sage, Bee-sage, “Chia” (name given to the seeds of this plant, and also to the seeds of several species of *Salvia*, which are used in cooking), Desert Lavender, Desert-lavender, Lavender, Mariola (Yaqui), Salvia. DESCRIPTION: Terrestrial perennial evergreen shrub (8 inches to 15 feet in height, one plant was reported to be 8 feet in height and 8 feet in width); the leaves are gray, gray-green, grayish-white or green-gray; the flowers may be blue, blue-lavender, blue-purple, blue-violet, dark blue, lavender, pink-purple, purple, purple-indigo, violet, violet-blue or white; the styles are purple; the filaments are white; the anthers are purple; flowering generally takes place between mid-January and mid-June and between early September and mid-June (additional records: one for early July, one for mid-July and two for mid-August). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bouldery-clayey-loamy mesas; along and in bouldery, rocky and rocky-sandy canyons; along rocky, gravelly and sandy canyon bottoms; rocky talus slopes; bases of cliffs; crevices in rocks; buttes; ledges; rocky and gravelly ridges; bouldery ridgetops; rocky foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, stony and sandy slopes; rocky alluvial fans, bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; rocky-gravelly and sandy plains; gravelly flats; coastal plains; coast lines; along roadsides; rocky and rocky-gravelly arroyos; along rocky and gravelly bottoms of arroyos; troughs; along seepage streams; along streambeds; bouldery-rocky-sandy creekbeds; along and in bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, gravelly, gravelly-sandy and sandy washes; within rocky and rocky-gravelly drainages; rocky banks of streams and washes; along sandy edges of washes; along margins of washes and drainage ways; gravelly shores; floodplains; bouldery-cobbly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly-sandy, bouldery-

gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; bouldery-clayey loam, rocky-gravelly loam, rocky-sandy loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, but is sensitive to frosts. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The foliage is fragrant, having the odor of lavender or turpentine. Native bees and hummingbirds visit the flowers and the seeds provide food for wildlife. *Hyptis emoryi* is native to southwest-central and southern North America. *5, 6, 13, **16**, 18, 28 (color photograph), 43 (022710), 46 (Page 748), 48, 63 (022710), 77 (color photograph #31), **85** (022710 - color presentation), **89**, 91, 115 (color presentation), 127*

***Marrubium vulgare* C. Linnaeus: Horehound**

COMMON NAMES: Andorn (German), Common Horehound, Horehound, K'ameri (Purépecha), Malcubio (Hispanic), Malva del Sapo (Hispanic), Malvarrubina (Hispanic), Manrrubio (Hispanic), Manrubio Blanco (Hispanic), Marroio (Portuguese), Marribieu (Purépecha), Marrube Blanc (French), Marrube Vulgaire (French), Marrubio (Hispanic), Marrubio Común (Spanish), Mastranto (Hispanic), Mata Ceniza (Hispanic), Rouwaka (Tarahumara), Vitsacua (Purépecha), Vitzacua (Purépecha) White Horehound. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 40 inches in height, one plant was reported to be 40 inches in height and 40 inches in width); the tiny flowers may be cream, cream-yellow, white, white-cream, white-green or yellowish-white; flowering generally takes place between mid-March and late October (additional records: one for mid-November, one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; cliffs; rocky, gravelly and sandy canyons; rocky canyon walls; rocky and clayey canyon bottoms; bases of cliffs; crevices in rocks; rocky-clayey ledges; meadows; rocky-gravelly-loamy foothills; rocky hills; rocky hillsides; bouldery, gravelly, sandy-loamy, sandy-humusy, loamy and clayey-loamy slopes; rocky outcrops; sand hills; berms; prairies; plains; rocky-silty-clayey, sandy, sandy-loamy, clayey and clayey-loamy flats; valley floors; gravelly-loamy roadbeds; along rocky-gravelly, rocky-loamy, gravelly-loamy, rocky-clayey, gravelly, sandy and silty roadsides; bottoms of arroyos; along draws; seeps; springs; along streams; rocky streambeds; along creeks; creekbeds; along rivers; sandy-loamy riverbeds; along and in gravelly and sandy washes; along and in rocky and gravelly drainages; marshes; gravelly depressions; along silty banks of arroyos, creeks, rivers and drainage ways; edges of marshes; bouldery, rocky-loamy and loamy benches; terraces; sandy bottomlands; sandy floodplains; mesquite bosques (woodlands); stock tanks; ditches; sandy and sandy-silty riparian areas; silty waste places, and disturbed areas (goat and sheep bedding grounds and corrals were among those noted) growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-silty clay and clay ground; sandy silty, clayey-silty and silty ground, and sandy humusy ground, occurring from 1,000 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in making candy and as a drug or medication. *Marrubium vulgare* is native to northern, central, eastern and southern Europe; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15, 18, 28 (color photograph), 30, 43 (022710), 46 (Pages 735-736), 58, 63 (022710 - color presentation), 68, **85** (022710 - color presentation of dried material), **89**, 101 (color photograph), 115 (color presentation), 127*

***Moluccella laevis* C. Linnaeus: Shellflower**

COMMON NAMES: Bells of Ireland, Bells-of-Ireland, Molucca Balm, Molucca Balmis, Molucca-balm, Shell Flower, Shellflower. DESCRIPTION: Terrestrial annual forb/herb (24 to 40 inches in height and 10 to 12 inches in width); the leaves are pale green, the inconspicuous flowers are white or

white tipped with pink with large apple green or green, bell- or shell-shaped calyces; flowering may take place throughout the year. HABITAT: Within the range of this species it has been reported from flats, along washes; lowlands, and disturbed areas growing in well-drained ground, occurring at 1,100 to 5,000 feet in elevation in the desertscrub ecological formation. NOTE: EXOTIC Plant. *Moluccella laevis* is native to eastern Europe and western and central Asia. *5, 6, **16**, 18, 43 (022710), 46 (Page 739), 63 (022710), **77**, 85 (022710), 106 (022710 - color presentation)*

***Salvia columbariae* G. Bentham (var. *columbariae* is the variety reported as occurring in Arizona): Chia**

COMMON NAMES: California Chia, California Sage, Chia, Desert Chia, Desert Sage, Sage. DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); flowers may be blue, blue-purple, blue-violet, dark blue, bluish, bluish-lavender, lavender, purple, dark purple, purplish, purplish-blue, royal blue, violet or white; flowering generally takes place between late January and late July (additional records: one for mid-August, one for late August and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; rocky-sandy and sandy mesas; rocky plateaus; along rocky cliffs; rocky canyons; rocky canyon bottoms; rocky bluffs; buttes; rocky and clayey-loamy ridges; rocky-gravelly-loamy ridgetops; meadows; foothills; bedrock, bouldery, rocky, rocky-loamy-clayey, gravelly, sandy and clayey hills; clayey hilltops; bouldery, bouldery-sandy, rocky, rocky-sandy and sandy hillsides; bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, rocky-clayey, shaley, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, clayey and silty slopes; rocky and rocky-sandy alluvial fans; gravelly, gravelly-sandy and silty bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; blow-sand deposits; rocky-sandy outwash fans; plains; bouldery-sandy, rocky, gravelly and sandy flats; bouldery-sandy valley floors; sandy bases of coastal bluffs; coastlines; along rocky, rocky-gravelly-loamy, gravelly and sandy roadsides; along arroyos; within draws; along streams; along creeks; along gravelly-sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, rocky-clayey, stony-sandy-silty, gravelly, gravelly-sandy, pebbly-sandy, sandy and silty washes; sandy drainages; in bouldery and sandy drainage ways; around pools; silty depressions; gravelly and sandy banks of arroyos, streams, creeks, rivers and washes; sandy edges of arroyos and washes; along margins of washes; gravel bars; sandy benches; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; silty impoundments; gravelly-sandy and sandy-silty riparian areas; recently burned areas in woodlands, chaparral and coastal sage scrub, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-sandy, shaley, cobbly-gravelly-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, stony-sandy silty, sandy silty, silty and powdery silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or food, beverage, spice and/or fiber crop; it was also noted as having been used as a drug or medication. The foliage has a strong, pleasant, sweet odor of sage. *Salvia columbariae* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (022710), 46 (Page 741), 48 (genus), **56**, **57**, 63 (022710 - color presentation), 77, **85** (022710 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Teucrium canadense var. *angustatum* (see *Teucrium canadense* var. *canadense*)

***Teucrium canadense* C. Linnaeus var. *canadense*: Canada Germander**

SYNONYMY: *Teucrium canadense* C. Linnaeus var. *angustatum* A. Gray. COMMON NAMES: American Germander, Canada Germander, Germander, Hairy Germander, Wild Germander, Wood Sage, Wood-sage. DESCRIPTION: Terrestrial perennial forb/herb (26 to 40 inches in height); the flowers are pale pink or purplish; flowering generally takes place between May and September. HABITAT: Based on

few records located, within the range of *Teucrium canadense* the species has been reported from meadows; prairies; sandy coastal dunes; roadsides; along streams; along rivers; along riverbeds; around ponds; marshes; banks of streams and rivers; bottomlands, and riparian areas growing in moist sandy ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be useful as an ornamental. *Teucrium canadense* var. *canadense* is native to central and southern North America. *5, 6, 43 (022810), 46 (recorded as *Teucrium canadense* L. var. *angustatum* Gray, Page 733), 63 (022810), **85** (022810), **89** (recorded as *Teucrium canadense* L. var. *angustatum* Gray)*

Teucrium canadense var. *angustatum* (see *Teucrium canadense* var. *canadense*)

***Teucrium cubense* N.J. von Jacquin (var. *densum* is the variety reported as occurring in Arizona): Small Coastal Germander**

COMMON NAMES: Coast Germander, Combleaf Germander, Germander, Small Coast Germander, Small Coastal Germander. DESCRIPTION: Terrestrial annual or perennial forb/herb (6 to 28 inches in height); the flowers are pale blue, pale bluish, pale lavender, lavender, violet & white or white; flowering generally takes place between early March and mid-May (additional records: one for late February, one for late June, one for late July, one for early August, two for mid-September, two for early October, one for mid-October, two for late October, one for mid-November and two for early December). HABITAT: Within the range of this species it has been reported from sand dunes; sandy and sandy-silty flats; sandy-clayey basins; valley floors; sandy-silty valley bottoms; along sandy roadsides; arroyos; along draws; within gullies; seeps; along streams; streambeds; along creeks; in sand along rivers; sandy, sandy-silty, clayey-loamy and silty riverbeds; along and in gravelly-sandy and sandy washes; around vernal pools; beds of vernal pools; playas; sloughs, banks of rivers and washes; edges of washes and poolbeds; margins of pools and poolbeds; bottomlands; floodplains; mesquite bosques; muddy-clayey margins of stock tanks (charcos, repressos); silted-in reservoirs; along canals; along ditches; sandy-silty riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry gravelly-sandy and sandy ground; clayey loam soils; rocky-silty clay, sandy-clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Teucrium cubense* is native to southwest-central and southern North America. *5, 6, **16**, 43 (022810), 46 (Page 733), 63 (022810 - color presentation), **77**, **85** (022810), **89***

Linaceae: The Flax Family

***Linum lewisii* F.T. Pursh (var. *lewisii* is the variety reported as occurring in Arizona): Lewis Flax**

SYNONYMY: (for *L.l.* var. *lewisii*: *Linum perenne* C. Linnaeus subsp. *lewisii* (F.T. Pursh) O.E. Hultén). COMMON NAMES: Blue Flax, Flax, Lewis Blue Flax, Flax, Lewis Flax, Lewis' Blue Flax, Lewis' Flax, Prairie Flax, Western Blue Flax, Wild Blue Flax, Wild Flax. DESCRIPTION: Terrestrial semi-evergreen perennial forb/herb or subshrub (4 to 40 inches in height); the leaves are grayish-green or green; the flowers (¾ to 2 inches in width) may be pale blue, blue, blue-purple, cerulean-blue, lavender, purple, purplish-blue, deep sky blue, violet or white; flowering generally takes place between mid-February and late October (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky and gravelly-loamy mountainsides; rocky-sandy and clayey-loamy mesas; plateaus; canyon rims; cliffs; rocky canyons; along canyon bottoms; talus slopes; rocky ledges; rocky ridges; ridgetops; clearing in forests; rocky, rocky-sandy, gravelly, loamy and clayey meadows; foothills; rocky hills; hilltops; rocky and sandy-loamy hillsides; bouldery-cobbly, rocky, rocky-clayey, shaley, shaley-sandy, gravelly, gravelly-loamy, gravelly-silty, sandy-clayey-loamy and loamy slopes; bajadas; bouldery outcrops; steppes; prairies; plains; rocky flats; basins; hollows; cindery valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-

sandy-clayey, cindery, gravelly-sandy, sandy and sandy-loamy roadsides; springs; along streams; along and in streambeds; along creeks; along rivers; in sandy washes; boggy areas; marshes; gravelly-clayey-loamy swampy areas; sumps; clayey-loamy banks of creeks; along rocky shores of lakes; benches; gravelly-sandy-loamy and sandy terraces; bottomlands; floodplains; ditches; ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery-cobbly, rocky, rocky-sandy, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, rocky-sandy clay and clay ground, and gravelly silty ground, occurring from 1,300 to 12,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent and/or fiber crop; it was also noted as having been used as a drug or medication and as a commodity used in personal hygiene. This plant grows in areas receiving 10 to 23 inches of annual precipitation doing best in areas with around 16 inches of annual precipitation; taking 2 to 3 years to establish, mature and flower, the flowers open at sunrise with petal drop occurring around noon. This plant is browsed by Elk (*Cervus elaphus*), Pronghorn Antelope (*Antilocapra americana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*) and the seeds may be eaten by birds and deer mice. *Linum lewisii* is native to northwestern, northern, central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (022810), 46 (Page 489), 48 (genus), 58, 63 (022810 - color presentation), **77** (color photograph #36), 80 (*Linum lewisii*, *Linum neomexicanum* and others are considered to be Rarely Poisonous and Suspected Poisonous Range Plant. "These forbs are potentially cyanogenetic but reports of losses on rangelands have not been confirmed."), **85** (022810 - color presentation), 86 (color photograph of *Linum perenne*), 115 (color presentation), 127*

Linum perenne subsp. *lewisii* (see *Linum lewisii* var. *lewisii*)

***Linum puberulum* (G. Engelmann) A.A. Heller: Plains Flax**

COMMON NAMES: Desert Flax, Plains Flax, Yellow Flax. DESCRIPTION: Terrestrial annual forb/herb (4 to 18 inches, one report of 3 feet, in height); the leaves are grayish-green; the flowers (to 2 inches in width) may be apricot, apricot-yellow, brownish-orange, brown-yellow, buff, copper, cream-yellow, orange, orange-yellow, dull orange-yellow, orangish-yellow, peach, whitish, yellow or yellow-orange and often reported with bronze, brownish-purple, maroon, purple, purple-brown, red or reddish-brown at the base of the petals; flowering generally takes place between late March and late October. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyon rims; rocky and sandy canyons; gravelly canyon bottoms; talus slopes; rocky and gravelly knolls; gravelly and sandy ledges; ridges; rocky ridgetops; meadows; foothills; rocky, shaley and gravelly-clayey hills; hilltops; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, shaley, gravelly and gravelly-clayey slopes; bajadas; gravelly pediments; rocky and clayey outcrops; sandy lava flows; sandy steppes; prairies; plains; sandy flats; basins; sandy hollows; along gravelly, gravelly-sandy and gravelly-loamy roadsides; rocky draws; sandy-loamy riverbeds; gravelly-sandy-loamy and sandy washes; sandy troughs of washes; drainages; clayey edges of drainage ways; gravelly terraces; sandy bottomlands; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, shaley, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from 2,000 to 8,200 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It was reported that the flowers open in the morning and close by noon. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye (paint) crop. *Linum puberulum* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph), 43 (022810), 46 (Page 489), 48 (genus), 58,

63 (022810 - color presentation), 77, 80 (*Linum lewisii*, *Linum neomexicanum* and others are considered to be Rarely Poisonous and Suspected Poisonous Range Plant. "These forbs are potentially cyanogenetic but reports of losses on rangelands have not been confirmed."), **85** (030110 - color presentation of dried materials), 127*

Loasaceae: The Blazingstar Family

***Mentzelia affinis* E.L. Greene: Yellowcomet**

COMMON NAMES: Blazing Star, Pega Pega, Stickleaf, Stickleaf Blazing Star, Triangle-seed, Yellowcomet. DESCRIPTION: Terrestrial annual forb/herb (6 to 20 inches in height); the flowers are orange-yellow, pale yellow or yellow; flowering generally takes place between mid-February and mid-May (flowering beginning as early as January and ending as late as June has also been reported). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; stony canyons; talus slopes; bases of cliffs; knolls; rocky ledges; foothills; sandy hills; rocky and sandy-loamy hillsides; bases of hills; rocky and gravelly slopes; rocky-shaley outcrops; amongst rocks; bases of rocks; lava fields; berm-like sand dunes; sandy plains; sandy and sandy-clayey flats; sandy valley floors; coastal dunes; along gravelly-sandy, sandy and clayey roadsides; along and in gravelly-sandy and sandy washes; banks of streams and washes; edges of washes; loamy benches; terraces; floodplains; silty stock tanks (charcos); recently burned areas of chaparral, and disturbed areas growing in dry desert pavement; rocky, rocky-shaley, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-silty-clayey loam ground, and sandy clay and clay ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Mentzelia affinis* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (072010), 46 (Page 565), 48 (genus), 63 (072010), 77, **85** (080710 - color presentation), 127*

***Mentzelia albescens* (J. Gillies ex G.A. Arnott) A.H. Grisebach: Wavyleaf Blazingstar**

SYNONYMY: *Mentzelia pumila* (T. Nuttall) J. Torrey *ex* A. Gray var. *reverchonii* I. Urban & E.F. Gilg, *Mentzelia wrightii* A. Gray, *Nuttallia wrightii* E.L. Greene, *Touterea wrightii* P.A. Rydberg. COMMON NAMES: Wavy-leaf Blazing Star, Wavyleaf Blazingstar, Wavyleaf Mentzelia, Wright Blazingstar. DESCRIPTION: Terrestrial perennial forb/herb (16 inches to 4 feet in height); the flowers are yellow; based on one flowering record located, flowering generally takes place in early July (flowering record: one for early July). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; hills; gypsum outcrops; valley floors; within gravelly arroyos; along washes, and floodplains growing in dry gravelly ground, occurring from 900 to 8,000 feet in elevation in the woodland ecological formation. NOTES: EXOTIC Plant. This plant was most likely misidentified. This plant is not known to occur in Arizona and has not been reported from Arizona except for the reported occurrence in the 1909 J.J. Thornber Listing for Tumamoc Hill. *Mentzelia albescens* is native to south-central North America, southern South America and possibly elsewhere. *5, 6, 18 (genus), 43 (030110 - *Mentzelia pumila* (*Mentzelia pumila* Torr. ex A. Gray) var. *reverchonii* I. Urban & E.F. Gilg), 46 (genus (no record for this species), Pages 564-567), 48 (genus), 63 (030110 - mapping does not show the occurrence of this species in Arizona), 85 (030110), **89** (recorded, possibly incorrectly, as *Mentzelia wrightii* Gray), 95 (061406 - Personal Communication)*

***Mentzelia albicaulis* (W.J Hooker) J. Torrey & A. Gray: Whitestem Blazingstar**

COMMON NAMES: Blazing Star, Small-flowered Blazingstar, White Blazingstar, White-stem Blazing-star, White-stem Stickleaf, Whitestem Blazingstar, Whitestem Stickleaf. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 2 feet in height, plants were reported that were 8 to 12 inches in height and 4 to 10 inches in width); the stems are pink-tan or shiny white; the leaves are gray-green; the

flowers are lemon-yellow, mustard-yellow, orangish, yellow or yellow-orange; flowering generally takes place between mid-February and late July (additional records: two for early January and one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; cobbly-sandy mountainsides; mesas; cliffs; rocky and shaley canyons; rocky and sandy canyon bottoms; gorges; talus slopes; clayey bluffs; buttes; shaley knolls; rocky and gravelly ridges; rocky and gravelly-sandy ridgetops; foothills; rocky, gravelly and sandy hills; bouldery-rocky, rocky, rocky-gravelly-loamy, cobbly, sandy and clayey hillsides; bouldery, bouldery-gravelly, rocky, rocky-sandy, shaley, shaley-clayey, stony-gravelly, cindery, cindery-sandy; gravelly, gravelly-silty-clayey, sandy and clayey slopes; sandy alluvial fans; gravelly and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; silty hummocks; sandy plains; breaks; gravelly, gravelly-clayey, sandy, sandy-loamy, sandy-clayey, sandy-powdery-loamy and silty-loamy flats; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along shaley, gravelly, gravelly-sandy-clayey-loamy, sandy and clayey roadsides; sandy arroyos; along draws; along gulches; streambeds; along creeks; along rivers; along and in gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; silty lakebeds; boggy areas; clayey depressions; along sandy banks of creeks and washes; sandy edges of washes, lakes and playas; gravelly-sandy and sandy shores of lakes; sandy beaches; rocky-sandy, cobbly-loamy and sandy benches; floodplains; rocky mesquite bosques; along sandy fencelines; sandy ditches; recently burned areas; sandy riparian areas; waste places, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-gravelly, cobbly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-powdery loam, clayey loam, silty loam and loam ground; shaley clay, gravelly clay, gravelly-silty clay, sandy clay and clay ground, and rocky-silty, gravelly silty, sandy silty and silty ground, occurring from 400 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mentzelia albicaulis* is native to west-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (030110 - *Mentzelia albicaulis* (Douglas ex Hook.) Douglas ex Torr. & A. Gray), 46 (Page 566), 48 (genus), 58, 63 (030110 - color presentation), **77**, **85** (030210 - color presentation of dried material), **89**, 127*

***Mentzelia aspera* C. Linnaeus: Tropical Blazingstar**

COMMON NAMES: Tropical Blazingstar, Tropical Stickleaf. DESCRIPTION: Terrestrial annual forb/herb (8 to 30 inches, one record for sprawling 6½ feet, in height); the flowers are orange, orange-yellow, peach, light yellow or yellow; flowering generally takes place between early August and mid-October (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky canyons; canyon bottoms; rocky ledges; hills; hilltops; rocky slopes; rocky outcrops; plains; flats; along railroad right-of-ways; along roadsides; draws; along ravines; along streams; along creeks; riverbeds; banks of arroyos; benches; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry rocky and sandy ground, occurring from 100 to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mentzelia aspera* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (030210), 46 (Page 565), 48 (genus), 63 (030210), 85 (030210 - color presentation of dried material), **89***

***Mentzelia jonesii* (I. Urban & E.F. Gilg) H.J. Thompson & J.E. Roberts: Jones' Blazingstar**

SYNONYMY: *Mentzelia nitens* E.L. Greene var. *jonesii* (I. Urban & E.F. Gilg) J. Darlington, *Mentzelia nitens* E.L. Greene var. *leptocaulis* J. Darlington. COMMON NAMES: Blazing Star, Blazingstar, Jones Blazingstar, Jones' Blazingstar, Jones Stickleaf. DESCRIPTION: Terrestrial annual forb/herb or vine (4 inches to 2 feet in height/length); the stems are gray, pinkish-white or silvery-white; the flowers are lemon-yellow, white & yellow, yellow or yellow-orange; flowering generally takes place

between mid-February and mid-June (additional records: one for mid-January and one for early July). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; rocky canyons; canyon bottoms; talus slopes; bases of cliffs; rocky and gravelly hills; bouldery and rocky hillsides; rocky, rocky-sandy and gravelly slopes; sandy alluvial fans; bajadas; rocky outcrops; amongst boulders; flats; basins; rocky and sandy valley floors; along sandy roadsides; along streams; along creeks; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; rocky drainages; sandy sloughs; rocky and sandy banks of streams and rivers; along sandy edges of washes; terraces, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from 600 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mentzelia jonesii* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (030210 - *Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) Darl.), 46 (recorded as *Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) J. Darl., Page 566 and *Mentzelia nitens* Greene var. *leptocaulis* J. Darl., Page 566), 48 (genus), 63 (030210), **77** (color photograph #82), **85** (030210 - color presentation), 115 (color presentation)*

***Mentzelia multiflora* (T. Nuttall) A. Gray: Adonis Blazingstar**

COMMON NAMES: Adonis Blazing Star, Adonis Blazing-star, Adonis Blazingstar, Adonis Stickleaf, Blazing Star, Blazingstar, Desert Blazingstar, Desert Mentzelia, Desert Stickleaf, Manyflowered Mentzelia, Many Flowered Stickleaf, Stickleaf. DESCRIPTION: Terrestrial biennial or perennial forb/herb (6 to 40 inches in height, one plant was described as being 6 inches in height with a crown 9 inches in width, plants were described as being 8 inches in height and 4 inches in width); the stems are gray-green, white or whitish; the leaves are gray-green, green, silvery-white or yellow-green; the flowers are cream, lemon-yellow, orange-yellow, white-yellow, pale yellow, yellow or yellow-white; flowering generally takes place between late February and mid-December (additional records: one for mid-January and one for late January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cindery flanks of mountains; rocky-gravelly, gravelly and sandy mesas; plateaus; cliffs; rocky walls; rocky, rocky-sandy, shaley and sandy canyons; rocky gorges; canyon sides; sandy canyon bottoms; cindery and chalky talus slopes; bases of cliffs; crevices in rocks; rocky and sandy bluffs; shaley-clayey and clayey knolls; along rocky ridges; meadows; cinder cones; sandy crater floors; gravelly foothills; rocky, cindery, sandy and clayey hills; hilltops; rocky, gravelly and clayey hillsides; sandy escarpments; rocky, rocky-gravelly, rocky-sandy, rocky-silty-clayey, shaley, shaley-gravelly, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; rocky outcrops; sandy lava flows; sand hills; sand and gypsum dunes; sand hummocks; rocky-sandy and sandy steppes; sandy, sandy-clayey and clayey prairies; sandy plains; cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, clayey and silty flats; sandy-silty basins; sandy and clayey valley floors; along railroad right-of-ways; along rocky, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey and clayey roadsides; stony arroyos; rocky and sandy bottoms of arroyos; within draws; gravelly gulches; within ravines; springs; along streams; along and in rocky and sandy streambeds; along and in creeks; rocky-sandy creekbeds; along rivers; rocky, rocky-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within rocky drainages; along drainage ways; along gravelly, sandy, sandy-silty and clayey banks of streams, creeks, rivers and washes; sandy edges of washes; along sandy shores of rivers; gravel and sand bars; sandy benches; terraces; rocky, rocky-sandy and sandy bottomlands; gravelly-sandy-silty and sandy floodplains; mesquite bosques; along canals; within sandy-loamy ditches; gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy humus riparian areas, and disturbed areas growing in dry bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; bouldery-gravelly-sandy clay, rocky-silty clay, gravelly clay, sandy clay, silty clay and clay ground; gravelly-sandy silty, sandy silty, powdery silty and silty ground; sandy humusy ground, and chalky ground, occurring from 100 to 9,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by

native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a commodity used as a ceremonial item. *Mentzelia multiflora* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (072209), 46 (recorded as *Mentzelia pumila* (Nutt.) Torr. & Gray, Page 566; *Mentzelia pumila* (Nutt.) Torr. & Gray var. *integra* Jones, Page 566 and *Mentzelia pumila* (Nutt.) Torr. & Gray var. *multiflora* (Nut.) Urban & Gilg, Page 566), 48 (genus), 63 (030210 - color presentation), **85** (030210 - color presentation), 115 (color presentation), 127*

Mentzelia nitens var. *jonesii* (see *Mentzelia jonesii*)

Mentzelia nitens var. *leptocaulis* (see *Mentzelia jonesii*)

Mentzelia pumila (see footnote 46 under *Mentzelia multiflora*)

Mentzelia pumila var. *reverchonii* (see *Mentzelia albescens*)

Mentzelia wrightii (see *Mentzelia albescens*)

Nuttallia wrightii (see *Mentzelia albescens*)

Touterea wrightii (see *Mentzelia albescens*)

Malpighiaceae: The Barbados-cherry Family

***Janusia gracilis* A. Gray: Slender Janusia**

COMMON NAMES: Desert Vine, Fermina, Slender Janusia. DESCRIPTION: Terrestrial perennial deciduous forb/herb or vine (clambering, climbing, scrambling or twining stems 16 inches to 10 feet in length, one plant was reported to have been 16 inches in height with a crown 10 inches in diameter); the leaves are grayish-green or reddish; the flowers (to ½ inch in width) are orange-yellow or yellow; flowering generally takes place between early March and mid-November (additional records: two for early January, one for late January, one for early December, one for mid-December and one for late December); the winged fruits (paired samaras) are pink, purple-red, red, red-green or reddish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; mesas; cliffs; rocky canyons; sandy canyon bottoms; gravelly-sandy bases of cliffs; amongst crevices; rocky buttes; rocky knolls; rocky and gravelly ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; along bouldery-rocky, rocky, rocky-gravelly, rocky-clayey-loamy and gravelly slopes; alluvial fans; gravelly bajadas; volcanic plugs; bouldery and rocky outcrops; amongst rocks; plains; gravelly flats; basins; valley floors; rocky-gravelly roadsides; along rocky arroyos; bottoms of arroyos; draws; within gullies; ravines; along streams; along rocky streambeds; along creeks; bouldery-rocky-sandy creekbeds; along and in gravelly and sandy washes; along drainages; waterholes; palm oases; rocky banks of streams; edges of washes; benches; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground and rocky-clayey loam and clayey loam ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It is small woody vine often reported as scrambling over rocks, twining among shrubs or forming small tangled shrublets. Slender Janusia is browsed by the Sonoran Desert Tortoise (*Gopherus agassizi*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*) and Whitetail Deer (*Odocoileus virginianus* subsp. *couesi*). *Janusia gracilis* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43

(030310), 46 (Page 497), 48, 58, 63 (030310 - color presentation), 77 (color photograph #83), **85** (030310 - color presentation), **89**, 115 (color presentation)*

Malvaceae: The Mallow Family

***Abutilon abutiloides* (N.J. von Jacquin) C.A. Garcke ex B.P. Hochreutiner: Shrubby Indian Mallow**

COMMON NAMES: Amantillo (Spanish), Berlandier Abutilon, Indian Mallow, Malva Rasposa (Spanish), Shrubby Indian Mallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (1 to 6½ feet in height, one plant was reported to be 32 inches in height with a crown 40 inches in width); the leaves are yellow-green; the flowers are orange, orange-yellow, orangish, yellow, yellow-copper or yellow-orange; flowering generally takes place between early March and early November (additional records: two for late November, four for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; along canyon bottoms; bases of cliffs; ridges; foothills, rocky and stony hills; bouldery hilltops; rocky and rocky-sandy-loamy hillsides; bouldery and rocky slopes; bajadas; amongst boulders and rocks; sandy flats; valley floors; sandy coastal flats; coastal beaches; along rocky, stony and sandy roadsides; within arroyos; gulches; streambeds; along and in rocky-sandy, rocky-silty and sandy washes; bouldery drainages; waterholes; along rocky banks of washes; edges of arroyos; bottomlands; riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, stony, gravelly and sandy ground; rocky-sandy loam and sandy loam ground, and rocky silty ground, occurring between sea level and 6,200 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening. The Shrubby Indian Mallow is a food and nesting plant of the caterpillar of the Arizona Powdered-skipper (*Systaceae zampa*). *Abutilon abutiloides* is native to southwest-central and southern North America and and coastal islands in the Caribbean Sea. *5, 6, 18 (genus), 43 (030310), 46 (recorded as *Abutilon californicum* Benth., Page 539), 63 (030310 - color presentation of seeds), 77, 85 (030310 - color presentation), **89** (recorded as *Abutilon lemmoni* Wats.), 115 (color presentation)*

Abutilon californicum (see footnote 46 under *Abutilon abutiloides*)

Abutilon crispum (see *Herissantia crispa*)

***Abutilon incanum* (J.H. Link) R. Sweet: Pelotazo**

SYNONYMY: *Abutilon incanum* (J.H. Link) R. Sweet subsp. *incanum* (J.H. Link) R. Sweet, *Abutilon incanum* (J.H. Link) R. Sweet subsp. *pringlei* (B.P. Hochreutiner) R.S. Felger & R.T. Lowe, *Abutilon pringlei* B.P. Hochreutiner. COMMON NAMES: Hoary Abutilon, Hoary Indian Mallow, Indian Mallow, Pelotazo (Spanish), Pelotazo Chico, Pringle Abutilon, Pringle's Abutilon, Pringle Indian Mallow, Shrubby Indian Mallow, Tronadora. DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (8 inches to 7 feet, sometimes up to 13 feet, in height, one plant was reported to be 8 inches in height with a crown 8 inches in width, one plant was reported to be 12 inches in height with a crown 16 inches in width, one plant was reported to be 30 inches in height with a crown 30 inches in width); the stems are gray, the leaves are grayish or gray-green; the flowers may be cream, cream & red, lavender, pale orange, orange, orange-red, orange-yellow, orange-yellowish, peach & maroon, light pink, pink, dark red, salmon, white, white & pink, yellow-orange, yellowish-pink, yellow, yellow-gold or yellow-salmon sometimes with dark crimson, maroon, deep maroon, purple, red dark red centers (basal spots); flowering may take place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; mountaintops; bases and lower slopes of mountains; rocky crags; rocky mesas; rocky crags; rocky cliffs; rocky canyons; along bouldery, bouldery-sandy and rocky canyon bottoms; rocky and clayey-loamy talus slopes; crevices in rocks; buttes; knolls; ridgetops; rocky ridgelines; foothills; rocky and stony hills; rocky and gravelly

hillsides; bouldery-rocky-sandy, rocky, rocky-sandy, gravelly and gravelly-sandy slopes; volcanic plugs; rocky outcrops; amongst boulders; gravelly plains; gravelly and sandy flats; basins; valley floors; coastal plains; gravelly roadsides; along rocky arroyos; rocky bottoms of arroyos; around seeping streams; along and in rocky streambeds; along and in gravelly, sandy and clayey-loamy washes; within drainages; swales; banks of lakes; beaches; benches; mesquite bosques; riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-sandy, stony, gravelly, pebbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Abutilon incanum* is native to southwest-central and southern North America and possibly to the North-central Pacific Islands (Hawaii). *5, 6, 13, 15, **16** (recorded as *Abutilon incanum* (Link.) Sweet subsp. *pringlei* (Hochr.) Felger & Lowe), 18 (genus), 28 (color photograph), 43 (030410 - *Abutilon incanum* subsp. *pringlei* (Hochr.) Felger), 46 (recorded as *Abutilon pringlei* Hochr., Page 539 and *Abutilon incanum* (Link) Sweet, Page 539), **56**, **57**, 63 (030410 - color presentation), 77 (recorded as *Abutilon incanum* (Link.) Sweet ssp. *pringlei* (Hochr.) Felger & Lowe), **85** (030410 - color presentation), **89**, 91, 115 (color presentation), 127*

Abutilon incanum subsp. *incanum* (see *Abutilon incanum*)

Abutilon incanum subsp. *pringlei* (see *Abutilon incanum*)

Abutilon lemmoni (see footnote 89 under *Abutilon abutiloides*)

Abutilon pringlei (see *Abutilon incanum*)

***Anoda cristata* (C. Linnaeus) D.F. von Schlechtendal: Crested Anoda**

COMMON NAMES: Alache (Spanish), Altea (Hispanic), Amapola (Spanish), Amapolita Morada (Hispanic), Anoda Weed, Crested Anoda, Huinarillo (Hispanic), Itsucua Tsipata (Purépecha), Malva (Hispanic), Malva Chica (Hispanic), Malva de Castilla (Spanish), Malva Morada (Hispanic), Malvavisco (Hispanic), Pie de Gallo (Spanish), Quesitos (Spanish), Requesón (Hispanic), Rewé (Hispanic), Reweque (Hispanic), Sinianoda, Snowcup, Spurred Anoda, Tsitsiki Uekutini (Purépecha), Violeta (Spanish), Violeta de Campo (Hispanic), Violeta del País (Hispanic), Violettas, Violetilla, Wild Cotton, Yiwa Tio (Mixteco). DESCRIPTION: Terrestrial annual forb/herb (3 to 42 inches in height or length); the leaves are green; the flowers may be blue, blue-purple, blue-violet, lavender, lavender-blue, lavender-pink, lavender-white, lilac, pink, light purple, purple, purplish-blue, purplish-pink, purplish-red, violet or white; flowering generally takes place between early August and early November (additional records: one for early January, one for early February, two for mid-March, one for early May, one for mid-May, one for late May, one for mid-July and two for early December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bouldery-rocky and rocky canyons; canyon bottoms; sandy meadows; foothills; rocky hills; rocky and gravelly-clayey hillsides; rocky-sandy and clayey slopes; alluvial fans; bajadas; rock outcrops; breaks; clayey flats; basins; valley floors; along gravelly-loamy and sandy roadsides; arroyos; gulches; seeps; along streams; along streambeds; along creeks; creekbeds; along rivers; along and in gravelly-sandy sandy washes; drainage ways; along lakes; cienegas; marshes; silty banks of creeks; along edges of creeks; gravelly benches; terraces; floodplains; mesquite bosques; along fencelines; along and in ditches; along canal banks; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground; gravelly clay, silty clay and clay ground, and silty ground, occurring from 600 to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Anoda cristata* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 15, 30, 43

(072409), 46 (Pages 551-552), 58, 63 (030410 - color presentation of seed), 68, 85 (030410 - color presentation), **89**, 101 (color photograph)*

***Anoda pentaschista* A. Gray: Field Anoda**

COMMON NAME: Field Anoda. DESCRIPTION: Terrestrial annual herb (20 to 80 inches in height); the flower may be pale apricot, apricot, orange, orange-yellow, peach-yellow, pumpkin fading to pink, purplish, violet, pale yellow or yellow sometimes fading pink or reddish; flowering generally takes place between early August and late November (additional records: one for early January, one for late May, one for late June, one for mid-July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; clayey knolls; meadows; foothills; rocky bases of foothills; hills; clayey hilltops; rocky, rocky-clayey, stony-clayey and clayey slopes; clayey flats; valley floors; sandy railroad right-of-ways; along rocky and loamy-clayey roadsides; arroyos; riverbeds; along washes; poolbeds; playas; cienegas; silty swampy areas; rocky depressions; swales; bottomlands; floodplains, and disturbed areas growing in muddy and moist and dry rocky and sandy ground; rocky clay, stony clay, loamy clay and clay ground, and silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Anoda pentaschista* is native to southwest-central and southern North America. *5, 6, **16**, 43 (030410), 46 (Page 552), 63 (030410), **77**, **85** (030410 - color presentation), **89** (recorded as *Anoda thurberi* Gray)*

Anoda thurberi (see footnote 89 under *Anoda pentaschista*)

***Eremalche exilis* (A. Gray) E.L. Greene: White Mallow**

SYNONYMY: *Malvastrum exile* A. Gray. COMMON NAMES: Five Spot, White Mallow, White-mallow. DESCRIPTION: Terrestrial annual forb/herb (ascending or prostrate stems 4 to 9 inches in height/length); the small cup-shaped flowers are pink, pale lavender, lavender, purple, white or white-green; flowering generally takes place between early March and mid-May (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; ridges; cinder cones; rocky-gravelly hilltops; hillsides; rocky, sandy and clayey slopes; rocky-sandy alluvial fans; bajadas; shaley outcrops; sand dunes; sandy plains; gravelly-sandy, sandy and silty flats; sandy-loamy valley floors; along sandy roadsides; rocky draws; around springs; sandy creekbeds; riverbeds; along and in sandy washes; sandy and sandy-silty drainage ways; silty lakebeds; silty playas; depressions; sandy banks of rivers; edges of washes; gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, coastal sage scrub and desertscrub, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, gravelly-sandy and sandy ground; gravelly-clayey loam and sandy loam ground, and sandy-silty and silty ground, occurring from below sea level (-26 feet) to 5,700 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Eremalche exilis* is native to southwest-central North America. *5, 6, **16**, 43 (030410), 46 (recorded as *Malvastrum exile* Gray, Page 548 and *Eremalche exilis* (Gray) Greene, supplement page 1060), 63 (030410), 77, 85 (030410 - color presentation of dried material), **89** (recorded as *Malvastrum exile* Gray), 127*

Gayoides crispum (see *Herissantia crispa*)

***Herissantia crispa* (C. Linnaeus) G.K. Brizicky: Bladdermallow**

SYNONYMY: *Abutilon crispum* (C. Linnaeus) F.K. Medikus, *Gayoides crispum* (C. Linnaeus) J.K. Small. COMMON NAMES: Bladder Mallow, Bladder-mallow, Bladdermallow, Curly Abutilon, False Indian Mallow, Netvein Herissantia. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (prostrate, sprawling or trailing stems 8 inches to 4 feet in height/length); the leaves are light green; the flowers are cream, pale orange-cream, orange, orange-cream, orange-yellow, pink-orange, pale peach, salmon, white, light yellow, light yellow-orange, yellow or yellowish; the anthers are yellow;

flowering generally takes place between mid-January and mid-May and again between early August and late December (additional records: one for late June, two for early July and one for mid-July); the fruit is green. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky cliffs; rocky canyons; along gravelly canyon bottoms; rocky talus slopes; bases of cliffs; crevices in rocks; rocky ledges; ridgetops; rocky and stony hills; bouldery-rocky and rocky hillsides; bouldery and rocky slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy bases of boulders and rocks; sand dunes; plains; gravelly flats; valley bottoms; coastal beaches; along roadsides; gravelly streambeds; sandy creekbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; bouldery drainages; edges of arroyos; sandy beaches; benches; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground and clayey loam ground, occurring from sea level to 4,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Bladdermallow is a food and nesting plant of the caterpillar of the Erichson's White-skipper (*Heliopetes domicella*). *Herissantia crispa* is native to south-central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 15, **16**, 28 (color photograph), 43 (030410), 46 (recorded as *Gayoides crispum* (L.) Small, Page 540), 48 (genus), 58, 63 (030410 - color presentation), 77 (color photograph #37), **85** (030410 - color presentation), **89** (recorded as *Abutilon crispum* (L.) Medic.), 115 (color presentation)*

***Hibiscus coulteri* W.H. Harvey ex A. Gray: Desert Rosemallow**

COMMON NAMES: Coulter Hibiscus, Desert Hibiscus, Desert Rose Mallow, Desert Rose-mallow, Desert Rosemallow, Pelotazo. DESCRIPTION: Terrestrial perennial subshrub or shrub (3 inches to 7 feet in height; one plant was reported to be 18 inches in height with a crown 6 inches in width); the foliage may be green, dark green with reddish margins or green-purple; the flowers are pale lemon, lemon, lemon-yellow, peach, yellow, yellowish-purple or white-pink with or without a blackish, purplish or red basal spot (area at base of the petal); flowering generally takes place between early March and late May and between late July and late December (additional records: one for mid-January, one for mid-February and one for early July, it has been reported that flowering may take place throughout the year; however, the flower buds may be killed by frost). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery, bouldery-gravelly-loamy and rocky canyons; canyon walls; rocky canyon bottoms; bases of cliffs; crevices in rocks; ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; along bedrock, rocky, rocky-clayey-loamy, gravelly and gravelly-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; flats; along rocky and sandy arroyos; gulches; gullies; ravines; along rocky, gravelly, sandy and humus-loamy washes; within bouldery and cobbly drainages; banks of lakes, and riparian areas growing in bouldery, rocky, cobbly, gravelly and sandy ground and bouldery-gravelly loam, rocky-clayey loam, gravelly loam and humusy loam ground, occurring from 400 to 5,000 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Hibiscus coulteri* is native to southwest-central and southern North America. *5, 6, 13, **16**, 28 (color photograph), 43 (030510 - *Hibiscus coulteri* Harv. ex A. Gray), 46 (Page 553), 48 (genus), 63 (030510), 58, 77, **85** (030510 - color presentation), 86 (color photograph), **89**, 115 (color presentation)*

***Hibiscus denudatus* G. Bentham: Paleface**

SYNONYMY: *Hibiscus denudatus* G. Bentham var. *involucellatus* A. Gray. COMMON NAMES: Naked Hibiscus, Pale Face, Paleface, Pale Face Mallow, Paleface Rosemallow, Rock Hibiscus, xKwáa (Seri). DESCRIPTION: Terrestrial perennial subshrub (10 to 56 inches in height); the leaves are pale green or yellowish-green; the flowers (to 2 inches in diameter) may be blue, blue-pink, bluish-purple, creamy white, pale lavender, lavender, lavender-blue-pink, lavender-pink, orangish, light pink, pink, pink-lavender, pink-violet, pink-white, pale purple, purple, violet, white aging lavender, whitish or whitish-pink sometimes with a maroon, red, red-burgundy, reddish or rose basal spot (colored spot at the base of

the petal); the stigmas may be red-burgundy; the anthers may be red-burgundy; flowering generally takes place between early February and late May and between late July and late December. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; rocky mountainsides; mesas; rock cliffs; rocky and clayey canyons; walls of canyons; bouldery and gravelly canyon bottoms; talus slopes; crevices in rocks; buttes; rocky ridgetops; foothills; rocky hills; rocky hillsides; bedrock, bouldery, bouldery-sandy, rocky, rocky-sandy and gravelly slopes; alluvial fans; gravelly bajadas; rocky and rocky-shaley outcrops; amongst boulders and rocks; rocky coves; lava flows; plains; rocky, gravelly, sandy and silty flats; rocky and sandy valley floors; coastal sand dunes; coastlines; coastal beaches; roadbeds; along sandy roadsides; arroyos; bottoms of arroyos; draws; gullies; within rocky ravines; springs; along and in bouldery, rocky, gravelly-sandy and sandy washes; rocky drainages; rocky bowls; sandy edges of washes; margins of arroyos, and gravelly-sandy riparian areas growing in dry rocky desert pavement; bouldery, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; clay ground, and silty ground, occurring from sea level to 5,200 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by rabbits. *Hibiscus denudatus* is native to southwest-central and southern North America. *5, 6, 13 (color photograph, Plate M.1.), 15, **16**, 28 (color photograph), 43 (030510), 46 (Page 553), 48 (genus), 63 (030510 - color presentation), 77 (color photograph #39), **85** (020510 - color presentation), 86 (color photograph), **89**, 115 (color presentation)*

Hibiscus denudatus var. *involucellatus* (see *Hibiscus denudatus*)

***Malva parviflora* C. Linnaeus: Cheeseweed Mallow**

COMMON NAMES: Cheeseweed, Cheeseweed Mallow, Egyptian Mallow, Kleinblütige Malve (German), Little Mallow, Malva (Portuguese), Malva de Campo (Spanish), Malva de Castilla (Spanish), Mauve d'Egypte (French), Mauve à Petites Fleurs (French), Quesillo (Spanish), Quesitos (Spanish), Small-flowered Malva, Malva Loca, Small-whorl Mallow. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (ascending, prostrate or trailing stems 4 to 50 inches in height/length, one plant was reported to be 4 inches in height and 20 inches in width); the leaves are dark green; the flowers (petals about ¼ inch in length) may be blue, cream, pale lavender, pinkish, purple, white or white with a lavender-pink fringe; flowering generally takes place between early February and late June (additional records: one for mid-January, one for mid-July, three for late July, one for early August, one for late August, two for early September, three for late September, one for early October and one for late November, it has been reported that flowering may take place through most of the year). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; gorges; bluffs; clayey meadows; rocky hills; hillsides; bouldery, gravelly-clayey, sandy-loamy and clayey slopes; lava beds; sand hummocks; plains; sandy, clayey and clayey-loamy flats; sandy valley floors; coastal dunes; roadbeds; along shaley, sandy and clayey-loamy roadsides; along arroyos; springs; along streams; along creekbeds; along rivers; along and in rocky and sandy washes; cobbly-sandy and sandy drainages; saltwater marshes; depressions; banks of streams, creeks and rivers; edges of washes and lakes; margins of ponds; rocky strands; terraces; loamy bottomlands; sandy and sandy-silty floodplains; mesquite bosques; fencelines; margins of stock tanks; in ditches; clayey ditch banks; along canals; around stock tanks; sandy riparian areas; waste places; recently burned areas of chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery, rocky, shaley, cobbly-sandy, gravelly and sandy ground; sandy loam, clayey loam and loam ground; gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a forage (hogs fed on the seeds), as a drug or medication and as a commodity used in personal hygiene. Cheeseweed Mallow is very similar to the exotic Common Mallow (*Malva neglecta* C.F. Wallroth) which is native to Europe; western, central and southern Asia, and northern Africa and which has spreading or nearly prostrate stems, flower petals that are 1/3 to 2/3 inches in length and curled lobes on the fruit.

Malva parviflora is native to southwestern Europe; western and central Asia, and northern Africa. *5, 6, **16**, 28 (color photograph), 43 (030510), 46 (Page 549), **56**, **57**, 58, 63 (030510 - color presentation of seed capsules), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Consumption of large amounts of this common introduced annual forb within a few days has caused death in livestock."), **85** (030510 - color presentation of dried material), **89**, 101 (note), 106 (030510 - color presentation), 115 (color presentation), 127*

Malvastrum exile (see *Eremalche exilis*)

***Malvella sagittifolia* (A. Gray) P.A. Fryxell: Arrowleaf Mallow**

SYNONYMY: *Sida lepidota* A. Gray var. *sagittaefolia* A. Gray. COMMON NAMES: Arrowleaf Mallow, Scurfy Sida. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, spreading or trailing stems 6 to 18 inches in height/length); the flowers are cream, orange, pale pink, pink, purple, rose, white or white with a rose tint; flowering generally takes place between early March and mid-May and between mid-August and mid-October (additional records: two for mid-June and three for late November, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from clayey mesas; bajadas; plains; silty flats; clayey valley floors; loamy valley bottoms; sandy-loamy and sandy-silty roadsides; clayey and clayey-loamy washes; sandy, clayey and silty playas; depressions; silty mudflats; floodplains; bosques; ditches, and disturbed areas growing in dry sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from 400 to 6,000 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Malvella sagittifolia* is native to southwest-central and southern North America. *5, 6, 43 (030510 - *Sida lepidota* var. *sagittaefolia* A. Gray), 46 (recorded as *Sida lepidota* Gray var. *sagittaefolia* Gray, Page 550), 63 (030510 - color presentation), **85** (030510 - color presentation of dried material), **89** (recorded as *Sida lepidota* Gray var. *sagittaefolia* Gray)*

***Rhynchosida physocalyx* (A. Gray) P.A. Fryxell: Buffpetal**

SYNONYMY: *Sida physocalyx* A. Gray. COMMON NAMES: Buffpetal, Spearleaf Sida, Tuberous Rhynchosida, Tuberous Sida. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending, sprawling or trailing stems 4 inches to 3 feet in height/length); the flowers (¾ inch in width) are cream, cream-yellow, light orange, orange, orange-yellow, peach, pale yellow, yellow or yellow-orange; flowering generally takes place between late March and late October (additional record: one for mid-November, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; meadows; foothills; hills; rocky hillsides; sandy-loamy slopes; gravelly alluvial fans; gravelly bajadas; clayey flats; valley floors; along gravelly-sandy-clayey-loamy roadsides; ravines; along creeks; along and in sandy washes; drainages; along watercourses; banks of washes; edges of washes; benches; terraces; sandy-clayey floodplains; mesquite bosques; clayey catch basins; levees; stock tanks; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly-sandy-clayey loam and sandy loam ground, and sandy clay and clay ground often reported as growing under shrubs or trees, occurring from 100 to 5,400 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Rhynchosida physocalyx* is native to southwest-central and southern North America and South America. *5, 6, 15, **16**, 43 (0305100, 46 (recorded as *Sida physocalyx* Gray, Page 550), **56**, **57**, 58, 63 (030510), 68 (recorded as *Sida physocalyx* Gray), **77** (recorded as *Sida physocalyx* Gray), **85** (030610 - color presentation), **89** (recorded as *Sida hastata* A. St. Hil.), 115 (color presentation)*

***Sida abutifolia* P. Miller: Spreading Fanpetals**

SYNONYMY: *Sida diffusa* K.S. Kunth, *Sida filicaulis* J. Torrey & A. Gray, *Sida procumbens* O. Swartz. COMMON NAMES: Spreading Fanpetals, Spreading Sida. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate stems 8 inches to 4 feet in length); the stems are pinkish; the leaves are

dark green; the flowers (to 7/8 inch in width) may be pale apricot, apricot, cream-yellow, golden, pale orange, orange, orange-yellow, peach, white, pale yellow-orange, yellow, yellow-orange, yellow-salmon or yellowish-orange; flowering generally takes place between early April and mid-November (additional records: one for late February, one for mid-March, one for early December and one for mid-December, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from rocky mountains; sandy mesas; rocky canyons; stony canyon walls; canyon bottoms; crevices in rocks; ledges; rocky-gravelly ridges; clayey-loamy meadows; foothills; rocky hills; rocky hillsides; bases of hills; bouldery-gravelly, rocky, gravelly and clayey slopes; alluvial fans; stony and gravelly bajadas; rocky outcrops; amongst boulders; cobbly, gravelly-sandy-loamy, sandy and sandy-loamy plains; rocky-loamy, gravelly, gravelly-sandy, sandy and clayey flats; valley floors; along rocky-gravelly-sandy-clayey-loamy, rocky-gravelly-clayey-loamy, gravelly, gravelly-sandy-loamy and sandy roadsides; rocky arroyos; bottoms of arroyos; gulches; springs; along streams; along streambeds; creeks; along and in bouldery-rocky-sandy, gravelly-sandy and sandy washes; along rocky-gravelly-sandy drainage ways; banks of arroyos, rivers; flanks of streams; benches; terraces; bottomlands; floodplains; mesquite bosques; along fence lines; sandy riparian areas, and disturbed areas in , bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy soils; rocky loam, rocky-gravelly-sandy clayey loam, rocky-gravelly-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam and clay loam soils, and clay soils, occurring from 100 to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sida abutifolia* is native to south-central and southern North America; Central America; northern South America, and coastal islands in the Caribbean Sea. *5, 6, 15 (recorded as *Sida procumbens* Sw.), **16** (recorded as *Sida procumbens* Sw.), 28 (recorded as *Sida filicaulis*, *Sida procumbens*), 43 (072409 - no record of *Sida abutifolia*), 46 (recorded as *Sida procumbens* Sw., Page 550), 58 (recorded as *Sida procumbens* Sw.), 63 (030610), **77**, **85** (030610 - color presentation), **89** (recorded as *Sida diffusa* H.B.K.), 115 (color presentation)*

Sida diffusa (see *Sida abutifolia*)

Sida filicaulis (see *Sida abutifolia*)

Sida hastata (see footnote 89 under *Rhynchosida physocalyx*)

Sida lepidota var. *sagittaefolia* (see *Malvella sagittifolia*)

Sida physocalyx (see *Rhynchosida physocalyx*)

Sida procumbens (see *Sida abutifolia*)

***Sphaeralcea ambigua* A. Gray: Desert Globemallow**

COMMON NAMES: Apricot Globemallow (for *Sphaeralcea ambigua* subsp. *ambigua*), Apricot Mallow (for subsp. *ambigua*), Apricot-mallow, Coyóco (Seri), Desert Globemallow, Desert Hollyhock, Desert-hollyhock, Desert Mallow, Desert-mallow, Globe Mallow, Globemallow, Mal de Ojo, Mountain Apricot Mallow (for subsp. *ambigua*), Plantas Muy Malas (very bad plants), Rose Globemallow (for subsp. *rosacea*), Sore-eye Poppy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (16 to 78 inches in height, one plant was reported to be 2 feet in height and 2 feet in width, one plant was reported to be 3 feet in height and 2 feet in width); the stems are silvery, tan, whitish or yellow; the leaves are grayish or silvery; the flowers (½ to 1½ inches in width) may be apricot-coral, apricot-reddish, brick-red, coral-orange, grenadine, grenadine-red, lavender, magenta, orange, orange-peach, orange-red, deep orange, orangish, light pink-lavender, pink, pink-lavender, pink-orange, plum-blue, purple, purplish-pink, red, red-orange, reddish-salmon, rose, rose-pink, salmon, salmon-orange, salmon-pink, scarlet or white;

flowering generally takes place between late January and late July (additional records: one for mid-August, two for late August, three for mid-September, two for late September, two for early October, six for mid-October, one for late October, three for early November, four for mid-November, one for late November, two for mid-December, one for late December, it has been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; sandy plateaus; cliffs; stony-cobbly-sandy, gravelly and sandy canyons; sandy canyon bottoms; talus slopes; bluffs; ridges; bouldery ridgetops; cindery cinder cones; foothills; bouldery, rocky and gravelly hills; bouldery-sandy and rocky hillsides; bouldery-rocky, rocky, gravelly, gravelly-loamy, gravelly-silty and sandy slopes; alluvial fans; bajadas; rock and sandy outcrops; amongst rocks; lava hills; sand dunes; sandy plains; cobbly-clayey, gravelly and sandy flats; basins; sandy and loamy valley floors; roadbeds; along rocky, rocky-gravelly, rocky-gravelly-silty, gravelly, gravelly-loamy and sandy roadsides; within arroyos; rocky ravines; seeps; along springs; along streams; along creeks; along rocky-sandy and gravelly-sandy creekbeds; along rivers; riverbeds; along and in bouldery, rocky, gravelly, gravelly-sandy and sandy washes; along sandy drainages; playas; depressions; sandy and silty-loamy banks of creekbeds, washes and lakes; edges of washes; sandy margins of washes; shores of lakes; gravel bars; sandy beaches; rocky and sandy benches; shelves; sandy bottomlands; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony-cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, silty loam and loam ground; cobbly clay ground, and rocky-gravelly silty and gravelly silty ground, occurring from sea level to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted that it was used as a drug or medication. The Desert Globemallow is browsed by Bighorn Sheep (*Ovis canadensis*). *Sphaeralcea ambigua* is native to southwest-central and southern North America. *5, 6, 18, 28 (color photograph), 43 (030710), 46 (Page 543), 48 (genus), 63 (030710 - color presentation), 68 (genus), 77 (color photograph #85), **85** (030710 - color presentation), 86 (color photograph), 115 (color presentation), 127*

***Sphaeralcea ambigua* A. Gray subsp. *ambigua*: Apricot Globemallow**

SYNONYMY: *Sphaeralcea ambigua* A. Gray var. *ambigua*. COMMON NAMES: Apricot Globemallow, Apricot Mallow, Desert Globemallow, Desert Hollyhock, Desert-hollyhock, Desert Mallow, Desert-mallow, Globe Mallow, Globemallow, Mal de Ojo, Mountain Apricot Mallow, Plantas Muy Malas (very bad plants), Rose Globemallow (for *Sphaeralcea ambigua* subsp. *rosacea*), Sore-eye Poppy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (18 to 63 inches in height, one plant was described as being 3 feet in height with a crown 44 inches in width); the foliage is ash-green; the flowers are apricot, orange, dark orange, pink-red, reddish-orange, salmon-orange, white-pinkish or yellow-orange; the anthers are yellow; flowering generally takes place between early February and mid-June (additional records: one for early January, one for mid-January, two for mid-August, one for early September, one for late September, one for early October, three for late October, one for mid-November, one for late November, two for mid-December and one for late December, it has also been reported that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; along canyon bottoms; talus slopes; ridges; rocky hillsides; rocky, rocky-clayey, cobbly, cobbly-loamy, gravelly and gravelly-sandy-loamy slopes; dunes; plains; gravelly, sandy and sandy-clayey flats; valley floors; along gravelly roadsides; along rocky arroyos; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; rocky runnels; sandy banks of washes; along edges of washes; margins of washes; gravelly-sandy shores of lakes; gravelly benches, and terraces growing in dry rocky, rocky-sandy, cobbly, gravelly and gravelly-sandy ground; cobbly loam and gravelly-sandy loam ground, and rocky clay and sandy clay ground, occurring from 100 to 6,700 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Sphaeralcea ambigua*, was reported to have been utilized by native peoples of North America; it was noted that it was used as a drug or medication. The Apricot Mallow is

browsed by Bighorn Sheep (*Ovis canadensis*). *Sphaeralcea ambigua* subsp. *ambigua* is native to southwest-central and southern North America. *5, 6, 18, 28 (species, color photograph of the species), 43 (030710), 46 (species, Page 543), 48 (genus), 63 (030710), 68 (genus), **77** (color photograph #85), **85** (030710), 86 (species, color photograph of the species), 115 (color presentation of the species), 127 (species)*

Sphaeralcea ambigua var. *ambigua* (see *Sphaeralcea ambigua* subsp. *ambigua*)

***Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don: Copper Globemallow**

SYNONYMY: *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don subsp. *cuspidata* (A. Gray) T.H. Kearney, *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don subsp. *lobata* (E.O. Wooton) T.H. Kearney, *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *cuspidata* A. Gray, *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *lobata* (E.O. Wooton) T.H. Kearney, *Sphaeralcea angustifolia* (A.J. Cavannilles) G. Don var. *oblongifolia* (A. Gray) L.H. Shinners, *Sphaeralcea cuspidata* (A. Gray) N.L. Britton, *Sphaeralcea emoryi* J. Torrey *ex* A. Gray subsp. *nevadensis* T.H. Kearney, *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *nevadensis* (T.H. Kearney) T.H. Kearney. COMMON NAMES: Copper Globe-mallow, Copper Globemallow, Cordón (Hispanic), Emory Globe Mallow, Hierba del Golpe (Hispanic), Hierba del Negro (Spanish), K'oho:wa (Zuni), Narrow-leaf Globe Mallow, Narrowleaf Desertmallow, Narrowleaf Globemallow, Narrow-leaved Desert Mallow, Tlixihitl (Nahuatl), Vara de San José (Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (wand-like stems 10 inches to 6½ feet in height); the flowers may be apricot-pink, grenadine, grenadine-pink, lavender, orange, orange-pink, dark orange, pink, purple, red, red-orange, reddish-orange, reddish-purple, salmon, salmon-pink or white; flowering generally takes place between early April and late October (additional records: one for mid-March, one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky ledges; hills; rocky hillsides; rocky, gravelly-sandy, sandy and sandy-loamy slopes; bajadas; sandy lava flows; dunes; plains; sandy flats; basin bottoms; rocky valley floors; along rocky-clayey railroad right-of-ways; along roadbeds; along gravelly roadsides; arroyos; draws; springs; riverbeds; along clayey washes; drainages; silty lakebeds; playas; cienegas; swamplands; sandy and sandy-silty depressions; borders of lakebeds; terraces; bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 400 to 7,400 feet in elevation in the forest; woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a cut flower. *Sphaeralcea angustifolia* is native to southwest-central and southern North America. *5, 6, **16** (recorded as *Sphaeralcea angustifolia* (Cav.) G. Don var. *cuspidata* Gray), 18 (genus), 30, 43 (072409), 46 (recorded as *Sphaeralcea angustifolia* (Cav.) G. Don, Page 545; *Sphaeralcea angustifolia* (Cav.) G. Don var. *cuspidata* Gray, Page 545; *Sphaeralcea angustifolia* (Cav.) G. Don var. *lobata* (Wooton) Kearney, Page 545, and *Sphaeralcea emoryi* Torr. var. *nevadensis* Kearney, Page 543), 48 (genus), 58, 63 (030710 - color presentation), 68 (genus), **77**, **85** (030810 - also recorded as *Sphaeralcea angustifolia* var. *angustifolia*, color presentation), **89** (recorded as *Sphaeralcea cuspidata* (Gray) Britton), 127*

Sphaeralcea angustifolia subsp. *cuspidata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia subsp. *lobata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *angustifolia* (see footnote number 85 under *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *cuspidata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *lobata* (see *Sphaeralcea angustifolia*)

Sphaeralcea angustifolia var. *oblongifolia* (see *Sphaeralcea angustifolia*)

Sphaeralcea cuspidata (see *Sphaeralcea angustifolia*)

***Sphaeralcea coulteri* (S. Watson) A. Gray: Coulter's Globemallow**

COMMON NAMES: Annual Globemallow, Coulter Globe Mallow, Coulter Globemallow, Coulter's Globe-mallow, Coulter's Globemallow, Hadamdak (Tohono O'odham), Sevoa'ara (Yaqui), Xcóa (Seri). DESCRIPTION: Terrestrial annual forb/herb or subshrub (6 inches to 6 feet in height); the leaves are grayish; the flowers may be apricot, light blue, coral-apricot, orange, deep orange, pinkish, red-orange, reddish-apricot, salmon, salmon-orange, white or yellow-orange; flowering generally takes place between late December and late April (additional records: one for mid-May, one for late May, one for early June, two for late August, one for mid-September, one for early November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from bouldery mountains; flanks of mountains; mesas; sandy canyons; rocky sides of buttes; clayey ridges; ridgetops; lava and sandy inside rims of craters; rocky hills; rocky hillsides; rocky and rocky-sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sand hummocks; sandy plains; gravelly and sandy flats; valley floors; coastal plains; beach heads; sandy tidal flats; rocky, gravelly, sandy and sandy-loamy roadsides; sandy arroyos; along rivers; gravelly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; clayey playas; depressions; silty swales; sandy and silty banks of rivers and washes; sandy-clayey edges of washes and playas; gravelly beaches; bottomlands; sandy floodplains; mesquite bosques; along canals; ditches; riparian areas; waste places, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; sandy clay and clay ground, and silty ground, occurring from sea level to 3,300 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea coulteri* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (030710), 46 (Page 542), 48 (genus), 63 (030710 - color presentation), 68 (genus), 77, **85** (030710 - also recorded as *Sphaeralcea coulteri* var. *coulteri* S. Wats., color presentation including habitat), 86 (color photograph), **89***

Sphaeralcea coulteri var. *coulteri* (see footnote 85 under *Sphaeralcea coulteri*)

Sphaeralcea cuspidata (see *Sphaeralcea angustifolia*)

***Sphaeralcea emoryi* J. Torrey ex A. Gray: Emory's Globemallow**

SYNONYMY: *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *arida* T.H. Kearney, *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *emoryi*, *Sphaeralcea emoryi* J. Torrey ex A. Gray subsp. *variabilis* T.H. Kearney *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *arida* (J.N. Rose) T.H. Kearney, *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *californica* (S.B. Parish) L.H. Shinners, *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *emoryi*, *Sphaeralcea emoryi* J. Torrey ex A. Gray var. *variabilis* (T.D. Cockerell) T.H. Kearney. COMMON NAMES: Emory Globe Mallow, Emory Globemallow, Emory's Desertmallow, Emory's Globemallow, Globe Mallow, Hadam Tadkam (Pima), Mal de Ojo, Riptia (Yaqui). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending stems 2¼ to 98 inches in height, one plant was reported to be 2 feet in height and 3 feet in width); the stems may be gray-green, green, greenish or deep red; the leaves gray-green, greenish or dark green; the flowers may be apricot, brick-orange, burnt-orange, grenadine, grenadine-red, lavender; orange, orange-pink, orange-red, deep orange-pink, peach, peach-red, pink, pink-orange, pinkish-white, purple, red, red-orange, reddish, reddish-orange, rose, rose-pink, rose-purple, salmon, salmon-orange, deep salmon, scarlet or white; flowering may take

place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon bottoms; meadows; ridges; ridgetops; meadows; foothills; rocky hills; rocky-gravelly hill tops; rocky hillsides; rocky, gravelly-sandy, gravelly-clayey-loamy and sandy slopes; rocky alluvial fans; sandy bajadas; amongst rocks; sandy lava flows; sand dunes; sandy plains; sandy, clayey and silty flats; clayey basins; gravelly valley floors; valley bottoms; coastal hills; along railroad right-of-ways; along rocky, gravelly-loamy, sandy and clayey roadsides; arroyos; ravines; rocky bottoms of ravines; springs; along streams; sandy-clayey-loamy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; gravelly-sandy-silty poolbeds; sandy-silty and silty lakebeds; silty playas; silty depressions; playas; sandy banks of arroyos, ravines, streams and rivers; edges of ponds; mudflats; gravelly and sandy terraces; sandy bottomlands; floodplains; gravelly-sandy-silty impoundments; canal banks; ditches; ditch banks; riparian areas, and disturbed areas growing in wet, damp and dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy-clayey loam and sandy loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level (-180) to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a dug or medication. *Sphaeralcea emoryi* is native to southwest-central and southern North America. *5, 6, 15, **16** (recorded as *Sphaeralcea emoryi* Torr. var. *californica* (Parish) Shinners), 18 (genus), 43 (030810), 46 (Pages 542-543), 48 (genus), 58, 63 (030810), 68, **77** (recorded as *Sphaeralcea emoryi* Torr. var. *californica* (Parish) Shinners), **85** (030810 - color presentation), 101 (note), 115 (color presentation), 127*

Sphaeralcea emoryi subsp. *arida* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *californica* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *emoryi* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi subsp. *nevadensis* (see *Sphaeralcea angustifolia*)

Sphaeralcea emoryi subsp. *variabilis* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *arida* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *californica* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *emoryi* (see *Sphaeralcea emoryi*)

Sphaeralcea emoryi var. *nevadensis* (see *Sphaeralcea angustifolia*)

Sphaeralcea emoryi var. *variabilis* (see *Sphaeralcea emoryi*)

***Sphaeralcea laxa* E.O. Wooton & P.C. Standley: Caliche Globemallow**

COMMON NAMES: Caliche Globe Mallow, Caliche Globemallow, Globemallow, Mal de Ojo. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (12 to 28 inches in height); the leaves are green, gray or gray-green; the flowers may be bluish-pink, grenadine, orange, orange-pink, peach-orange, pink-orange, red, red-orange or deep salmon; the anthers are dark purple; flowering generally takes place between early February and late November (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky-gravelly mesas; canyons; sandy canyon bottoms; talus slopes; rocky-sandy ridges; rocky-gravelly ridgelines; foothills;

hills; rocky-gravelly hilltops; rocky, gravelly-sandy-loamy and sandy hillsides; bases of hills; rocky, gravelly and silty-clayey slopes; alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; rocky-sandy rims of craters; sandy and sandy-loamy plains; gravelly and sandy flats; basins; valley floors; along railroad right-of-ways; roadsides; sandy arroyos; clayey bottoms of arroyos; draws; springs; riverbeds; along gravelly and sandy washes; along sandy-silty banks of rivers; along gravelly edges of streambeds and washes; margins of rivers and washes; gravel bars; bottomlands; sandy lowlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, pebbly and sandy ground; gravelly-sandy loam and sandy loam ground, and silty clay ground, occurring from 1,200 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea laxa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (030810), 46 (Page 543), 48 (genus), **56**, **57**, 63 (030810 - color presentation), 68, 77 (color photograph #40), **85** (030810 - color presentation), **89** (recorded as *Sphaeralcea pedata* Torr.), 115 (color presentation)*

Sphaeralcea pedata (see footnote 89 under *Sphaeralcea laxa*)

Meliaceae: The Mahogany Family

***Melia azedarach* C. Linnaeus: Chinaberrytree**

COMMON NAMES: Amargoseira-do-Himalaio (Portuguese), Arbre à Chapelets (French), Bead-tree, Bessieboom Syringa (Afrikaans), China Berry, China-berry, Chinaberry, Chinaberrytree, China Tree, China-tree, Chuan Liang Zi (transcribed Chinese), Cinamomo (Portuguese), Indian Lilac, Indischer Zedrachbaum (German), Lelah, Maksering (Afrikaans), Lilas des Indes (French), Melia (Spanish), Paraiso (Spanish), Persian Lilac, Persischer Flieder (German), Pride of India, Pride-of-India, Sabonete-de-soldado (Portuguese), Sendan (transcribed Japanese), Sichuan Pagoda-tree, S-u'ukuk (Pima), Syringa Berrytree, Umbrella Tree, White Cedar. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (10 to 50 feet in height); the flowers are pale lavender, lavender, pinkish-lavender, purple-pink, purplish, purplish-white, white-lavender or white tinged with violet; flowering generally takes place between late March and mid-May (additional records: one for mid-January and one for mid-July); the mature fruit is whitish or yellowish turning brown and wrinkled with age. HABITAT: Within the range of this species it has been reported from mountains; canyons; bases of cliffs; along ridgetops; bouldery, bouldery-rocky and rocky slopes; alluvial fans; amongst boulders; valley floors; rocky-gravelly-loamy roadsides; arroyos; springs; along creeks; creekbeds; along rivers; rocky, rocky-sandy and sandy riverbeds; along and in sandy washes; along margins of washes; gravelly floodplains; rocky riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly and sandy ground and rocky-gravelly loam ground, occurring from sea level to 5,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (chewed leaves for pleasing flavor), spice, as jewelry, as a drug or medication and as a commodity used in personal hygiene. The fruits are poisonous. *Melia azedarach* is native to eastern and southern Asia; Australia, and southwestern Pacific islands. *5, 6, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (030910), 46 (Supplement Page 1059), 52 (color photograph), 63 (030910 - color presentation), 77, 80 (This species is listed as a Poisonous Cropland and Garden Plant. "All parts of this tree may be lethal, causing complete paralysis and suffocation, but berries cause most poisoning of livestock (especially hogs) and children."), **85** (030910 - color presentation), 97, 127

Molluginaceae: The Carpetweed Family
(the genus Mollugo was formerly placed in the Aizoaceae)

***Mollugo cerviana* (C. Linnaeus) N.C. Seringe: Threadstem Carpetweed**

COMMON NAME: Indian Chickweed, Slender Carpet-weed, Slender Carpetweed, Thread-stem Carpet-weed, Threadstem Carpet Weed, Threadstem Carpet-weed, Threadstem Carpetweed, Xian Ye Su Mi Cao (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (1 to 8 inches in height); the flowers are green, green-white, pink, pinkish-white or white; flowering generally takes place between late July and mid-October (additional records: one for mid-May and one for early June). HABITAT: Within the range of this species it has been reported from mountains; cindery-sandy mountainsides; mesas; rocky canyons; gravelly-sandy canyon bottoms; cinder cones; foothills; bouldery hills; rocky hillsides; bouldery, cindery, sandy, sandy-loamy and sandy-silty slopes; rocky alluvial fans; rocky and sandy bajadas; sand hills; sand dunes; plains; cindery, gravelly, gravelly-loamy and sandy flats; basins; valley floors; along roadsides; sandy bottoms of arroyos; along gullies; streambeds; creek beds; along and in gravelly and sandy washes; drainages; banks of creeks and washes; gravelly and sandy terraces; sandy floodplains; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground, gravelly clay ground, and sandy silty ground, occurring from near sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Mollugo cerviana* is native to eastern and southern Europe; western, central and southern Asia; Africa, and Australia. *5, 6, 15, 43 (030910), 46 (Page 280), 63 (030910), 77, 85 (030910), **89***

***Mollugo verticillata* C. Linnaeus: Green Carpetweed**

COMMON NAMES: Carpet-weed, Carpetweed, Green Carpet-weed, Green Carpetweed, Espuelita, Indian Chick Weed, Indian Chickweed, Indian-chickweed, Mollugine, Mollugo Verticillé, Zhong Leng Su Mi Cao (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending stems 1 to 18 inches in height/length); the leaves are pale green; the inconspicuous flowers (1/8 inch in diameter) are white; flowering generally takes place between late July and early November (additional records: two for mid-January, two for mid-March, one for early May, one for mid-June, one for late June, one for early July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bouldery and rocky canyons; gravelly and gravelly-sandy canyon bottoms; shallow pockets of soil in rocks; rocky and gravelly buttes; ridges; rocky ridgetops; foothills; hills; rocky hillsides; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey slopes; bajadas; rocky outcrops; amongst boulders; sandy-loamy plains; gravelly, sandy and clayey flats; valley floors; sandy coastal dunes; coastal salt marshes; along railroad right-of-ways; roadbeds; along gravelly-sandy and sandy roadsides; along arroyos; draws; along streams; along gravelly-sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; clayey lakebeds; gravelly-sandy and silty banks of creeks and rivers; sandy edges of ponds and marshes; margins of lakes; shores of lakes; mudflats; sandy benches; rocky shelves; terraces; bottomlands; floodplains; gravelly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Some authors consider *Mollugo verticillata* a native of the New World Tropics or pan-tropic which has naturalized in subtropical and temperate regions. *5, 6, 15, 43(072409), 46 (Page 280), 58, 63 (030910 - color presentation), 77, 85 (030910 - color presentation), **89***

Moraceae: The Mulberry Family

***Morus alba* C. Linnaeus: White Mulberry**

COMMON NAMES: Amoreira-branca (Portuguese), Gewone Moerbei (Afrikaans), Mulberry, Mora (Spanish), Moral Blanco (Spanish), Morera Blanca (Spanish), Mulberry, Mûrier Blanc (French),

Russian Mulberry, Sang (transcribed Chinese), Silkworm Mulberry, White Mulberry, Weißer Maulbeerbaum (German), Witmoerbei (Afrikaans). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (8 to 50 feet in height, one tree was described as being 35 feet in height with a crown 60 feet in width); the bark is brown tinged with red or yellow, pale gray or gray-brown; the trunks are gray-brown; the branchlets are dark green or orange-brown with a reddish cast; the leaves may be green or yellow; the tiny pistalate and staminate flowers are green or greenish; flowering generally takes place between mid-March and late June; the mature fruits are black, blackish-purple, blackish-red, pinkish, pinkish-red, pinkish-white, purple-black, purplish, red, white or white with a purple tinge. HABITAT: Within the range of this species it has been reported from mountains; canyons; gorges; meadows; sandy flats; basins; valley bottoms; along roadsides; draws; within ravines; springs; along streams; along creeks; along rivers; riverbeds; washes; along lakes; marshes; banks of rivers; sandy edges of rivers; shores of rivers, ponds and lakes; terraces; floodplains; mesquite bosques; fencerows; canals; sandy riparian areas, and disturbed areas growing in wet and moist rocky-sandy and sandy ground and clay ground, occurring from sea level to 7,000 feet in elevation in woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used for food and as a drug or medication. *Morus alba* is native to eastern Asia (China). *5, 6, 18, 26 (color photograph), 28 (color photograph), 43 (030910), 46 (genus - no record of species, Page 221), 52 (color photograph), **56**, **57**, 63 (030910 - color presentation of seeds), **85** (030910 - color presentation of dried material), 127*

Nyctaginaceae: The Four-o'clock Family

***Allionia incarnata* C. Linnaeus: Trailing Windmills**

COMMON NAMES: Allionia, Guapile, Herba de la Hormiga, Pink Three-flower, Pink Windmills, Trailing Allionia, Trailing Four O'Clock, Trailing Four-o'clock, Trailing Windmills, Umbrella Wort, Windmills. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate with trailing stems 4 to 14 inches in height and 4 inches to 10 feet in length, one plant was described as being 4 inches in height and 12 by 20 inches in width); the stems may be reddish; the sticky foliage has been described as being gray-green or green above and silvery beneath; the flowers may be blue, fuchsia; lavender, lavender-pink, lavender-rose, magenta, magenta-pink, magenta-rose, pink, pink-lavender, pink-purple, pink-violet, purple, purple-blue, purplish-pink, red-violet, reddish-purple, rose, rose-pink, rose-purple, violet, violet-magenta, violet-pink or white; flowering generally takes place between mid-January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky and rocky-sandy mesas; rims of canyons; rocky and shaley canyons; along gravelly canyon bottoms; buttes; knolls; shaley ridges; rocky ridgetops; sandy foothills; rocky, rocky-sandy and gravelly hills; rocky-gravelly hilltops; rocky and gravelly hillsides; along bedrock, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy-silty slopes; rocky alluvial fans; rocky and gravelly-sandy bajadas; amongst boulders and rocks; lava hills; sandy lava flows; sand hills; sand dunes; sand hummocks; debris fans; llanos; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; silty basin floors; gravelly-sandy valley floors; sandy roadbeds; along rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, gravelly, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; rocky, rocky-gravelly-sandy and sandy arroyos; rocky bottoms of arroyos; within draws; within rocky ravines; streambeds; along and in gravelly-sandy creekbeds; along rivers; along and in riverbeds; along and in bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly-sandy, cobbly-pebbly, gravelly and sandy washes; silty lakebeds; marshy areas; sandy-silty depressions; along clayey banks of arroyos, rivers and washes; edges of rivers and washes; rocky margins of arroyos; sandy benches; shelves; gravelly terraces; sandy bottomlands; sandy floodplains; lowlands;sandy mesquite bosques; edges of levees; along canals; canal banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly-gravelly-sandy, cobbly-pebbly, cindery; gravelly, gravelly-sandy and sandy ground; rocky-

gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam and clay loam ground; rocky clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Allionia incarnata* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 15, **16**, 28 (color photograph), 43 (031010), 46 (Page 274), **56**, **57**, 58, 63 (031010 - color presentation), 68, 77 (color photographs #41 and #86), **85** (031010 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

***Allionia incarnata* C. Linnaeus var. *villosa* (P.C. Standley) B.L. Turner: Trailing Windmills**

COMMON NAMES: Allionia, Trailing Allionia, Trailing Four O'Clock, Trailing Four-o'clock, Trailing Windmills, Windmills. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate with trailing stems 4 to 14 inches in height and 4 inches to 10 feet in length); the flowers are magenta, pink, pinkish-purple, rd-violet, rose-pink or white; flowering generally takes place between mid-March and early October. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hills; hillsides; rocky, rocky-gravelly, gravelly and gravelly-loamy slopes; basins; valley floors; along rocky-gravelly-loamy and gravelly roadsides; gravelly arroyos; ravines; sandy riverbeds; along washes; sandy floodplains; mesquite bosques; gravelly-clayey banks of levees, and disturbed areas growing in dry rocky, rocky-gravelly, cindery; gravelly and sandy ground; rocky-gravelly loam and gravelly loam ground, and gravelly clay and sandy clay ground, occurring from 300 to 5,000 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: The species, *Allionia incarnata*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Allionia incarnata* var. *villosa* is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of the species), 43 (031010), 46 (species, Page 274), 63 (011109), 68 (species), **85** (031010), 86 (species, color photograph of the species), 115 (color presentation of the species), 127 (species)*

***Boerhavia coccinea* P. Miller: Scarlet Spiderling**

COMMON NAMES: Hierba de la Hormiga (Spanish), Hierba del Cancer (Spanish), Hogweed, Indian Boerhaavia, Mata Pavo (Spanish), Red Spiderling, Scarlet Spiderling, Tostón (Spanish), Wine-flower, Yerba de Puerco (Spanish). DESCRIPTION: Terrestrial perennial forb/herb (prostrate or ascending with stems to 12 to 40 inches in height and sprawling, spreading or trailing to 8 feet in length); the stems are pale green; the leaves are dark green tinged with purple; the tiny flowers may be blood-red, blue, magenta, maroon, maroon-red, ochre-yellow, pink, pink-magenta, pink-purple, purple, purple-maroon, purple-red, dark red, red, red-maroon, red-purple, red-violet, dark red, dark reddish-purple, rose-pink, violet-red, white, wine-red or yellow; the stigma is pale green or lavender; flowering generally takes place between mid-March and mid-November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky cliffs; rocky canyons; rocky-sandy and gravelly-sandy canyon bottoms; talus; bases of cliffs; crevices in rocks; rocky-sandy bluffs; foothills; rocky and rocky-clayey hillsides; bedrock, bouldery, bouldery-gravelly-sandy, rocky, gravelly and sandy-loamy slopes; gravelly alluvial fans; gravelly bajadas; amongst boulders and rocks; sandy-loamy plains; gravelly, sandy-silty and clayey flats; valley floors; valley bottoms; roadbeds; along rocky, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly loam and sandy roadsides; within stony and sandy arroyos; along bottoms of arroyos; gulches; seeps; around seeping streams; along streams; along streambeds; along creeks; along cobbly-sandy and sandy creekbeds; along rivers; bouldery-cobbly-sandy and rocky-cobbly riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy drainages; watercourses; rocky banks of streams; edges of washes; gravel bars; beaches; sandy benches; sandy terraces; bottomlands; sandy and sandy-loam floodplains; mesquite bosques; around stock tanks; ditch banks; bouldery-cobbly-sandy, gravelly and gravelly-sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky,

rocky-cobbly, rocky-sandy, stony, gravelly, cobbly-sandy, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; rocky clay, gravelly clay and clay soils, and sandy-silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia coccinea* is native to south-central and southern North America; Central America; northern and western South America; coastal islands in the Caribbean Sea; Australia; southern Asia, and Africa. *5, 6, 15, **16**, 28 (color photograph), 43 (072409), 46 (Note alternate spelling: *Boerhaavia*, Page 276), **56**, **57**, 58, 63 (031110 - color presentation), 68, 77 (color photograph #42), **85** (031110 - color presentation), **89** (recorded as *Boerhavia viscosa* Lag. var. *oligadena* Heimerl), 115 (color presentation)*

***Boerhavia coulteri* (J.D. Hooker) S. Watson: Coulter's Spiderling**

COMMON NAMES: Coulter Spiderling, Coulter's Spiderling, Red Spiderling, Spiderling, Mochi. DESCRIPTION: Terrestrial annual forb/herb (8 inches to 5 feet in length); the stems may be pink or red; the tiny flowers are cream, pale lavender, pink, pink-magenta, pinkish-red, pinkish-white, white or white with a pinkish tinge; flowering generally takes place between late July and mid-November (additional records: one for early June and one for late June). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky ridge tops; meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky and gravelly slopes; rocky alluvial fans; rocky bajadas; rocky outcrops; amongst boulders; plains; gravelly and sandy flats; basins; valley floors; along gravelly-sandy-loam roadsides; along rivers; along and in gravelly and sandy washes; along drainages; sandy-silty depressions; along sandy banks of rivers and washes; along edges of washes; mudflats; rock shelves; sandy-loamy terraces; sandy and silty floodplains; sandy mesquite bosques; along edges of stock tanks; silty ditches; cobbly-sandy and sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, cobbly-sandy, gravelly and sandy ground; gravelly-sandy loam, sandy loam and loam ground; clay ground, and sandy silty ground, occurring from 200 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia coulteri* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (031110 - *Boerhavia coulteri* (Hook. f.) S. Watson), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (031110), 68, **77**, 85 (031110 - color presentation)*

***Boerhavia erecta* C. Linnaeus: Erect Spiderling**

COMMON NAMES: Erect Spiderling, Falso-pega-pinto (Portuguese), Five Winged Spiderling, Hamip Caacöl (Seri), Mochi, Spiderling, Zhi Li Huang Xi Xin (transcribed Chinese). DESCRIPTION: Terrestrial annual or perennial forb/herb (8 inches to 5 feet in height); the stems may be purple; the small flowers are cream, lavender, magenta, pink, pinkish-cream, pinkish-white, purple, white or whitish tinged with pink or purple; flowering generally takes place between late June and early November (additional records: one for late January, one for mid-March, one for early May, two for mid-May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; cobbly mesas; along bouldery, rocky and gravelly canyons; along bedrock, rocky, cobbly and sandy canyon bottoms; gravelly clearings in woodlands; rocky hills; rocky hilltops; bedrock, bouldery, bouldery-rocky, rocky and cobbly slopes; alluvial fans; bajadas; bedrock and rocky outcrops; amongst boulders and gravels; lava flows; sand hills; sandy-loamy plains; sandy flats; silty valley floors; valley bottoms; railroad right-of-ways; along gravelly roadsides; along rocky arroyos; rocky bottoms of arroyos; draws; in streams; along and in rocky, gravelly and sandy streambeds; riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and loamy washes; within drainages; playas; depressions; along rocky banks of streams, rivers and washes; along sandy edges of creeks; shorelines; sand bars; benches; terraces; rocky bottomlands; floodplains; along ditches; riparian areas; sandy waste places, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having

been used as a natural insecticide (sticky leaves and stems hung in the house to catch flies). *Boerhavia erecta* is native to south-central and southern North America; Central America; western South America; coastal islands in the Caribbean Sea; southeastern Asia, and Africa. *5, 6, 15, 43 (031110), 46 (Note alternate spelling: *Boerhaavia*, Page 276), **56**, **57**, 58, 63 (031110 - color presentation), 77 (color photograph #87), **85** (031110 - also recorded as *Boerhavia erecta* subsp. *erecta* L., color presentation), **89** (recorded as *Boerhavia thornberi* Jones), 127*

Boerhavia erecta subsp. *erecta* (see footnote 85 under *Boerhavia erecta*)

Boerhavia erecta var. *intermedia* (see *Boerhavia intermedia*)

***Boerhavia intermedia* M.E. Jones: Fivewing Spiderling**

SYNONYMY: *Boerhavia erecta* C. Linnaeus var. *intermedia* (M.E. Jones) T.H. Kearney & R.H. Peebles. COMMON NAMES: Five-wing Spiderling, Fivewing Spiderling, Five-winged Ringstem, Hamíp Caacöl (Seri), Jone's Boerhavia, Mochi, Spiderling, Spreading Spiderling. DESCRIPTION: Terrestrial annual forb/herb (ascending and spreading stems 6 inches to 3 feet in length); the leaves are gray-green with purple edges; the flowers are cream, light lavender, light pink, pale pink-lavender, pink, pink-lavender, pink-white, pinkish, purple, purple-pink, reddish, rose-violet, white or white tinged with lavender and/or pink; flowering generally takes place between early July and mid-November (additional records: one for late April, one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from rocky mountains; mesas; rocky canyons; gravelly canyon bottoms; sandy pockets in lava; ridges; foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy, sandy and silty slopes; alluvial fans; gravelly bajadas; rock outcrops; plains; silty flats; valley floors; along gravelly, gravelly-sandy-loamy and sandy-silty roadsides; in sandy arroyos; bottoms of arroyos; ravines; along streams; along streambeds; along creeks; creekbeds; along and in gravelly, gravelly-sandy-silty and sandy washes; along drainages; edges of pools; sandy-silty depressions; loamy bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, shaley, gravelly and sandy ground; gravelly loam, gravelly-sandy loam and loam ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia intermedia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031110), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (031110), **85** (031110 - color presentation of dried material), **89***

***Boerhavia megaptera* P.C. Standley: Tucson Mountain Spiderling**

COMMON NAMES: Annual Spiderling, Spiderling, Tucson Mountain Spiderling, Winged Spiderling. DESCRIPTION: Terrestrial annual forb/herb (ascending stems 1 to 2 feet in height); the flowers are lavender, pale pink or pink; based on few flowering records, flowering generally takes place between early August and late September (additional record: one for early November). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; rocky talus slopes; bases of cliffs; rocky-gravelly and gravelly hills; rocky slopes; amongst shrubs or trees; roadsides, and along washes growing in dry rocky, rocky-gravelly and gravelly ground, occurring from 2,200 to 4,700 feet in elevation in the grassland and desertscrub ecological formations. NOTE: *Boerhavia megaptera* is native to southwest-central and southern North America. *5, 6, **8**, **16**, 43 (031110), 46 (Note alternate spelling: *Boerhaavia*, Page 277), 63 (031110), **77**, **85** (031110 - color presentation of dried material), **89***

***Boerhavia pterocarpa* S. Watson: Apache Pass Spiderling**

COMMON NAME: Apache Pass Spiderling. DESCRIPTION: Terrestrial annual forb/herb (4 to 16 inches in length); the flowers are pink, pale pink-white or white; based on few records located, flowering generally takes place between early August and early September. HABITAT: Within the range

of this species it has been reported from slopes; bajadas; along sandy-clayey-silty roadsides; floodplains, and disturbed areas growing in dry sandy ground; sandy loam ground; clay ground, and sandy-clayey silty ground, occurring from 2,200 to 4,500 feet in elevation in the desertscrub ecological formation. NOTE: *Boerhavia pterocarpa* is native to southwest-central and southern North America. *5, 6, 43 (031110), 46 (Note alternate spelling: *Boerhaavia*, Page 277), **57**, 63 (031110), 85 (031110 - color presentation of dried material), **89***

***Boerhavia scandens* C. Linnaeus: Climbing Wartclub**

SYNONYMY: *Commicarpus scandens* (C. Linnaeus) P.C. Standley. COMMON NAMES: Bush Spiderling, Climbing Wartclub, Miona, Pega-polla. DESCRIPTION: Terrestrial perennial forb/herb or vine (1 to 8 feet in height); the small flowers are cream, cream-white, pale green, green, greenish, greenish-white, greenish-yellow, white, whitish-green or yellow-pink; flowering generally takes place between mid-April and mid-November (additional record: one for early January, two for mid-March, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bouldery and rocky canyons; canyon walls; canyon bottoms; rocky talus; bases of cliffs; buttes; rocky ledges; foothills; rocky hills; rocky hilltops; rocky hillsides; bouldery-gravelly, rocky and gravelly slopes; gravelly alluvial fans; bajadas; rocky outcrops; amongst boulders; sand dunes; sandy flats; basins; valley floors; beach dunes; coastal plains; amongst sea-worn boulders; along gravelly-sandy and sandy roadsides; in arroyos; rocky bottoms of arroyos; draws; along streambeds; along creeks; along and in gravelly washes; within rocky drainages; within drainage ways; edges of washes; along margins of washes; sandy beaches; benches; sandy floodplains; mesquite bosques; fencerows; rocky riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly, rocky, gravelly, gravelly-sandy and sandy ground and gravelly loam ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Often reported as growing up through and supported by shrubs. *Boerhavia scandens* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 15, **16**, 43 (031110), 46 (recorded as *Commicarpus scandens* (L.) Standl., Page 277), **56**, **57**, 58, 63 (031110 - color presentation), 77 (recorded as *Commicarpus scandens* (L.) Standl., color photograph #43 labeled *Commicarpus scandens*), **85** (031210 - color presentation), **89**, 115 (color presentation)*

***Boerhavia spicata* J.D. Choisy: Creeping Spiderling**

SYNONYMY: *Boerhavia torreyana* (S. Watson) P.C. Standley, *Boerhavia watsonii* P.C. Standley. COMMON NAMES: Creeping Spiderling, Mochi. DESCRIPTION: Terrestrial annual forb/herb (1 to 5 feet in height/length); the leaves are green with purple margins; the tiny flowers may be cream, lavender, pink, pinkish-white, white or white tinged with pink; the stigmas are white; flowering generally takes place between early July and early November (additional records: one for early June and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountain peaks; mesas; sandy rims of canyons; gravelly canyons; canyon walls; canyon bottoms; talus slopes; ridges; clayey ridgetops; meadows; foothills; rocky-gravelly hills; rocky, cindery, gravelly and sandy slopes; gravelly and sandy-loamy bajadas; bedrock and rocky outcrops; sand dunes; blow-sand deposits; gravelly, sandy-loamy and sandy plains; rocky-loamy, gravelly and sandy flats; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; sandy arroyos; gulches; within sandy ravines; along streambeds; along rivers; riverbeds; along and in gravelly and sandy washes; silty-clayey drainages; within drainage ways; depressions; banks of streams, rivers and washes; rocky-sandy shores of lakes; beaches; sandy benches; rocky shelves; sandy terraces; sandy bottomlands; sandy floodplains; bosques; cobbly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and silty loam ground, and silty clay and clay ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia spicata* is native to southwest-central

and southern North America. *5, 6, 15, **16**, 43 (031210), 46 (Note alternate spelling: recorded as *Boerhaavia spicata* Choisy, Page 276 and *Boerhaavia torreyana* (Wats.) Stand., Page 276), **56** (recorded as *Boerhavia watsoni* Standl.), **57** (recorded as *Boerhavia watsoni* Standl.), 58, 63 (031210 - color presentation), **77**, **85** (031210 - color presentation of dried material), **89** (recorded as *Boerhavia watsoni* Stanley)*

Boerhavia thornberi (see footnote 89 under *Boerhavia erecta*)

Boerhavia torreyana (see *Boerhavia spicata*)

Boerhavia viscosa var. *oligadena* (see footnote under *Boerhavia coccinea*)

Boerhavia watsonii (see *Boerhavia spicata*)

***Boerhavia wrightii* A. Gray: Largebract Spiderling**

COMMON NAMES: Creeping Stickstem, Fourwing Spiderling, Large-bract Spiderling, Large-bracted Boerhaavia, Spiderling, Largebract Mochi, Spiderling, Wright's Boerhavia, Wright Spiderling. DESCRIPTION: Terrestrial annual forb/herb (8 to 32 inches in height); the leaves are green edges with purple; the tiny flowers are cream-white, pale lavender, lavender, light pink, pink, pale purple, purple, rose or white; flowering generally takes place between late July and early December (additional record: one for late April). HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; rocky-gravelly mountaintops; mesas; rocky cliffs; rocky canyons; gravelly canyon bottoms; bluffs; sandy foothills; rocky and rocky-gravelly hills; rocky hillsides; bouldery, rocky, gravelly-sandy, gravelly-sandy-loamy, sandy-silty and silty slopes; alluvial fans; rocky and gravelly-sandy bajadas; amongst boulders; sandy plains; rocky-sandy and sandy flats; rocky, gravelly-sandy and sandy valley floors; along rocky-sandy and gravelly roadsides; rocky arroyos; draws; along creeks; along and in rocky, stony, gravelly, gravelly-pebbly, gravelly-sandy, sandy and silty washes; drainages; silty swales; along sandy banks of rivers and washes; edges of washes; margins of arroyos; gravel bars; terraces; loamy bottomlands; clayey lowlands; sandy floodplains; rocky-gravelly riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-pebbly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and loam ground; clay ground, and sandy silty and silty ground, occurring from 1,100 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia wrightii* is native to southwest-central and southern North America. *5, 6, **16**, 43 (031210), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 63 (031210), 77, **85** (031210 - color presentation of dried material)*

Commicarpus scandens (see *Boerhavia scandens*)

Oleaceae: The Olive Family

Adelia neomexicana (see footnote 89 under *Forestiera shrevei*)

Forestiera phillyreoides (see *Forestiera shrevei*)

***Forestiera shrevei* P.C. Standley: Desert Olive**

SYNONYMY: *Forestera phillyreoides* (G. Bentham) J. Torrey. COMMON NAMES: Desert Olive, Desert-olive, Desert-olive Forestiera, Forestiera, Palo de Tucublate, Shreve Desert Olive, Sonoran Desert Olive, Tanglebrush, Tanglebush, Wild Olive, Wild-olive; Twinberry. DESCRIPTION: Terrestrial perennial deciduous to nearly evergreen shrub or tree (40 inches to 25 feet in height, one plant was reported as being 12 feet in height with a crown 8¼ feet in width); the trunk bark is blackish or gray; the

younger branches and stems are gray or gray-brown; the leaves are green; female (greenish or white without petals) and male flower parts are born on separate plants; the anthers are purplish; flowering generally takes place between late December and early March (additional records: one for mid-April and one for early November); the mature egg-shaped fruits are bluish, brown or purplish-black. HABITAT: Within the range of this species it has been reported from mountains; cliffs; clefts in cliffs; against rock walls; bouldery and rocky canyons; rocky canyon walls; bouldery and rocky canyon bottoms; bases of cliffs; ridges; ridgetops; hillsides; bedrock and rocky slopes; bajadas; bedrock and rock outcrops; amongst boulders; arroyos; seeps; along washes; edges of washes, and riparian areas growing in dry bouldery and rocky ground, occurring from 1,300 to 4,900 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Forestiera shrevei* is native to southwest-central and southern North America. *5, 6, 13, **16**, 28 (color photograph), 30, 43 (031210 - *Forestera phillyreoides* Torr.), 46 (recorded as *Forestera phillyreoides* (Benth.) Torr., Page 643), 52 (recorded as *Forestera phillyreoides*), 53 (recorded as *Forestera phillyreoides* (Benth.) Torr.), 58, 63 (031210), 77, **85** (031210 - color presentation of dried material), **89** (recorded as *Adelia neomexicana* (Gray) Kuntze)*

Fraxinus pennsylvanica var. *velutina* (see *Fraxinus velutina*)

***Fraxinus velutina* J. Torrey: Velvet Ash**

SYNONYMY: *Fraxinus pennsylvanica* H. Marshall var. *velutina* (J. Torrey) G.S. Miller, *Fraxinus velutina* J. Torrey var. *coriacea* (S. Watson) A. Rehder, *Fraxinus velutina* J. Torrey var. *glabra* A. Rehder, *Fraxinus velutina* J. Torrey var. *toumeyi* (N.L. Britton) A. Rehder. COMMON NAMES: Arizona Ash, Arizona-esche (German), Desert Ash, Fresno (Hispanic), Smooth Ash, Toumey Ash, Velvet Ash. DESCRIPTION: Terrestrial perennial deciduous tree (40 inches to 65 feet in height with a mature crown of up to 30 to 40 feet in width, one plant was reported to be 40 inches in height with a crown about 40 inches in width, one plant was reported to be 8 feet in height with a crown 8 feet in width, one plant was reported to be 26 feet in height with a crown 26 feet in width); the bark is gray; the leaves are green or yellow-green turning yellow in the fall; female (greenish) and male (yellow anthers) flower parts are born on separate trees; flowering generally takes place between late February and early June (additional records: one for early July, two for mid-July, one for early August, one for mid-August, two for early October and two for early November); the fruits (¾ to 1¼ inch in length) are winged. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; rocky, sandy and loamy canyons; rocky, gravelly and sandy canyon bottoms; chasms; gorges; rocky ledges; ridges; gravelly-loamy meadows; clayey-loamy foothills; rocky hills; along hillsides; rocky and gravelly-sandy slopes; amongst rocks; flats; basins; valley floors; gravelly-loamy roadsides; within arroyos; along arroyo bottoms; draws; rocky gulches; bouldery ravines; bottoms of ravines; seeps; around and in springs; sandy soils along streams; along and in gravelly-sandy and sandy-loamy streambeds; along creeks; along and in rocky and gravelly-sandy creekbeds; along rivers; along bouldery-cobbly-sandy riverbeds; along and in gravelly and sandy washes; along and in drainage ways; watercourses; around pools; along bouldery, rocky, gravelly-loamy and sandy banks of streams, creeks, rivers and drainages; edges of streams, creeks, creekbeds, rivers, washes and drainage ways; shores of rivers; sandy benches; terraces; sandy bottom lands; sandy flood plains; edges of reservoirs; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas often reported as growing in moist and damp bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam and loam ground, and clay and silty clay ground, occurring from 400 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in the making of tools and bows. Use as a specimen plant in a large area and as a re-vegetation plant for the areas immediately adjacent to the main channel of streams, creeks and rivers. This tree requires regular watering. Birds and other wildlife feed on the seeds. The Velvet Ash has been

EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Fraxinus velutina* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 26 (color photograph), 28 (recorded as *Fraxinus pennsylvanica* ssp. *velutina*, color photograph), 30, 43 (072609), 46 (recorded as *Fraxinus velutina* Torr. var. *coriacea* (Wats.) A. Rehder, Page 642; *Fraxinus velutina* Torr. var. *glabra* Rehder, Page 642, and *Fraxinus velutina* Torr. var. *toumeyi* (Britton) Rehder, Page 642), 48, 52 (color photograph), 53, 58, 63 (031210 - color presentation), 85 (031210 - color presentation), **89**, 115 (color presentation), 127*

Fraxinus velutina var. *coriacea* (see *Fraxinus velutina*)

Fraxinus velutina var. *glabra* (see *Fraxinus velutina*)

Fraxinus velutina var. *toumeyi* (see *Fraxinus velutina*)

***Menodora scabra* A. Gray: Rough Menodora**

SYNONYMY: *Menodora scoparia* G. Engelmann *ex* A. Gray. COMMON NAMES: Broom Menodora, Rough Desert Olive, Rough Menodora, Twinberry, Twinfruit, Yellow Menodora. DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (6 inches to 4 feet in height, one plant was described as being 12 inches in height with a crown 16 inches in width, one plant was described as being 12 to 16 inches in height with a crown 8 to 12 inches in width); the older bark is dark gray; the stems are green or green-yellow; the leaves are grayish-green, green or green-yellow; the flowers are white or yellow; flowering generally takes place between mid-March and late November (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky and stony mountainsides; bouldery crags; bouldery mesas; rocky canyons; along rocky and gravelly canyon bottoms; gorges; talus slopes; rocky buttes, rocky-sandy and sandy ridges; rocky ridgetops; meadows; foothills; talus hills; rocky, sandy and clayey hills; rocky and gravelly hilltops; rocky and gravelly-clayey hillsides; sandy edges of escarpments; bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and clayey-loamy slopes; gravelly and sandy bajadas; rocky outcrops; amongst rocks; sandy plains; rocky, cindery, gravelly, sandy, clayey and clayey-loamy flats; cindery valley floors; along rocky-gravelly-sandy-clayey-loamy, rocky-sandy-loamy, gravelly, gravelly-sandy and gravelly-sandy loamy roadsides; sandy arroyos; bottoms of arroyos; gullies; springs; creekbeds; along

gravelly, sandy and humusy-loamy washes; drainages; clayey edges of washes and drainage ways; along margins of washes; benches; rocky-sandy terraces; floodplains; bouldery-cobbly-sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy-clayey loam, clayey loam and humusy loam ground, and gravelly clay, silty clay and clay ground, occurring from 1,100 to 8,000 feet in elevation in the forest, woodland scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Rough Menodora is an important browse plant for wildlife. *Menodora scabra* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (031310), 46 (recorded as *Menodora scabra* Gray, Page 644 and *Menodora scoparia* Engelm., Page 644), 48, 63 (031310 - color presentation), 77, **85** (031310 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Menodora scoparia (see *Menodora scabra*)

Onagraceae: The Evening-primrose Family

***Camissonia californica* (T. Nuttall ex J. Torrey & A. Gray) P.H. Raven: California Suncup**

SYNONYMY: *Eulobus californicus* T. Nuttall ex J. Torrey & A. Gray, *Oenothera leptocarpa* E.L. Greene. COMMON NAMES: California Evening Primrose, California Eveningprimrose, California Primrose, California Suncup, Mustard Camissonia, Mustard Evening Primrose, Mustard Evening-primrose, Sun-drops. DESCRIPTION: Terrestrial annual or perennial forb/herb (2 to 69 inches in height); the foliage is gray-green; the flowers are golden-yellow, orange-yellow, pink-yellow, reddish-orange, rust-orange, yellow or yellow-orange ageing to orange, pink or reddish; flowering generally takes place between late January and mid-July. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; stony mountain passes; rocky mesas; plateaus; rocky cliffs; rocky chutes; rocky-silty canyons; along canyon walls; rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy canyon bottoms; talus slopes; bouldery, rocky, rocky-sandy, shaley, stony, gravelly-sandy, sandy, clayey-loamy and loamy ridges; silty ridgetops; foothills; bouldery, rocky and sandy hills; rocky hillsides; along bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-sandy, rocky-loamy-clayey, gravelly, gravelly-sandy, sandy, loamy-clayey, clayey and silty slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; gravelly and gravelly-sandy plains; gravelly-sandy and sandy flats; valley floors; coastal shorelines; along rocky-sandy-clayey, gravelly and sandy roadsides; arroyos; along bottoms of arroyos; sandy draws; around seeping streams; along streams; gravelly-sandy streambeds; in gravel and sand along creeks; along and in gravelly-sandy creekbeds; in sand along rivers; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; waterholes; gravelly and sandy banks of arroyos, creeks, rivers and washes; edges of rivers and washes; margins of washes; sand bars; rocky-sandy benches; sandy terraces; sandy floodplains; gravelly-sandy stock tanks; within ditches; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky-gravelly, bouldery-stony-gravelly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground; rocky-sandy clay, rocky-loamy clay, loamy clay and clay ground, and rocky-silty and silty ground, occurring from 100 to 4,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia californica* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (031310), 46 (recorded as *Oenothera leptocarpa* Greene, Page 599), 48 (genus, recorded as *Oenothera* spp.), **56**, **57**, 58, 63 (031310 - color

presentation), 77 (color photograph #46), **85** (031310 - color presentation of dried material), **89** (recorded as *Eulobus californicus* Nutt.), 115 (color presentation)*

***Camissonia chamaenerioides* (A. Gray) P.H. Raven: Longcapsule Suncup**

SYNONYMY: *Oenothera chamaenerioides* A. Gray. COMMON NAMES: Desert Evening Primrose, Longcapsule Suncup, Long-capsuled Primrose, Long-fruit Suncup, Willow-herb Primrose. DESCRIPTION: Terrestrial annual forb/herb (4 to 16 inches in height); the stems are pink or red; the leaves are green (with red spots or tipped with red), purple, red or reddish; the tiny flowers are cream, pink, purple, white, white-cream, white-pink, whitish-yellow or yellow; flowering generally takes place between early February and early June (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rock walls; rocky canyons; rocky canyon bottoms; gorges; rocky and shaley talus slopes; bases of cliffs; crevices in boulders and rocks; knolls; rocky ledges; gravelly ridges; rocky ridgetops; gravelly-clayey-loamy foothills; gravelly hills; rocky hillsides; rocky, rocky-stony, gravelly and sandy slopes; bouldery-rocky-cobbly alluvial fans; bajadas; rocky and rocky-shaley outcrops; bases of boulders; along lava slides; breaks; gravelly and sandy flats; basins; along gravelly and sandy roadsides; rocky arroyos; rocky draws; gulches; springs; along streams; in gravel and sand along creeks; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty depressions; cobbly and sandy banks of streams and washes; cobbly edges of washes; margins of washes; gravelly benches; shelves; sandy floodplains; gravelly-sandy and silty-loamy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-cobbly, rocky, rocky-shaley, rocky-stony, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy ground; gravelly-clayey loam and silty loam ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Camissonia chamaenerioides* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031310), 46 (recorded as *Oenothera chamaeneriodes* Gray, Page 600), 48 (genus, recorded as *Oenothera* spp.), **56**, **57**, 63 (031310), 77, **85** (031310 - color presentation of dried material), **89** (recorded as *Oenothera chamaeneriodes* Gray)*

***Camissonia claviformis* (also spelled *clavaeformis*, J. Torrey & J.C. Frémont) P.H. Raven: Browneyes**

COMMON NAMES: Brown-eyed Primrose, Browneyes, Clavatefruit Suncup, Clavate-fruited Primrose, Evening Primrose. DESCRIPTION: Terrestrial annual forb/herb (4 inches to 3 feet in height); the leaves, in the basal rosette, are green with purple spots; the flowers are brownish-white, cream-white, pink, pinkish-white, pink-yellow, purplish, white, white-cream, white-pink or yellow aging to pink; flowering generally takes place between early January and mid-June (additional records: one for early September and one for late November), the fruits are cup-shaped. HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyons; gravelly talus slopes; crevices in rocks; rocky hills; bouldery, rocky and rocky-gravelly hillsides; rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and rocky-sandy alluvial fans; gravelly, gravelly-sandy and gravelly-loamy bajadas; lava fields; lava flows; sand hills; sand dunes; silty hummocks; sand fields; sandy plains; gravelly, gravelly-sandy and sandy flats; sandy and sandy-loamy valley floors; hilly beach gravels; railroad right-of-ways; along gravelly-sandy-silty, gravelly and sandy roadsides; sandy draws; sandy streambeds; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; dry lakebeds; gravelly depressions; along sandy banks of washes and drainage ways; sandy edges of streams, washes and lakes; margins of washes; gravelly-sandy and silty terraces; floodplains; canal banks; along edges of canals; ditches; sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam and loam ground; clay ground; gravelly-sandy silty, powdery silty and silty ground, and powdery chalky ground occurring from sea level to 6,200 feet in

elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia claviformis* is native to southwest-central and southern North America. *5, 6, **16**, 43 (031310), 46 (note alternate spelling: recorded as *Oenothera clavaeformis* Torr. & Frém., Pages 601-602: including *Oenothera clavaeformis* Torr. & Frém. var. *aurantiaca* (Wats.) Munz, *Oenothera clavaeformis* Torr. & Frém. var. *peeblesii* Munz and *Oenothera clavaeformis* Torr. & Frém. var. *peirsonii* Munz), 48 (genus, recorded as *Oenothera* spp.), 63 (031410 - color presentation), **77**, **85** (031410 - color presentation)*

***Camissonia claviformis* (also spelled *clavaeformis*, J. Torrey & J.C. Frémont) P.H. Raven subsp. *claviformis*: Browneyes**

SYNONYMY: *Oenothera claviformis* (also spelled *clavaeformis*) J. Torrey & J.C. Frémont. COMMON NAMES: Brown-eyed Primrose, Browneyes, Clavate-fruited Primrose, Club Primrose. DESCRIPTION: Terrestrial annual forb/herb; the flowers are white or yellow; flowering generally takes place between mid-March and early May (additional records: mid-January, early February, late February and mid-June). HABITAT: Within the range of this species it has been reported from mountains; canyons; foothills; rocky hills; rocky slopes; sandy alluvial fans; dunes; rocky-sandy, gravelly and sandy flats; valley floors; along sandy roadsides; sandy streambeds; along and in sandy washes; drainages; silty lakebeds; sandy banks of washes, and along edges of washes and playas growing in dry rocky, rocky-sandy, gravelly and sandy ground; gravelly loam ground, and silty ground, occurring from 100 to 6,400 feet in elevation in the woodland and desertscrub ecological formations. NOTE: *Camissonia claviformis* subsp. *claviformis* is native to southwest-central and southern North America. *5, 6, 43 (031310), 46 (species, note alternate spelling: recorded as *Oenothera clavaeformis*, Pages 601-602), 48 (genus, *Oenothera* spp.), 63 (031410), 85 (031410), **89** (recorded as *Oenothera scapoidea* Nutt. var. *clavaeformis* (Torr.) Wats.)*

***Camissonia claviformis* (also spelled *clavaeformis*, J. Torrey & J.C. Frémont) P.H. Raven subsp. *peeblesii* (P.A. Munz) P.H. Raven: Peebles' Browneyes**

SYNONYMY: *Oenothera claviformis* (also spelled *clavaeformis*) J. Torrey & J.C. Frémont var. *peeblesii* P.A. Munz. COMMON NAMES: Browneyes, Peeble Browneyes, Peebles' Browneyes. DESCRIPTION: Terrestrial annual forb/herb (8 to 24 inches in height); the flowers are creamy, creamy-white, creamy-yellow, pink, white, white tinged with pink, white or yellowish aging pink; flowering generally takes place between late December and mid-May (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyons; rocky hillsides; rocky, cobbly, gravelly and sandy slopes; bajadas; amongst boulders; sand hills; sand dunes; gravelly and sandy plains; sandy flats; valley floors; along railroad right-of-ways, along gravelly and sandy roadsides; sandy draws; sandy-clayey-loamy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; gravelly depressions; along banks of drainage ways; bottomlands; floodplains; ditches; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky-gravelly, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and bouldery-sandy-clayey loam, sandy-clayey loam, clayey loam and loam ground, occurring from 400 to 4,500 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTE: *Camissonia claviformis* subsp. *peeblesii* is native to southwest-central and southern North America. *5, 6, 43 (031410 - *Oenothera claviformis* Torr. & Frém. var. *peeblesii* Munz), 46 (note alternate spelling: recorded as *Oenothera clavaeformis* Torr. & Frém. var. *peeblesii* Munz, Pages 601-602), 48 (genus, recorded as *Oenothera* spp.), 63 (031410), **85** (031410)*

Eulobus californicus (see *Camissonia californica*)

***Gaura mollis* T.P. James: Velvetweed**

SYNONYMY: *Gaura parviflora* D. Douglas ex J.G. Lehmann, *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *lachnocarpa* C.A. Weatherby, *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *typica* P.A. Munz. COMMON NAMES: Butterfly Weed, Downy Gaura, Lizard Tail, Lizard-tail, Lizard's

Tail, Lizardtail, Lizardtail Gaura, Small-flowered Gaura, Smallflower Gaura, Tall Gaura, Velvet Leaf Gaura, Velvet-leaf Gaura, Velvet Leaved Gaura, Velvetweed, Velvety Gaura, Willow Gaura, Willow-weed. DESCRIPTION: Terrestrial annual forb/herb (14 inches to 10 feet in height); the leaves are dark green; the tiny flowers are cream, creamy-white, lavender, maroon, pink, purple, dark red, reddish or whitish-pink; flowering generally takes place between mid-March and early November (additional records: one for early January and one for late January). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy canyons; rocky canyon walls; canyon bottoms; meadows; foothills; sand hills; hillsides; slopes; prairies; plains; alkali flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly, gravelly-sandy and gravelly-loamy roadsides; sandy arroyos; sandy bottoms of arroyos; gulches; springs; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in sandy washes; within rocky drainages; along lakes; silty playas; cienegas; marshes; swampy areas; swales; along banks of rivers; along margins of rivers and washes; sandy shores of rivers and lakes; benches; gravelly, sandy and loamy terraces; sandy bottomlands; lowlands; clayey floodplains; mesquite bosques; along fence rows; along canals; along canal banks; along ditches; clayey-loamy ditch banks; clayey riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, clayey loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a dug or medication and for protection (during the Fire Dance at the Mountain Chant). *Gaura mollis* is native to south-central and southern North America. *5, 6, 15 (recorded as *Gaura parviflora* Doug.), 28 (recorded as *Gaura parviflora*, color photograph), 43 (031410), 46 (recorded as *Gaura parviflora* Doug., Page 603), **56** (recorded as *Gaura parviflora* Doug.), **57** (recorded as *Gaura parviflora* Douglas), 58 (recorded as *Gaura parviflora* Doug.), 63 (031410 - color presentation), 68 (recorded as *Gaura parviflora* Doug.), 77 (recorded as *Gaura parviflora* Doug.), **85** (031410 - color presentation), **89** (recorded as *Gaura parviflora* Dougl.), 101 (recorded as *Gaura parviflora* Doug. ex Lehm., color photograph), 106 (031410), 115 (color presentation), 124, 127*

Gaura parviflora (see *Gaura mollis*)

Gaura parviflora var. *lachnocarpa* (see *Gaura mollis*)

Gaura parviflora var. *typica* (see *Gaura mollis*)

***Oenothera caespitosa* T. Nuttall: Tufted Evening Primrose**

SYNONYMY: *Oenothera cespitosa* T. Nuttall orth. var. COMMON NAMES: Evening Primrose, Fragrant Evening-primrose, Large White Desert Primrose, Rock Rose, Rockrose, Sand Lily, Sandlily, Stemless Evening-primrose, Tufted Evening Primrose, Tufted Evening-primrose, White Stemless Evening-primrose, White Evening Primrose, White Evening-primrose, White-tufted Evening Primrose. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 12 inches in height and spreading to 2 feet in width); the leaves are grayish-green or green-red; the flowers (3 to 4 inches in diameter) are lavender or white aging magenta or pink; flowering generally takes place between early March and late September. HABITAT: Within the range of this species it has been reported from mountains; cindery mountainsides; rocky-sandy and sandy-clayey mesas; plateaus; rocky canyons; rocky, rocky-sandy and gravelly canyon bottoms; sandy gorges; sandy-silty bluffs; clayey knolls; rocky and sandy-loamy ledges; ridges; clearings in forests; rocky meadows; rocky hills; rocky-sandy and clayey hillsides; bouldery, rocky, cindery and sandy-loamy slopes; rocky outcrops; rocky-sandy and sandy rims of craters; lava fields; sand dunes; sandy flats; gravelly valley floors; along rocky and gravelly roadsides; gullies; streambeds; along creeks; riverbeds; along and in rocky-clayey, cobbly, gravelly and gravelly-sandy washes; within clayey drainages; sandy banks of arroyos, creeks, rivers and washes; edges of rivers;

bouldery benches; sandy bottomlands; cobbly-sandy floodplains; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-silty-clayey loam, sandy loam and loam ground; rocky clay, sandy clay and clay ground, and sandy silty ground, occurring from 2,500 to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the flowers were used as a ceremonial item (*O.c*. subsp. *marginata*). *Oenothera caespitosa* is native to central and southern North America. *5, 6, 15, **16**, 18, 28 (color photograph), 43 (031410), 46 (Page 598), 48 (genus, recorded as *Oenothera* spp.), 63 (031410 - color presentation), **77**, **85** (031510 - color presentation), **89**, 115 (color presentation), 127*

***Oenothera caespitosa* T. Nuttall subsp. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz: Tufted Evening Primrose**

SYNONYMY: *Oenothera caespitosa* T. Nuttall var. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz, *Oenothera cespitosa* T. Nuttall subsp. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz orth. var, *Oenothera cespitosa* T. Nuttall var. *marginata* (T. Nuttall ex W.J. Hooker & G.W. Arnott) P.A. Munz orth. var. COMMON NAMES: Large White Desert Primrose, Tufted Evening Primrose, Tufted Evening-primrose. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 8 inches in height and spreading to 40 inches in width, one plant was reported as being 8 inches in height and 16 inches in width); the leaves are gray-green, green or red-green; the flowers are cream, white or yellow aging pink, pink-rose or purple; flowering generally takes place between early March and early October (additional records: one for early January, one for late September and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; cindery mountaintops; mountainsides; mesas; plateaus; rocky cliffs; canyons; sandy canyon walls; along sandy canyon bottoms; shaley and gravelly talus slopes; loamy bases of cliffs; crevices in rocks; rocky bluffs; rocky ridges; ridgetops; meadows; foothills; rocky, shaley and sandy hills; rocky and gravelly-sandy-clayey-loamy hillsides; bouldery, rocky, shaley, shaley-sandy, stony, gravelly, sandy, sandy-loamy and clayey slopes; rocky outcrops; amongst boulders; lava flows; clayey banks; flats; basins; valley floors; along rocky, rocky-sandy, gravelly, gravelly-loamy and sandy roadsides; along gravelly arroyos; along streams; along creeks; creekbeds; riverbeds; along and in bouldery-rocky and sandy washes; within drainages; around lakes; clayey banks of arroyos, streams and creeks; shores of ponds; rocky beaches; gravelly benches; terraces; sandy bottomlands; sandy ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, shaley, shaley-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, sandy loam and loam ground, and gravelly clay, gravelly-sandy clay and clay ground, occurring from 2,500 to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the flowers were used as a ceremonial item. White-lined Sphinx Moths (*Hyles lineata*) have been observed visiting the flowers. *Oenothera caespitosa* subsp. *marginata* is native to southwest-central and southern North America. *18 (species), 28 (species, color photograph of the species), 43 (031410 - *Oenothera cespitosa* Nutt. var. *marginata* Munz; no record of *Oenothera caespitosa* var. *marginata* or *Oenothera caespitosa* subsp. *marginata*), 46 (Page 598), 48 (genus, recorded as *Oenothera* spp.), 63 (031410 - color presentation), **85** (031510 - color presentation), 115 (color presentation of the species), 127*

Oenothera caespitosa var. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera cespitosa (see *Oenothera caespitosa*)

Oenothera cespitosa subsp. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera cespitosa var. *marginata* (see *Oenothera caespitosa* subsp. *marginata*)

Oenothera chamaenerioides (see *Camissonia chamaenerioides*)

Oenothera claviformis (see *Camissonia claviformis* subsp. *claviformis*)

Oenothera claviformis var. *peeblesii* (see *Camissonia claviformis* subsp. *peeblesii*)

Oenothera leptocarpa (see *Camissonia californica*)

***Oenothera primiveris* A. Gray: Desert Evening Primrose**

COMMON NAMES: Bottle Evening Primrose, Desert Evening Primrose, Desert Evening-primrose, Large Yellow Desert Primrose, Sundrop, Yellow Desert Evening-primrose, Yellow Desert Primrose. DESCRIPTION: Terrestrial annual forb/herb (cespitose 2 to 8 inches in height); the basal rosettes of leaves are green with purple blotches or greenish-gray; the flowers are cream, white or yellow fading to pink or white; flowering generally takes place between mid-January and early May (additional records: one for late May, one for mid-August and one for late August); the fruits are tear-drop shaped. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; sandy canyons; cliffs; meadows; gravelly foothills; rocky, sandy and silty hills; rocky hillsides; rocky, gravelly, gravelly-sandy and sandy slopes; rocky alluvial fans; gravelly bajadas; rocky outcrops; sand dunes; sandy plains; rocky, gravelly and sandy flats; sandy and sandy-clayey-loamy valley floors; valley bottoms; sandy coastal flats; along railroad right-of-ways; along bouldery-silty-clayey-loamy, rocky-sandy, gravelly-sandy-loamy and sandy roadsides; arroyos; along gravelly bottoms of arroyos; along draws; along creeks; along and in creekbeds; along rivers; along and in gravelly-sandy and sandy washes; clayey and silty playas; clayey depressions; swales; along sandy banks of arroyos, creeks and washes; sandy benches; gravelly, gravelly-sandy and sandy terraces; mesquite woodlands; gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-silty-clayey loam, gravelly loam, sandy loam and sandy-clayey loam ground; clay ground, and silty ground, occurring from 200 to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close the following morning. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Consider seeding this plant between Creosote Bushes in your landscaping. *Oenothera primiveris* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (031510), 46 (recorded as *Oenothera primiveris* Gray, Page 598 and *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, recorded as *Oenothera* spp.), 58, 63 (031510 - color presentation), 77, **85** (031510 - color presentation), 115 (color presentation), 127*

***Oenothera primiveris* A. Gray subsp. *primiveris*: Desert Evening-primrose**

SYNONYMY: *Oenothera primiveris* A. Gray var. *caulescens* P.A. Munz. COMMON NAMES: Bottle Evening Primrose, Desert Evening-primrose, Evening Primrose, Large Yellow Desert Primrose, Sun-drops, Sundrop, Yellow Desert Evening-primrose, Yellow Desert Primrose. DESCRIPTION: Terrestrial annual forb/herb (to 4 inches in height); the flowers are cream-yellowish, white or yellow; flowering generally takes place between early February and early May (additional records: two for mid-January and one for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky canyons; bases of cliffs; bluffs; gravelly foothills; rocky, sandy and sandy-loamy hillsides; rocky and gravelly slopes; gravelly bajadas; sandy lava flows; sand dunes; plains; rocky, gravelly and sandy flats; valley bottoms; along railroad right-of-ways; along sandy roadsides, along draws; along streams; along creeks; along rivers; sandy riverbeds; along sandy washes; sandy banks; sandy edges of creeks and riverbeds; gravelly terraces; sandy-clayey bottomlands, and

disturbed areas growing in dry rocky, gravelly and sandy ground and gravelly loam, sandy loam and loam ground, occurring from 200 to 5,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Oenothera primiveris*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Consider seeding this plant between Creosote Bushes. *Oenothera primiveris* subsp. *primiveris* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (species, color photograph of the species), 43 (031510 - *Oenothera primiveris* var. *caulescens* Munz), 46 (recorded as *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, recorded as *Oenothera* spp.), 63 (031510 - color presentation), **85** (031510), 115 (color presentation of the species), 127 (species)*

Oenothera primiveris var. *caulescens* (see *Oenothera primiveris* subsp. *primiveris*)

***Oenothera rosea* C.L. L'Héritier de Brutelle ex W. Aiton: Rose Evening Primrose**

COMMON NAMES: Amapola de Campo (Hispanic), Arnica (Hispanic), Cáncer Lisa (Hispanic), Clamería (Hispanic), Cruz-de-malta (Portuguese), Evening Primrose, Hierba Cólica (Hispanic), Hierba de Flor Rojiza, Hierba del Golpe (Hispanic), Hierba del Orín (Hispanic), Hierba Para la Diarrea (Hispanic), Lindo Atardecer (Hispanic), Manuelita (Hispanic), Oo li' Lo Tii (Hispanic), Pink Evening-primrose, Pink Nagblom (Afrikaans), Platillo (Hispanic), Rose Evening Primrose, Rose Evening-primrose, Rose Eveningprimrose, Rose of Mexico, Rose Sundrops, Rosy Evening-primrose, Sinvergüenza (Hispanic), Tapacola (Hispanic), Tarapeni (Hispanic), Trskuan Bey (Zapoteca), Xukuhi Atakurhikuri (Purépecha), Yerba Cólico (Hispanic), Yerba del Golpe (Hispanic), Zapotillo (Hispanic), Zapotito (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb (3 to 39 inches in height); the leaves are green or yellow-green; the flowers are magenta, pink, dark pink, pink-rose, pinkish-red, purple, purple-pink, red, rose, rose-pink, dark rose-pink, rose-purple or rose-red; the stigmas are cream-white or purple-pink; the anthers are creamy-white; flowering generally takes place between early April and late October (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; rocky canyon bottoms; meadows; bluffs; foothills; rocky slopes; valley floors; rocky roadsides; arroyos; ravines; seeps; springs; along and in streams; along creeks; creekbeds; in silt along rivers; riverbeds; rocky-sandy washes; drainages; cienegas; marshy areas; depressions; sandy banks of arroyos, streams, creeks and rivers; edges of rivers; muddy shores of lakes; terraces; floodplains; along ditches; ditch banks; riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist and damp rocky, rocky-sandy and sandy ground; shaley clay ground, and silty ground, occurring from 1,000 to 8,700 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Oenothera rosea* is native to southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 18 (genus), 30, 43 (031510 - *Oenothera rosea* Aiton), 46 (Page 599), 48 (genus, recorded as *Oenothera* spp.), 58, 63 (031510), 85 (031510 - color presentation), **89**, 106 (012209)*

Oenothera scapoidea var. *clavaeformis* (see footnote 89 under *Camissonia claviformis*)

Orobanchaceae: The Broom-rape Family

***Orobanche cooperi* (A. Gray) A.A. Heller: Desert Broomrape**

COMMON NAMES: Broom Rape, Broom-rape, Broomrape, Burro Weed Strangler, Cancer-root, Cooper’s Broomrape, Desert Broom-rape, Desert Broomrape, Flor de Tierra, Louisiana Broomrape. DESCRIPTION: Terrestrial annual forb/herb (root parasite 4 to 16 inches in height); the leaves (reduced to scales) are purplish-brown; the flowers may be creamy-white, purple, purplish, purplish-violet, white or pale yellow-brown tinged with purple; flowering generally takes place between late January and late June (additional records: one for early August, one for mid-August, one for late August, one for early

September, two for mid-October and three for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy-clayey mesas; plateaus; rocky and sandy canyons; rocky canyon bottoms; rocky bases of cliffs; ridges; foothills; sandy hills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy slopes; gravelly and gravelly-silty bajadas; amongst rocks and gravels; sand hills; sand dunes; gravelly and sandy flats; sandy and silty valley floors; along roadsides; within arroyos; bottoms of arroyos; sandy riverbeds; along and in rocky, rocky-sandy and sandy washes; drainages; banks of creeks and rivers; edges of washes and lakes; benches; mesquite bosques; rocky-sandy shores of reservoirs; sandy banks of canals; sandy riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground; gravelly loam and loam ground; sandy clay ground; gravelly silty and silty ground, and humusy ground, occurring from 200 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Broomrape has been reported as being parasitic on the roots of *Acacia greggii*, *Ambrosia ambrosioides*, *Ambrosia deltoidea*, *Ambrosia dumosa*, *Artemisia dracunculus*, *Echinocactus* sp., *Encelia farinosa*, *Hymenoclea monogyra*, *Hymenoclea salsola*, *Opuntia* sp., Sage Brush, Tobacco, *Townsendia wilcoxii*, *Viguiera* sp. *Orobanche cooperi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (031510), 46 (recorded as *Orobanche ludoviciana* Nutt., Page 797; *Orobanche ludoviciana* Nutt. var. *cooperi* (Gray) G. Beck, Page 797, and *Orobanche ludoviciana* Nutt. var. *latiloba* Munz, Page 797), 63 (031510 - color presentation), 77, **85** (031510 - color presentation), 115 (color presentation), 127*

Papaveraceae: The Poppy Family

***Argemone gracilenta* E.L. Greene: Sonoran Pricklypoppy**

COMMON NAMES: Cardo, Chicalote; Crested Pricklepoppy, Crested Prickly Poppy, Prickle-poppy, Prickly Poppy, Sonoran Pricklypoppy. DESCRIPTION: Terrestrial perennial forb/herb (1 to 6 feet in height); the flowers are white with a yellow center; flowering generally takes place between late February and mid-June (additional records: one for late January, three for early August, two for late August, one for early September, one for mid-September, one for late September, one for early October, one for mid-November and three for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyon bottoms; shaley talus slopes; bouldery-rocky-sandy hills; gravelly-sandy slopes; lava fields; sandy dunes; plains; flats; valley floors; along rocky-clayey, gravelly and sandy roadsides; along arroyos; bottoms of arroyos; creekbeds; sandy riverbeds; along and in gravelly-sandy and sandy washes; sandy drainage ways; silty playas; sandy bottomlands; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry bouldery-rocky-sandy, rocky, shaley, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and clayey loam ground; rocky clay and clay ground, and silty ground, occurring from sea level to 4,500 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Argemone gracilenta* is native to southwest-central and southern North America. *5, 6, 18 (genus), 46 (Supplement Page 1050), 48 (genus), 63 (031610), 68 (genus), 77, 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (031610 - color presentation)*

Argemone intermedia (see *Argemone polyanthemos*)

***Argemone pleiacantha* E.L. Greene: Southwestern Pricklypoppy**

COMMON NAMES: Bluestem Pricklepoppy, Chicalote, Chicolote, Cowboys' Fried Egg, Prickly Poppy, Southwestern Pricklypoppy, Thistle Poppy. DESCRIPTION: Terrestrial perennial forb/herb (5

inches to 4 feet in height); the leaves and stems are blue-green, gray or grayish-green; the flowers (4 to 6 inches in width) are white with a bright orange center; flowering generally takes place between mid-April and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bases of cliffs; meadows; foothills; hills; rocky hillsides; gravelly, gravelly-clayey-loamy and sandy slopes; gravelly prairies; gravelly plains; gravelly and gravelly-loamy flats; basins; valley floors; railroad right-of-ways; along cindery, gravelly and gravelly-sandy-clayey-loamy roadsides; along arroyos; seeps; along and in gravelly-sandy creekbeds; along gravelly washes; drainages; drainage ways; along sandy banks of rivers; edges of washes; terraces; sandy bottomlands; sandy floodplains; mesquite bosques; ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in dry rocky, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam, gravelly-clay loam and loam ground, and silty ground, occurring from 1,700 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. The seeds are eaten by Morning Doves (*Zenaida macroura*). *Argemone pleiacantha* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (color photograph), 43 (072509), 46 (recorded as *Argemone pleiacantha* E.L. Greene subsp. *ambigua* G.B. Ownbey, Supplement Page 1050 and *Argemone pleiacantha* E.L. Greene subsp. *pleiacantha*, Supplement Page 1050), 48 (genus), 63 (031610 - color presentation), 68 (genus), 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (031610 - color presentation), 115 (color presentation)*

***Argemone pleiacantha* E.L. Greene subsp. *pleiacantha*: Southwestern Pricklypoppy**

COMMON NAMES: Bluestem Pricklepoppy, Chicolote, Cowboys' Fried Eggs, Southwestern Prickly Poppy, Southwestern Pricklypoppy, Thistle Poppy. DESCRIPTION: Terrestrial perennial forb/herb (20 inches to 4 feet in height); the stems may be purplish; the leaves are blue-green, gray or grayish-green; the flowers (4 to 6 inches in width) are white with a bright orange center; flowering generally takes place between mid-April and mid-October. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bouldery and sandy canyon bottoms; ridgelines; meadows; foothills; hills; hillsides; sandy and loamy slopes; amongst boulders; gravelly prairies; gravelly plains; rocky, gravelly and gravelly-loamy flats; basins; valley floors; railroad right-of-ways; along rocky-gravelly, gravelly-sandy-clayey-loamy, sandy and clayey roadsides; arroyos; streams; along rivers; in gravelly and sandy washes; drainages; drainage ways; silty banks of streams and creeks; terraces; bottomlands; floodplains; along ditches; gravelly riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam, gravelly-clayey loam and loam ground, and silty ground, occurring from 1,700 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The seeds are eaten by Morning Doves (*Zenaida macroura*). *Argemone pleiacantha* subsp. *pleiacantha* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (species, color photograph of the species), 43 (072509), 46 (Supplement Page 1050), 48 (genus), 58, 63 (031610), 68 (genus), 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), **85** (031610 - color presentation), 115 (color presentation of the species)*

***Argemone polyanthemos* (F.K. Fedde) G.B. Ownby: Crested Pricklypoppy**

SYNONYMY: *Argemone intermedia* auct. non R. Sweet, *Argemone platyceras* auct. non J.H. Link & C.F. Otto. COMMON NAMES: Annual Pricklepoppy, Bluestem Pricklepoppy, Bluestem Prickly Poppy, Crested Pricklypoppy, Pricklypoppy, Plains Prickly-poppy, Prickly Poppy, Pricklypoppy, Thistle Poppy, White Prickly Poppy, White Pricklypoppy. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (16 inches to 5 feet in height); the leaves are blue-green or grayish-green; the flowers

(to 3 inches in width) are lavender or white; based on a very few number of records located flowering generally takes place between early April and early September; however, but it has been reported as blooming most of the year. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky cliffs; canyons; bluffs; foothills; slopes; amongst rocks; lava beds; sandy breaks; prairies; gravelly and sandy plains; flats; along sandy roadsides; gulches; along rivers; in sandy washes; within sandy drainages; bosques; waste places, and disturbed areas growing in dry gravelly, gravelly-sandy and sandy ground, occurring from 900 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a as a drug or medication and as a ceremonial item. *Argemone polyanthemos* is native to southwest-central and southern North America. *5, 6, 18, 43 (031610), 46 (recorded as *Argemone intermedia* Sweet, Page 324 and *Argemone platyceras* Link & Otto, Page 324), 48, 63 (031610 - color presentation), 68, 80 (Species of the genus *Argemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants, "These distasteful, spiny, perennial forbs contain alkaloids that could prove toxic if eaten in sufficient amounts."), 85 (031610 - color presentation), 86 (color photograph), **89** (recorded as *Argemone intermedia* Sweet), 101 (color photograph), 127*

***Eschscholzia californica* L.K. von Chamisso subsp. *mexicana* (E.L. Greene) J.C. Clark: California Poppy**

SYNONYMY: *Eschscholzia mexicana* E.L. Greene. COMMON NAMES: Amapola, Amorilla, Amopola del Campo (Hispanic - Poppy of the Countryside), California Poppy, California-poppy, Desert Gold Poppy, Gold Poppy, Mexican Gold, Mexican Gold Poppy, Mexican Gold-poppy, Mexican-gold, Mexican Poppy, Poppy. DESCRIPTION: Terrestrial annual or perennial forb/herb (1 inch to 2 feet in height); the flowers (fasciated and double flowers were reported) may be cream, creamy-white, golden-orange, golden-yellow, lemon-yellow, orange, orange-yellow, pink & white, pumpkin-gold, white, white-pink, yellow or yellow-orange; flowering generally takes place between early January and early July (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; sandy-clayey-loamy mesas; cliffs; rocky-gravelly and rocky-sandy canyons; sandy loamy canyon bottoms; chasms; talus slopes; bases of cliffs; buttes; sandy ridges; ridgetops; foothills; rocky and gravelly-loamy hills; bouldery and rocky hillsides; along rocky, along rocky, rocky-clayey, gravelly, gravelly-sandy and sandy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks and gravels; gravelly and sandy plains; rocky-clayey, gravelly and sandy flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-gravelly, rocky-sandy and gravelly roadsides; arroyos; along bottoms of draws; along streams; rocky-sandy creekbeds; along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; along gravelly drainages; gravelly-sandy, sandy, clayey and silty banks of streams, rivers and washes; gravelly terraces; clayey bottomlands; mesquite bosques; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet and dry bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground, and gravelly-sandy silty and silty ground, occurring from 600 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Eschscholzia californica*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. This plant is food for quail, Mule Deer (*Odocoileus hemionus crooki*) and White-tailed Deer (*Odocoileus virginianus couesi*). *Eschscholzia californica* subsp. *mexicana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18, 28 (recorded as *Eschscholzia mexicana*, color photograph), 43 (031610), 46 (recorded as *Eschscholzia mexicana* Greene, Page 323), 48, 58, 63 (031610 - color presentation), 77 (recorded as *Eschscholzia mexicana*, color

photograph #47), **85** (031610 - color presentation), 86 (recorded as *Eschscholzia mexicana*, color photograph), **89** (recorded as *Eschscholtzia mexicana* Greene), 115 (color presentation), 127 (species)*

Eschscholzia mexicana (see *Eschscholzia californica* subsp. *mexicana*)

***Platystemon californicus* G. Bentham: Creamcups**

COMMON NAMES: California Creamcups, Cream Cups, Cream-cups, Creamcups. DESCRIPTION: Terrestrial annual forb/herb (2 to 14 inches in height); the leaves are grayish-green; the flowers are cream, cream-yellow, creamy-white, gold, pale yellow, yellow-cream, yellow & white, white or white-cream; flowering generally takes place between mid-February and early July (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains, rocky mountainsides; plateaus; sandy canyons; sandy canyon bottoms; ridges; sandy meadows; foothills; rocky and sandy hills; rocky and rocky-sandy hillsides; bouldery, rocky, rocky-gravelly-clayey, gravelly, sandy and loamy slopes; sandy alluvial fans; bajadas; rocky outcrops; sand dunes; sandy and loamy flats; valley floors; sandy valley bottoms; along rocky and sandy roadsides; arroyos; ravines; along streams; streambeds; along creeks; riverbeds; along and in sandy washes; dried vernal pools; clayey-loamy depressions; along gravelly banks of streams and rivers; along sandy edges of streams and washes; terraces; sandy bottomlands; floodplains; mesquite bosques, and gravelly riparian areas growing in moist and dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; clayey loam and loam ground, and rocky-gravelly clay ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Platystemon californicus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph), 43 (031610), 46 (Page 322), 63 (031610 - color presentation), 85 (031710 - color presentation), 86 (color photograph), **89**, 115 (color presentation), 127*

Pedaliaceae (Martyniaceae): The Sesame Family

***Martynia* C. Linnaeus: Martynia**

Common Name: Martynia. NOTE: EXOTIC Plant. The annual forb/herb *Martynia annua* C. Linnaeus, commonly known as Baby Devil's-claw, Devil's-claw, Iceplant, Small-fruit Devil's-claw, Tiger's Claw or Una de Gato is native to southern North America; Central America, and coastal islands in the Caribbean Sea. *43 (031710), 46 (Native species of the genus *Proboscidea* (*Proboscidea althaeifolia*, *Proboscidea arenaria* and *Proboscidea parviflora*) were once included within the genus *Martynia*, Pages 795-796), 63 (031710), 85 (031710 - color presentation of dried material), **89** (recorded as *Martynia* sp., may possibly be *Proboscidea parviflora* which was listed as being a native long-lived annual located on the Santa Cruz flood-plain and at Tumamoc Hill)*

Martynia althaeifolia (see *Proboscidea althaeifolia*)

Martynia altheaefolia (see footnote 89 under *Proboscidea althaeifolia*)

Martynia arenaria (see *Proboscidea althaeifolia*)

***Proboscidea althaeifolia* (G. Bentham) J. Decaisne: Desert Unicorn-plant**

SYNONYMY: *Martynia althaeifolia* G. Bentham, *Martynia arenaria* G. Engelmann, *Proboscidea arenaria* (G. Engelmann) J. Decaisne. COMMON NAMES: Ban Ihugga (Tohono O'odham), Cuernitos, Desert Devil's-claw, Desert Unicorn-plant, Devil's Claw, Devils Claw, Devil's-horn, Devil'shorn, Devilshorn, Golden Devil'sclaw, Elephant Tusks, Gato, Guernito, Red Devil's Claw,

Roundbrack Devil's Claw, Sand Devil's Claw, Straighttube Devilsclaw, Torito, Una de Gato, Unicorn Plant. DESCRIPTION: Terrestrial perennial forb/herb (7 to 12 inches in height and up to 3 to 6½ feet in width); the leaves are dark green; the flowers may be copper-yellow, golden, dirty orange, golden-yellow, orange-yellow, yellow or yellow-orange with brown-purple, maroon, orange, orange-brown, purple or red markings; flowering generally takes place between late June and mid-November (additional records: one for mid-January, one for late February, one for mid-March, one for early May, one for late May, four for early June , two for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from sandy mesas; cliffs; escarpments; canyons; canyonsides; canyon bottoms; buttes; stony and sandy foothills; hillsides; gravelly and sandy slopes; alluvial fans; gravelly-sandy and sandy bajadas; rocky outcrops; sand hills; sand dunes; sandy hummocks; gravelly and sandy plains; gravelly and sandy flats; sandy valley floors; coastal dunes; along sandy roadsides; arroyos; bottoms of ravines; gravelly-sandy riverbeds; along and in gravelly and sandy washes; drainages; sandy depressions; sandy banks of washes; sandy margins of washes; sandy beaches; benches; sandy strands; terraces; loamy bottomlands; sandy low spots; sandy floodplains; sandy ditches, and disturbed areas growing in dry rocky, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam, gravelly-sandy loam, sandy loam and loam ground, occurring from sea level to 4,600 feet (one record for 8,005 feet) in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as a tool, and/or as a drug or medication. *Proboscidea althaeifolia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (031710 - *Proboscidea althaeifolia* Decne., *Proboscidea arenaria* Decne.), 46 (alternate spelling *Proboscidea altheaefolia*, Page 796), 58, 63 (031710 - color presentation), 77, **85** (031710 - color presentation), 86 (color photograph), **89** (recorded as *Martynia altheaefolia* Benth.), 115 (color presentation), 127, **WTK** (August 12, 2005)*

Proboscidea altheaefolia (see footnote 46 under *Proboscidea althaeifolia*)

Proboscidea arenaria (see *Proboscidea althaeifolia*)

***Proboscidea parviflora* (E.O. Wooton) E.O. Wooton & P.C. Standley: Doubleclaw**

COMMON NAMES: Cuernitos, Devil's Claw, Devilsclaw, Doubleclaw, Elephant Tusks, New Mexico Devil's Claw, Small-flowered Devil's-claw, Elephant Tusks, Guernito, Red Devil's Claw, Small-flowered Unicorn Plant, Torito, Una de Gato, Unicorn Plant. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 5 feet in height and up to 4 to 8 feet in width, one plant was reported to be 2 feet in height and 4 feet in width); the leaves are dark green; the flowers may be magenta, magenta-pink-white, light pink, pink, pink-lavender, pink & white, pink-yellow, pink/yellow-cream, purple, purple-orangish-yellow, purple-white, purple & white & yellow, purplish-pink, violet, violet-pink, white or white-lavender; flowering generally takes place between mid-July and late October (additional records: one for late May, two for mid-November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and rocky-sandy-loamy canyons; canyon bottoms; ridges; meadows; foothills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-loamy slopes; rocky outcrops; bajadas; sandy steppes; plains; gravelly and sandy flats; sandy valley floors; coastal beaches; along railroad right-of-ways; along gravelly, gravelly-loamy, sandy-loamy and sandy roadsides; within gravelly and sandy arroyos; gravelly-sandy bottoms of arroyos; draws; gulches; bottoms of gulches; sandy ravines; bottoms of ravines; springs; along streams; along rocky-gravelly streambeds; sandy creekbeds; sandy riverbeds; along and in rocky and sandy washes; along sandy drainages; oases; depressions; sandy-clayey swales; along sandy banks in canyons; along rocky, gravelly and gravelly-sandy-silty edges of creeks, rivers and washes; sand and gravel bars; sandy beaches; sandy terraces; sandy bottomlands; along sandy floodplains; fencelines; bouldery-cobbly-sandy and gravelly riparian areas; waste places, and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, gravelly, gravelly-sandy

and sandy ground; rocky-sandy loam, gravelly loam and sandy loam ground; sandy clay ground, and gravelly-sandy silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber (used in basketry) crop; it was also noted as having been used as a drug or medication. The species, *Proboscidea parviflora*, is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (031710 - *Proboscidea parviflora* Wooton & Standl.), 46 (Page 795), **56**, **57**, 58, 63 (031710 - color presentation), **77**, **85** (031710 - color presentation), 89 (unknown species recorded as *Martynia* sp.), 115 (color presentation), 127*

Plantaginaceae: The Plantain Family

Plantago fastigiata (see *Plantago ovata*)

Plantago ignota (see footnote 89 under *Plantago patagonica*)

Plantago insularis (see *Plantago ovata*)

Plantago insularis var. *fastigiata* (see *Plantago ovata*)

***Plantago major* C. Linnaeus: Common Plantain**

COMMON NAMES: Anten (Hispanic), Antena (Hispanic), Breitwegerich (German), Broadleaf Plantain, Buckhorn Plantain, Common Plantain, Cancerina (Hispanic), Chile de Pato (Hispanic), Dianten (Hispanic), Diasten (Hispanic), Dooryard Plantain, Grand Plantain (French), Great Plantain, Greater Plantain, Hierba del Manzo (Hispanic), Hoja de Lanten (Hispanic), Hojas de Lantes (Hispanic), Intermediate Plantain, Lantana-maior (Portuguese), Lanté (Hispanic), Lantén (Hispanic), Lanter (Hispanic), Lengua de Vaca (Hispanic), Lenteja (Hispanic), Lentem (Hispanic), Llanté (Hispanic), Llantel (Hispanic), Llantén (Spanish), Llantén Común (Spanish), Llantén Major (Spanish), Mucilago (Hispanic), Pilger's Plantain, Plantain, Plantain Majeur (French), Planten (Hispanic), Rippleseed Plantain, Rippleseed Plantain, Roró (Tarahumara), Sabila (Hispanic), Tanchagem-maior (Portuguese), Thickleaf Plantain, Valeriana (Hispanic), Whiteman's Foot, Yantén (Hispanic), Yures Xukuri (Purépecha). DESCRIPTION: Terrestrial perennial forb/herb (basal rosette of leaves 3 to 18 inches, one record for 40 inches, in height); the leaves (in basal rosettes) are green; the flowers are green, white or yellow-green-tan; flowering generally takes place between mid-April and late October (additional records: one for early January, one for early February and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; plateaus; rocky canyons; rocky-sandy canyon bottoms; talus slopes; bases of cliffs; meadows; foothills; hilltops; hillsides; bouldery, gravelly and clayey slopes; clayey alluvial fans; rocky outcrops; rocky alcoves; clayey flats; basins; valley bottoms; along rocky roadsides; arroyos; draws; gulches; bottoms of ravines; seeps; springs; along streams; along sandy streambeds; gravels along and in creeks; cobbly, sandy and silty creekbeds; along rivers; riverbeds; sandy washes; cobbly-loamy and loamy drainages; along watercourses; around lakes; lakebeds; boggy areas; cienegas; freshwater marshes; about sinks; along sandy banks of arroyos, streams, creeks, rivers and ponds; along gravelly and sandy edges of springs, streams, creeks, ponds and lakes; along gravelly margins of creeks, pools, ponds, lakes and lakebeds; shores of rivers and lakes; gravel bars; sandy benches; sandy terraces; bottomlands; sandy, silty-loamy, clayey and silty floodplains; margins of stock tanks; along reservoirs; shores of reservoirs; edges of canals; along ditches; along humusy-clayey ditch banks; sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, rocky, rocky-sandy, cobbly, gravelly and sandy ground; cobbly loam, gravelly loam, gravelly-clayey loam, sandy loam, silty loam and loam ground; silty clay, humusy clay and clay ground, and silty ground, occurring from 100 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological

formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, protection (powdered roots carried in pocket to ward off snakes and protection against snakebites) and widely used as a drug or medication. *Plantago major* is native to Europe and Asia. *5, 6, 30, 43 (021810), 46 (Page 804), 48 (genus), 58, 63 (031710 - color presentation), 68, **85** (031810 - color presentation), **89**, 101 (color photograph), 127*

***Plantago ovata* P. Forsskål: Desert Indianwheat**

SYNONYMY: *Plantago fastigiata* E.L. Morris, *Plantago insularis* A. Eastwood, *Plantago insularis* A. Eastwood var. *fastigiata* (E.L. Morris) W.L. Jepson. COMMON NAMES: Ataxén (Seri, also shown as being spelled Hataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston), Blond Psyllium, Blonde Espaghula, Desert Indian Wheat, Desert Indian-wheat, Desert Indianwheat, Fleaseed, Fleawort, Hataxén (Seri, also shown as being spelled Ataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston), Indian Plantago, Indian Plantain, Indian Wheat, Indian-wheat, Indianwheat, Ispaghul, Ispaghula, Muumshum (Gila River Pima), Psyllium, Spogel Seeds, Tanchagem-ovada (Portuguese), Transagem-ovada (Portuguese), Woolly Plantain. DESCRIPTION: Terrestrial annual forb/herb (2 to 14 inches in height); the basal leaves are gray-green or grayish; the flowers are cream, pinkish, tan with reddish-brown mid-stripes, white or white-green; flowering generally takes place between mid-December and early June (additional records: one for early July, one for mid-July, one for early August, one for early September, one for late October, one for early November and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky and rocky-sandy mesas; bouldery and rocky canyons; rocky canyon bottoms; sandy talus slopes; buttes; ledges; ridges; rocky ridgetops; meadows; foothills; rocky, gravelly-sandy and sandy hills; bouldery and rocky hillsides; along bedrock, rocky, rocky-sandy, rocky-loamy, rocky-silty-loamy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; rocky and sandy alluvial fans; rocky, gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand hills; sand dunes; ridges on sand dunes; sand hummocks; rocky embankments; gravelly-sandy-loamy and sandy plains; rocky-sandy, gravelly, gravelly-sandy-loamy, gravelly-silty-loamy, sandy and silty flats; sandy basins; gravelly and sandy valley floors; valley bottoms; sandy coastal plains; along rocky, rocky-sandy, gravelly-sandy, gravelly-sandy-loamy and sandy roadsides; gulches; seeps; along creeks; along rivers; riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly-sandy, gravelly-sandy-silty, sandy and clayey washes; gravelly drainage ways; drainages; silty lakebeds; silty depressions; gravelly and sandy banks of streams, creeks, washes and lakes; gravelly and sandy edges of rivers, washes and lakes; margins of washes; sandy shores of lakes; gravelly mudflats; benches; gravelly, gravelly-sandy sandy terraces; floodplains; along canals; canal banks; along edges of canals; along ditch banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-silty loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam and sandy loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty ground, occurring from sea level to 6,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. *Plantago ovata* plant is native to southwestern Europe; western and southern Asia, and northern Africa. *5, 6, 15, **16** (recorded as *Plantago insularis* Eastw.), 43 (072509), 46 (recorded as *Plantago insularis* Eastw., Page 805), 48 (genus), **56**, **57**, 63 (031810 - color presentation), 77 (recorded as *Plantago fastigiata* Morris), **85** (031810 - includes records for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston, color presentation of dried material), **89** (recorded as *Plantago fastigiata* Morris), 115 (color presentation), 127*

Plantago ovata var. *fastigiata* (see footnote 85 under *Plantago ovata*)

***Plantago patagonica* N.J. von Jacquin: Woolly Plantain**

SYNONYMY: *Plantago patagonica* N.J. von Jacquin var. *gnaphalioides* (T. Nuttall) A. Gray, *Plantago purshii* J.J. Roemer & J.A. Schultes. COMMON NAMES: Bristle Bract Plantain, Hierba del Pastor (Hispanic), Indian Wheat, Muumsh (River Pima), Pastora, Plantain, Pursh Indian Wheat, Pursh Plantain, Woolly Indianwheat, Woolly Plantain, Wooly Indianwheat, Wooly Plantain. DESCRIPTION: Terrestrial annual forb/herb (1 to 12 inches in height, plants were observed and described that were 2 to 4 inches in height and 2 inches in width, plants were observed and described that were 4 to 6 inches in height and 2 inches in width); the leaves are gray-green or green; the tiny flowers are buff with a brownish tinge toward the center, cream, cream-white, green, purple-gray, straw, white, whitish, whitish-green, yellow, yellowish-white or translucent; flowering generally takes place between mid-February and late July (additional records: one for late August and one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky bases of mountains; rocky-clayey, gravelly, pebbly-sandy, sandy and clayey mesas; plateaus; cliffs; along canyon rims; rocky, gravelly-loamy, sandy and clayey canyons; rocky canyon walls; sandy and sandy-loamy canyon bottoms; chasms; gorges; talus slopes; bases of cliffs; crevices in rocks; buttes; gravelly knolls; rocky ledges; clayey ridges; rocky ridgetops; ridgelines; foothills; rocky and sandy hills; sandy hilltops; rocky, rocky-gravelly and gravelly-sandy hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, shaley-sandy, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-loamy, clayey-loamy and loamy slopes; rocky-sandy and sandy alluvial fans; gravelly and sandy bajadas; pediments; rocky outcrops; amongst boulders; sandy lava flows; sand dunes; steppes; sandy prairies; sandy, sandy-loamy and loamy plains; gravelly, gravelly-sandy, sandy and clayey flats; clayey catch basins; stony and clayey valley floors; gravelly-sandy-clayey valley bottoms; railroad right-of-ways; along rocky, gravelly, gravelly-loamy, sandy and sandy-silty roadsides; rocky arroyos; along sandy draws; bottoms of draws; gulches; rocky ravines; seeps; around springs; around seeping streams; along streams; streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in bedrock, bouldery-sandy, rocky, gravelly, gravelly-sandy and sandy washes; sandy drainages; sandy drainage ways; along watercourses; silty swales; sandy banks of rivers; edges of brooks; sandy margins of creeks and rivers; rocky-gravelly bars; beaches; along bouldery and sandy benches; gravelly and sandy terraces; loamy bottomlands; lowlands; bouldery floodplains; mesquite woodlands; along fencelines; ditches; gravelly, gravelly-sandy, sandy and sandy-silty riparian areas; waste places, and disturbed areas growing in wet and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley-sandy, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from 400 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a ceremonial item. *Plantago patagonica* is native to central and southern North America and southern South America. *5, 6, **16**, 28 (recorded as *Plantago purshii*, color photograph), 30, 43 (031810 - *Plantago patagonica* var. *gnaphalioides* (Nutt.) A. Gray), 46 (recorded as *Plantago purshii* Roem. & Schult., Page 804), 48 (genus), **56**, **57**, 58, 63 (031810 - color presentation), 77 (color photograph #89), **85** (031810 - color presentation), **89** (recorded as *Plantago ignota* Morris), 101 (color photograph), 115 (color presentation), 127*

Plantago patagonica var. *gnaphalioides* (see *Plantago patagonica*)

Plantago purshii (see *Plantago patagonica*)

***Plantago rhodosperma* J. Decaisne.: Redseed Plantain**

COMMON NAME: Plantain, Redseed Indianwheat, Redseed Plantain. DESCRIPTION: Terrestrial annual forb/herb (5 to 13 inches in height); the flowers are buff-orange, cream or white; flowering generally takes place between early March and late May (additional records: one for early July

and one for early September). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; foothills; chalky hills; hillsides; rocky, sandy, loamy and clayey slopes; rocky outcrops; sand dunes; prairies; clayey-loamy plains; sandy and sandy-clayey flats; valley floors; along rocky roadsides; rocky arroyos; bottoms of arroyos; silty-clayey draws; springs; along streams; streambeds; along creeks; gravelly-sandy creekbeds; riverbeds; in rocky washes; drainages; within depressions; clayey swales; along banks of streambeds and washes; edges of seeps and streams; benches; floodplains; stock tanks; reservoirs; ditches; ditch banks; gravelly-sandy and clayey riparian areas, and disturbed areas growing in moist, damp and dry rocky, gravelly-sandy and sandy ground; clayey loam and loam ground; sandy clay, silty clay and clay ground; silty ground, and chalky ground, occurring from 1,000 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Plantago rhodosperma* is native to south-central and southern North America. *5, 6, **16**, 43 (031810), 46 (Page 804), 48 (genus), 63 (031810 - color presentation), **77**, **85** (031810 - color presentation of dried material), **89** (recorded as *Plantago virginica* L.)*

Plantago virginica (see footnote 89 under *Plantago rhodosperma*)

Polemoniaceae: The Phlox Family

***Eriastrum diffusum* (A. Gray) H.L. Mason: Miniature Woollystar**

COMMON NAMES: Blue Star, Diffuse Eriastrum, Diffuse Woolstar, Miniature Starflower, Miniature Wool Star, Miniature Woollystar, Miniature Woolstar, Woollystar, Starflower. DESCRIPTION: Terrestrial annual forb/herb (1½ to 14 inches in height); the stems are reddish-brown; the foliage is grayish-green; the flowers may be pale blue, light blue & yellow, blue, blue-lavender, cream, pale lavender, lavender, purple, purple-blue, pale violet, violet or white; flowering generally takes place between mid-February and mid-July (additional record: one for mid-August). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; cliffs; rocky canyons; rocky-gravelly-sandy and sandy canyon bottoms; buttes; rocky knolls, rocky ledges; sandy ridges; rocky-sandy and gravelly ridgetops; sandy clearings in woodlands; sandy foothills; bouldery, rocky and sandy hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy, rocky-sandy-loamy, gravelly-sandy and sandy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; sand hills; sandy dunes; plains; stony, gravelly, gravelly-sandy-clayey and sandy flats; basins; valley floors; valley bottoms; along stony, gravelly-sandy-clayey-loamy, gravelly-clayey, sandy and clayey roadsides; sandy arroyos; gulches; springs; along creeks; along rivers; sandy riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; rocky-sandy and gravelly drainages; along and in rocky-sandy, gravelly and gravelly-sandy drainage ways; sandy-silty playas; banks of creeks, rivers, riverbeds and washes; among clumps of grasses at the sandy edges of arroyos; channel bars; benches; shelves; terraces; bottomlands; sandy floodplains; silty-loamy stock tanks; along canals; sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, stony, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty-clayey loam, clayey loam and silty loam ground; rocky clay, gravelly-sandy clay and gravelly clay ground, and sandy silty ground, occurring from 400 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriastrum diffusum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (072609), 46 (Page 685), **56**, **57**, 58, 63 (031810 - color presentation), 77 (color photograph #49), **85** (031810 - color presentation), **89** (recorded as *Gilia filifolia* Nutt. var. *diffusa* Gray and *Gilia floccosa* Gray), 115 (color presentation)*

***Gilia achilleifolia* G. Bentham subsp. *multicaulis* (G. Bentham) A.D. Grant & V.E. Grant: California Gilia**

SYNONYMY: *Gilia multicaulis* G. Bentham. COMMON NAMES: Blue Gilia, California Gilia, California Gily-flower, Many-stemmed California Gilia, Many-stemmed Gilia, Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (12 to 20 inches in height); the flowers are lavender, purple or dark purple; the anthers are deep blue; based on few flowering records located, flowering generally takes place between late March and mid-May. HABITAT: Within the range of this species it has been reported from mountains; along ridges; hills; grassy hillsides; rocky slopes; coastal ranges; coastal hillsides; along roadsides; cobbly creekbeds, and riparian areas growing in rocky, cobbly and sandy ground, occurring from sea level to 4,000 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formation. NOTES: EXOTIC Plant. *Gilia achilleifolia* subsp. *multicaulis* is native to California. *5, 6, 18 (genus), 43 (031810), 46 (recorded as *Gilia multicaulis* G. Benth., Page 691), 63 (031810), 85 (031810), **89** (recorded as *Gilia chamissonis* Greene)*

Gilia bigelovii (see *Linanthus bigelovii*)

Gilia chamissonis (see footnote 89 under *Gilia achilleifolia* subsp. *multicaulis*)

***Gilia flavocincta* A. Nelson: Lesser Yellowthroat Gilia**

COMMON NAMES: Gilia, Gily-flower, Lesser Yellowthroat Gilia, Lesser Yellow-throat Gily-flower, Yellowthroat Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 2 feet in height), the leaves are dark green, the color of the flowers has been reported to be blue, blue-lavender, blue-yellow, bluish-purple, dark grayish-blue, lavender, lavender-pink, pink-lavender, pink-lavender-blue, pinkish-lavender, pinkish-purple, light purple, purple, violet, violet-blue or white, flowering generally takes place between late January and mid-June (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; rocky canyons; sandy canyon bottoms; bases of cliffs; along rocky ridges; ridgetops; foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-pebbly, gravelly, sandy, sandy silty and silty-loamy slopes; gravelly bajadas; bouldery and rocky outcrops; rocky and sandy flats; basins; cindery valley floors; railroad right-of-ways; along sandy roadsides; sandy arroyos; draws; bottoms of draws; gulches; gullies; ravines; sand along streams; along and in streambeds; along creeks; bouldery-rocky, cobbly and sandy creekbeds; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; banks of rivers; edges of streambeds; sandy terraces; loamy bottomlands; floodplains; bosques; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-pebbly, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, silty loam and loam ground; rocky clay ground, and sandy silty ground, occurring from 2,000 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia flavocincta* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (031810), 46 (recorded as *Gilia flavocincta* A. Nels., Supplement Page 1066, originally included as a possible synonym of *Gilia tenuiflora* Benth. (known only from coastal California), Page 691), 63 (031810 - color presentation), **85** (031910 - color presentation)*

***Gilia flavocincta* A. Nelson subsp. *australis* (A.D. Grant & V.E. Grant) A.G. Day & V.E. Grant: Lesser Yellowthroat Gilia**

SYNONYMY: *Gilia ophthalmoides* A. Brand subsp. *australis* A.D. Grant & V.E. Grant. COMMON NAMES: Gilia, Gily-flower, Lesser Yellowthroat Gilia, Yellowthroat Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (6 inches to 2 feet in height); the flowers are blue, blue-lavender, bluish-purple, gray-white, dark grayish-blue, pale lavender, pink, pink-blue, pink-lavender, light purple, purple, white or white tinged with violet; the anthers are bluish or pale blue-violet; flowering generally takes place between late February and mid-June (additional record: two for late January). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky-sandy meadows; rocky and sandy hills; hilltops; rocky hillsides; rocky and rocky-loamy slopes; gravelly bajadas; rocky outcrops; sandy flats; gravelly roadsides; along gravelly draws; along streams; cobbly-

sandy riverbeds; along bouldery and sandy washes; along and in gravelly-sandy drainages; channel bars; terraces; sandy floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, shaley-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground and rocky loam and sandy loam ground, occurring from 2,200 to 7,300 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia flavocincta* subsp. *australis* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (031810 - *Gilia flavocincta* A. Nelson subsp. *australis* (V.E. Grant) A.G. Day & V.E. Grant, *Gilia ophthalmoides* Brand subsp. *australis* V.E. Grant), 46 (Supplement Page 1066), 58 (recorded as *Gilia ophthalmoides* Brand ssp. *australis* A. & V. Grant), 63 (031810), 77, **85** (031910 - color presentation of dried material)*

Gilia filifolia var. *diffusa* (see footnote 89 under *Eriastrum diffusum*)

Gilia floccosa (see footnote 89 under *Eriastrum diffusum*)

Gilia glutinosa (see footnote 89 under *Gilia stellata*)

Gilia inconspicua var. *sinuata* (see *Gilia sinuata*)

Gilia longiflora (see *Ipomopsis longiflora* subsp. *longiflora*)

Gilia multicaulis (see *Gilia achilleifolia* subsp. *multicaulis*)

Gilia ophthalmoides subsp. *australis* (see *Gilia flavocincta* subsp. *australis*)

Gilia inconspicua var. *sinuata* (see *Gilia sinuata*)

***Gilia sinuata* D. Douglas ex G. Bentham: Rosy Gilia**

SYNONYMY: *Gilia inconspicua* (J.E. Smith) R. Sweet var. *sinuata* (D. Douglas ex G. Bentham) A. Gray. COMMON NAMES: Bare-base Gilia, Cinder Gilia, Gilia, Gily-flower, Rosy Gilia. DESCRIPTION: Terrestrial annual forb/herb (2½ to 15 inches in height, plants were observed and described as being 4 to 10 inches in height and 2 to 4 inches in width); the foliage is medium green; the flowers are pale blue-violet, blue, blue-lavender, blue-purple, blue-yellow, bluish-white, cream, lavender-pink, pink, purple, violet, white or pale yellow; the anthers are blue; flowering generally takes place between early March and early July (additional records: one for mid-February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy plateaus; cliffs; sandy canyons; sandy canyon bottoms; bluffs; rocky-gravelly-sandy sides of buttes; gravelly ridges; ridgetops; meadows; foothills; rocky, rocky-sandy-silty and gravelly hills; hilltops; rocky hillsides; rocky, gravelly, sandy and clayey slopes; gravelly and sandy alluvial fans; bajadas; lava flows; lava fields; sand dunes; sandy breaks; sandy and silty-loamy plains; gravelly, sandy and silty flats; sandy valley floors; valley bottoms; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly and gravelly-sandy roadsides; sandy arroyos; along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; drainages; within sandy-silty drainage ways; silty lakebeds; rocky and sandy banks of creeks, creekbeds and washes; edges of washes and dry lakes; sandy bottomlands; sandy benches; cobbly-sandy terraces; gravelly-sandy and silty riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, gravelly loam and silty loam ground; clay ground, and rocky-sandy silty, sandy silty and silty ground, occurring from 1,500 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Gilia sinuata* is native to southwest-central and southern North America. *5, 6,

15, 18 (genus), 43 (031910 - *Gilia inconspicua* var. *sinuata* (Douglas ex Benth.) Brand), 46 (Page 691), 63 (031910 - color presentation), 85 (031910 - color presentation of dried material), **89** (recorded as *Gilia inconspicua* (Sm.) Dougl. var. *sinuata* Gray), 127*

***Gilia stellata* A.A. Heller: Star Gilia**

COMMON NAMES: Gilia, Star Gilia, Star Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (3 to 28 inches in height); the flowers may be blue, blue-yellow, blue-lavender, blue-pink-lavender, blue-white, cream, lavender, lavender-pink, lavender with dark purple stripes, lavender-pink, lavender-yellow, magenta, pink, pink-lavender, purple, purple-lavender, purplish-blue, pale violet, yellow, white, white-lavender or whitish-purplish; flowering generally takes place between late January and early June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; along rocky canyons; gravelly-sandy and sandy canyon bottoms; gorges; talus slopes; bases of cliffs; cobbly knoll; sandy ridges; ridgetops; foothills; rocky hills; sandy hilltops; rocky and gravelly hillsides; bouldery, rocky; cobbly-sandy-loamy, gravelly, gravelly-sandy-clayey, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly and gravelly-sandy bajadas; rocky and shaley outcrops; amongst boulders; sand hills; breaks; plains; gravelly and sandy flats; basins; valley floors; valley bottoms; rocky, gravelly and sandy roadsides; sandy arroyos; ravines; springs; along streams; streambeds; along creeks; sandy creekbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey-loamy washes; along and in gravelly and gravelly-sandy drainage ways; around pools; sandy banks of rivers and washes; along rocky-sandy edges of washes; margins of rivers and washes; shores of lakes; sand bars; gravelly and sandy benches; terraces; loamy floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty ground, occurring from 700 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia stellata* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (031910), 46 (Supplement Page 1066), 63 (031910 - color presentation), 77, **85** (031910 - color presentation of dried material), **89** (recorded as *Gilia glutinosa* (Benth.) Gray)*

***Ipomopsis longiflora* (J. Torrey) V.E. Grant: Flaxflowered Ipomopsis**

COMMON NAMES: Blue Gilia, Blue Starflower, Blue Trumpets, Flax-flowered Ipomopsis, Flaxflowered Gilia, Flaxflowered Ipomopsis, Ha'wimo (Zuni, when plant is used as a depilatory), Long Flower Gilia, Pale Trumpets, Paleflower Gilia, Tsyu'ya an Tsitsinakya (Zuni “Hummingbird Sucking-flower”), White-flower Skyrocket, White Flowered Gilia, White-flowered Gilia, White-flowered Ipomopsis, Whiteflowered Gilia. DESCRIPTION: Terrestrial annual or biennial forb/herb (6 to 28 inches in height, plants have been described as being 1 to 2 feet in height and width); the thread-like leaves are green; the trumpet-shaped flowers (1 to 2 inches in length) may be light blue, pale blue-lavender, blue-violet, bluish-purple, bluish-white, light lavender, lavender, lavender-blue, pink-white, pale purple, pale purple-blue, purple, purplish, purplish-blue, sky blue, pale violet, white, white tinged with lavender or sometimes with variegated corollas; flowering generally takes place between early March and early November. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rims of craters; rocky and sandy canyons; sandy canyon bottoms; chalky talus; sandy ridges; foothills; rocky hills; clayey hillsides; rocky, cindery, gravelly, sandy, sandy-clayey and clayey slopes; alluvial fans; bajadas; shaley outcrops; lava flows; sand dunes; sandy alcoves; sandy prairies; sandy plains; gravelly, sandy and clayey flats; sandy-silty basins; sandy valley floors; along cindery, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; along sandy arroyos; gulches; springs; along and in rocky-sandy streambeds; along creeks; along sandy creekbeds; along rivers; in gravelly-clayey, sandy, clayey, sandy-silty and silty washes; sandy-loamy drainages; within clayey depressions; cobbly and sandy edges of arroyos and washes; channel bars; sandy terraces; sandy bottomlands; sandy floodplains; riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky,

rocky-sandy, shaley, cobbly, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; gravelly clay, sandy clay and clay ground, and sandy-silty and silty ground, occurring from 1,000 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Moths feed on the nectar. *Ipomopsis longiflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (072609), 46 (recorded as *Gilia longiflora* (Torr.) G. Don (synonym of *Ipomopsis longiflora* (J. Torrey) V.E. Grant subsp. *longiflora*), Page 692 and Supplement Page 1067), 48 (Genus, recorded as *Gilia*), 58, 63 (031910 - color presentation), 77, 85 (032010 - color presentation), 86 (color photograph), 115 (color presentation), 128*

***Ipomopsis longiflora* (J. Torrey) V.E. Grant subsp. *longiflora*: Flaxflowered Ipomopsis**

SYNONYMY: *Gilia longiflora* (J. Torrey) G. Don. COMMON NAMES: Blue Gilia, Blue Starflower, Flaxflowered Ipomopsis, Ha'wimo (Zuni, when plant is used as a depilatory), Tsyu'ya an Tsitsinakya (Zuni "Hummingbird Sucking-flower"), Pale Trumpets, White-flowered Gilia, White-flowered Ipomopsis. DESCRIPTION: Terrestrial annual or biennial forb/herb (1 to 2 feet in height); the flowers are pale blue, light blue-lavender, pale lavender, light purple, purple or white sometimes variegated corollas; based on very few flowering records located flowering may take place between early July and mid-September. HABITAT: Within the range of this species it has been reported from mountains; mesas; along rims of craters; canyons; foothills; rocky hills; rocky slopes; sandy prairies; sandy plains; gravelly flats; along gravelly, gravelly-loamy and sandy roadsides; springs; along sandy creekbeds; in sandy washes; along drainages; bottomlands; floodplains; ditches, and disturbed areas growing in dry rocky, gravelly and sandy ground and gravelly loam ground, occurring from 2,400 to 9,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Moths feed on the nectar. *Ipomopsis longiflora* subsp. *longiflora* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (species, color photograph of the species), 43 (072609), 46 (recorded as *Gilia longiflora* (Torr.) G. Don, Page 692), 48 (genus, recorded as *Gilia*), 58, 63 (032010), 85 (032010), 86 (species, color photograph of the species), **89** (recorded as *Gilia longiflora* (Torr.) Don), 115 (color presentation of the species)*

***Linanthus bigelovii* (A. Gray) E.L. Greene: Bigelow's Linanthus**

SYNONYMY: *Gilia bigelovii* A. Gray. COMMON NAMES: Bigelow Desert Trumpet, Bigelow Gilia, Bigelow Linanthus, Bigelow's Deserttrumpets, Bigelow's Linanthus. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 1 foot in height); the flowers may be bluish, cream, cream-white, lavender-blue, mahogany-tinged cream, cream-white, lavender-blue, white, white-blue-lavender, white-lavender or white-pink; flowering generally takes place between early February and late May. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly and sandy mesas; plateaus; cliffs; rocky canyons; canyon bottoms; ledges; ridgetops; rocky-sandy meadows; along cinder cones; rocky foothills; rocky hills; rocky hillsides; bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, shaley, cobbly, gravelly, gravelly-loamy, and sandy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; along gravelly cinder cones; lava flows; lava fields; sand dunes; cobbly and gravelly-loamy breaks; benchlands; rocky-sandy plains; rocky, gravelly and sandy flats; basins; cindery and sandy valley floors; valley bottoms; along gravelly, gravelly-sandy and sandy roadsides; draws; gulches; around seeping streams; along streams; along creeks; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; in sandy drainages; bouldery, rocky-sandy and gravelly-sandy benches; sandy terraces; loamy bottomlands; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam and loam ground, and gravelly-sandy silty ground, occurring from 200 to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Linanthus*

bigelovii is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (032010 - *Linanthus bigelovii* E.L. Greene), 46 (Page 687), 63 (032010), 77, **85** (031020 - color presentation), **89** (recorded as *Gilia bigelovii* Gray)*

Polygalaceae: The Milkwort Family

***Polygala macradenia* A. Gray: Glandleaf Milkwort**

COMMON NAMES: Glandleaf Milkwort, Milkwort, Purple Milkwort. DESCRIPTION: Terrestrial perennial subshrub (4 to 12 inches in height, one plant was described as being 10 inches in height and 12 inches in width); the foliage is green or green-gray; the flowers may be blue, blue-purple, pink-purple, light purple, purple, purple-greenish-yellow, purple-rose, purple & white, purple & yellow & white, purplish, reddish, white or white tipped with pink & green; flowering generally takes place between late February and early June and again between early August and late November (additional records: one for mid-January, two for late June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky mountaintops; rocky mountainsides; cliffs; cobbly canyons; rocky and clayey canyon bottoms; crevices in rocks; bluffs; ridges; foothills; rocky and rocky-clayey hills; rocky hilltops; rocky, rocky-gravelly-loamy, rocky-clayey and gravelly hillsides; bedrock, rocky, rocky-clayey and gravelly slopes; bajadas; amongst boulders and rocks; gravelly flats; basins; arroyos; springs; rocky washes; rocky-gravelly drainages; benches, and shelves growing in dry desert pavement; bouldery, rocky, rocky-gravelly, cobbly and gravelly ground; rocky-gravelly loam ground, and rocky clay and clay ground, occurring from 1,500 to 4,700 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant is reportedly grazed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Polygala macradenia* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032110), 46 (Page 499), 63 (032110), 77, **85** (032110 - color presentation of dried material), **89***

Polygonaceae: The Buckwheat Family

***Chorizanthe brevicornu* J. Torrey (var. *brevicornu* is the variety reported as occurring in Arizona): Brittle Spineflower**

COMMON NAMES: Brittle Spine Flower, Brittle Spineflower, Sagebrush Chorizanthe, Short-horn Spine-flower. DESCRIPTION: Terrestrial annual forb/herb (2 to 20 inches in height and 2 to 12 inches in width, one plant was described as being 7 inches in height and 10 inches in width); the basal rosette of leaves may be lime, maroon, reddish or yellow-green; the small inconspicuous flowers are green, greenish-white, white, yellow-green or yellowish-white; flowering generally takes place between early January and late May (additional record: one for mid-June, flowering may continue into July). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and rocky-gravelly canyons; sandy and sandy-loamy canyon bottoms; rocky talus slopes; gravelly ridges; ridgetops; rocky foothills; rocky and rocky-sandy hills; hilltops; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; rocky alluvial fans; gravelly bajadas; rock, and shaley outcrops; amongst boulders, rocks and gravels; boulder fields; lava flows; sand dunes; gravelly-loamy breaks; plains; rocky-sandy, gravelly, sandy and silty flats; basins; gravelly valley floors; along rocky-gravelly, gravelly and sandy roadsides; arroyos; springs; along creeks; creekbeds; along rivers; rocky-cobbly-sandy river beds; along and in gravelly, gravelly-sandy and sandy washes; cobbly drainages; gravelly-sandy banks of rivers and washes; edges of washes; margins of washes; benches; gravelly-sandy and sandy terraces, and riparian areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam and silty loam ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the

woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Chorizanthe brevicornu* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (032210), 46 (Pages 229-230), 63 (032210 - color presentation), 77, **85** (032210 - color presentation), **89***

***Chorizanthe brevicornu* J. Torrey var. *brevicornu*: Brittle Spineflower**

COMMON NAMES: Brittle Spine Flower, Brittle Spineflower, Short-horn Spine-flower. DESCRIPTION: Terrestrial annual forb/herb (2 to 20 inches in height and 2 to 12 inches in width); the basal rosette of leaves may be maroon, reddish or yellow-green; the small inconspicuous flowers green, white or yellow-green; flowering generally takes place between early January and late May (additional record: one for mid-June, flowering may continue into July). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky-gravelly canyons; canyon bottoms; talus slopes; gravelly ridges; ridgetops; rocky foothills; sandy hills; rocky and rocky-sandy hillsides; bedrock, bouldery, rocky, rocky-gravelly-loamy, cobbly-sandy, gravelly, gravelly-sandy, gravelly-sandy-clayey, gravelly-clayey and sandy slopes; alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, boulder fields; rocks and gravels; lava flows; sand dunes; plains; gravelly and sandy flats; basins; valley floors; along gravelly and sandy roadsides; arroyos; springs; along creeks; along rivers; riverbeds; along and in gravelly and sandy washes; cobbly drainages; along sandy banks of rivers and washes; edges of washes; gravelly-sandy margins of washes; gravel bars; gravelly-sandy and sandy terraces, and riparian areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam and silty loam ground; gravelly-sandy clay and gravelly clay ground, and sandy silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Chorizanthe brevicornu* var. *brevicornu* is native to southwest-central and southern North America. *5, 6, 43 (032210), 46 (species, Pages 229-230), 63 (032210), **85** (032210)*

***Chorizanthe rigida* (J. Torrey) J. Torrey & A. Gray: Devil's Spineflower**

COMMON NAMES: Devil's Spineflower, Devil's Spiny-herb, Rigid Spineflower, Rigid Spiny Herb, Spine Herb, Spiny Chorizanthe, Turkshead, Turk's Rug. DESCRIPTION: Terrestrial annual forb/herb (1 to 8 inches in height and ½ to 4 inches in width); the minute flowers are green, white, yellow or yellow-green; flowering generally takes place between early February and late May (additional records: two for early January, two for mid-January and one for late July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; gravelly canyons; canyon walls; canyon bottoms; rocky ridges; foothills; rocky, gravelly and sandy hills; rocky and rocky-gravelly hilltops; rocky and sandy hillsides; rocky, stony, gravelly, gravelly-sandy and sandy slopes; rocky alluvial fans; gravelly, gravelly-sandy and sandy bajadas; shaley outcrops; amongst rocks; lava flows; rocky-sandy and sandy lava fields; sand dunes; gravelly plains; rocky, stony, stony-chalky, gravelly, sandy, sandy-silty and chalky flats; basins; gravelly valley floors; along gravelly and sandy roadsides; ravines; springs; along rivers; along and in rocky, gravelly, gravelly-sandy and sandy washes; gravelly drainages; gravelly and gravelly-sandy edges of washes; benches; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery-rocky-gravelly, rocky, rocky-sandy, shaley-sandy, stony, stony-chalky, gravelly, gravelly-sandy, sandy and chalky ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 200 to 5,000 feet in elevation in the desertscrub and wetland ecological formation. NOTES: Becomes stiff and bur-like when dried. *Chorizanthe rigida* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (032210), 46 (Page 230), 63 (032210 - color presentation), **77**, **85** (032210 - color presentation of dried material), **89***

***Eriogonum abertianum* J. Torrey: Abert's Buckwheat**

SYNONYMY: *Eriogonum abertianum* J. Torrey var. *abertianum*, *Eriogonum abertianum* J. Torrey var. *cyclosepalum* (E.L. Greene) F.R. Fosberg, *Eriogonum abertianum* J. Torrey var. *villosum* F.R.

Fosberg. COMMON NAMES: Abert's Buckwheat, Abert Wild Buckwheat, Abert's Wild Buckwheat, Skeleton Weed, Wild Buckwheat. DESCRIPTION: Terrestrial annual forb/herb (2 to 32 inches in height, plants were observed and described as being 8 to 10 inches in height and to 6 inches in width); the foliage may be gray, gray-green, or greenish; the flowers are cream, creamy-peach, cream & red, greenish-yellow tinged with red, pale pink, pink, pink-cream, pink-red, pinkish, pinkish-red, pinkish-white, red, reddish, reddish-pink, reddish-yellow, white, white & pink, white with green or purple stripes or with a pink or red tinge, whitish-pink, white-yellow with red tips, light yellow, pale yellow & red, yellow with red tints, yellowish or yellowish-pinkish; flowering generally takes place between mid-February and late November (additional records: three for mid-January and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; cliffs; rocky canyons; along gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; bases of cliffs; crevices in rocks; pockets of sandy soil in rock; buttes; ledges; ridges; ridgetops; bouldery foothills; gravelly hills; hilltops; rocky and gravelly hillsides; escarpments; rocky, rocky-sandy, stony, gravelly, sandy-loamy, sandy-clayey-loamy and clayey-loamy slopes; sandy alluvial fans; rocky-sandy and gravelly bajadas; rock outcrops; amongst boulders and rocks; sandy lava flows; sandy-loamy plains; rocky, gravelly, sandy, sandy-clayey, sandy-clayey-loamy and clayey flats; basin bottoms; valley floors; along rocky, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-loamy roadsides; rocky arroyos; bottoms of arroyos; gulches; bouldery-rocky and rocky gullies; along streams; along streambeds; along creeks; along rivers; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; within gravelly and sandy drainages; around lakes; marshes; banks of streams; sand bars; benches; terraces; sandy bottomlands; sandy-clayey floodplains; mesquite bosques; gravelly levees; riparian areas, and disturbed areas growing in wet, moist, damp and dry rocky desert pavement; bouldery, bouldery-rocky, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, gravelly-sandy clay, sandy clay and clay ground, and gravelly silty and gravelly-sandy silty ground, occurring from 1,300 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be attractive. The flowers, leaves, seeds and stems are used for food by White-tailed Deer (*Odocoileus virginianus couesi*) and quail, White-tailed Deer and Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) feed on the seeds. *Eriogonum abertianum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032210), 46 (Page 237), 48 (genus), **56**, **57**, 58, 63 (032210 - color presentation), 77 (color photograph #50), **85** (032210 - color presentation), **89***

Eriogonum abertianum var. *abertianum* (see *Eriogonum abertianum*)

Eriogonum abertianum var. *cyclosepalum* (see *Eriogonum abertianum*)

Eriogonum abertianum var. *villosum* (see *Eriogonum abertianum*)

Eriogonum angulosum (see footnote 89 under *Eriogonum maculatum*)

Eriogonum clutei (see *Eriogonum deflexum* var. *deflexum*)

***Eriogonum deflexum* J. Torrey (var. *deflexum* is the variety reported as occurring in Arizona): Flatcrown Buckwheat**

SYNONYMY: (for *E.d.* var. *deflexum*: *Eriogonum clutei* P.A. Rydberg, *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal). COMMON NAMES: Flatcrown Buckwheat, Flatcrowned Wild Buckwheat, Flat-topped Buckwheat, Skeleton Weed, Skeleton-weed, Skeletonweed, Skeleton Weed Eriogonum. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 2 feet in height); the stems are blue-gray, gray-green, green or purple-red; the basal rosette of leaves is blue-gray, gray-

green or green; the small flowers are cream, cream-pink, pink, pink-white, pinkish, pinkish-purple-lavender-white, white or whitish-pink; flowering generally takes place between mid-January and late December; the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rocky canyons; rocky, gravelly and sandy canyon bottoms; gorges; bouldery scree; talus slopes; rocky sides of buttes; ridgelines; rocky foothills; rocky and rocky-gravelly hills; rocky, gravelly and clayey hillsides; rocky, stony-cobbly-sandy, cindery, gravelly, sandy, sandy-clayey and clayey slopes; alluvial fans; bajadas; rocky outcrops; cobbly, cobbly-sandy and sandy debris fans; pebbly and sandy plains; rocky, gravelly and sandy flats; basins; valley floors; valley bottoms; roadbeds; along gravelly and sandy roadsides; within gravelly and sandy arroyos; sandy bottoms of arroyos; gulches; gravelly ravines; springs; along streams; streambeds; along creeks; creekbeds; gravelly and sandy riverbeds; along and in cobbly, gravelly, gravelly-sandy, sandy, sandy-clayey and clayey washes; drainages; drainage ways; sandy banks of rivers; gravelly edges of marshes; sand bars; terraces; sandy bottomlands; floodplains; along ditches; along canal banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-cobbly-sandy, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam and gravelly loam ground, and sandy clay and clay ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriogonum deflexum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (032310), 46 (Page 239), 48 (genus), **56**, **57**, 63 (032310 - color presentation of seed), 68, 77, **85** (032310 - color presentation), **89**, **WTK** (October 28, 2009)*

***Eriogonum deflexum* J. Torrey var. *deflexum*: Flatcrown Buckwheat**

SYNONYMY: *Eriogonum clutei* P.A. Rydberg, *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal. COMMON NAMES: Flatcrown Buckwheat, Flatcrowned Wild Buckwheat, Flat-topped Buckwheat, Skeleton Weed, Skeleton-weed, Skeletonweed, Skeleton Weed Eriogonum. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 2 feet in height); the stems are blue-gray, gray-green, green or purple-red; the basal rosette of leaves is blue-gray, gray-green or green; the small flowers are cream, pink, pink-white, rose-white or white; flowering generally takes place between mid-January and late December; the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky cliffs; bouldery canyons; rocky and sandy canyon bottoms; shaley talus slopes; bluffs; rocky sides of buttes; rocky ridges; ridgelines; rocky foothills; talus hills; rocky and gravelly hillsides; rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-loamy, sandy and clayey slopes; rocky-gravelly bajadas; amongst boulders; sand dunes; cobbly and sandy debris fans; gravelly, sandy and sandy-silty flats; basins; valley bottoms; roadbeds; along gravelly, gravelly-loamy and sandy roadsides; sandy arroyos; sandy draws; gullies; gravelly ravines; around seeping streams; along creeks; along gravelly-sandy creekbeds; along rivers; gravelly riverbeds; along and in bouldery, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; depressions; swales; banks of rivers; sand bars; sandy bottomlands; banks of reservoirs; along canal banks; along ditches; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriogonum deflexum* var. *deflexum* is native to southwest-central and southern North America. *5, 6, 15 (*Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 18 (genus), 43 (032310 - *Eriogonum deflexum* var. *turbinatum* (Small) Reveal), 46 (*Eriogonum clutei* Rydb. and *Eriogonum deflexum* Torr., Page 239), 48 (genus), 58 (*Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 63 (032310), 68, **85** (032310 - color presentation of dried material)*

Eriogonum deflexum var. *turbinatum* (see *Eriogonum deflexum* var. *deflexum*)

Eriogonum densum (see *Eriogonum polycladon* and footnote 46 under *Eriogonum palmerianum*)

***Eriogonum maculatum* A.A. Heller: Spotted Buckwheat**

COMMON NAMES: Anglestem Buckwheat, Angle-stemmed Buckwheat, Skeleton Weed, Spotted Buckwheat, Spotted Wild Buckwheat. DESCRIPTION: Terrestrial annual forb/herb (4 to 12 inches in height); the foliage is greenish or reddish; the flowers are cream, pink, red, rose-pink, rose-red, white, white-pink, white-purple, white-red, yellow, yellow-green, white & pink, white & dark pink or yellowish-white; flowering generally takes place between mid-March and early July (additional records: one for late July, two for mid-August, one for early September, one for late September, two for early October, one for mid-October, one for early November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon sides; sandy canyon bottoms; talus slopes; sandy bases of cliffs; bluffs; ledges; gravelly ridges; ridgetops; gravelly foothills; bouldery, rocky, gravelly and gravelly-clayey hills; hilltops; rocky and gravelly hillsides; bedrock, bouldery, rocky, rocky-sandy, gravelly, sandy, clayey and silty slopes; alluvial fans; gravelly bajadas; boulder fields; rocky outcrops; amongst boulders; sandy lava flows; sand dunes; plains; gravelly, gravelly-sandy, sandy and clayey flats; sandy basins; sandy valley floors; sandy valley bottoms; along gravelly and sandy roadsides; springs; along creeks; along rivers; along and in gravelly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy depressions; sandy banks of rivers; edges of dry lakes; sandy benches; floodplains; shores of reservoirs; sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly clay and clay ground, and bouldery silty and silty ground, occurring from 300 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum maculatum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 43 (032310), 46 (Pages 236-237), 48 (genus), 63 (032310 - color presentation), 77, **85** (032310 - color presentation of dried material), **89** (recorded as *Eriogonum angulosum* Benth.)*

***Eriogonum nidularium* F.V. Coville: Birdnest Buckwheat**

COMMON NAMES: Birdnest Buckwheat, Bird Nest Wild Buckwheat, Birdnest Wild Buckwheat, Nidular Buckwheat, Whisk Broom. DESCRIPTION: Terrestrial annual forb/herb (2 to 8 inches in height); the foliage is greenish or tawny; the flowers are cream-white, cream-yellow-green, greenish-yellow, burnt orange, reddish, white, whitish-pink, pale yellow, pale yellow-green, yellow, yellowish or yellowish-white; flowering generally takes place between early April and mid-October (additional records: one for early January, one for early November and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; bouldery canyons; rocky canyon bottoms; bases of cliffs; along ridges; ridgetops; ridge lines; bouldery-gravelly and gravelly hills; rocky and rocky-gravelly hillsides; bedrock, bouldery, rocky, cobbly, gravelly and sandy slopes; gravelly-sandy alluvial fans; rocky outcrops; berms; gravelly, sandy and clayey flats; basins; sandy valley floors; along sandy roadsides; draws; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; sand bars; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and clay ground, occurring from 900 to 8,900 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTE: *Eriogonum nidularium* is native to southwest-central North America. *5, 6, 18 (genus), 43 (032310), 46 (Page 236), 48 (genus), 63 (032310 - color presentation), 85 (032310 - color presentation of dried material), **89***

***Eriogonum palmerianum* J.L. Reveal: Palmer's Buckwheat**

COMMON NAMES: Palmer Buckwheat, Palmer's Buckwheat, Palmer's Wild Buckwheat, Skeleton Weed. DESCRIPTION: Terrestrial annual forb/herb (spreading and erect stems 2 to 20 inches in height); the stems are gray-green, grayish or tawny; the leaves are gray-green or greenish; the flowers may be cream-white, dull greenish-yellow, pink, pink-white, pinkish-white, pale white with a red-brown

mid-stripe, white, dull white, whitish with a red mid-vein, or pale yellowish becoming pink to red: flowering generally takes place between mid-April and late November (flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; mesas; plateaus; bouldery and gravelly canyons; gravelly and sandy canyon bottoms; talus slopes; sandy-loamy bases of cliffs; bluffs; buttes; rocky ridges; rocky ridgetops; cindery cinder cones; foothills; hills; rocky hillsides; rocky, rocky-clayey-loamy, shaley, stony-gravelly-sandy, gravelly, sandy and clayey slopes; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; berms; gravelly and sandy flats; basins; valley floors; roadbeds; along gravelly, gravelly-loamy and sandy roadsides; along rocky arroyos; draws; within bouldery-rocky gullies; along creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; in drainages; along boulder-gravelly-sandy and sandy banks of rivers, washes and drainages; edges of drainages; margins of washes; sand bars; sandy benches; gravelly and sandy terraces; bottomlands; sandy-loamy floodplains; ditches; gravelly and sandy riparian areas, and disturbed areas growing in dry bouldery-gravelly-sandy, rocky, shaley, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam and loam ground, and clay ground, occurring from 900 to 8,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum palmerianum* is native to southwest-central North America. *5, 6, 15, 18 (genus), 43 (052410), 46 (incorrectly recorded as *Eriogonum densum* Greene, Page 236), 48 (genus), 63 (052410), 77, **85** (052410 - color presentation of dried material)*

***Eriogonum polycladon* G. Bentham: Sorrel Buckwheat**

SYNONYMY: *Eriogonum densum* E.L. Greene. COMMON NAMES: Buckwheat, Redroot Buckwheat, Skeleton Weed, Sorrel Buckwheat, Sorrel Eriogonum, Sorrel Wild Buckwheat, Wild Buckwheat. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 4 feet in height, plants were observed and described as being 18 to 28 inches in height and 10 inches in width); the stems are bluish-green, gray, gray-green or whitish; the flowers may be cream, cream-pink, cream-white, pale pink, pink, pinkish-white, red, reddish-pink, reddish-white, russet, white, white aging pink, white-green-yellow or white-pink; flowering generally takes place between late July and mid-November (additional records: one for mid-February, one for late May and one for late June). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky and gravelly-sandy-clayey-loamy mesas; rocky canyons; rocky knolls; ridges; cindery and sandy clearings in forests and woodlands; meadows; foothills; sandy hills; hillsides; rocky, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; gravelly-sandy bajadas; cindery lava flows; prairies; cindery, gravelly, gravelly-sandy and sandy flats; basins; gravelly-sandy valley floors; cobbly-gravelly, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; along sandy arroyos; sandy bottoms of arroyos; within sandy-loamy draws; within sandy ravines; springs; along streambeds; along creeks; along and in rocky-sandy creekbeds; bouldery-cobbly-sandy riverbeds; along and in gravelly, gravelly-sandy, sandy and clayey washes; sandy drainages; gravelly drainage ways; sandy banks of arroyos, creeks and washes; rocky-sandy shores of lakes; sand bars; sandy benches; gravelly-sandy and sandy terraces; gravelly and sandy bottomlands; sandy and silty floodplains; around stock tanks; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, gravelly loam and sandy loam ground; bouldery clay and clay ground, and silty ground, occurring from 600 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eriogonum polycladon* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (072609), 46 (*Eriogonum densum* Greene, Page 236 and *Eriogonum polycladon* Benth., Page 236), 48 (genus), 58, 63 (032310), **77**, **85** (032310 - color presentation), 115 (color presentation)*

***Eriogonum thurberi* J. Torrey: Thurber's Buckwheat**

COMMON NAMES: Skeleton Weed, Thurber Buckwheat, Thurber Eriogonum, Thurber Wild Buckwheat, Thurber's Buckwheat, Thurber's Wild Buckwheat. DESCRIPTION: Terrestrial annual

forb/herb (2 to 16 inches in height); the foliage is greenish, grayish or reddish; the flowers are pink, pink-red, pink-rosy, reddish, white, white-pink or whitish-greenish-reddish; flowering generally takes place between late March and early July (additional records: one for early March, two for late July, one for early August, one for late August and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; canyons; sandy canyon bottoms; foothills; hills; hillsides; rocky, gravelly and sandy slopes; bouldery-stony-gravelly-sandy, rocky-sandy and gravelly-sandy alluvial fans; bajadas; sand dunes; gravelly-sandy plains; gravelly and sandy flats; sandy valley floors; along gravelly roadsides; along streams; along rivers; sandy riverbeds; along and in sandy washes; in drainages; banks of washes; sand bars; sandy benches; sandy riparian areas; recently burned areas in chaparral, and disturbed areas growing in dry bouldery, bouldery-stony-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from 300 to 4,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Thurber Buckwheat is a larval host plant of the Acmon Blue Butterfly, *Icaricia acmon*. *Eriogonum thurberi* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032310), 46 (Page 239), 48 (genus), 58, 63 (032310), **77**, **85** (032310 - color presentation of dried material)*

***Eriogonum trichopes* J. Torrey (var. *trichopes* is the variety reported as occurring in Arizona): Little Deserttrumpet**

COMMON NAMES: Little Desert Buckwheat, Little Desert Trumpet, Little Deserttrumpet, Little Trumpet, Little-trumpet, Skeleton Weed, Yellow Trumpet. DESCRIPTION: Terrestrial annual forb/herb (4 to 40 inches in height); the foliage is yellow-green; the small flowers are greenish-yellow, pale yellow, yellow, yellow-green or yellowish-green; flowering generally takes place between mid-February and late October (additional records: one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; cliffs; clayey canyons; bases of cliffs; rocky ledges; along rocky ridges; gravelly ridgetops; foothills; rocky-sandy and sandy hills; hilltops; gravelly and sandy-clayey hillsides; rocky, rocky-gravelly, gravelly, sandy, clayey and silty slopes; gravelly-sandy and sandy alluvial fans; gravelly and gravelly-sandy-clayey bajadas; sandy lava flows; sand hills; sand dunes and inter-dune troughs; gravelly breaks; rocky and gravelly-sandy plains; rocky-gravelly, rocky-sandy, gravelly, sandy, sandy-clayey, sandy-silty, clayey and silty flats; basin bottoms; gravelly, gravelly-sandy and sandy valley floors; sandy valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-clayey-loamy roadsides; within arroyos; gulches; rocky streambeds; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-clayey, sandy and clayey washes; along gravelly drainages; swales; rocky banks of streams and washes; terraces; sandy bottomlands; sandy floodplains; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy-clayey loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Eriogonum trichopodum* G. Bentham is an error of record for *Eriogonum trichopes* J. Torrey). *Eriogonum trichopes* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (032310), 46 (Page 238), 48 (genus), 58, 63 (032310 - color presentation), **77**, **85** (032310 - color presentation of dried material), **89** (recorded as *Eriogonum trichopodum* Torr.)*

Eriogonum trichopodum (see general notes and footnote 89 under *Eriogonum trichopes*)

***Polygonum argyrocoleon* E.G. von Steudel ex G. Kunze: Silversheath Knotweed**

COMMON NAMES: Erva-de-bicho (Portuguese), Persian Knotweed, Silversheath, Silver-sheath Knotweed, Silversheath Knotweed, Zhou Bian Xu (transcribed Chinese). DESCRIPTION: Terrestrial annual forb/herb (sprawling to erect stems 6 to 40 inches in height/length); the stems may be reddish; the

flowers are green, pink, white or white tinged with pink; flowering generally takes place between early February and mid-October (additional records: two for mid-January and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy-silty mesas; meadows; foothills; clayey-loamy hills; rocky hillsides; sandy and sandy-silty slopes; plains; valley floors; along sandy and silty-clayey roadsides; arroyos; draws; bottoms of draws; seeps; streams; along rivers; silty riverbeds; in gravelly-sandy-silty and sandy washes; within drainages; playas; swampy areas; loamy-clayey depressions; sinks; banks of streams; edges of washes; sand bars; bottomlands; silty-clayey floodplains; lowlands; edges of stock tanks (charcos and repressos); along sandy-clayey canal banks; in ditches; ditch banks; riparian areas; waste places, and disturbed areas growing in moist, damp and dry rocky and sandy ground; sandy loam, clay loam and silty loam ground; sandy clay, loamy clay and silty clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level (-141 feet) to 11,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used for food. Mourning Doves (*Zenaida macroura*) reportedly feed on the seeds. *Polygonum argyrocoleon* is native to eastern Europe and western and central Asia. *5, 6, 43 (032310 - *Polygonum argyrocoleon* Steud. *ex* Kunze), 46 (Page 247), **56**, **57**, 63 (032310), 68, 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock."), **85** (032410 - color presentation of dried material), 101 (color photograph with comparison to Prostrate Knotweed, *Polygonum aviculare*), 127*

***Polygonum aviculare* C. Linnaeus: Prostrate Knotweed**

COMMON NAME: Bian Xu (transcribed Chinese), Common Knotweed, Doorweed, Erva-de-bicho-dos-passarinhos (Portuguese), Knotgrass, Knotweed, Prostrate Knotweed, Renouée des Oiseaux (French), Sempre-noiva-dos-passarinhos (Portuguese), Wireweed, Yard Knotweed. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate and spreading stems 2 inches to 6½ feet in length); the inconspicuous flowers are green-pink, green-white, greenish, pink, pinkish-white, purple-red, reddish-pink, white or white-pink; flowering generally takes place between late March and late October (additional records: one for early January, one for late January, one for mid-February, one for early March, one for early December, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; cindery mesas; plateaus; clayey rocky canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; bases of cliffs; along bluffs; meadows; bouldery foothills; rocky hills; hilltops; hillsides; bedrock, bouldery, rocky, cobbly-loamy, sandy-silty, clayey and silty slopes; bedrock outcrops; sand flats; prairies; rocky plains; gravelly, sandy, clayey and clayey-silty-loamy flats; basins; valley floors; coastal dunes; coastal plains; along railroad right-of-ways; gravelly-sandy-loamy roadbeds; along gravelly-loamy and sandy roadsides; within clayey arroyos; draws; gulches; bottoms of gullies; seeps; springs; in sand along streams; sandy streambeds; along creeks; sandy creekbeds; along rivers; bouldery-cobbly-sandy, bouldery-sandy and rocky-cobbly-sandy riverbeds; along and in stony-sandy-silty, gravelly, gravelly-loamy, clayey-loamy and sandy washes; along drainages; around ponds; around lakes; silty lakebeds; bogs; freshwater and saltwater marshes; sinks; sandy, sandy-silty and loamy banks of streams, creeks, rivers and ponds; sandy and clayey edges of seeps, creeks, ponds, lakes, lagoons and depressions; margins of seeps and ponds; shores of lakes; mudflats; sand bars; rocky and sandy-clayey beaches; sandy benches; bottomlands; floodplains; mesquite bosques; around and in clayey catch basins; gravelly-clayey banks of stock tanks (charcos); banks of reservoirs; along canal banks; along ditches; along ditch banks; gravelly-sandy-loamy and sandy riparian areas; waste places, and disturbed areas growing in shallow water and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, cobbly-pebbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-silty loam and loam ground; gravelly clay, sandy clay, loamy clay and clay ground, and rocky silty, stony-sandy silty, sandy silty and silty ground,

occurring from sea level to 11,700 feet, in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The origin of *Polygonum aviculare* is unknown but has been reported as being native to Europe and Asia. *5, 6, 15, 43 (032410), 46 (Page 247), 58, 63 (032410 - color presentation), 68, 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock."), **85** (032410 - color presentation), **89** (recorded as *Polygonum aviculare* L. var. *littorale* (Link) Koch.), 101 (color photograph with comparison to Silversheath Knotweed, *Polygonum argyrocoleon*), 127*

Polygonum aviculare var. *littorale* (see footnote 89 under *Polygonum aviculare*)

***Polygonum lapathifolium* C. Linnaeus: Curlytop Knotweed**

COMMON NAMES: Curltop Ladysthumb, Curlytop Buckwheat, Curlytop Knotweed, Curltop Smartweed, Dock-leaf Smartweed, Erva-de-bicho-pruinosa (Portuguese), Ladysthumb, Ma Liao (transcribed Chinese), Nodding Smartweed, Pale Persicaria, Pale Smartweed, Renouée à Feuilles de Patience, Willow Smartweed. DESCRIPTION: Terrestrial annual forb/herb (2 inches to 6½ feet inches in height); the flowers are cream-pink, greenish-white, pink, pink-white, white or white-pink; flowering generally takes place between mid-April and early December. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky and sandy canyons; bouldery-gravelly-sandy, rocky, gravelly-sandy and sandy canyon bottoms; crevices in rocks; loamy meadows; foothills; rocky-sandy hillsides; sandy, loamy and silty slopes; bouldery-stony-gravelly-sandy alluvial fans, basins; valley floors; coastal plains; along roadsides; arroyos; draws; gulches; gullies; along seeps; along springs; along and in streams; along streambeds; in gravel along and in creeks; along rocky creekbeds; along rivers; along and in rocky-sandy, sandy and silty-clayey riverbeds; in rocky and sandy washes; along silty-clayey and clayey drainages; along ponds; gravelly pondbeds; along and in lakes; muddy lakebeds; cienegas; freshwater and saltwater marshes; swampy areas; swales; muddy, rocky-sandy and sandy banks of streams, streambeds; creeks, rivers and riverbeds; sandy-loamy and clayey edges of springs; streams, creeks, rivers, pools, ponds, lakes and marshes; along mucky, muddy and cobbly margins of creeks, pools, ponds and lakes; along shores of ponds and lakes; mudflats; sand bars; gravelly-sandy beaches; rocky fords; sandy terraces; clayey bottomlands; cobbly, sandy and silty floodplains; stock tanks; edges of reservoirs; along canals; along canal banks; along and in muddy ditches; clayey-loamy ditch banks; cobbly and gravelly-loamy riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet and moist bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 10,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Polygonum lapathifolium* is native to Europe; Asia, and northern Africa; however, the exact native range is obscure. *5, 6, 43 (032410), 46 (Page 248), 58, 63 (032410 - color presentation), 80 (Species of the genus *Polygonum* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These forbs cause skin irritation and gastritis and are suspected of causing nitrate poisoning and photosensitization in livestock."), **85** (032410 - color presentation), **89**, 101, 127*

Rumex berlandieri (see *Rumex chrysocarpus*)

***Rumex chrysocarpus* (also spelled *chrysocarpos*) G.G. Moris: Amamastla**

SYNONYMY: *Rumex berlandieri* C.D. Meisner. COMMON NAME: Amamastla, Amamastla Dock. DESCRIPTION: Terrestrial perennial forb/herb (16 to 32 inches in height); the leaves are deep

olive-green; flowering generally takes place between spring and summer. HABITAT: Within the range of this species it has been reported from prairies; coastal plains; marshes; swamps; shores, and ditches growing in dry sandy ground; loam ground, and clay ground, occurring from sea level to 700 feet in elevation in the wetland ecological formation. NOTES: EXOTIC Plant. This plant was most likely misidentified. This plant is not known to occur in Arizona. It has not been reported from Arizona except for its inclusion in the 1909 J.J. Thornber Listing for Tumamoc Hill. *Rumex chrysocarpus* is native to south-central (Louisiana and Texas) and southern North America. *5, 6, 43 (032410 - *Rumex chrysocarpos* Moris), 46 (no recordof this species), 63 (032410), 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate."), 85 (032410 - no record of species), **89** (recorded as *Rumex berlandieri* Meisner), 95 (possibly referring to *Rumex romossa* Remey ex A. Gray which occurs from southern Mexico to Argentina, Personal Communication 052206)*

***Rumex crispus* C. Linnaeus (subsp. *crispus* is the subspecies reported as occurring in Arizona): Curly Dock**

COMMON NAMES: Curled Dock, Curley Dock, Curly Dock, Curly Leaf Dock, Curly-leaf Dock, Eviloriva (Tarahumara), Indian Tobacco, Ketamba Aukasiri (Purépecha), Krultongblaar (Afrikaans), Kwimi Shipba "'root sour" (Zuni), Labaça-crespa (Portuguese), Labaça-selvagem (Portuguese), Lengua de Vaca (Hispanic), Lingua-de-vaca (Portuguese), Narrowleaf Dock, Paciência (Portuguese), Patience Crépue (French), Reguette (French), Rumex Crépu, Sour Dock, Weeblaar (Afrikaans), Yellow Dock., Zhou Ye Suan Mo (transcribed Chinese). DESCRIPTION: Terrestrial perennial forb/herb (14 inches to 6 feet in height); the flowers are green, green-yellow or yellowish-green becoming rosy to reddish-brown; flowering generally takes place between early February and mid-October (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mesas; rocky canyons; bouldery-gravelly-sandy and rocky canyon bottoms; talus slopes; bases of cliffs; bluffs; sandy-loamy and clayey meadows; foothills; clayey-loamy hills; hillsides; rocky, rocky-sandy, rocky-loamy-clayey, sandy-loamy, sandy-silty and clayey slopes; amongst rocks; sand dunes; prairies; cobbly-loam, sandy-clayey, clayey, clayey-loamy and loamy flats; basins; valley floors; coastal plains; along railroad right-of-ways; along gravelly roadsides; arroyos; draws; gulches; seeps; around springs; sandy soils along streams; rocky streambeds; rocks and sand along and in creeks; along and in creekbeds; along rivers; rocky-cobbly-sandy riverbeds; around and in gravelly and sandy washes; within sandy-loamy drainages; around and in pools; in ponds; around and in lakes; sandy-loamy playas; boggy areas; cienegas; freshwater and saltwater marshes; depressions; sloughs; along muddy and rocky banks of springs, streams, creeks and rivers; along rocky and clayey edges of streams, creeks, ponds, lakes and marshes; along margins of creeks; pools and lakes; shores of bodies of water; gravelly-sand and sand bars; rocky and sandy beaches; cobbly-sandy and sandy benches; bottomlands; floodplains; sandy-clayey lowlands; around stock tanks; along canals; along and in ditches; along ditch banks; rocky riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery-gravelly-sandy, rocky, rocky-stony-sandy, rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, gravelly and sandy ground; cobbly-loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, gravelly-sandy clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food; as a dye (yellow) and widely used as a drug or medication. *Rumex crispus* is native to Europe; Asia, and northern Africa. *5, 6, 15, 28 (color photograph), 30, 43 (032410), 46 (Page 245), **56**, **57**, 58, 63 (032410 - color presentation), 68, 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate."), 85 (032510 - color presentation), **89**, 101 (color photograph), 127*

***Rumex hymenosepalus* J. Torrey: Canaigre Dock**

COMMON NAMES: Arizona Dock, Cañagria (Spanish), Canaigre, Canaigre Dock, Desert Rhubarb, Dock, Ganagra, Gerbampfer (German), Sivijlt (Pima), Sorrel, Tanner's Dock, Wild Rhubarb, Wild-rhubarb. DESCRIPTION: Terrestrial perennial forb/herb (10 to 52 inches in height, one plant was reported to be 40 inches in height and 40 inches in width); the leaves are gray-green or dark green; the flowers are green, greenish, greenish-purple, greenish-red, pale pink, pink, pinkish-green or yellow; flowering generally takes place between mid-February and mid-May (additional records: one for early June, one for mid-June and one for late September); the winged seed capsules are pinkish or reddish. HABITAT: Within the range of this species it has been reported from mountains; pebbly-sandy-silty and sandy mesas; canyons; along rocky, gravelly-sandy-loamy and sandy canyon bottoms; sandy bases of escarpments; ridgetops; edges of meadows; sandy hills; along rocky, sandy and sandy-clayey hillsides; bouldery-rocky-gravelly, rocky, sandy, sandy-silty, loamy, clayey and silty slopes; rocky-sandy and sandy alluvial fans; amongst rocks; sandy lava flows; sand dunes; sandy hummocks; wind-blown sand deposits; plains; gravelly-loamy and sandy flats; basin bottoms; sandy valley floors; sandy valley bottoms; along sandy roadsides; along sandy arroyos; bottoms of arroyos; draws; springs; along rocky-sandy, gravelly-sandy and sandy streambeds; along creeks; sandy creekbeds; along rivers; along sandy and silty riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy drainages; stagnant pools; along gravelly-sandy and sandy banks of streams, creeks, rivers and washes; sandy edges of streams; sand bars; benches; cobbly-sandy terraces; sandy bottomlands; floodplains; mesquite bosques; edges of stock tanks; sandy culverts; ditches; ditch banks; sandy riparian areas, and disturbed areas growing in dry bouldery-rocky-gravelly, rocky, rocky-sandy, cobbly-sandy, gravelly, gravelly-pebbly-sandy, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or dye crop; it was also noted as having been used as a tool and/or as a drug or medication. *Rumex hymenosepalus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph), 43 (032510), 46 (Page 245), 48, 58, 63 (032510 - color presentation), 68, 80 (Species of the genus Rumex are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Poisoning by oxalates in these forbs has been reported in other countries but not in the United States. Plants also accumulate toxic levels of nitrate."), **85** (032510 - color presentation), 86 (note), **89**, 115 (color presentation), 127*

Rumex romossa (see footnote 95 under *Rumex chrysocarpus*)

Portulacaceae: The Purselane Family

***Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle: Fringed Redmaids**

SYNONYMY: *Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle var. *menziesii* (W.J. Hooker) J.F. Macbride. COMMON NAMES: Desert Rock Purslane, Desert Rockpurslane, Fringed Redmaids, Red Maids, Red-maids, Redmaids, Rock Purslane. DESCRIPTION: Terrestrial annual forb/herb (prostrate to ascending and spreading stems 1 to 18 inches in length); the leaves are green; the flowers (to ½ inch in width) may be blue-purple, magenta, magenta-pink, magenta-purple, pink, deep pink, pink-magenta, pink-maroon, pink-purple, pink-red, purple, purplish-pink, red, deep red, deep red-purple, red-pink, reddish-pink, reddish-purple, reddish-violet, rose, rose-red, violet, white or white-purple; flowering generally takes place between mid-January and late May. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; along rocky canyons; chasms; rocky and sandy-loamy canyon bottoms; crevices in rocks; bouldery knobs; ridges;

rocky-sandy and sandy meadows; sandy and clayey foothills; bouldery and rocky hills; hilltops; rocky and clayey hillsides; bouldery, bouldery-rocky-clayey, bouldery-gravelly, rocky, rocky-clayey, stony, gravelly, gravelly-loamy, gravelly-clayey, sandy, clayey and clayey-loamy slopes; bajadas; amongst rocks; sandy alluvial fans; sand dunes; sandy plains; gravelly, sandy and clayey flats; basins; hollows; valley floors; loamy valley bottoms; along clayey-loamy roadsides; bedrock and sandy arroyos; along sandy bottoms of arroyos; along draws; gulches; gullies; seeps; around seeping streams; in sand along streams; streambeds; along creeks; bouldery-rocky, rocky-sandy and sandy creekbeds; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; around clayey pools; silty-clayey poolbeds; loamy-clayey depressions; rocky banks of streams, creeks and rivers; along clayey edges of streams; margins of vernal marshes and pools; terraces; sandy bottomlands; sandy-silty floodplains; sandy riparian areas, and disturbed areas growing in shallow water or wet, moist, damp or dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-sandy, stony, gravelly and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; bouldery clay, bouldery-rocky clay, rocky clay, gravelly clay and clay ground, and sandy-silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Calandrinia ciliata* is native to west-central and southern North America, Central America and northwestern South America. *5, 6, 15, 28 (color photograph), 43 (072609), 46 (Page 288), 58, 63 (032510 - color presentation), 77, 85 (032510 - color presentation), 86 (color photograph), **89** (recorded as *Calandrinia menziesii* (Hook.) T.&G.), 101 (color photograph), 115 (color presentation), 127*

Calandrinia ciliata var. *menziesii* (see *Calandrinia ciliata*)

Calandrinia menziesii (see footnote 89 under *Calandrinia ciliata*)

Calyptridium monandrum (see *Cistanthe monandra*)

***Cistanthe monandra* (T. Nuttall) M.A. Hershkovitz: Common Pussypaws**

SYNONYMY: *Calyptridium monandrum* T. Nuttall. COMMON NAMES: Common Pussypaws, Sand Cress, Sand-cress, Sandcress. DESCRIPTION: Terrestrial annual forb/herb (½ to 7 inches in height/length); the foliage is red or yellow-green; the small flowers are cream, greenish, pink, pink-reddish, reddish, white or white-pink; flowering generally takes place between early March and early July. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; sandy canyons; rocky canyon bottoms; sandy ridges; bedrock and rocky ridgetops; foothills; bouldery, bouldery-sandy, rocky, gravelly and sandy hills; rocky and rocky-cobbly-sandy hillsides; bouldery, bouldery-sandy, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy slopes; rocky-sandy, gravelly, gravelly-sandy and sandy alluvial fans; sandy bajadas; rocky and shaley outcrops; sand dunes; amongst rocks; gravelly-sandy and sandy plains; rocky, gravelly, gravelly-sandy, gravelly-silty and sandy flats; coastal dunes; rocky-sandy and sandy valley floors; along gravelly, gravelly-sandy and sandy roadsides; along bottoms of arroyos; sandy bottoms of gullies; along streams; gravelly-clayey-loamy streambeds; along and in sandy creeks; along and in rocky, rocky-sandy and sandy washes; drainages; along rocky-sandy and sandy banks of arroyos and washes; sandy edges of marshes; margins of streams; sandy benches; rocky-sandy debris fans; sandy terraces; sandy bottomlands; mesquite bosques; gravelly-sandy riparian areas; recently burned areas in forests and chaparral, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, shaley, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground; clay ground, and gravelly silty ground, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop.

Cistanthe monandra is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Calyptridium monandrum* Nutt.), **16** (recorded as *Calyptridium monandrum* Nutt.), 43 (032510), 46 (recorded as *Calyptridium monandrum* Nutt., Page 289), 58 (recorded as *Calyptridium monandrum* Nutt.), 63 (032510), **77** (recorded as *Calyptridium monandrum* Nutt.), **85** (032510 - color presentation of dried material), **89** (recorded as *Calyptridium monandrum* Nutt.), 127*

***Phemeranthus aurantiacus* (G. Engelmann) R.W. Kiger: Orange Flameflower**

SYNONYMY: *Talinum angustissimum* (A. Gray) E.O. Wooton & P.C. Standley, *Talinum aurantiacum* G. Engelmann. COMMON NAMES: Flame Flower, Orange Flame Flower, Orange Flameflower, Talinum, Yellow Flame Flower. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 20 inches in height); the flowers (to 1 inch in width) may be apricot-orange, orange, orange-yellow, peach-orange, pinkish, pinkish-orange, reddish, reddish-orange, rosy-pink, pale yellow, pale yellow-orange, yellow or yellow-orange; flowering generally takes place between late June and late September (additional record: one for early June; flowering beginning as early as April and ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; canyons; cobbly canyon bottoms; pockets of soil on cliffs; bluffs; ledges; along shaley ridges; ridgetops; meadows; foothills; gravelly-loamy and sandy hills; rocky hilltops; rocky, rocky-gravelly-loamy, rocky-clayey and gravelly hillsides; rocky, rocky-gravelly, stony, cobbly-clayey rocky-sandy, gravelly and sandy slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; dunes; prairies; sandy-loamy plains; gravelly-sandy flats; valley floors; sandy-silty valley bottoms; along gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy and gravelly-loamy roadsides; arroyos; draws; ravines; streambeds; along creeks; along washes; along edges of lakes and playas; benches; terraces; floodplains; sandy-loamy lowlands, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy soils; rocky-gravelly loam, gravelly loam, gravelly-sandy loam and sandy loam soils; rocky clay, cobbly clay and clay soils, and sandy silty soils, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Kearney and Peebles' reported in Arizona Flora that *Talinum aurantiacum* Engelm. is "Arizona's largest flowered and showiest species. Indians in Arizona cooked and ate the roots, which often become very large and more or less woody." This plant could be investigated to determine its value as a home garden or commercial food crop. *Phemeranthus aurantiacus* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Talinum aurantiacum* Engelm.), 43 (072709), 46 (recorded as *Talinum angustissimum* (Gray) Woot. & Standl., Page 287, *Talinum aurantiacum* Engelm., Page 287), 58 (recorded as *Talinum aurantiacum* Engelm.), 63 (032510), 77 (recorded as *Talinum aurantiacum* Engelm., color photograph #51 labeled as *Talinum aurantiacum*), **85** (032610 - color presentation), 86 (recorded as *Talinum aurantiacum*, color photograph), **89** (recorded as *Talinum lineare* H.B.K.), 115 (color presentation)*

***Portulaca oleracea* C. Linnaeus: Little Hogweed**

SYNONYMY: *Portulaca retusa* G. Engelmann. COMMON NAMES: Akulikuli-kula, Beldroega (Portuguese), Chamó (Tarahumara), Chamokó (Hispanic), Common Purslane, Duckweed, Garden Purslane, Ghol (India), Ku'umpuri (Pima Baj o), Little Hog-weed, Little Hogweed, Ma Chi Xian (transcribed Chinese), Pourpier (French), Portulak (German), Purslane, Pursley, Pusley, Roughseed Purslane, Sa´luchi (Tarahumara), Suberi-hiyu (transcribed Japanese), Verdolaga (Spanish), Verdolagas (Hispanic), Verdolaguilla (Hispanic), Western Pulsey, Wild Portulaca, Xakua Tsirakua (Purépecha), Yiwa Xiquitú (Hispanic). DESCRIPTION: Terrestrial annual forb/herb (prostrate to somewhat ascending and spreading stems to 1 inch in height and 2 inches to 2 feet in length); the stems are pink-red; the leaves are gray-green; the small flowers (¼ inch in width) are orange-yellow, yellow or yellow-orange; flowering generally takes place between late April and mid-November (additional records: one for mid-January, one for early March, one for mid-March, one for late March, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from sandy mountains;

sandy and clayey mesas; plateaus; rocky, rocky-sandy and sandy canyons; gravelly-sandy canyon bottoms; chasms; rocky gorges; bases of cliffs; rocky buttes; knolls; rocky ledges; clayey-loamy and silty ridges; ridgelines; clearings in forests; meadows; foothills; rocky hills; rocky and clayey hillsides; rocky, cindery, gravelly, gravelly-loamy, gravelly-silty-loamy, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders; along rocks; sand dunes; plains; cindery and clayey flats; basins; sandy hollows; sandy valley floors; coasts; along cindery railroad right-of-ways; sandy roadbeds; along rocky, gravelly, gravelly-loamy, gravelly-sandy, sandy and loamy-clayey roadsides; within arroyos; gravelly and sandy bottoms of arroyos; draws; clayey bottoms of draws; rocky gullies; within ravines; sandy seeps; springs; along and in sandy streams; along and in gravelly streambeds; sandy creekbeds; along and in rivers; along and in bouldery-cobbly-sandy, rocky-cobbly-sandy and sandy riverbeds; in gravelly, sandy, loamy and clayey washes; along drainages; in sandy drainage ways; clayey lakebeds; sand y-loamy playas; freshwater marshes; clayey depressions; muddy and sandy banks of arroyos, rivers; riverbeds and pools; sandy and clayey edges of streams, rivers, ponds, lagoons, playas and marshes; along sandy and muddy margins of washes and ponds; sandy shores of creeks and lakes; sand bars; sandy beaches; cobbly-sandy, gravelly, sandy and sandy-loamy terraces; sandy bottomlands; sandy floodplains; margins of stock tanks; along canals; ditches; gravelly banks of ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in muddy and moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; loamy clay and clay ground, and silty ground, occurring from sea level to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as forage for sheep and as a drug or medication. *Portulaca oleracea* has been reported to have been introduced from Europe; however, its native range is unknown. *5, 6, 18, 28 (color photograph), 30, 43 (032710), 46 (recorded as *Portulaca oleracea* L., Page 291 and *Portulaca retusa* Engelm., Page 291), **57**, 63 (032710 - color presentation), 68, 77, 80 (*Portulaca oleracea* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plants. “These fleshy forbs accumulate toxic levels of oxalates and may cause sickness and death in livestock.”), 85 (032710 - color presentation), 86 (color photograph), **89** (recorded as *Portulaca oleracea* L. and *Portulaca retusa* Engelm), 101 (color photograph), 115 (color presentation), 127*

Portulaca retusa (see *Portulaca oleracea*)

Talinum angustissimum (see *Phemeranthus aurantiacus*)

Talinum aurantiacum (see *Phemeranthus aurantiacus*)

Talinum lineare (see footnote 89 under *Phemeranthus aurantiacus*)

Primulaceae: The Primrose Family

***Androsace occidentalis* F.T. Pursh: Western Rockjasmine**

SYNONYMY: *Androsace occidentalis* F.T. Pursh var. *arizonica* (A. Gray) H. St. John. COMMON NAMES: Rock Jasmine, Rock-jasmine, Western Fairy Candelabra, Western Androsace, Western Rock Jasmine, Western Rock-jasmine, Western Rockjasmine. DESCRIPTION: Terrestrial annual forb/herb (1 to 5 inches in height); the basal rosette leaves may be reddish; the minute flowers (1/8 inch in diameter) may be pink, purple, red, white or white with a pink or red tinge; flowering generally takes place between early February and mid-May. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliffs; sandy canyons; along bedrock and

sandy-loamy canyon bottoms; bases of cliffs; crevices in rock; gravelly ledges; ridges; ridgetops; shaded rock niches; meadows; rocky foothills; rocky hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; rock niches; rocky and silty flats; basins; sandy valley floors; along roadsides; within bedrock arroyos; along rocky draws; seeps; springs; around seeping streams; along rocky and sandy streams; sandy streambeds; along creeks; along and in sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; drainages; depressions; rocky and gravelly banks of rivers and washes; channel bars in rivers; terraces; sandy bottomlands; floodplains; rocky mesquite bosques; banks of stock tanks; gravelly-sandy riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam gravelly loam and sandy loam ground; sandy clay ground, and silty ground, occurring from 1,000 to 11,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Androsace occidentalis* is native to central and southern North America. *5, 6, 15, **16**, 43 (072809), 46 (Page 636), 58, 63 (032710 - color presentation), 77, **85** (032710 - color presentation of dried material), **89**, 127*

Androsace occidentalis var. *arizonica* (see *Androsace occidentalis*)

Samolus floribundus (see *Samolus valerandi* subsp. *parviflorus*)

Samolus parviflorus (see *Samolus valerandi* subsp. *parviflorus*)

***Samolus valerandi* C. Linnaeus subsp. *parviflorus* (C.S. Rafinesque-Schmaltz) O.E. Hultén: Seaside Brookweed**

SYNONYMY: *Samolus floribundus* K.S. Kunth, *Samolus parviflorus* C.S. Rafinesque-Schmaltz. COMMON NAMES: American Water Pimpernel, American Water-pimpernel, False Water Pimpernell, Pineland Pimpernel, Seaside Brookweed, Small-flowered Samolus, Seaside Brookweed, Smallflower Water Pimpernell, Thinleaf Brookweed, Water Brookweed, Water Pimpernel, Water-pimpernel. DESCRIPTION: Terrestrial perennial forb/herb (4 to 34 inches in height); the leaves and stem are bright green or yellow-green; the small flowers (1/8 inch in diameter) are white; flowering generally takes place between mid-April and early November (additional record: one for mid-March). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky-sandy canyon bottoms; rocky cliffs; rocky meadows; hillsides; slopes; sandy flats; basins; valley floors; stony arroyos; seeps; springs; along streams; along creeks; along creekbeds; riverbeds; along drainages; watercourses; bogs; cienegas; freshwater marshes; swampy areas; sloughs; muddy and sandy banks of arroyos, creeks and rivers; edges of springs; streams, creeks and ponds; along and in margins of creeks; shores of lakes; mudflats; sandy beaches; sandy benches; floodplains; canals; along rocky-silty ditches, and sandy riparian areas growing in shallow water; muddy, and wet and moist ground in rocky, rocky-sandy, stony and sandy ground and rocky-silty and silty ground, occurring from 300 to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Samolus valerandi* subsp. *parviflorus* is native to northeast-central, south-central and southern North America and South America. *5, 6, 43 (032810), 46 (recorded as *Samolus floribundus* H.B.K., Page 637), 63 (032810 - color presentation), 85 (032810 - color presentation of dried material), **89** (recorded as *Samolus floribundus* H.B.K.), 106 (032810 - species)*

Ranunculaceae: The Buttercup Family

Anemone sphenophylla (see footnote 89 under *Anemone tuberosa*)

***Anemone tuberosa* P.A. Rydberg (var. *tuberosa* is the variety reported as occurring in Arizona): Tuber Anemone**

COMMON NAMES: Desert Anemone, Desert Thimbleweed, Desert Windflower, Tuber Anemone, Windflower. DESCRIPTION: Terrestrial (tuberous) perennial forb/herb (4 to 20 inches in height); the stems may be purplish; the flowers may be cream & pink, creamy-white, pink, pinkish, pinkish-purple, pinkish-white, purple, white, white-blue, white-lavender, white-pink, white-purple and whitish-yellow; flowering generally takes place between early January and late May. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; mesas; cliffs; rocky canyons; rocky canyon walls; rocky canyon bottoms; gorges; talus slopes; bases of cliffs; crevices in rocks; buttes; rocky promontories; along bouldery and rocky ridges; rocky ridgetops; foothills; bouldery-rocky and rocky hills; rocky hilltops; bouldery and rocky hillsides; rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-clayey, gravelly and gravelly-loamy slopes; bajadas; rocky outcrops; amongst rocks; volcanic dikes and plugs; sandy lava flows; rocky barrens; rocky and sandy flats; rocky basins; along rocky roadsides; along rocky draws; seeps; springs; along creeks; creekbeds; along and in gravelly washes; within bouldery-cobbly and cobbly drainage ways; along banks of streams and washes; rocky benches; terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, cobbly, cindery, gravelly and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-clayey loam and sandy loam ground, and rocky clay and clay ground, occurring from 1,400 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Anemone tuberosa* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (072309), 46 (Page 311), 58, 63 (032810 - color presentation), 77 (color photograph #90), 80 (Species in the genus *Anemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “These perennial forbs have been suspected of causing poisoning of livestock and have caused hairballs in the digestive tract of sheep.”), **85** (042010 - color presentation), 86 (color photograph), **89** (recorded as *Anemone sphenophylla* Poepp.), 115 (color presentation)*

***Clematis drummondii* J. Torrey & A. Gray: Drummond’s Clematis**

COMMON NAMES: Barba de Chivo, Barba de Viejo (Spanish), Barbas de Chivato (Spanish), Chiva’ato Himsita Saila (Yaqui - Brother of Goat’s Moustache), Drummond Clematis, Drummond’s Clematis, Old Man’s Beard, Old-man’s-beard, Pipe-stem, Texas-virgin Bower, Texas Virgin Bower, Texas Virgin’s Bower, Virgin’s Bower. DESCRIPTION: Terrestrial perennial deciduous vine (10 to 40 feet in length); the trifoliate leaves are grayish-green or medium green; the flowers are cream, cream-white, green & yellow-green, white, yellow, yellow-white, yellowish-green-white or yellowish-white; flowering generally takes place between early March and late October (additional records: one for early January, one for late January and two for early December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; canyon bottoms; chasms; bases of cliffs; crevices; bluffs; foothills; rocky hills; rocky hillsides; rocky and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; lava beds; plains; sandy flats; basins; valley floors; railroad right-of-ways; along roadsides; within bouldery and gravelly-sandy and sandy arroyos; rocky bottoms of arroyos; around springs; along streams; along streambeds; along creeks; along creekbeds; along rivers; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; drainages; within sandy drainage ways; around ponds; around lakes; along rocky and gravelly-sandy banks of creeks, rivers and washes; edges of creeks, washes and lakes; terraces; bottomlands; floodplains; mesquite bosques; fencerows; edges of stock tanks (charcos); along canals; riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and sandy silty and silty ground often reported as growing in shrubs and trees, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This woody vine may be an attractive component of a restored native habitat. *Clematis drummondii* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18 (genus), 28 (color photograph), 43

(042010), 46 (Page 312), 58, 63 (042010 - color presentation), 77, 80 (Species in the genus *Clematis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These climbing, perennial forbs contain toxins that have been suspected of causing losses in other countries but none have been reported in the United States. Some species do cause dermatitis."), **85** (042010 - color presentation), **89** (recorded as *Clematis ligustifolia* Nutt.), 115 (color presentation)*

Clematis ligustifolia (see footnote 89 under *Clematis drummondii*)

Delphinium amabile (see *Delphinium parishii* subsp. *parishii*)

Delphinium amabile subsp. *apachense* (see *Delphinium parishii* subsp. *parishii*)

***Delphinium parishii* A. Gray subsp. *parishii*: Parish's Larkspur**

SYNONYMY: *Delphinium amabile* I. Tidestrøm, *Delphinium amabile* I. Tidestrøm subsp. *apachense* (A. Eastwood) J.A. Ewan. COMMON NAMES: Desert Larkspur Ocean-blue Larkspur, Paleface Delphinium, Paleface Larkspur, Parish Desert Larkspur, Parish Larkspur, Parish's Larkspur. DESCRIPTION: Terrestrial perennial forb/herb (6½ inches to 4 feet in height), the stems may be brownish-purple, the basal rosette of leaves is dark green, the flowers may be azure-blue, light blue, blue, dark blue, blue-violet, bluish-purple, lavender, lavender-blue-violet, pinkish-violet-purple, purple, purple-blue, sky-blue or violet-blue, flowering generally takes place between mid-February and early June (additional records: one for early January, one for late June and one for late August). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rocky-gravelly-sandy canyon walls; sandy canyon bottoms; talus slopes; rocky knolls; ridges; along bouldery ridgetops; rocky foothills; rocky hills; rocky and gravelly hillsides; bouldery-rocky, bouldery-rocky-gravelly-sandy, rocky, rocky-sandy, rocky-clayey, gravelly-sandy and sandy slopes; gravelly-sandy bajadas; bedrock and rocky outcrops; amongst boulders and rocks; lava fields; sandy plains; sandy flats; valley floors; along roadsides; arroyos; clayey gulches; gullies; ravines; springs; around seeping streams; along streams; streambeds; along creeks; creekbeds; rivers; along and in rocky, rocky-sandy and sandy washes; drainages; high ground in marshes; rocky, rocky-gravelly-sandy and sandy banks of streams and washes; edges of arroyos; benches; gravelly terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-clayey loam and loam ground, and rocky clay and clay ground, occurring from 600 to 12,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This is the most drought tolerant of the North American Larkspurs. *Delphinium parishii* subsp. *parishii* is native to southwest-central and southern North America. *5, 6, 15, 28 (species, color photograph), 43 (042010 - *Delphinium amabile* Tidestr. subsp. *apachense* Ewan), 46 (recorded as *Delphinium amabile* Tidestrøm, Page 309 and *Delphinium amabile* Tidestrøm subsp. *apachense* (Eastw.) Ewan, Page 309), 48 (genus), 63 (042010 - color presentation), 80 (Four species of Larkspur are listed as Major Poisonous Range Plants; however, "All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering" - May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). "Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique." See text for additional information.), **85** (042110)*

***Delphinium scaposum* E.L. Greene: Tall Mountain Larkspur**

COMMON NAMES: Bare-stem Larkspur, Barestem Larkspur, Desert Larkspur, Espuelita, Larkspur, Low Larkspur, Naked Delphinium, Tall Mountain Larkspur, Tcoro'si (Hopi), Wild Delphinium. DESCRIPTION: Terrestrial perennial forb/herb (6 to 48 inches in height); the leafless stems may be reddish; the basal leaves are gray-green, dark green or yellow-green; the flowers (to 1 inch in width) may be blue, blue & cream-white, blue-purple, blue-purple-white, blue-violet, blue-white, dark blue, lavender-blue-purple, purple, dark purple-blue, dark purple-blue & white, purple-blue, royal blue-white, deep royal blue, violet, violet-blue or white; flowering generally takes place between early March and early July (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; bouldery, gravelly and sandy mesas; plateaus; along rocky rims of canyons and gorges; rocky, rocky-sandy and sandy canyons; sandy canyon bottoms; gorges; talus slopes; bases of cliffs; bluffs; buttes; knolls; rocky ledges; ridges; clearings in forests; meadows; rocky foothills; rocky and sandy hills; rocky and sandy-loamy hillsides; bouldery-rocky-gravelly, rocky, gravelly, gravelly-loamy, gravelly-sandy-loamy, gravelly-clayey-loamy, loamy and clayey slopes; bajadas; bouldery outcrops; sand dunes; gravelly and clayey flats, basins; valley floors; along rocky, gravelly-sandy and sandy roadsides; arroyos; gravelly gullies; along seeping washes; along streams; streambeds; along rivers; along washes; drainages; along water courses; gravelly-silty-clayey and gravelly-clayey depressions; rocky banks of washes; rocky edges of washes; shores of lakes; sandy beaches; benches; gravelly-sandy terraces; sandy bottomlands, and riparian areas growing in dry bouldery, bouldery-rocky-gravelly, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam and loam ground, and rocky clay, gravelly clay, gravelly-silty clay and clay ground, occurring from 1,900 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used in ceremonies; as a toy or in games, and as a drug or medication. The Tall Mountain Larkspur is reportedly visited by butterflies. *Delphinium scaposum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (042110), 46 (Pages 308-309), 48 (genus), 58, 63 (042110 - color presentation including habitat), 68, 77 (color photograph #91), 80 (This species is listed as a Major Poisonous Range Plant; however, "All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering" - May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). "Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique." See text for additional information.), **85** (042210 - color presentation), **89**, 115 (color presentation), 127*

***Myosurus minimus* C. Linnaeus: Tiny Mousetail**

COMMON NAMES: Blood Strange, Blood-strange, Common Mouse Tail, Little Mouse Tail, Little Mousetail, Mouse Tail, Mouse-tail, Mousetail, Small Mouse-tail, Tiny Mouse's-tail, Tiny Mouse-tail, Tiny Mousetail. DESCRIPTION: Terrestrial annual forb/herb (1¼ to 6½ inches in height); the stems are green or pink-tan; the leaves are green; the inconspicuous flowers are greenish, greenish-white, pink, white or yellowish; flowering generally takes place between mid-March and mid-June; the fruits are reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; meadows; along sandy canyon bottoms; hills; clayey slopes; amongst boulders and rocks; plains; clayey flats; basins; valley floors; roadsides; seeps; spring seeps; around springs; in clay along streams; along silty washes; along drainages; around pools; clayey vernal pools; poolbeds; along ponds; around lakes; lakebeds; dried up lagoons; boggy areas; cienegas; marshlands; swampy areas; depressions; swales; banks of streams and rivers; edges of pools, ponds, lakebeds and marshes; margins of vernal pools and lakes; muddy shores of ponds; mudflats; channel bars; benches; bottomlands; clayey lowlands;

muddy and sandy-loamy floodplains; impoundments; around stock tanks; ditches; riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, rocky, gravelly and sandy ground; sandy loam and loam ground; sandy clay, silty clay and clay ground, and silty ground, occurring from sea level to 8,800 feet in elevation in wetland ecological formations within the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Myosurus minimus* is native to central and southern North America; Europe; southwestern Asia, and northern Africa. *5, 6, 15 (listed as an Excluded Species), 43 (042210), 46 (Page 314), 58, 63 (042210 - color presentation), **85** (042210 - color presentation of dried material), **89**, 106 (042210 - color presentation), 127*

Resedaceae: The Mignonette Family

Oligomeris glaucescens (see footnote 89 under *Oligomeris linifolia*)

***Oligomeris linifolia* (M.H. Vahl) J.F. Macbride: Lineleaf Whitepuff**

COMMON NAMES: Cambess, Desert Cambess, Linearleaf Cambess, Lineleaf Whitepuff, Linear-leaved Cambess, Oligomeris, Slender-leaf Cambess, Xamassa (Seri). DESCRIPTION: Terrestrial annual forb/herb (4 to 15 inches in height, one plant was reported to be 15 inches in height and width); the stems may be orange; the leaves are green, and turn red before dying; the tiny flowers are cream, greenish or white; flowering generally takes place between late December and early June (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; canyons; canyon sides; canyon bottoms; gravelly talus; rocky bases of cliffs; sandy-clayey bluffs; sandy knolls; ledges; rocky ridges; ridgelines; rocky foothills; gravelly-loamy hills; rocky hillsides; rocky, rocky-sandy, sandy and silty slopes; rocky and rocky-sandy and silty-clayey alluvial fans; gravelly bajadas; amongst rocks; crater walls; crater floors; sandy lava flows; sand dunes; gravelly-loamy and sandy plains; rocky, gravelly, gravelly-sandy, sandy and silty flats; basins; sandy valley floors; beach dunes; sandy-silty coastal plains; sandy coastlines, along gravelly-sandy-loamy and sandy roadsides; rocky-gravelly draws; along rocky gullies; seeps; springs; around seeping streams; in clay around springs; along streams; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy and silty lakebeds; clayey and silty playas; silty depressions; gravelly banks of rivers, washes and drainages; cobbly and sandy edges of lakes and playas; lake shores; mudflats; channel bars; sandy beaches; benches; gravelly terraces; clayey bottomlands; sandy floodplains; along sandy-clayey canals; canal banks; along ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam and gravelly-sandy loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems and leaves are semi-succulent. *Oligomeris linifolia* is native to southwest-central and southern North America; Asia, and Africa. *5, 6, **16**, 43 (042210 - *Oligomeris linifolia* J.F. Macbr.), 46 (Page 358), **56**, **57**, 63 (042210), 77, **85** (042210 - color presentation of dried material), **89** (recorded as *Oligomeris glaucescens* Camb.)*

Rhamnaceae: The Buckthorn Family

Condalia lycioides (see footnote 89 under *Ziziphus obtusifolia* var. *canescens*)

Condalia lycioides var. *canescens* (see *Ziziphus obtusifolia* var. *canescens*)

Condalia spathulata (see footnotes 46 and 89 under *Condalia warnockii* var. *kearneyana*)

***Condalia warnockii* M.C. Johnston (var. *kearneyana* M.C. Johnston is the variety reported as occurring in Arizona): Warnock's Snakewood**

COMMON NAMES: Crucillo, Guichutilla, Kearney Condalia, Kearney Snakewood, Kearney's Snakewood, Mexican Crucillo, Squaw-bush, Squabush, Warnock Condalia, Warnock's Snakewood. DESCRIPTION: Terrestrial perennial deciduous (considered evergreen except during periods of severe drought) shrub (20 inches to 13 feet in height, one plant was reported to be 7 feet in height with a crown 10 feet in width, one plant was reported to be 10 feet in height with a crown 10 feet in width); the bark is gray-brown; the leaves may be gray or dull green; the minute flowers are yellowish; flowering generally takes place between February and November (flowering records: one for mid-February, one record for mid-May, one record for late June, one record for mid-August, one record for late August and one for mid-September; however, flowering taking place throughout the year has also been reported); the fruits are black, dark purple or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; footslopes; rocky canyons; canyon bottoms; cliff faces; rocky ledges; rocky ridgetops; edges of meadows; foothills; gravelly hills; bedrock, bouldery, rocky, gravelly and sandy slopes; gravelly bajadas; gypsum outcrops; amongst boulders and rocks; clayey-loamy plains; gravelly flats; rocky arroyos; gulches; along drainages; banks of creeks, washes and drainage ways; terraces; floodplains; around stock tanks, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground and clayey loam ground, occurring from 1,600 to 5,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Condalia warnockii* is native to southwest-central and southern North America. *5, 6, 13, 28 (recorded as *Condalia warnockii* var. *kearneyana*, color photograph), 43 (042210), 46 (recorded as *Condalia spathulata* Gray, Page 530), 63 (042210), 77, **85** (042210 - color presentation), 91*

***Condalia warnockii* M.C. Johnston var. *kearneyana* M.C. Johnston: Kearney's Snakewood**

COMMON NAMES: Crucillo, Guichutilla, Kearney Condalia, Kearney Snakewood, Kearney's Snakewood, Mexican Buckthorn, Mexican Crucillo, Squaw-bush, Squawbush. DESCRIPTION: Terrestrial perennial deciduous (considered evergreen except during periods of severe drought) shrub (20 inches to 13 feet in height, one plant was reported to be 6½ feet in height with a crown 10 feet in width, one plant was reported to be 10 feet in height with a crown 10 feet width); the minute flowers are yellowish; flowering generally takes place between February and November (flowering records: one for mid-February, one for mid-August, one for late August and one for mid-September; however, flowering taking place throughout the year has also been reported); the fruits are black, dark purple or reddish black. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; cliff faces; canyons; canyon bottoms; rocky ledges; ridges; edges of meadows; foothills; hills; rocky, gravelly and sandy slopes; rocky and gravelly bajadas; amongst boulders; gravelly and sandy flats; basins; valley floors; rocky arroyos; gulches; rocky washes; along and in drainages; banks of creeks; gravelly edges of washes and drainages; terraces; floodplains, and around gravelly-sandy stock tanks growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from 1,600 to 5,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Condalia warnockii* var. *kearneyana* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 28 (color photograph), 43 (042210), 46 (recorded as *Condalia spathulata* A. Gray, Page 530), 58, 63 (042210), 77, **85** (042210 - color presentation), **89** (recorded as *Condalia spathulata* Gray), 91, **WTK** (October 28, 2009)*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray: Lotebush**

COMMON NAMES: Abrojo, Bachata, Barbachatas, Bluebush, Buchthorn, Chaparral, Chaparro Prieto, Clepe, Garrapata, Garumbullo, Gray-leafed Abrojo, Gray-leaved Abrojo, Gray-thorn, Graythorn, Greythorn, Gumdrop Tree, Lotebush, Lotebrush, Oschuvapat (Pima), Palo Blanco, Southwestern Condalia, Texas Buckthorn, White Crucillo, Whitethorn. DESCRIPTION: Terrestrial perennial drought

deciduous shrub or tree (3 to 13 feet in height, one plant was reported to be 40 inches in height with a crown 18 inches in width, one plant 7 feet in height with a crown 7 feet in width, one plant was reported to be 10 feet in height with a crown 10 feet in width, one plant was reported to be 10 feet in height with a crown 13 feet in width, one plant was reported to be 13 feet in height with a crown 13 feet in width, one plant was reported to be 13 feet in height with a crown 20 feet in width); the stems may be bluish, brown, gray, gray-green, green or whitish with the twigs ending in stout thorns; the leaves are gray-green, pale green, green or yellow-green; the inconspicuous flowers are cream, light green, green, greenish-white, greenish-yellow, yellow-green, white or whitish-green; flowering generally takes place between mid-May and late November (additional records: one for mid-January, one for late January, one for early March, two for mid-March, three for late March, two for mid-April and one for late April); the ripe fruits are black, blue, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; gravelly mesas; rocky cliffs; rocky and gravelly canyons; sandy-clayey canyonsides; along canyon bottoms; scree; talus slopes; bases of cliffs; crevices in rocks; buttes; gravelly-clayey-loamy ridges; rocky ridgetops; ridgelines; foothills; rocky, cobbly and cobbly-gravelly-loamy hills; hilltops; rocky hillsides; bedrock, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-loamy and gravelly-clayey-loamy slopes; rocky alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; sandy dunes; breaks; prairies; gravelly, gravelly-silty, sandy-silty and silty plains; rocky, gravelly and sandy-loamy flats; basin bottoms; rocky valley floors; along gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy-clayey-loamy roadsides; gravelly-sandy and sandy arroyos; along rocky and sandy bottoms of arroyos; draws; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; in gravels along rivers; along gravelly and gravelly-sandy rivers; riverbeds; along and in rocky, sandy and sandy-clayey washes; along drainages; marshes; swales; along bouldery-sandy, rocky, gravelly-sandy and sandy banks of streams, creeks, rivers and washes; gravelly-sandy edges of arroyos and creeks; margins of springs; beaches; sandy benches; terraces; bottomlands; floodplains; mesquite bosques; thickets of Soapberry (*Sapindus saponaria*); along fencerows; along canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; sandy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The heartwood may be red-brown and may be honey-scented. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. *Ziziphus obtusifolia* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 28 (color photograph), 43 (042210), 46 (recorded as *Condalia lycioides* (Gray) Weberb., Page 530), 63 (042210), **85** (042310 - color presentation), 91, 127*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston: Lotebush**

SYNONYMY: *Condalia lycioides* (A. Gray) A. Weberbauer var. *canescens* (A. Gray) W. Trelease. COMMON NAMES: Abrojo, Bachata, Barbachatas, Buchthorn, Clepe, Garrapata, Garumbullo,

Gray-leafed Abrojo, Gray-leaved Abrojo, Gray-thorn, Greythorn, Gumdrop Tree, Lotebush, Oschuvapat (Pima), Palo Blanco, Southwestern Condalia, White Crucillo. DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (3 to 13 feet in height, one plant was reported to be 40 inches in height with a crown 18 inches in width, one was reported to be plant 7 feet in height with a crown 7 feet in width, one plant was reported to be 10 feet in height with a crown 10 feet in width, one plant was reported to be 13 feet in height with a crown 13 feet in width); the stems are bluish, gray, gray-green, green or whitish with the twigs ending in stout thorns; the leaves are gray-green, green or yellow-green, the inconspicuous flowers are cream, green, greenish-white, yellow, yellow-green or whitish-green; flowering generally takes place between mid-May and late November (additional records: one for late January, one for mid-March, one for late March, one for mid-April and one for late April); the ripe fruits are black, blue-purple, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; mesas; rocky canyons; along canyon bottoms; scree; talus slopes; bases of cliffs; crevices in rocks; buttes; ridges; ridgelines; foothills; rocky hills; hilltops; rocky hillsides; rocky and gravelly slopes; rocky alluvial fans; gravelly bajadas; amongst boulders, rocks and gravels; sandy-silty plains; rocky and gravelly flats; basins; rocky valley floors; gravelly and gravelly-loamy roadsides; arroyos; bottoms of arroyos; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; rivulets; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; along gravelly and gravelly-sandy rivers; riverbeds; along and in rocky and sandy washes; drainages; marshes; along rocky banks of streams, creeks, rivers and washes; gravelly-sandy edges of arroyos and creeks; beaches; sandy benches; terraces; bottomlands; floodplains; mesquite bosques; along fencerows; along canals; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage (*Ziziphus obtusifolia*) crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. *Ziziphus obtusifolia* var. *canescens* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, **16**, 28 (species, color photograph of species), 43 (042210), 46 (*Condalia lycioides* (Gray) Weberb. var. *canescens* (Gray) Trel., Page 530), **56**, **57**, 58, 63 (042210), 77, **85** (042310 - color presentation of dried material), **89** (recorded as *Condalia lycioides* (Gray) Weberbaur), 91, 127, **WTK** (October 28, 2009)*

Rubiaceae: The Madder Family

***Cephalanthus occidentalis* C. Linnaeus: Common Buttonbush**

SYNONYMY: *Cephalanthus occidentalis* C. Linnaeus var. *californicus* G. Bentham. COMMON NAMES: Button Willow, Common Button Bush, Button Willow, Button-bush, Button-willow, Buttonball, Buttonbush, Common Buttonbush, Common Cottonbush, Globe Flower, Globe-flower, Globe-flowers, Honey-balls, Honeyballs, Honey-bells; Riverbush, Snowball. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (3 to 33 feet in height and width); the bark is brown, gray or gray-brown; the twigs are reddish-brown; the leaves are bright green or yellow-green; the tiny flowers (clustered in balls 1

to 1½ inches in diameter) are cream, creamy-white, white, white fading to rust, whitish or yellowish; flowering generally takes place between early June and early October; the mature button-like balls fruit (¾ to1 inch in diameter) are made up of many brown or reddish-brown nutlets (¼ inch in length). HABITAT: Within the range of this species it has been reported from mountains; canyons; along sandy canyon bottoms; foothills; hillsides; amongst boulders and rocks; basins; valley floors; along roadsides; along streams; along and in bouldery and rocky streambeds; along creeks; along and in rocky creekbeds; riverbeds; along and in sandy washes; around lakes; bogs; cienegas; marshlands; swamps; sloughs; along banks of creeks, rivers, drainage ways and lakes; along edges of rivulets, creeks, rivers and lakes; margins of lakes; along shores of lakes; terraces; bottomlands; stony and cobbly floodplains; along ditches, and sandy riparian areas growing in wet, moist or damp rocky, stony, cobbly and sandy ground; sandy loam and loam ground, and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was also noted as having been used as a drug or medication and the wood was made into game sticks. The flowers are fragrant, the foliage is poisonous. White-tailed Deer (*Odocoileus virginianus*) browse this plant; the flowers attract bees and butterflies, and water-birds and shore-birds feed on the seeds. *Cephalanthus occidentalis* is native to northeast-central, south-central and southern North America. *5, 6, 13 (recorded as *Cephalanthus occidentalis* L. var. *californicus* Benth.), 15, 18, 28 (color photograph), 43 (042310), 46 (recorded as *Cephalanthus occidentalis* L. var. *californicus* Benth., Page 807), 52 (color photograph), 63 (042310 - color presentation), 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This stream-bottom shrub contains a bitter glycoside and has been suspected of causing poisoning in cattle.”), **85** (042310 - color presentation), **89**, 115 (color presentation), 127*

Cephalanthus occidentalis var. *californicus* (see *Cephalanthus occidentalis*)

***Galium proliferum* A. Gray: Limestone Bedstraw**

COMMON NAMES: Bedstraw, Desert Bedstraw, Great Basin Bedstraw, Limestone Bedstraw, Slender Bedstraw, Spreading Bedstraw. DESCRIPTION: Terrestrial annual forb/herb (4 to 12 inches in height); the herbage is dark green; the minute flowers are white or pale yellow; flowering generally takes place between early February and mid-May (additional records: two for mid-January and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; rocky and sandy canyon bottoms; along crevices in rocks; rocky-gravelly-sandy ledges; rocky and shaley-clayey ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; along and on bedrock, bouldery, bouldery-cobbly-sandy, rocky, rocky-clayey and gravelly slopes; rocky bajadas; rocky outcrops; amongst boulders and rocks; rocky and sandy flats; basins; rocky roadsides; rocky arroyos; gravelly and gravelly-sandy bottoms of arroyos; gravelly draws; along streams; along streambeds; in creeks; creekbeds; along rivers; along gravelly riverbeds; along and in bedrock, rocky-sandy and sandy washes; along and in rocky drainages; rocky banks or rivers; edges of washes; gravelly-sandy and sandy margins of arroyos and watercourses; floodplains; along rocky fencelines; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; clayey loam ground, and rocky clay and shaley clay ground, occurring from 700 to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium proliferum* is native to southwest-central and southern North America. *5, 6, 15, **16**, 18 (genus), 43 (042310), 46 (Page 812), 58, 63 (042310), 77, **85** (042310 - color presentation of dried material), **89***

***Galium stellatum* A. Kellogg (subsp. *eremicum* (M.L. Hilend & J.T. Howell) F. Ehrendorfer is the subspecies reported as occurring in Arizona): Starry Bedstraw**

SYNONYMY: (for *G.s.* subsp. *eremicum*: *Galium stellatum* A. Kellogg var. *eremicum* M.L. Hilend & J.T. Howell). COMMON NAMES: Bedstraw, Desert Bedstraw, Shrubby Bedstraw, Starry

Bedstraw. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 40 inches in height, one plant was reported to be 20 inches in height with a crown 14 inches in width); the bark is gray; the stems are reddish; the leaves are dark green; the flowers are cream, gray-yellow, greenish, greenish-yellow, white, yellow-green, yellowish or yellowish-cream; flowering generally takes place between mid-February and mid-June (additional records: one for early July, one for mid-August, one for early September, two for mid-September, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; rocky cliffs; rock walls; rocky canyons; rocky canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; bases of cliffs; talus slopes; crevices in boulders and rocks; pockets of soil; bluffs; tops of bluffs; buttes; ledges; rocky and shaley ridges; gravelly-clayey ridgetops; rocky and shaley foothills; rocky and gravelly hills; rocky, rocky-shaley, rocky-gravelly and gravelly hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, cindery and gravelly-loamy slopes; gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; rocky alcoves; bouldery-sandy grottos; lava flows; valley floors; along roadsides; along arroyos; rocky gulches; gravelly ravines; seeps; springs; along streams; rivers; along and in bouldery, bouldery-rocky-sandy, rocky and sandy washes; bouldery-cobbly drainages; drainage ways; sandy banks of creeks and rivers; margins of drainages; shores of rivers; bouldery-sand bars; rocky beaches; debris fans; sandy terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, bouldery-cobbly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly and sandy ground and rocky-gravelly loam and gravelly loam ground, occurring from 1,100 to 4,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium stellatum* is native to southwest-central and southern North America. *5, 6, **16**, 18 (genus), 28 (color photograph), 43 (042310 - *Galium stellatum* Kellogg, *Galium stellatum* subsp. *eremicum* (Hilend & J.T. Howell) Ehrend., *Galium stellatum* var. *eremicum* Hilend & J.T. Howell), 46 (Page 811), 63 (042310), **85** (042310 - color presentation), **89***

Galium stellatum var. *eremicum* (see *Galium stellatum* subsp. *eremicum*)

Rutaceae: The Rue Family

***Thamnosma texana* (A. Gray) J. Torrey: Rue of the Mountains**

COMMON NAMES: Cordoncillo, Desert Rue, Dutchman's Britches, Ruda del Monte, Rue of the Mountains, Texas Desertrue. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 32 inches in height); the herbage is blue-green, gray-green, grayish-green or green; the flowers are brownish-purple, dark lavender, magenta, pink, purple, purple & white, dull red-maroon, red-purple, reddish, rose-red, white & pink, whitish or yellowish; flowering generally takes place between early February and mid-May (additional records: one for early August, one for mid-August, one for late August, one for mid-September, one for late September, four for late October, one for early December and one for mid-December); the mature fruits are green tinged with purple or red. HABITAT: Within the range of this species it has been reported from mountains; bedrock-gravelly-clayey-loamy mountainsides; mesas; along rocky canyons; crevices in rocks; bluffs; ridges; rocky ridgetops; foothills; rocky hills; hilltops; rocky and rocky-gravelly-loamy hillsides; bedrock, rocky, rocky-gravelly-loamy and gravelly slopes; alluvial fans; gravelly bajadas; rocky outcrops; outwash fans; gravelly flats; valley floors; along roadsides; rocky arroyos; sandy bottoms of arroyos; around springs; along rivers; along rocky washes; along drainages; rocky edges of washes; benches; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly and sandy ground and rocky-gravelly loam and gravelly-clayey loam ground, occurring from 2,000 to 5,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Desert Rue is reportedly aromatic with the herbage being pleasantly fragrant. *Thamnosma texana* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (042410

- *Thamnosma texana* Torr.), 46 (Page 494), 63 (042410 - color presentation), **77**, **85** (042410 - color presentation of dried material)*

Salicaceae: The Willow Family

Populus arizonica (see *Populus fremontii* subsp. *fremontii* and/or *Populus fremontii* subsp. *mesetae*)

***Populus fremontii* S. Watson: Frémont Cottonwood**

COMMON NAMES: Alamo (Spanish), Alamo Cottonwood, Arizona Cottonwood, Cottonwood, Frémont Cottonwood, Frémont Poplar, Frémont's Cottonwood, Meseta Cottonwood, Rio Grande Cottonwood, Western Cottonwood. DESCRIPTION: Terrestrial perennial deciduous tree (20 inches to 112 feet in height with a wide and flat-topped crown, one sapling was described as being 20 inches in height and 8 inches in width); the older fissured bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny gray-green, bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May (additional records: one for late August and one for mid-September); the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rocky canyons; along rocky and sandy canyon bottoms; chasms; bases of cliffs; bluffs; edges of meadows; foothills; along bouldery hills; rocky hillsides; bouldery-loamy, rocky, gravelly-sandy and sandy-clayey-loamy slopes; amongst rocks; gravelly and clayey flats; basins; valley floors; along valley bottoms; along railroad right-of-ways; gravelly-loamy and sandy-loamy roadsides; within sandy-silty arroyos; bottoms of arroyos; draws; springs; along streams; gravelly streambeds; along creeks; rocky and sandy creekbeds; along rivers; sandy-clayey-loamy riverbeds; along and in rocky-sandy, sandy and loamy washes; drainages; waterholes; oases; cienegas; freshwater marshes; along rocky and sandy banks of streams, creeks, rivers and washes; along edges of streams, rivers, ponds and lakes; sandy-clayey margins of rivers and playas; along shores of lakes; gravel and sand bars; rocky-sandy benches; terraces; bottomlands; sandy floodplains; mesquite bosques; stock tanks; edges of reservoirs; along canals; along ditches; ditch banks; bouldery-gravelly-sandy, rocky-silty-loamy, sandy and silty-loamy riparian areas, and disturbed areas growing in areas where subsurface water is available in bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-loamy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-silty loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, as fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Consider planting male trees if the "cotton" produced by female trees is objectionable. The Frémont Cottonwood is very useful in slowing soil and stream bank erosion and in re-vegetating damaged riparian areas. The cottonwood provides food for Beavers, Elk, Deer, and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization

and the loss of suitable recruitment sites. The Fremont Cottonwood has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Populus fremontii* is native to southwest-central and southern North America. *5, 6, 13, 18, 26 (color photograph), 28 (color photograph), 43 (042410), 46 (Pages 208-209), 48, 52 (color photograph), 53, 58, 63 (042310 - color presentation), 77, **85** (042510 - color presentation), **89**, 115 (color presentation), 127*

***Populus fremontii* S. Watson subsp. *fremontii*: Frémont Cottonwood**

SYNONYMY: *Populus arizonica* C.S. Sargent *Populus fremontii* S. Watson var. *arizonica* (C.S. Sargent) W.L. Jepson, *Populus fremontii* S. Watson var. *macdougalii* (J.N. Rose) W.L. Jepson, *Populus fremontii* S. Watson var. *pubescens* C.S. Sargent, *Populus fremontii* S. Watson var. *thornberi* C.S. Sargent, *Populus fremontii* S. Watson var. *toumeyi* C.S. Sargent. COMMON NAMES: Alamo (Spanish), Alamo Cottonwood, Arizona Cottonwood, Cordate-leaved Cottonwood, Cottonwood, Frémont Cottonwood, Frémont Poplar, Frémont's Cottonwood, Rio Grande Cottonwood, Western Cottonwood. DESCRIPTION: Terrestrial perennial deciduous tree (10 to 112 feet in height with a wide and flat-topped crown); the older bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May; the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along canyons; canyon bottoms; foothills; along bouldery hills; bouldery-loamy and rocky slopes; gravelly and clayey flats; basins; valley bottomss; springs; along streams; streambeds; along creeks; sandy-loamy creekbeds; along rivers; sandy-clayey-loamy riverbeds; along washes; drainages; waterholes; oases; cienegas; along banks of streams, creeks and rivers; edges of ponds and lakes; margins of playas; along shores of lakes; gravel and sand bars; terraces; bottomlands; floodplains; mesquite bosques; stock tanks; edges of reservoirs; along ditches; bouldery-gravelly-sandy riparian areas, and disturbed areas growing in areas where subsurface water is available in bouldery, bouldery-gravelly-sandy, bouldery-loamy, rocky, gravelly and sandy ground; sandy loam and sandy-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat.

The species, *Populus fremontii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Use as a specimen plant in a large area and as a re-vegetation plant for the areas immediately adjacent to the main channel of streams, creeks, and rivers. Consider planting male trees if the "cotton" produced by female trees is objectionable. The cottonwood provides food for Beavers, Elk, Deer, and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. The Fremont Cottonwood has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Populus fremontii* subsp. *fremontii* is native to southwest-central and southern North America. *5, 6, 13, 15, 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of the species), 43 (042410), 46 (Pages 208-209), 48 (species), 52 (species, color photograph of the species), 53 (species), 58 (species), 63 (042410 - color presentation of bark), **85** (042510), 115 (color presentation of the species), 127 (species)*

***Populus fremontii* S. Watson subsp. *mesetae* J.E. Eckenwalder: Frémont Cottonwood**

SYNONYMY: *Populus arizonica* C.S. Sargent, *Populus fremontii* S. Watson var. *mesetae* (J.E. Eckenwalder) E.L. Little, *Populus mexicana* auct. non A. Wesmael. COMMON NAMES: Alamo (Spanish), Alamo Cottonwood, Arizona Cottonwood, Cottonwood, Frémont Cottonwood, Frémont Poplar, Frémont's Cottonwood, Meseta Cottonwood, Rio Grande Cottonwood, Western Cottonwood. DESCRIPTION: Terrestrial perennial deciduous tree (10 to 112 feet in height with a rounded crown); the older bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate

trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May; the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from canyons; canyon bottoms; foothills; valley bottoms; springs; along streams; streambeds; along creeks; along rivers; along sandy washes; drainages; waterholes; oases; cienegas; along banks of streams, creeks and rivers; sandy-clayey margins of rivers; gravel and sand bars; terraces; bottomlands; sandy floodplains; mesquite bosques; along ditches; riparian areas, and disturbed areas growing in areas where subsurface water is available in rocky, gravelly and sandy ground; sandy-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 9,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Populus fremontii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Consider planting male trees if the "cotton" produced by female trees is objectionable. The Cottonwood Tree is very useful in slowing soil and stream bank erosion and in re-vegetating damaged riparian areas. The cottonwood provides food for Beavers, Elk, Deer, and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell's Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. The Fremont Cottonwood has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Populus fremontii* S. Watson subsp. *mesetae* is native to southwest-central and southern North America. *5, 6, 13 (species), 18 (species), 26 (species, color photograph of the species), 28 (species, color photograph of the species), 43 (042410), 46 (species, Pages 208-209), 48 (species), 52 (species, color photograph of the species), 53 (species), 58 (species), 63 (042410), 77 (species), **85** (042510), 115 (color presentation of the species), 127 (species)*

Populus fremontii var. *arizonica* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *macdougalii* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *mesetae* (see *Populus fremontii* subsp. *mesetae*)

Populus fremontii var. *pubescens* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *thornberi* (see *Populus fremontii* subsp. *fremontii*)

Populus fremontii var. *toumeyi* (see *Populus fremontii* subsp. *fremontii*)

Populus mexicana (see *Populus fremontii* subsp. *mesetae*)

***Salix* C. Linnaeus: Willow**

COMMON NAME: Willow. *43 (042510), 46 (Pages 209-213 and Supplement Page 1044), 63 (042510), 85 (042510), **89** (This entry most likely refers to *Salix exigua* which was reported by Thornber in 1913 as being present at the Santa Cruz River (in the river bed, along sand bars, along the banks and bottom lands) at Tucson, Arizona.)

***Salix exigua* T. Nuttall: Narrowleaf Willow**

SYNONYMY: *Salix exigua* T. Nuttall var. *nevadensis* (S. Watson) C.K. Schneider, *Salix exigua* T. Nuttall var. *stenophylla* (P.A. Rydberg) C.K. Schneider. COMMON NAMES: Acequia Willow, Basket Willow, Bila (Zuni for Willow, Bark of the Willow is Bila Tsikwa:we), Coyote Willow, Desert Willow, Dusky Willow, Gray Willow, Hinds' Willow, Longleaf Willow, Narrow-leaf Sandbar Willow, Narrow-leaf Willow, Narrowleaf Willow, Sandbar Willow, Silvery Desert Willow, Texas Sandbar Willow. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (20 inches to 33 feet in height); the bark is greenish or green-gray becoming gray-brown with age; the branches are gray-brown, red-brown or yellow-brown; the twigs are reddish or yellow-brown aging to gray or red-brown; the leaves are gray-green, silvery or yellow-green; the flowers (catkins with the male (½ to 1 inch in length) and female (½ to 1½ inches in length) on separate trees) are yellow; the anthers are yellow; flowering generally takes place between early February and early September (additional records: two for early October, three for mid-October, one for mid-November and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rocky, gravelly, sandy and clayey canyons; along bouldery-sandy, rocky, rocky-sandy, sandy, sandy-loamy and sandy-silty canyon bottoms; silty bases of cliffs; crevices in rocks; meadows; foothills; hills; bouldery-sandy, rocky, cindery, sandy and clayey-loamy slopes; amongst boulders; sandy steppes; prairies; plains; cindery, sandy and silty flats; basins; hollows; sandy valley floors; bouldery-gravelly valley bottoms; coastal flats; along gravelly roadsides; within rocky and stony arroyos; silty bottoms of draws; gulches; ravines; bottoms of ravines; stony and gravelly seeps; springs; along and in bouldery-rocky, gravelly and sandy streams; bouldery, bouldery-stony-sandy-silty, bouldery-sandy, rocky-sandy and sandy streambeds; along and in rocky and rocky-gravelly-sandy creeks; along and in bouldery, sandy and silty creekbeds; along and in rivers; along and in rocky-sandy, gravelly-sandy and sandy riverbeds; along and in bedrock, rocky, gravelly, gravelly-sandy and sandy washes; along rocky, gravelly-sandy, sandy-loamy and clayey-loamy drainages; among and in pools; along and in silty ponds; along lakes; waterholes; boggy areas; cienegas; freshwater marshes; silty depressions; along rocky and sandy banks of springs, streams, streambeds, creeks, creekbeds; rivers, riverbeds and washes; along rocky, gravelly, sandy, sandy-loamy and silty edges of springs, streams, creeks, rivers, riverbeds, washes, ponds, lakes and saltwater marshes; along rocky and rocky-sandy margins of rivers, lakes and lakebeds; along silty shores of rivers and lakes; mudflats; along gravel and sand bars; beaches; sandy benches; sandy terraces; sandy bottomlands; bedrock, bouldery, bouldery-gravelly-sandy, stony-sandy, gravelly, gravelly-sandy, sandy and silty floodplains; lowlands; mesquite bosques; willow thickets; borders of reservoirs; along canals; along canal banks; along ditches;

along sandy ditch banks; rocky-gravelly-sandy, rocky-sandy, gravelly-loamy and sandy riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, shaley, stony, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; clay ground, and bouldery-stony-sandy silty, rocky silty, sandy silty and silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), fodder, beverage, and/or fiber crop; it was also noted as having been used as a fuel, as tools, to make clappers and whistles, as a drug or medication and as ceremonial items. The Narrowleaf Willow may be useful in re-vegetating riparian areas and planting on stream bottoms to prevent surface erosion. It is more of a thicket-forming than a tree-forming species with individual stems having a life span of 10 to 20 years of age. Narrowleaf Willow is browsed by Moose (*Alces alces*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*) and American Beaver (*Castor canadensis*) with the thickets providing excellent cover for birds and other wildlife. The Narrowleaf Willow has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Salix exigua* is native to northwestern, central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph), 43 (042510), 46 (recorded as *Salix exigua* Nutt. var. *nevadensis* (Wats.) Schneid., Page 211 and *Salix exigua* Nutt. var. *stenophylla* (Rydb.) Schneid., Page 211), 48 (genus), 52 (color photograph), 53, 63 (042510 - color presentation), **85** (042610 - color presentation), 89 (*Salix exigua* is most likely the species reported as an unknown species of *Salix* in the listing, recorded as *Salix* sp.), 127*

Salix exigua var. *nevadensis* (see *Salix exigua*)

Salix exigua var. *stenophylla* (see *Salix exigua*)

***Salix gooddingii* C.R. Ball: Goodding's Willow**

SYNONYMY: *Salix gooddingii* C.R. Ball var. *variabilis* C.R. Ball, *Salix nigra* H. Marshall var. *vallicola* W.R. Dudley. COMMON NAMES: Black Willow, Dudley Willow, Goodding Black Willow, Goodding Willow, Goodding's Black Willow, Goodding's Willow, Valley Willow, Western Black Willow. DESCRIPTION: Terrestrial perennial deciduous tree (4 to 60 feet in height with a broad rounded crown);

the older bark is gray and deeply furrowed; the twigs are brown, pale gray, gray-tan, yellow or yellow-brown; the leaves (2 to 4 inches in length) are green or yellowish-green; the flowers (male catkins (1½ to 3 inches in length) and female catkins (1 to 2½ inches in length) are on separate trees) are cream, green, yellow or yellow-green; flowering generally takes place between mid-December and late June (additional records: one for mid-July and one for early mid-August); the seeds are cottony. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; along rocky canyons; along bedrock, bouldery-gravelly-sandy, rocky and silty canyon bottoms; meadows; foothills; rocky hillsides; rocky, rocky-sandy, sandy, clayey-loamy and silty slopes; amongst boulders and rocks; bouldery niches; gravelly, sandy, clayey and silty flats; basins; valley floors; along bouldery-sandy valley bottoms; along railroad right-of-ways; roadsides; along and in arroyos; rocky bottoms of arroyos; along and in rocky draws; gullies; gravelly-clayey-loamy ravines; in sand and silt about seeps; in gravel and sand around springs; in sand along and in streams; sandy streambeds; in sand along creeks; along and in bouldery-sandy-silty, rocky, cobbly-gravelly-silty, sandy and silty creekbeds; in gravel and sand along rivers; along and in bouldery, sandy and silty riverbeds; along and in gravelly-sandy washes; along sandy drainages; along and in rocky, gravelly and silty-clayey drainage ways; along rocky-sandy-clayey-loamy watercourses; around and in pools; boggy areas; cienegas; freshwater marshes; depressions; along bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, gravelly-clayey, sandy and loamy banks of streams, creeks, rivers and washes; along muddy, sandy and sandy-clayey edges of gullies, seeps, streams, creeks, ponds, playas, freshwater marshes and sloughs; muddy, rocky and sandy margins of rivers, ponds, pools, lakes, lakebeds and marshes including saltwater marshes; along shores of rivers and lakes; mudflats; gravel and sand bars; sandy beaches; silty benches; sandy terraces; bottomlands; along boulder-stony-gravelly-sandy-silty, bouldery-gravelly-sandy-loamy, rocky, cobbly-gravelly, gravelly, gravelly-sandy, gravelly-silty, sandy and silty floodplains; willow thickets; along fencelines; along dikes; rocky edges and beds of stock tanks; banks of reservoirs; along canals; canal banks; along and in cindery and sandy ditches; along ditch banks; rocky, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-clayey and silty riparian areas, and disturbed areas growing in shallow water; muddy, and wet or moist bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy loam, rocky-sandy-clayey loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and bouldery-stony-gravelly-sandy silty, cobbly-gravelly-silty, gravelly silty, gravelly-sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and useful in the re-vegetating of disturbed riparian areas. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a tool and as a drug or medication. This plant is important in stream bank protection and in controlling erosion and provides valuable shade for fish and other wildlife. The Goodding Willow provides cover and browse for wildlife, and the bark is eaten by beavers. This plant is a preferred food plant of the American Beaver (*Castor canadensis*) and is used in the building of their lodges and dens. The Goodding Willow has been EXTIRPATED from this township; however, one tree has been observed growing on the edge of the channalized Santa Cruz River. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush

(*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Salix gooddingii* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Salix nigra* Marsh. var. *vallicola* Dudley), 15, 18 (genus), 28 (color photograph), 43 (042610), 46, 48 (genus), 52 ("Goodding Willow" listed as a common name under *Salix nigra* Marsh), 53, 58, 63 (042610 - color presentation), 77, **85** (042610 - color presentation), **89** (recorded as *Salix nigra* Marsh), 115 (color presentation), 127*

Salix gooddingii var. *variabilis* (see *Salix gooddingii*)

Salix nigra var. *vallicola* (see *Salix gooddingii*)

Sapindaceae: The Soapberry Family

Sapindus drummondii (see *Sapindus saponaria* var. *drummondii*)

***Sapindus saponaria* C. Linnaeus var. *drummondii* (W.J. Hooker & G.W. Arnott) L.D. Benson: Western Soapberry**

SYNONYMY: *Sapindus drummondii* W.J. Hooker & G.W. Arnott. COMMON NAMES: Amole, Amolio, Arbolillo, Cherioni, Cherrion, Guayul, Indian Soap Plant, Jaboncillo (Spanish), Matamuchacho, Mexican Soapberry, Ojo de Loro, Palo Blanco, Soap Berry, Soapberry, Tehuistle, Tzatzupa, Western Soapberry, Wild Chinaberry, Wild China-tree, Wild Chinatree. DESCRIPTION: Terrestrial perennial winter deciduous shrub or tree (7 to 50 feet in height with a rounded crown 25 to 30 feet in width); the bark is gray, grayish, grayish-brown, reddish-brown or yellow-gray; the twigs are gray-brown, yellow-green or yellowish-gray; the leaflets are a light green or dull yellow-green turning to yellow-gold in the fall; the flowers (1/8 to 1/4 inch in diameter in clusters 6 to 9 inches in length) are cream, cream-yellow, greenish-white, white, yellow or yellowish-white; flowering generally takes place between early May and mid-July (additional record: one for late March, flowering as late as August has been reported); the poisonous fruits (3/8 to 1/2 inch in diameter) are amber, golden, orange, orange-brown, yellowish or yellow-amber turning black or reddish-brown when dry. HABITAT: Within the range of this species it has been reported from mountains; along canyons; canyonsides; rocky, gravelly-clayey, sandy-loamy and loamy canyon bottoms; talus slopes; crevices in rock; meadows; foothills; hilltops; rocky and rocky-clayey hillsides; rocky, rocky-clayey, gravelly-clayey, sandy-loamy and clayey slopes; amongst boulders; sand dunes; sandy-silty berms; plains; bouldery flats; valley floors; along roadsides; along and in arroyos; within draws; gulches; ravines; springs; along rocky streams; along streambeds; along and in creeks; along and in creekbeds; bouldery and sandy riverbeds; along and in bedrock, rocky and rocky-gravelly washes; along bouldery drainages; along watercourses; along banks of streams, creeks and drainages; along edges of creekbeds and washes; sandy shores of riverbeds; terraces; sandy bottomlands; floodplains; mesquite bosques; fencerows; rocky riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy and sandy ground; sandy loam and loam ground; rocky clay, gravelly clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 1,100 to 6,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland

ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as tools, for making toys and as a drug or medication. The Western Soapberry has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Sapindus saponaria* var. *drummondii* is native to south-central and southern North America. *5, 6, 13, 15, 28 (color photograph), 43 (042710), 46 (Page 528), 52 (recorded as *Sapindus drummondii* Hook. & Arn., color photograph), 53 (recorded as *Sapindus drummondii* Hook. & Arn.), 58, 63 (042710 - color presentation), 80 (*Sapindus saponaria* var. *drummondii* is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This small tree growing along streams is considered poisonous but it is seldom eaten by livestock.”), **85** (042710 - color presentation), 91), **89**, 115 (color presentation of the species), 127*

Scrophulariaceae: The Figwort Family

***Castilleja exserta* (A.A. Heller) T.I. Chuang & L.R. Heckard (subsp. *exserta* is the subspecies reported as occurring in Arizona): Exserted Indian Paintbrush**

SYNONYMY: (for *C.e.* subsp. *exserta*: *Orthocarpus purpurascens* G. Bentham, *Orthocarpus purpurascens* G. Bentham var. *palmeri* A. Gray). COMMON NAMES: Common Owl’s Clover, Escobita (Spainish “Little Broom”), Escobita Owlclover, Exserted Indian Paintbrush, Mohave Owl Clover, Owl Clover, Owl’s Clover, Purple Owl Clover. DESCRIPTION: Terrestrial annual forb/herb (4 to 16 inches in height); the stems may be green, maroon or purple; the leaves are green-gray, greenish, purple-green or purplish; the flowers (1 to 1¼ inches in length in broom-like spikes of bracts to 1 inch in length) may be lavender, lavender-rose, magenta, magenta-pink, magenta-pink-lavender, magenta-rose, pink, pink-lavender, pink-magenta, pink-purple, pink-white, pinkish-violet, purple, purple-lavender, purple-lavender-pink, purple-pink, purple-white, purple-white-yellow, purple-yellow, red, reddish-purple, rose, rose-lavender, rose-lavender-white, rose-pink, violet, white, white-purple-magenta, white-yellow, yellow or yellow-maroon; flowering generally takes place between late January and early July (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; along rocky cliffs; canyons; sandy-loamy canyon bottoms; bedrock and gravelly knolls; rocky and shaley ridges; rocky ridgetops; rocky-sandy and loamy-clayey meadows; foothills; bouldery, rocky and gravelly-loamy hills; rocky hilltops, rocky hillsides; rocky, rocky-sandy,

rocky-clayey, gravelly, sandy-loamy, clayey-loamy, clayey and silty-clayey-loamy slopes; rocky-sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; gravelly and sandy plains; gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-silty and clayey flats; basins; valley floors; coastal plains; along railroad right-of-ways; along sandy roadsides; along gravelly arroyos; gulches; gullies; ravines; around springs; around seeping streams; creeks; along gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in gravelly and sandy washes; drainages; rocky-gravelly banks of streams and rivers; sandy edges of rivers, riverbeds, washes, pools and lakes; shores of lakes; benches; gravelly and sandy terraces; sandy bottomlands; edges of stock tanks; edges of canals, and gravelly-sandy and sandy riparian areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty-clayey loam and silty loam ground; rocky clay, loamy clay and clay ground, and sandy silty ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Castilleja exserta* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Orthocarpus purpurascens*, color photograph), 43 (042710), 46 (recorded as *Orthocarpus purpurascens* Benth., Page 792 and *Orthocarpus purpurascens* Benth. var. *palmeri* Gray, Page 792), 48 (genus), 63 (042710 - color presentation), 80 (Species of the genus *Castilleja* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Various species of this genus are secondary or facultative selenium absorbers."), **85** (042710 - color presentation including habitat), 86 (recorded as *Orthocarpus purpurascens*, color photograph), 115 (color presentation)*

***Castilleja exserta* (A.A. Heller) T.I. Chuang & L.R. Heckard subsp. *exserta*: Exserted Indian Paintbrush**

SYNONYMY: *Orthocarpus purpurascens* G. Bentham, *Orthocarpus purpurascens* G. Bentham var. *palmeri* A. Gray. COMMON NAMES: Common Owl's Clover, Escobita (Spainish "Little Broom"), Escobita Owlclover, Exserted Indian Paintbrush, Mohave Owl Clover, Owl Clover, Owl's Clover, Purple Owl Clover, Texas Cloves. DESCRIPTION: Terrestrial annual forb/herb (4 to 16 inches in height); the stems may be green or purple; the leaves are greenish, gray-green or purplish; the flowers (1 to 1¼ inches in length in broom-like spikes of bracts to 1 inch in length) may be lavender, lavender-rose, magenta, magenta-pink, magenta-pink-lavender, magenta-rose, pink, pink-magenta, pink-purple, purple, purple-lavender-pink, purple-yellow, red, red-purple, rose, rose-lavender, rose-pink, rose-white, rose-yellow, violet, white or yellow-maroon; flowering generally takes place between late January and mid-May (additional records: one for early June and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; along rocky cliffs; canyons; sandy-loamy canyon bottoms; bedrock and gravelly knolls; rocky and shaley ridges; rocky-sandy and loamy-clayey meadows; foothills; rocky and gravelly-loamy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, sandy-loamy, clayey and silty-clayey-loamy slopes; gravelly bajadas; gravelly and sandy plains; gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-silty flats; basins; valley floors; along sandy roadsides; along arroyos; gulches; gullies; ravines; around springs; around seeping streams; creeks; along gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly and sandy washes; rocky-gravelly banks of streams and rivers; sandy edges of rivers, riverbeds and washes; shores of lakes; benches; gravelly terraces; sandy bottomlands; floodplains; edges of stock tanks; edges of canals, and gravelly-sandy and sandy riparian areas growing in dry rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and silty-clayey loam ground; rocky clay, loamy clay and clay ground, and sandy silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Castilleja exserta* subsp. *exserta* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Orthocarpus purpurascens* Benth.), **16** (recorded as *Orthocarpus purpurascens* Benth.), 28 (recorded as *Orthocarpus purpurascens*, color photograph), 43 (042710), 46 (recorded as *Orthocarpus purpurascens* Benth., Page 792 and

Orthocarpus purpurascens Benth. var. *palmeri* Gray, Page 792), 48 (genus), 58 (recorded as *Orthocarpus purpurascens* Benth.), 63 (042710 - color presentation), **77** (recorded as *Orthocarpus purpurascens*, color photograph #94), 80 (Species of the genus *Castilleja* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Various species of this genus are secondary or facultative selenium absorbers."), **85** (042710 - color presentation of dried material), 86 (recorded as *Orthocarpus purpurascens*, color photograph), **89** (recorded as *Orthocarpus purpurascens* Benth. var. *palmeri* Gray), 115 (color presentation of the species)*

Linaria canadensis var. *texana* (see *Nuttallanthus texanus*)

Linaria texana (see *Nuttallanthus texanus*)

***Maurandella antirrhiniflora* (F.W. von Humboldt & A.J. Bonpland ex C.L. von Willdenow) W.H. Rothmaler: Roving Sailor**

SYNONYMY: *Maurandya antirrhiniflora* F.W. von Humboldt & A.J. Bonpland ex C.L. von Willdenow. COMMON NAMES: Blue Snapdragon Vine, Climbing Snapdragon, Little Snapdragon Vine, Roving Sailor, Snapdragon Maurandya, Snapdragon Vine, Twining Snapdragon, Vine Blue Snapdragon, Violet Twining, Violet Twining Snapdragon. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing or twining stems 1 to 8 feet in length, one plant was described as being a climbing vine 3 feet by 2 feet); the arrowhead-shaped leaves are a bright green; the flowers are blue, blue-lavender, blue-purple, blue-violet, blue & white, lavender, lavender-white, lilac, magenta, magenta-lilac, magenta-pink, magenta-purple, maroon-pink, pink, pink-fuchsia, pink-purple, light purple, purple, dark purple, purple-blue, purple-lilac, purple-pink, purple-red, purple-rose, purple & white, purple & yellow, pale purplish, bright red, reddish-lavender, reddish-pink, reddish-purple, red-rose, rose, rose-pink, rose-purple, rose-red, pale violet or white; flowering generally takes place between late March and early November (additional records: one for late February and one for early March); the fruit is cup-shaped. HABITAT: Within the range of this species it has been reported from mountains; bouldery and gravelly mesas; cliffs; rims of canyons; bouldery, rocky and gravelly-loamy canyons; along canyon walls; bouldery, rocky and cobbly canyon bottoms; gorges; bases of cliffs; gravelly talus slopes; crevices in rocks; rock walls; rocky ledges; rocky-gravelly meadows; cinder cones; foothills; rocky hills; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy-loamy, rocky-sandy, stony, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders, rocks and pebbles; rocky alcoves; debris fans; sandy lava flows; flats; valley floors; along gravelly-loamy roadsides; within arroyos; clayey bottoms of arroyos; draws; gulches; seeps; rocky springs; along streams; along and in rocky and gravelly streambeds; along creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, shaley, gravelly and sandy washes; drainages; drainage ways; watercourses; along sandy waterfalls; in shallow pools; along rocky and sandy banks of arroyos, streams, creeks, rivers and washes; edges of washes and lakes; along margins of arroyos and washes; pebbly shores of lakes; gravel bars; benches; shaley and sandy terraces; floodplains, and bouldery riparian areas growing in wet, moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly-sandy loam, gravelly loam, sandy-clayey loam and clayey loam ground; clay ground, and silty ground often observed growing in the shade under and in shrubs and trees and amongst rocks, occurring from 1,200 to 8,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The vines will die back to the ground in the winter months. *Maurandella antirrhiniflora* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Maurandya antirrhiniflora*, color photograph), 43 (042710), 46 (recorded as *Maurandya antirrhiniflora* Humb. & Bonpl., Page 767), **56**, **57**, 58, 63 (042710 - color presentation), 77 (recorded as *Maurandya antirrhiniflora*, color photograph #93), **85** (042710 - color presentation including habitat), 86 (recorded as *Maurandya antirrhiniflora*, color photograph), **89** (recorded as *Maurandya antirrhiniflora* (Poir.) Willd.), 115 (color presentation)*

Maurandya antirrhiniflora (see *Maurandella antirrhiniflora*)

***Mimulus guttatus* A.P. de Candolle: Seep Monkeyflower**

COMMON NAMES: Berro (Portuguese), Common Monkey Flower, Common Monkey-flower, Monkey Flower, Monkey-flower, Monkeyflower, Parish's Monkeyflower, Seep Monkeyflower, Seep-spring Monkey Flower, Spotted Monkey Flower, Yellow Monkey Flower, Yellow Monkey-flower. DESCRIPTION: Terrestrial (or semi-aquatic) annual or perennial forb/herb (2 inches to 5 feet in height); the leaves are dark green; the flowers are bright orange-yellow, pale yellow, yellow or yellow with brown-red, golden, maroon, orange, orange-brown, orange-red, red, red-brown, reddish, reddish-brown or reddish-orange spots; flowering generally takes place between mid-February and early October (additional records: one for early January, one for mid-January, one for late January, one for late October, one for early November, one for mid-November and one for early December). HABITAT: Within the range of this species it has been reported from bouldery mountains; mountaintops; gravelly-loamy mountainsides; sandy and sandy-clayey mesas; rocky plateaus; rocky canyons; along bedrock, rocky, rocky-sandy, sandy and loamy-clayey canyon bottoms; rocky cliffs; rock walls; rocky bases of cliffs; rocky talus slopes; crevices in rocks; bluffs; rocky ledges; rocky clearings in woodlands; gravelly-loamy and sandy-loamy meadows; rocky foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-loamy-clayey, rocky-clayey and clayey hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and peaty-sandy slopes; alluvial fans; bajadas; bedrock and rocky outcrops; along and amongst boulders and rocks; alcoves; prairies; sandy flats; rocky-gravelly-loamy basins; sandy valley floors; valley bottoms; along coastal beaches; coastal bluffs; coastal terraces; rocky, gravelly and sandy roadsides; along and in bedrock and sandy-loamy arroyos; rocky bottoms of arroyos; muddy draws; gullies; gulches; ravines; bottoms of ravines; around and in gravelly-sandy-clayey-loamy and sandy seeps; around and in mucky, rocky-sandy, sandy-silty and loamy springs; around seeping streams; along and in bouldery, rocky, gravelly, sandy and silty streams; rocky, rocky-sandy, gravelly and sandy streambeds; along brooks; along and in sandy and loamy creeks; along and in bouldery, rocky-sandy, cobbly, gravelly-sandy and sandy creekbeds; along and in rivers; along and in sandy riverbeds; along and in bedrock, rocky-sandy, cobbly-gravelly, gravelly and sandy washes; in bouldery, cobbly-loamy and loamy drainages; in drainage ways; along watercourses; at waterfalls; oases; around and in pools; ponds; along lakes; boggy areas; cienegas; freshwater marshes; rocky-sandy marshy areas; gravelly-clayey-loamy swampy areas; bedrock depressions; along rocky, gravelly-sandy-clayey-loamy, sandy, sandy-clayey and loamy banks of arroyos, rivulets, streams, creeks, creekbeds, rivers and lakes; along and in muddy, rocky-sandy, gravelly, sandy and sandy-silty edges of rivulets, streams, creeks, rivers, washes, pools, lakes and bogs; gravelly and sandy margins of streams and creeks; along sandy shores of rivers and lakes; gravel, gravelly-sand and sand bars; cobbly-sandy benches; coves; shelves; sandy and silty-loamy terraces; loamy bottomlands; gravelly-sandy and sandy floodplains; dams; edges of stock tanks; canals; edges of canals; along and in ditches; ditch banks; rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas, and disturbed areas growing in shallow water; mucky and muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-gravelly, cobbly-sandy, gravelly, gravelly-sandy, sandy and peaty-sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, silty loam, silty-clayey loam and loam ground; rocky-loamy clay, rocky clay, sandy clay and loamy clay ground, and sandy silty and silty ground, occurring from sea level to 12,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mimulus guttatus* is native to northwestern, northern, west-central and southern North America. *5, 6, 15, 28 (color photograph), 43 (042810), 46 (Page 781), 48

(genus), 58, 63 (042810 - color presentation), 77 (color photograph #52), **85** (042810 - color presentation), 86 (color photograph), 115 (color presentation), 127*

***Nuttallanthus texanus* (G.H. Scheele) D.A. Sutton: Texas Toadflax**

SYNONYMY: *Linaria canadensis* (C. Linnaeus) G.L. Dumont de Courset var. *texana* (G.H. Scheele) F.W. Pennell, *Linaria texana* G.H. Scheele. COMMON NAMES: Blue Toad Flax, Blue Toadflax, Old Field Toad Flax, Old-field Toadflax, Texas Toad-flax, Texas Toadflax, Toadflax. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 8 to 32 inches in height); the basal rosette of leaves are dark green; the flowers may be light blue, pale blue-violet, blue, blue-purple, blue-violet, dark blue-lavender, lavender, lavender-blue, light purple, purple, dark purple, purple-blue, purple & white & yellow, purplish or violet; flowering generally takes place between late January and late May (additional records: one for late May, one for late June, one for late July, one for mid-September and one for mid-October). HABITAT: Within range reported from mountains; mountaintops; sandy mesas; canyons; gravelly canyon bottoms; crevices in rocks; clayey pockets of soil; ridges; ridgetops; foothills; rocky hills; rocky and rocky-gravelly hillsides; bouldery, bouldery-sandy, rocky, rocky-gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy and clayey slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders; bases of boulders; along volcanic dikes; sandy lava flows, banks; plains; bouldery-sandy, gravelly, gravelly-clayey-loamy and sandy flats; railroad right-of-ways; along sandy roadsides; along sandy arroyos; rocky draws; ravines; along seeps; springs; along streams; along and in rocky, rocky-sandy and sandy streambeds; along sandy creeks; rocky-sandy, cobbly and gravelly creekbeds; along rivers; along riverbeds; along and in gravelly-sandy and sandy washes; sandy drainages; within clayey depressions; loamy banks of rivers and washes; gravelly-sandy edges of arroyos; terraces; sandy floodplains; along sandy ditches; ditch banks; around stock tanks; rocky, gravelly-sandy and sandy riparian areas; recently burned areas of chaparral and coastal scrub, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and clay ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Nuttallanthus texanus* is native to northwest-central, south-central and southern North America and western and southern South America. *5, 6, 15, 28 (recorded as *Linaria texana*, color photograph), 43 (072510), 46 (recorded as *Linaria texana* Scheele Page 765), 58, 63 (072510 - color presentation), 77 (color photograph #92 labeled *Linaria texana*), **85** (072510 - color presentation), 86 (note under *L. canadensis*), 115 (color presentation)*

Orthocarpus purpurascens (see *Castilleja exserta* var. *exserta*)

Orthocarpus purpurascens var. *palmeri* (see *Castilleja exserta* var. *exserta*)

***Penstemon parryi* (A. Gray) A. Gray: Parry's Beardtongue**

COMMON NAMES: Desert Penstemon, Parry Beardtongue, Parry's Beardtongue, Parry Penstemon, Parry's Penstemon, Pichelitos, Varita de San Jose, Wind's Flower. DESCRIPTION: Terrestrial perennial forb/herb (2 to 5 feet in height and 1 to 3 feet in width); the flowers may be lavender, magenta, pink, pinkish-lavender, pinkish-purple, purple, purple-magenta, pink, red, rose-magenta, rose-pink or scarlet; flowering generally takes place between mid-February and late June (additional records: one for mid-July, one for late July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; rocky canyon bottoms; bases of cliffs; rocky ridgetops; meadows; foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; alpine fell fields; rocky slopes; bajadas; rocky outcrops; amongst rocks; plains; gravelly flats; basins; railroad right-of-ways; along gravelly, gravelly-sandy, sandy and clayey roadsides; rocky and sandy arroyos; gullies; seeps; around streams; streambeds; sandy creekbeds; along and in rocky and sandy washes; within drainages; along banks of rivers and washes; margins of rivers; benches; floodplains;

riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and clayey loam ground, and clay ground, occurring from 900 to 11,500 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Broad-billed Hummingbird (*Cynanthus latirostris*) and Costa's Hummingbird (*Calypte costae*) have been observed visiting the flowers. *Penstemon parryi* is native to southwest-central and southern North America. *5, 6, 10, 15, **16**, 18, 28 (color photograph), 43 (072909), 46 (Page 773), 48 (genus), **57**, 58, 63 (042810 - color presentation), 77 (color photograph #95), 80 (Species of the genus *Penstemon* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of Penstemon are facultative or secondary selenium absorbers."), **85** (042810 - color presentation), 86 (color photograph), **89** (recorded as *Penstemon wrightii* Hook.), 115 (color presentation)*

Penstemon wrightii (see footnote 89 under *Penstemon parryi*)

***Veronica peregrina* C. Linnaeus (subsp. *xalapensis* (K.S. Kunth) F.W. Pennell is the subspecies reported as occurring in Arizona): Neckweed**

SYNONYMY: (for *V.p.* subsp. *xalapensis*: *Veronica peregrina* C. Linnaeus var. *xalapensis* (K.S. Kunth) F.W. Pennell). COMMON NAMES: American Speedwell, Hairy Purslane Speedwell, Jalapa Speedwell, Mushikusa (transcribed Japanese), Necklace Speedwell, Necklace Weed, Neckweed, Purselane Speedwell, Veronica-de-xalapa (Portuguese, for *V.p.* subsp. *xalapensis*), Wandering Speedwell, Wen Mu Cao (transcribed Chinese). DESCRIPTION: Aquatic or terrestrial annual forb/herb (4 to 14 inches in height); the leaves are yellow-green; the tiny flowers may be blue, pink-white, purple, purple-blue, white, white-blue or white-light pink; flowering generally takes place between early February and early October (additional record: one for early November); the heart-shaped fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along bouldery and rocky canyons; bedrock and bouldery canyon bottoms; bluffs; ledges; ridges; clayey and silty meadows; bouldery hills; bouldery and rocky hillsides; bouldery, gravelly-sandy, sandy and silty slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bouldery outcrops; amongst rocks; clayey-loamy prairies; plains; loamy flats; sandy hollows; valley floors; muddy valley bottoms; coastal plains; along gravelly and gravelly-sandy roadsides; within bedrock arroyos; draws; bottoms of draws; gulches; ravines; muddy seeps; springs; in clay along rocky-silty streams; along and in bouldery-sandy and sandy streambeds; along creeks; along rocky-sandy, cobbly, gravelly-sandy and sandy creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-clayey, rocky-silty, gravelly and sandy washes; rocky-sandy and rocky-silty drainages; within drainage ways; waterholes; around and in clayey and clayey-loamy pools; silty-clayey poolbeds; in rocks around silty ponds; pondbeds; in lakes; lakebeds; playas; around and in lagoons; boggy areas; silty marshes; loamy-clayey depressions; within clayey "tobosa" swales; along muddy, sandy, sandy-silty and loamy banks of streams, creeks, rivers, pools and lakes; along muddy edges of streams, rivers, washes, pools, ponds and lakes; along clayey margins of streamlets, streams, pools, ponds and lakes; along mucky and muddy shores of ponds and lakes; gravelly-silty-loamy mudflats; sand bars; benches; sandy terraces; bottomlands; silty-clayey floodplains; dams; below dikes; in silty-clayey stock tanks; sandy, silty and muddy edges of stock tanks (charcos, repressos); edges of reservoirs; along ditches; silty trenches; rocky, cobbly, gravelly-sandy, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky, muddy and soggy, and wet, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, clayey loam and loam ground; rocky clay, sandy clay, loamy clay, silty clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from 100 to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Veronica peregrina* is native to northwestern, northern, central and southern North America; Central America and coastal Islands in the Caribbean Sea, and eastern, western and southern South America. *5, 6, 18 (genus), 43 (042810 -

Veronica peregrina var. *xalapensis* Kunth), 46 (Page 785), **56**, **57**, 63 (042810 - color presentation), **85** (042910 - color presentation), **89**, 101 (color photograph)*

Veronica peregrina var. *xalapensis* (see *Veronica peregrina* subsp. *xalapensis*)

Simmondsiaceae: The Jojoba Family

Simmondsia californica (see *Simmondsia chinensis*)

***Simmondsia chinensis* (J.H. Link) C.K. Schneider: Jojoba**

SYNONYMY: *Simmondsia californica* T. Nuttall. COMMON NAMES: California Coffee Berry, California Jojoba (Hispanic), Coffee Berry, Coffeeberry, Coffee Bush, Coffee-bush, Deernut, Goat Nut, Goat-nut, Goatnut, Gray Box Bush, Ioligam (Tohono O'odham), Jojoba, Pignut, Pnaokt (Seri), Quinine Plant, Quinine-plant, Sheepnut, Wild Hazel, Wild-hazel. DESCRIPTION: Terrestrial perennial evergreen shrub (8 inches to 13 feet in height, one plant was reported to be 2 feet in height and 6½ feet in width, plants were reported to be 4 feet in height and 6 feet in width, plants were reported that were 5¼ feet in height and 5 feet in width); the stems are greenish-tan aging to reddish-brown and gray; the leaves are blue-gray, gray-green or green; the flowers (male and female flowers are borne on separate plants) are green, greenish-yellow, greenish-white, yellow or yellow-green; flowering may vary considerably from year to year but generally takes place between late December and mid-August (additional records: one for early August, one for mid-August, ten for late September, one for early October, three for mid-October, four for late October, two for early November, four for mid-November, two for late November and two for early December, peak blooms occur February through April); the ripe fruits are tan. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; cliffs; rocky cliff faces; bouldery and rocky canyons; along rocky and gravelly canyon bottoms; bouldery and rocky ridges; rocky ridgetops; rocky foothills; rocky hills; hilltops; rocky, rocky-clayey and gravelly hillsides; bouldery, rocky, gravelly, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; piedmonts; rocky outcrops; amongst boulders and rocks; rocky coves; dunes; sandy flats; basins; valley floors; coastal terraces; coastal beach dunes; coastal beaches; along rocky, rocky-sandy, gravelly-sandy and clayey roadsides; along rocky arroyos; along rocky bottoms of arroyos; draws; along sandy gullies; rocky ravines; seeps; around springs; around seeping streams; runnels; along streams; along and in streambeds; along creeks; creekbeds; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; rocky-clayey drainages; along and in drainage ways; gravelly, gravelly-sandy and sandy banks of creeks and washes; along edges of arroyos and washes; rocky margins of arroyos; rocky and gravelly terraces; loamy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. This plant may live to be from 100 to over 200 years of age. Jojoba is an important browse plant for wildlife and is browsed by Mule Deer (*Odocoileus hemionus*), Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) and Jackrabbits (*Lepus* sp.), and Collard Peccary (*Peccari tajacu* subsp. *sonoriensis*), Desert Mule Deer, ground squirrels, desert chipmunks, pack rats, gophers; mice (including the Bailey's Pocket Mouse (*Chaetodipus baileyi* subsp. *baileyi*), rabbits and other mammals and birds feed on the seeds. The Jojoba (*Simmondsia chinensis*) may also be included as a member of the Box Family (Buxaceae). *Simmondsia chinensis* is native to southwest-central and southern North America. *5, 6, **16**, 18, 26 (color photograph), 28 (color photograph), 43 (042910 - *Simmondsia chinensis* C.K. Schneid.), 46 (included as a member of the Box Family (Buxaceae), Page 521), 48, **57**, 58, 63 (042910 - color

presentation), 77, **85** (042910 - color presentation), **89** (recorded as *Simmondsia californica* Nutt.), 115 (color presentation), 127, 134, **WTK** (May 27, 2005)*

Solanaceae: The Potato Family

***Calibrachoa parviflora* (A.H. Laurent de Jussieu) W.G. D'Arcy: Seaside Petunia**

SYNONYMY: *Petunia parviflora* A.H. Laurent de Jussieu. COMMON NAMES: Seaside Petunia, Seaside-petunia, Small Flower Petunia, Wild Petunia. DESCRIPTION: Terrestrial (or semi-aquatic) annual forb/herb (prostrate and spreading stems 3 inches to 2 feet in length); the leaves are light green tinged with red or yellow-green; the tiny flowers may be blue, blue-yellow, bluish-purple, lavender, deep lavender, lavender-pink, magenta, pink, pink-lavender, pink-purple, purple, reddish-purple, rose, violet or white; flowering generally takes place between early February and early November (additional records: one for early December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; gravelly and sandy canyon bottoms; sandy bases of cliffs; meadows; foothills; rocky hillsides; rocky and silty-loamy slopes; rocky outcrops; sandy flats; basins; valley floors; valley bottoms; coastal plains; along rocky roadsides; stony arroyos; sandy gulches; sandy seeps; springs; along and in bouldery, muddy and sandy streams; bouldery-cobbly-sandy, gravelly-sandy and sandy streambeds; along sandy creeks; along and in gravelly and sandy rivers; bouldery-cobbly-sandy, rocky-cobbly-sandy, sandy and silty-clayey riverbeds; along and in bouldery, bouldery-sandy, rocky, gravelly and sandy washes; poolbeds; lakes; clayey lakebeds; cienegas; swales; sandy banks of creeks and rivers; bouldery-sandy and sandy edges of streams, rivers, riverbeds, pools, ponds and swamps; sandy margins of streambeds, pools and ponds; muddy and rocky-sandy shores of ponds and lakes; mudflats; sand bars; benches; sandy terraces; bottomlands; cobbly and sandy floodplains; mesquite bosques; stock tanks; reservoir beds; canals; within ditches; sandy bottoms of ditches; along banks of ditches; bouldery-cobbly-sandy, rocky, gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in muddy and wet, moist and damp bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, silty loam and loam ground, and silty clay and clay ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Calibrachoa parviflora* is native to southwest-central and southern North America and eastern and southern South America. *5, 6, 18 (genus), 43 (042910 - *Calibrachoa parviflora* (Jussieu) D'Arcy), 46 (recorded as *Petunia parviflora* Juss., Page 761), 58 (recorded as *Petunia parviflora* Juss.), 63 (042910 - color presentation of seeds), **77** (recorded as *Petunia parviflora* Juss.), **85** (042910 - color presentation of dried material), **89** (recorded as *Petunia parviflora* Juss.), 115 (color presentation)*

***Chamaesaracha coronopus* (M.F. Dunal) A. Gray: Greenleaf Five Eyes**

COMMON NAMES: Green False Nightshade, Greenleaf Five Eyes, Green-leaf Five-eyes, Small Groundcherry. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (4 to 18 inches in length, plants were observed that were 5½ inches in height and 2½ inches in width); the leaves are dark green; the flowers (1/3 to 1/2 inch in diameter) may be cream, cream-light green, cream-yellow, grayish-white, pale green, greenish-white sometimes tinged with purple, greenish-cream, greenish-yellow, lime green, purplish, white, whitish, light yellow-cream, pale yellow-pale purple, yellow, yellow & green, yellowish or yellowish-white; flowering generally takes place between early March and mid-October (additional records: one for early November and two for late November); the fruit is a globose berry. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky-gravelly and gravelly-loamy mesas; bouldery-sandy, gravelly and sandy canyons; clayey canyon bottoms; rocky and sandy ridges; ridgetops; clayey meadows; foothills; rocky, shaley and clayey hills; hilltops; hillsides; along sandy escarpments; along rocky, cindery, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-clayey-loamy, loamy and clayey slopes; bajadas; rocky outcrops; sandy lava flows; sand dunes; gravelly banks; prairies; sandy plains; gravelly, sandy and clayey flats; clayey basins; sandy valley

floors; valley bottoms; along railroad right-of-ways; sandy roadbeds; along rocky, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy and clayey roadsides; sandy arroyos; bottoms of arroyos; within draws; springs; sandy streambeds; along creeks; along rivers; sandy riverbeds; gravelly, gravelly-sandy-silty, sandy and sandy-loamy washes; drainages; silty playas; sumps; sandy-silty swales; banks of washes; sandy edges of washes; sandy benches; sandy terraces; sandy and clayey bottomlands; silty lowlands; floodplains; edges of ditches, and disturbed areas growing in dry bouldery-sandy, rocky, shaley, shaley-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and loam ground; sandy clay, sandy-silty clay and clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from 2,500 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Chamaesaracha coronopus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph), 43 (042910 - *Chamaesaracha coronopus* A. Gray), 46 ("The berries are eaten by the Navajo and Hopi Indians.", Pages 752-753), 63 (042910 - color presentation of seeds), 68, 85 (043010 - color presentation), **89**, 115 (color presentation), 127*

***Datura discolor* J.J. Bernhardi: Desert Thorn-apple**

COMMON NAMES: Desert Datura, Desert Thorn Apple, Desert Thorn-apple, Desert Thornapple, Poisonous Nightshade, Small Datura, Thorn Apple, Tolache, Toloache. DESCRIPTION: Terrestrial annual forb/herb (10 inches to 5 feet in height); the foliage is green or yellow-green; the trumpet-shaped flowers (2 to 6 inches in length and to 2 inches in diameter) are brownish-white, light pink, white or white tinged with purple or violet; flowering generally takes place between mid-August and late November (additional records: one for mid-January, one for late January, one for early February, two for late February four for early March, three for mid-March, one for late March, one for early April, two for mid-April, one for early May, one for mid-May, one for late May, one for mid-June, one for late June, one for mid-December); the fruits are round (1 to 1½ inches in diameter) and thorny. HABITAT: Within the range of this species it has been reported from mountains; stony canyons; canyon bottoms; rocky gorges; foothills; rocky hills; rocky hilltops; rocky, rocky-sandy and gravelly slopes; alluvial fans; rocky and gravelly-sandy bajadas; amongst rocks; sand dunes; blow-sand deposits; rocky-sandy and sandy plains; rocky, rocky-sandy and sandy flats; sandy valley floors; valley bottoms; coastal dunes; along roadsides; within arroyos; along sandy bottoms of arroyos; sandy-loamy gulches; along streambeds; in sand along rivers; along riverbeds; along and in rocky, rocky-sandy, sandy and silty washes; along drainages; silty swales; sandy-silty banks of arroyos and washes; sandy-clayey edges of swales; along margins of arroyos and washes; rocky-cobbly-shelly and sandy beaches; sandy shelves; terraces; sandy floodplains; canal banks; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; rocky, rocky-cobbly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 4,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is poisonous. Hornworms feed on the leaves. *Datura discolor* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (043010 - *Datura discolor* Bernh.), 46 (Page 760), 63 (043010 - color presentation of seeds), 68, **77**, **85** (043010 - color presentation), 101 (note under *Datura inoxia* Mill.), 115 (color presentation), 127*

Datura meteloides (see *Datura wrightii*)

***Datura wrightii* E.A. von Regel: Sacred Thorn-apple**

SYNONYMY: *Datura meteloides* auct. non M.F. Dunal p.p. COMMON NAMES: Angel's Trumpet, Devil's Weed, Giant Jimson, Hairy Thorn-apple, Indian Apple, Indian-apple, Jimson Weed, Jimsonweed, Moon Flower, Moon Lily, Pricklyburr, Sacred Datura, Sacred Thorn-apple, Sacred Thornapple, Southwestern Thorn Apple, Thorn Apple, Thorn-apple, Thornapple, Tolache, Tolguacha,

Western Jimson. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (16 inches to 5 feet in height sometimes spreading to 6 feet in width, one plant was described as being 16 inches in height and 20 inches in width, one plant was described as being 18 inches in height and 2 feet in width, two plants were described as being 20 inches in height and 20 inches in width, one plant was described as being 20 inches in height and 4 feet in width); the leaves are dark green, gray-green or purplish; the flowers (2½ to 5½ inches in length and 6 to 10 inches in diameter) may be creamy-white, greenish-white, pale ivory, pale lavender, light purple, purple, white or white tinged with lavender, pink-lavender, rose-purple or violet; flowering generally takes place between mid-March and mid-November (additional record: one for mid-February); the round and thorny fruits (1¼ to 2 inches in diameter) are green or whitish-green drying to brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; rocky canyons; chasms; sandy canyon bottoms; bases of cliffs; talus slopes; crevices in boulders and rocks; rocky ridges; foothills; rolling hills; rocky hillsides; bouldery, rocky, gravelly-loamy and sandy-silty slopes; rocky-sandy-loamy alluvial fans; alluvial fans; bajadas; boulder and rock outcrops; amongst rocks; plains; bouldery and sandy flats; sandy valley floors; sandy coastal beaches; coastal strands; along rocky, gravelly-sandy and sandy roadsides; along bedrock and sandy arroyos; along sandy draws; gulches; muddy springs; clayey streams; gravelly-sandy and sandy streambeds; along and in rocky-sandy and gravelly-sandy creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in gravelly and sandy washes; within sandy drainage ways; silty lakebeds; freshwater and saltwater marshes; clayey-loamy swales; sandy banks of arroyos, washes and rivers; edges of rivers; along margins of riverbeds; gravel bars; sandy benches; gravelly and sandy shelves; sandy terraces; sandy bottomlands; along sandy floodplains; fencelines; along and in ditches; canal banks; sandy riparian areas; sandy waste places, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy soils; rocky-sandy loam, gravelly loam and clayey loam soils; rocky clay soils; clay soils, and sandy silty and silty soils, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug, medication or narcotic. This plant is extremely poisonous. The flowers are very large (to 6 inches in length and 4 inches in width) and trumpet-shaped. *Datura wrightii* is native to south-central and southern North America. *5, 6, 28 (recorded as *Datura meteloides*, "All parts of the plant extremely poisonous if ingested", color photograph), 43 (072909), 46 (recorded as *Datura meteloides* DC., Page 760), 58, 63 (043010 - color presentation), 77, 80 (This plant is listed as a Secondary Poisonous Range Plant. "Toxicity results from the high content of several solanaceous alkaloids. Poisoning of both livestock and humans can occur from the ingestion of any part of the plant, including the seeds. ... It is rare when any livestock purposely consume any of the daturas. The ill-scented herbage makes the plants highly distasteful, and livestock literally have to be forced to eat it because of the lack of other forage."), **85** (043010 - color presentation), 86 (color photograph), **89** (recroded as *Datura meteloides* DC.), 115 (color presentation), 127*

***Lycium andersonii* A. Gray: Water Jacket**

COMMON NAMES: Anderson Desert Thorn, Anderson Lycium, Anderson Thornbush, Anderson's Thornbush, Anderson Wolfberry, Barchata, Boxthorn, Cacaculo, Desert-thorn, Desert Wolfberry, Manzanita, Narrowleaf Wolfberry, Squawberry, Tomatillo, Water Jacket, Water-jacket, Wolfberry, Wright Desert Thorn, Wright Lycium. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (1 to 10 feet in height and about the same in width, one plant was described as being 2 feet in height and width with a trunk diameter of 1 inch, one plant was described as being 3 feet in height and width with a trunk diameter of 1½ inches, one plant was described as being 4 feet in height and 6½ feet in width); the thorn-tipped older branches are grayish; the newer growth is brownish; the spatula-shaped leaves are dark green; the flowers (to ½ inch in length) may be light blue, blue, blue-lavender, pale bluish-cream, cream, cream-white, pale lavender, lavender, pink, light purple, purple, dark purple, pale violet, white, whitish or whitish with a pink tinge; flowering generally takes place between late September and late May (additional records: two for mid-June, four for late June, one for early July, one

for mid-July, two for late July, one for early August, four for late August and two for early September); the juicy fruits (to 3/8 inch in length) are orange, orange-red, bright red, reddish-orange or salmon. HABITAT: Within the range of this species it has been reported from mountains; shaley mountainsides; sandy mesas; plateaus; cliffs; rocky, rocky-gravelly, gravelly, sandy and sandy-loamy canyons; along canyon walls; rocky and sandy canyon bottoms; gorges; along bases of cliffs; rocky talus; crevices in rocks; bluffs; buttes; knolls; rocky ledges; ridges; foothills; hills; rocky hillsides; bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, shaley, cindery, gravelly and sandy slopes; alluvial fans; gravelly bajadas; amongst boulders and rocks; rocky alcoves; lava flows; sand dunes; pockets of wind-blown silt-like soils; gravelly and sandy plains; cindery, gravelly, sandy, sandy-silty and clayey flats; loamy basins; cindery valley floors; loamy valley bottoms; along railroad right-of-ways; along sandy roadsides, along rocky, gravelly and sandy arroyos; rocky draws; gullies; seeps; in shale and clay around springs; creekbeds; along rocky-sandy rivers; rocky riverbeds; along and in muddy and rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, sandy, sandy-silty washes; drainages; within drainage ways; playas; boggy areas; swales; along rocky and sandy banks of arroyos and washes; along sandy edges of streambeds and washes; along sandy-loamy margins of washes and ponds; shores of rivers; rocky benches; shaley and sandy terraces; sandy and loamy bottom lands; flood plains; mesquite bosques; fence lines; canals, and shaley and gravelly-sandy riparian areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; sandy loam, silty loam and loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from 300 to 5,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop. The Black-chinned Hummingbird (*Archilochus alexandri*) and Broad-billed Hummingbird (*Cynanthus latirostris*) have been observed visiting the flowers and birds and mammals feed on the berries. The Anderson Lycium provides resting and feeding cover for small wildlife including the Masked Bobwhite Quail (*Colinus virginianus* subsp. *ridgwayi*). *Lycium andersonii* is native to southwest-central and southern North America. *5, 6, 10, 13, 15, 18, 28 (color photograph), 43 (043010), 46 (Pages 751-752), **56**, **57**, 58, 63 (043010 - color presentation), 77, **85** (041030 - color presentation), 127*

***Lycium andersonii* A. Gray var. *wrightii* A. Gray: Water Jacket**

COMMON NAMES: Water Jacket, Wright Desert Thorn, Wright Lycium. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (1 to 10 feet in height); the thorn-tipped older branches are grayish; the newer growth is brownish; the spatula-shaped leaves are dark green; the flowers (to ½ inch in length) may be light blue, blue, blue-lavender, pale bluish-cream, cream, cream-white, pale lavender, lavender, pink, light purple, purple, dark purple, pale violet, white, whitish or whitish with a pink tinge; flowering generally takes place between late September and late May (additional records: two for late June, one for late July and one for late August); the juicy fruits (to 3/8 inch in length) are orange, orange-red, red, bright red, reddish-orange or salmon. HABITAT: Within the range of this species it has been reported from mountains; shaley mountainsides; mesas; canyon bottoms; foothills; rocky slopes; flats; roadsides; creekbeds; riverbeds; along washes; bottomlands; mesquite bosques; riparian areas and waste places growing in dry rocky and shaley ground, occurring from sea level to 2,700 feet in elevation in the grassland, desertscrub and riparian ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Lycium andersonii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop. The Black-chinned Hummingbird (*Archilochus alexandri*) and Broad-billed Hummingbird (*Cynanthus latirostris*) have been observed visiting the flowers, and birds and mammals feed on the berries. The Anderson Lycium provides resting and feeding cover for small wildlife including the Masked Bobwhite Quail (*Colinus virginianus* subsp. *ridgwayi*). *Lycium andersonii* var. *wrightii* is native to southwest-central and southern North America. *5, 6, 10, 13,

18 (species), 28 (species, color photograph of species), 43 (043010), 46 (Pages 751-752), 63 (043010), **85** (043010 - color presentation of dried material), **89**, 127 (species)*

***Lycium berlandieri* M.F. Dunal: Berlandier's Wolfberry**

COMMON NAMES: Berlandier Lycium, Berlandier Wolfberry, Berlandier's Wolfberry, Boxthorn, Huichutilla, Terrac Wolfberry, Wolfberry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height, one plant was reported to be 3 feet in height with a crown 3 feet in width); the bark on the stems and branches may be almost black, brown, dark brown, gray, gray-brown, purple-brown, dark red or reddish; the leaves are dark green; the bell-shaped flowers may be bluish, cream, cream-white, cream-yellow, pale green, lavender, purple, tan, white, whitish or pale yellow; flowering generally takes place between early February and early September (additional records: one for early January, two for late September, three for early October, one for mid-October, two for late November, one for early December and one for late December); the mature fruits are orange, red or red-orange. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; bouldery and rocky canyon bottoms; bases of cliffs; rocky talus slopes; crevices; buttes; ledges; rocky ridgetops; rocky foothills; rocky, gravelly, gravelly-sandy and sandy hills; rocky hillsides; bedrock and rocky slopes; rocky, gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; prairies; plains; gravelly and gravelly-sandy flats; rocky-gravelly basins; valley floors; along gravelly-sandy-clayey-loamy roadsides; along rocky arroyos; ravines; around streams; along and in sandy washes; playas; clayey-loamy terraces; mesquite bosques; ditches, and riparian areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and loamy clay ground, occurring from 100 to 5,700 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This spiny shrub may be an attractive component of a restored native habitat. The Berlandier Lycium may live to be more than 90 years of age. The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers and Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) uses the plant for cover, feeding and roosting. *Lycium berlandieri* is native to southwest-central and southern North America. *5, 6, 10, 13, **16**, 18 (genus), 28 (species, color photograph of species), 43 (043010), 46 (Page 752), 63 (043010), **85** (043010 - color presentation), **89**, 115 (color presentation)*

***Lycium berlandieri* M.F. Dunal var. *longistylum* C.L. Hitchcock: Berlandier's Wolfberry**

COMMON NAMES: Bachata, Berlandier Lycium, Berlandier Wolfberry, Berlandier's Wolfberry, Boxthorn, Huichutilla, Salicieso, Wolfberry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height); the stems are almost black; the flowers are white or pale yellow; flowering generally takes place between early February and early September (additional record: one for early January, one for late September, one for late November and one for early December); the mature fruits are red. HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky foothills; hills; rocky hillsides; rocky slopes; plains; valley floors; along roadsides; around streams; washes; mesquite bosques, and riparian areas growing in dry rocky and sandy ground, occurring from 900 to 3,200 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This spiny shrub may be an attractive component of a restored native habitat. The Berlandier Lycium may live to be more than 90 years of age. The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers and Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) uses the plant for cover, feeding and roosting. *Lycium berlandieri* var. *longistylum* is native to southwest-central and southern North America. *5, 6, 10, 13 (species), 18 (genus), 28 (color photograph of the species), 43 (043010 - *Lycium berlandieri* var. *longistylum* C.L. Hitchc.), 46 (Page 752), 63 (043010), 77 (color photograph of the species #97 labeled as *Lycium berlandieri*), **85** (043010 - color presentation of dried material), 115 (color presentation of the species)*

***Lycium exsertum* A. Gray: Arizona Desert-thorn**

COMMON NAMES: Arizona Desert-thorn, Boxthorn, Desert Thorn, Littleleaf Wolfberry, Wolfberry, Wolfberry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height, one plant was described as being 5 feet in height with a crown 6½ feet in width); the branches are brownish-gray, gray or gray-brown; the leaves are green; the pendular flowers may be blue-cream, bluish, cream-lavender, greenish, pale lavender, lavender, lavender-white, mauve, pink, pale purple, purple, blushed violet, white, white-pink, white-purple; whitish or whitish-lavender; flowering generally takes place between mid-January and early May (additional records: one for late July, two for mid-October, one for early November, one for late November, one for mid-December and one for late December); the mature fruits are orange-red, reddish or red-orange. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky canyons; rocky canyon bottoms; talus slopes; bases of cliffs; buttes; ridges; rocky ridgetops; foothills; rocky hills; hilltops; rocky and gravelly hillsides; bouldery, rocky and gravelly-loamy slopes; rocky bajadas; bouldery and rocky outcrops; amongst boulders; plains; sandy flats; basins; along roadsides; along and in arroyos; seeps; shaley springs; along and in creekbeds; along and in sandy and silty washes; gravelly drainages; drainage ways; along ponds; swales; sandy banks of rivers; edges of streambeds, washes, drainage ways and lakes; benches; gravelly terraces; loamy bottomlands; floodplains, and riparian areas growing in dry bouldery, rocky, shaley, gravelly and sandy ground; gravelly loam and loam ground, and silty ground, occurring from 1,000 to 4,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Bombyliid Flies have been observed visiting the flowers. The Arizona Desert-thorn is a host plant of the Texas Root Rot Fungus, *Phymatotrichum omnivorum*. *Lycium exsertum* is native to southwest-central and southern North America. *5, 6, 13, 15, **16**, 18 (genus), 43 (043010), 46 (Page 751), 58, 63 (043010), **77**, **85** (043010 - color presentation)*

***Lycium fremontii* A. Gray: Frémont's Desert-thorn**

COMMON NAMES: Boxthorn, Desert-thorn, Frémont Desert-thorn, Frémont's Desert-thorn, Frémont Lycium, Frémont Thornbush, Frémont Wolfberry, Frémont's Wolfberry, Kwavul (Pima); Wolfberry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 13 feet in height, one plant was described as being 20 inches in height with a crown 40 inches in width, one plant was described as being 5 feet in height with a crown 5 feet in width, one plant was described as being 7 feet in height with a crown 13 feet in width); the stems are dark gray; the leaves are grayish-green or light green; the small flowers may be brown-yellow-purple, lavender, dark lavender, pink, light purple, purple, purple-white, rose or whitish-purple; flowering generally takes place between early January and early May and between late September and mid-December; the mature fruits may be brownish, orange, orange-red, red, red-orange, or red-orange-brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; shaded walls of cliffs; rocky canyons; rocky canyon bottoms; bases of cliffs; talus slopes; buttes; rocky-sandy foothills; cobbly-clayey hills; hillsides; bouldery and rocky slopes; bajadas; amongst boulders; sand dunes; bajadas; sandy plains; sandy and sandy-silty plains; rocky-sandy and sandy flats; basins; gravelly-sandy valley floors; coastal dunes; coastal plains; along railroad right-of-ways; along rocky and sandy-clayey roadsides; along arroyos; rocky walls of arroyos; rocky chutes; springs; streams; rivers; riverbeds; along and in bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; around pools; cienegas; depressions; along silty banks of arroyos, streams and rivers; rocky-gravelly edges of washes and lakes; margins of washes; shores of lakes; gravel bars; terraces; bottomlands; sandy floodplains; mesquite bosques; along canal banks; ditches; along ditch banks; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, shaley, gravelly, gravelly-sandy and sandy ground; cobbly clay and sandy clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from 100 to 4,300 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This thorny and much-branched shrub may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used to make bows.

The Frémont Lycium is a host plant of the Texas Root Rot Fungus, *Phymatotrichum omnivorum*. *Lycium fremontii* is native to southwest-central and southern North America. *5, 6, 13, 18, 28 (color photograph), 43 (043010 - *Lycium fremonti* A. Gray), 46 ("The abundant, juicy berries produced by this and the preceding species [*Lycium exsertum*] were gathered by the desert Indians for food. Both species are hosts of the destructive root-rot fungus, *Phymatotrichium omnivorum*.", Page 751), 48, **56**, **57**, 63 (043010), **77**, **85** (043010 - color presentation, also recorded as *Lycium fremontii* A. Gray var. *fremontii*), **89** (recorded as both *Lycium fremontii* Gray and as *Lycium fremontii* var. *gracilipes* Gray), 127*

Lycium fremontii var. *fremontii* (see footnote 85 under *Lycium fremontii*)

Lycium fremontii var. *gracilipes* (see footnote 89 under *Lycium fremontii*)

***Lycium torreyi* A. Gray: Torrey Wolfberry**

COMMON NAMES: E-thál-ta (Supai), Squaw Thorn, Squawthorn, Torrey Desert Thorn, Torrey Lycium, Torrey Thornbush, Torrey Wolfberry, Torrey's Wolfberry. DESCRIPTION: Terrestrial perennial drought-deciduous shrub (3 to 10 feet in height); the bark may be brownish or yellowish-tan with the older bark being light gray; the leaves are pale green; the flowers may be blue, greenish-lavender, lavender, deep lavender, lavender-rose, pink or whitish; based on a very limited number of records flowering generally takes place between early March and early June (additional record: one for mid-November); the mature fruits are bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; talus slopes; bases of cliffs; gypsum hills; hillsides; clayey-loamy slopes; gravelly bajadas; flats; valley floors; along sandy roadsides; within rocky arroyos; springs; along creeks; along rivers; riverbeds; along and in gravelly-sandy washes; within drainages; sandy banks of rivers and riverbeds; edges of washes; sandy margins of ponds; terraces; bottomlands; sandy floodplains; along fences; sandy dikes; along canals; along loamy ditches; along sandy ditch banks; sandy and clayey-loamy riparian areas, and waste places growing in dry rocky, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground, and gravelly-sandy clay and clay ground, occurring from 100 to 7,400 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This thicket-forming shrub may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a tool and as a drug or medication. The fruits are reportedly eaten by flickers, mockingbirds and quail. The Torrey Lycium has most likey been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix*

gooddingii), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Lycium torreyi* is native to southwest-central and southern North America. *5, 6, 13, 18 (genus), 43 (050110), 46 (Page 751), 63 (050110), 85 (050110 - color presentation of dried material), **89**, 127*

***Nicotiana glauca* R. Graham: Tree Tobacco**

COMMON NAMES: Buena Mosa, Don Juan (Yaqui); Gigante, Rape, Mustard Tree, Shrub Tobacco, Tree Tobacco, Tronadora, Wild Tobacco, Wildetabak (Afrikaans). DESCRIPTION: Terrestrial perennial evergreen shrub or tree (1 to 26 feet in height with a crown to 10 feet in width); the bark is yellow-brown; the leaves are blue-green, bluish-green or dull green; the tubular flowers (1¼ to 2 inches in length) are pale yellow, yellow or yellow-greenish; flowering generally takes place between mid-January to late December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; rocky canyons; along rocky canyon bottoms; rocky slopes; foothills; rocky hills; rocky hilltops; bouldery hillsides; rocky slopes; sandy and silty flats; gravelly basins; valley floors; coastal marshes; along rocky and sandy roadsides; rocky arroyos; bottoms of arroyos; springs; along streams; along and in streambeds; along and in creeks; along rivers; along and in rocky-sandy and sandy riverbeds; along and in washes; within drainages; along and in watercourses; oases; boggy areas; gravelly-sandy and sandy banks of creeks, rivers and washes; along sandy and sandy-silty edges of rivers and lakes; along margins of washes; shores of creeks and lakes; terraces; bottomlands; floodplains; fencerows; along ditches; ditch banks; riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and sandy silty and silty ground, occurring from near sea level to 4,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, beverage and/as a drug or medication. *Nicotiana glauca* is native to western and southern South America. *5, 6, 13, **16**, 18, 28 (color photograph), 43 (050210), 46 (Page 761), 63 (050210 - color presentation), 68, **77**, 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (050210 - color presentation), 86 (color photograph), **89**, 97, 115 (color presentation), 127, **WTK** (July 11, 2010)*

***Nicotiana obtusifolia* M. Martens & H.G. Galeotti: Desert Tobacco**

COMMON NAMES: Coyote Tobacco, Desert Tobacco, Punche (a Punch), Tabaquillo, Tabaquillo de Coyote, Tobacco Plant, Tobaquillo (Little Tobacco). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb or subshrub (1 to 3½ feet in height, one plant was described as being 12 inches in height and 20 inches in width); the leaves are gray-green or dark green; the flowers may be cream, cream & pale green, cream-green, cream-white, cream-pale yellow, cream-yellow, green, greenish, greenish-cream, greenish-white, greenish-yellow, lemon-yellow, deep purple, dull white, pale white, white, white tinged with green, white-yellow, whitish-cream, yellow, yellow-cream, yellow-green, yellow-white or yellowish-greenish; flowering generally takes place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky-gravelly mountaintops; plateaus; along rims; rocky cliffs; rocky chutes; along bouldery, rocky, rocky-sandy-loamy, gravelly-loamy and sandy canyons; canyon walls; along rocky and sandy canyon bottoms; gorges; talus slopes; bases of cliffs; along crevices in bedrock, boulders and rocks; rocky bluffs; rocky buttes; knolls; rocky ledges; bouldery and rocky ridges; bouldery ridgetops; edges of meadows; craters; cinder cones; foothills; rocky hills; hilltops; bouldery-rocky and rocky hillsides; bouldery escarpments; bedrock, bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy-clayey, cindery, gravelly-sandy, sandy and sandy-loamy slopes; gravelly-sandy bajadas; rocky outcrops; amongst

boulders, rocks and stones; in sand at the bases of boulders and rocks; sandy lava flows; sandy lava beds; sand dunes; debris fans; rocky and sandy plains; sandy flats; basins; valley floors; valley bottoms; sea ledges; sandy edges of lagoons; rocky-sandy coastal shores; along railroad right-of-ways; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, sandy and clayey roadsides; along sandy-loamy arroyos; arroyo walls; sandy bottoms of arroyos; in sand and loam around springs; along streams; gravelly-sandy and sandy streambeds; rocky creeks; sandy creekbeds; along rivers; bouldery-sandy and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in rocky drainages; bouldery drainage ways; sandy waterholes; marshy areas; along rocky, cobbly, gravelly-sandy, sandy and silty banks of creeks, rivers and washes; along silty edges of washes, lakes and lakebeds; rocky-sandy shores of lakes; mudflats; gravelly shelves; gravelly and sandy terraces; bottomlands; floodplains; mesquite bosques; along ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravely-sandy-clayey loam, rocky-sandy loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky, gravelly-sandy clay and clay soils, and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Variety *obtusifolia* was reported to have been utilized by native peoples of North America, it was noted as having been used for food, beverage and/as a as a drug or medication. The flowers reportedly utilized by hummingbirds when other nectar-rich sources are not available. *Nicotiana obtusifolia* is native to southwest-central and southern North America. *5, 6, 28, 43 (050310), 46 (recorded as *Nicotiana trigonophylla* Dunal, Page 761), **56**, **57**, 63 (050310 - color presentation), 68, 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (050310 - color presentation), 86, 115 (color presentation), 127 (*Nicotiana obtusifolia* var. *obtusifolia*)*

***Nicotiana obtusifolia* M. Martens & H.G. Galeotti var. *obtusifolia*: Desert Tobacco**

SYNONYMY: *Nicotiana trigonophylla* M.F. Dunal. COMMON NAMES: Coyote Tobacco, Desert Tobacco, Punche (a Punch), Tabaquillo (Little Tobacco), Tabaquillo de Coyote, Wo'i Viva (Yaqui). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb or subshrub (1 to 3½ feet in height); the leaves are gray-green or dark green; the flowers may be cream, cream & pale green, cream-green, cream-white, cream-yellow, greenish, greenish-white, greenish-yellow, deep purple, lemon-yellow, pale white, white, yellow, yellow-cream, yellow-green, yellow-white or yellowish-greenish; flowering generally takes place between late February and early November (additional records: one for mid-January, one for late November, one for mid-December and one for late December, flowering probably takes place throughout the rest of the year). HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky-gravelly mountaintops; plateaus; along rims; cliffs; rocky and gravelly-loamy canyons; canyon walls; along canyon bottoms; gorges; talus slopes; bases of cliffs; along crevices in boulders and rocks; rocky bluffs; rocky buttes; rocky ledges; bouldery ridges; bouldery ridgetops; edges of meadows; craters; cinder cones; foothills; rocky hills; hilltops; bouldery-rocky and rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy-clayey, cindery, gravelly-sandy, sandy-loam and sandy-clayey slopes; bajadas; rocky outcrops; amongst boulders, rocks and stones; bases of boulders and rocks; sandy lava flows; dunes; debris fans; rocky plains; sandy flats; basins; valley floors; valley bottoms; rocky-sandy coastal shores; along railroad right-of-ways; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along sandy-loamy arroyos; arroyo walls; arroyo bottoms; in sand and loam around springs; along streams; along gravelly-sandy and sandy streambeds; rocky creeks; sandy creekbeds; bouldery-sandy and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly-sandy

and sandy washes; drainages; bouldery drainage ways; sandy waterholes; marshy areas; rocky, cobbly, sandy and silty banks of creeks, rivers and washes; edges of lakes; rocky-sandy shores of lakes; mudflats; gravelly and sandy terraces; bottomlands; floodplains; ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravely-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky-gravelly-sandy clay and sandy clay ground, and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America, it was noted as having been used for food, beverage and/as a as a drug or medication. The flowers are utilized by hummingbirds when other nectar-rich sources are not available. *Nicotiana obtusifolia* var. *obtusifolia* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Nicotiana trigonophylla* Dunal), **16** (recorded as *Nicotiana trigonophylla* Dunal), 28 (recorded as *Nicotiana trigonophylla*, color photograph), 43 (050310), 46 (recorded as *Nicotiana trigonophylla* Dunal, Page 761), 58 (recorded as *Nicotiana trigonophylla* Dunal), 63 (050310 - color presentation), 68, 77 (recorded as *Nicotiana trigonophylla* Dunal), 80 (This species is listed as a Secondary Poisonous Range Plant. "The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses."), **85** (050310 - color presentation), 86 (recorded as *Nicotiana trigonophylla*, color photograph), **89** (recorded as *Nicotiana trigonophylla* Dunal), 115 (color presentation of the species), 127, **WTK** (August 2, 2010)*

Nicotiana trigonophylla (see *Nicotiana obtusifolia* var. *obtusifolia*)

Petunia parviflora (see *Calibrachoa parviflora*)

***Physalis acutifolia* (J. Miers) N.Y. Sandwith: Sharpleaf Groundcherry**

SYNONYMY: *Physalis wrightii* A. Gray. COMMON NAMES: Groundcherry, Irrigation Groundcherry, Sharpleaf Ground Cherry, Sharpleaf Groundcherry, Tomatillo, Wright Groundcherry. DESCRIPTION: Terrestrial annual forb/herb (2 to 42 inches in height, one plant was described as being 20 inches in height and 40 inches in width); the foliage is bluish-green or gray-green; the wheel-shaped flowers (½ to ¾ inch in diameter) are cream, greenish-yellow, white or whitish (with a greenish, orange-yellow, yellow or yellow-green center), pale yellow or yellow; the anthers are purplish; flowering generally takes place between mid-August and late November (additional records: one for mid-May, one for early June, one for late June, two for early July, one for mid-July, one for late July, one for mid-December and one for late December, flowering possibly starting as early as April and ending in late December has been reported); the berry-like seed-pods (¾ to 1¼ inches in length) are covered with a green, papery "Chinese lantern". HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; canyons; canyon bottoms; foothills; hills; rocky hillsides; rocky slopes; alluvial fans; plains; clayey flats; valley floors; coastal plains; along railroad right-of-ways; roadbeds; along gravelly and gravelly-sandy-clayey-loamy roadsides; arroyos; bottoms of arroyos; draws; gullies; rocky ravines; springs; along streams; creekbeds; along rivers; rocky-sandy and sandy riverbeds; along and in rocky and clayey washes; drainages; around ponds; pondbeds; playas; marshlands; muddy-silty swampy areas; depressions; sloughs; banks of rivers; sandy-clayey edges of ponds and swales; sand bars; benches; lowlands; sandy floodplains; dikes; canals; canal banks; along ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, gravelly and sandy soils; gravelly-sandy-clayey loam sandy loam ground; sandy clay, humusy clay and clay ground, and silty ground, occurring from sea level to 4,800 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North

America and could be investigated to determine its value as a home garden or commercial food crop. Quail, White-tailed Deer (*Ovis canadensis*) and Bighorn Sheep (*Ovis canadensis*) browse this plant. *Physalis acutifolia* is native to southwest-central and southern North America. *5, 6, **16**, 43 (050310), 46 (recorded as *Physalis wrightii* Gray, Page 754), **56**, **57**, 58, 63 (050310 - color presentation of seed-pod), 68 (recorded as *Physalis wrightii* Gray), **77**, 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (050310 - color presentation), 101 (recorded as *Physalis wrightii* Gray, color photograph), 127*

***Physalis angulata* C. Linnaeus: Cutleaf Groundcherry**

SYNONYMY: *Physalis angulata* C. Linnaeus var. *lanceifolia* (C.G. Nees von Esenbeck) U.T. Waterfall, *Physalis lanceifolia* C.G. Nees von Esenbeck, *Physalis linkiana* C.G. Nees von Esenbeck. COMMON NAMES: Camapu; Cut-leaf Ground-cherry, Cutleaf Ground-cherry, Cutleaf Groundcherry, Cutleaved Ground Cherry, Lanceleaf Ground Cherry, Lanceleaf Groundcherry, Purplevein Groundcherry, Southwest Groundcherry, Wild Tomato, Winter Cherry. DESCRIPTION: Terrestrial annual forb/herb (1 to 5 feet in height); the leaves are dark green; the flowers are cream, white (with a yellow center), pale yellow or yellow; based on few flowering records flowering generally takes place between mid-July and mid-January (flowering records: one for mid-January, one for mid-July, one for mid-August, two for late August, one for mid-September, one for early October, three for mid-October, one for mid-November, one for late November and one for late December); the mature, nodding fruits are orange or yellow-orange and are covered by a papery balloon-like inflated calyx. HABITAT: Within the range of this species it has been reported from canyons; canyon bottoms; hills; rocky slopes; flats; valley floors; railroad right-of-ways; along silty roadsides; creeks; sandy riverbeds; along washes; playas; marshlands; banks of rivers; margins of creeks; edges of lagoons; along shores of lakes; mudflats; sand bars; bottomlands; gravelly and sandy floodplains; dikes; riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, gravelly and sandy ground; sandy loam ground; clay ground, and silty ground, occurring from sea level to 5,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis angulata* is native to tropic, sub-tropic and warm-temperate regions of south-central and southern North America; Central America, and South America. *5, 6, 43 (050310), 46 (recorded as *Physalis lanceifolia* Nees, Page 754), 63 (050310 - color presentation), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (050310 - color presentation of dried material), **89** (recorded as *Physalis angulata* L. var. *linkiana* (Nees.) Gray), 101 (note for *Physalis lanceifolia* Nees under *Physalis wrightii* Gray), 106 (031509)*

Physalis angulata var. *lanceifolia* (see *Physalis angulata*)

***Physalis crassifolia* G. Bentham: Yellow Nightshade Groundcherry**

COMMON NAMES: Desert Ground Cherry, Thick-leafed Groundcherry, Thickleaf Groundcherry, Thick-leaved Ground Cherry, Tomate de Culebra, Tomatillo del Desierto, Yellow Nightshade Groundcherry. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (4 to 40 inches in height); the leaves are gray-green or dark green; the flowers are greenish-yellow, pale yellow, yellow, yellow-green, yellowish, yellowish-whitish, white or pale white-yellowish; the anthers are yellow; flowering may take place throughout the year between early January and late December. HABITAT: Within the range of this species it has been reported from rocky mountains; bouldery and rocky mountaintops; rocky mountainsides; sandy mesas; rocky cliffs; bouldery, rocky and shaley canyons; rocky canyon walls; rocky, gravelly and sandy canyon bottoms; gorges; bases of cliffs; scree; talus slopes; crevices in rocks; buttes; sandy bases of buttes; knolls; rocky-sandy-loamy flanks of knolls; rocky ridges; ridgetops; ridge crests; cinder cones; rocky foothills; rocky and sandy hills; bouldery, bouldery-rocky, bouldery-sandy, rocky and loamy hillsides; bouldery, bouldery-rocky-gravelly-sandy, bouldery-sandy,

rocky, rocky-sandy, gravelly and sandy slopes; rocky alluvial fans; gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; plains; gravelly and sandy flats; valley floors; along rocky-gravelly, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey roadsides; rocky arroyos; along rocky bottoms of arroyos; along rocky draws; gullies; rocky ravines; seeps; springs; around seeping streams; along streams; in sand along creeks; along sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery-gravelly, rocky, rocky-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy washes, within bouldery and rocky drainages; in rocky and gravelly-sandy drainage ways; around poolbeds; marshes; sandy-silty and silty depressions; bouldery and sandy banks of creeks and lakes; edges of arroyos and pondbeds; rocky terraces; canal walls; rocky ditch banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and clayey loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 5,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis crassifolia* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (050410), 46 (Page 755), 63 (050410 - color presentation), 77, 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs.”), **85** (050410 - color presentation of dried material)*

Physalis fendleri (see *Physalis hederifolia* var. *fendleri*)

Physalis hederifolia var. *cordifolia* (see *Physalis hederifolia* var. *fendleri*)

***Physalis hederifolia* A. Gray var. *fendleri* (A. Gray) A.J. Cronquist: Fendler’s Groundcherry**

SYNONYMY: *Physalis fendleri* A. Gray, *Physalis hederifolia* A. Gray var. *cordifolia* (A. Gray) U.T. Waterfall. COMMON NAMES: Fendler’s Groundcherry, Heartleaf Groundcherry, Ivyleaf Groundcherry. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (10 inches to 2 feet in height); the stems are greenish-yellow; the leaves are gray-green, green or dark green; the flowers may be pale green-yellow, greenish-yellow, pale yellow, yellow, yellow-cream or yellow-green; flowering generally takes place between late April and mid-September. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; sandy canyon bottoms; talus slopes; bases of cliffs; pockets of soil in rocks; sandy bluffs; knolls; bedrock ledges; ridges; foothills; rocky, shaley and gravelly-clayey hills; rocky hillsides; rocky, rocky-sandy, cindery, gravelly, gravelly-loamy and loamy slopes; rocky outcrops; amongst rocks; bedrock bottoms of caves; clayey breaks; sandy plains; cindery and sandy flats; basins; valley floors; along rocky and cindery roadsides; along and in sandy arroyos; rocky bottoms of arroyos; silty bottoms of draws; springs; along streams; streambeds; sandy creekbeds; along rivers; within rocky and gravelly-sandy-silty washes; within drainages; cienegas; along banks of arroyos and streams; sandy edges of washes; terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, shaley, cindery, gravelly-sandy and sandy ground; gravelly loam and loam ground; gravelly clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from 1,600 to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Physalis hederifolia* var. *fendleri* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Physalis hederifolia* Gray var. *cordifolia* (Gray) Waterfall), 43 (073009), 46 (recorded as *Physalis fendleri* Gray, Page 754), 63 (050410), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs.”), 85 (050410), **89** (recorded as *Physalis fendleri* Gray), 115 (color presentation of the species)*

Physalis lanceifolia (see *Physalis angulata*)

Physalis linkiana (see *Physalis angulata*)

Physalis lobata (see *Quincula lobata*)

Physalis lobata var. *albiflora* (see *Quincula lobata*)

Physalis longifolia **T. Nuttall (var. *longifolia* is the variety reported as occurring in Arizona): Longleaf Groundcherry**

SYNONYMY: (for *P.l.* var. *longifolia*: *Physalis virginiana* P. Miller var. *sonorae* (J. Torrey) U.T. Waterfall. COMMON NAME: Common Ground-cherry, Common Groundcherry, Long-leaf Ground-cherry, Long-leaf Groundcherry, Long-leaved Ground-cherry, Longleaf Groundcherry, Physalis, Smooth Groundcherry, Smooth Long-leaved Ground-cherry, Smoothed Groundcherry, Tall Ground-cherry, Virginia Ground Cherry, Virginia Groundcherry. DESCRIPTION: Terrestrial perennial forb/herb (4 to 32 inches in height); the leaves are green; the flowers may be cream-greenish, pale yellow-white, yellow or yellowish-green with a dark center; flowering generally takes place between mid-May and mid-October (flowering starting as early as April has been reported). HABITAT: Within the range of this species it has been reported from mountains; canyons; crevices in rocks; meadows; bedrock, rocky, gravelly and sandy slopes; rocky outcrops; prairies; flats; valley floors; along roadsides; springs; along streams; in streambeds; creeks; along rivers; along washes; drainages; swampy areas; edges of cienegas; margins of creeks; along shores of lakes; benches; bottomlands; along floodplains; along fencelines; along canals; along ditches; riparian areas, and disturbed areas growing in moist and dry gravelly and sandy ground; rocky loam and loam ground, and clay ground, occurring from 1,600 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Possibly exotic. The species, *Physalis longifolia*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a food. *Physalis longifolia* is native to central and southern North America. *5, 6, 43 (050410 - *Physalis virginiana* var. *sonorae* (Torr.) Waterf.), 46 (Page 755), 58, 63 (050410 - color presentation), 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs.”), **85** (050510 - color presentation of dried material), **89**, 127 (species)*

Physalis virginiana var. *sonorae* (see *Physalis longifolia* var. *longifolia*)

Physalis wrightii (see *Physalis acutifolia*)

Quincula lobata **(J. Torrey) C.S. Rafinesque-Schmaltz: Chinese Lantern**

SYNONYMY: *Physalis lobata* J. Torrey, *Physalis lobata* J. Torrey var. *albiflora* U.T. Waterfall. COMMON NAMES: Chinese Lantern, Chinese-lantern, Ground Cherry, Physalis (Portuguese), Purple Quincula, Purple Ground Cherry, Purple Ground-cherry, Purple Groundcherry, Purpleflower Groundcherry. DESCRIPTION: Terrestrial perennial forb/herb (6 to 16 inches in height); the leaves are green or dark green; the flowers may be blue, blue-violet, dark lavender, magenta, pink-white, pale purple, purple, dark purple, rose-pink, light violet or violet; the anthers are yellow; flowering generally takes place between mid-February and early June and again between mid-July and late November (flowering probably continues from mid-June through early July but no flowering records were located for this time period). HABITAT: Within the range of this species it has been reported from mountains; mesas; gravelly cliffs; canyons; ridges; foothills; clayey hills; rocky hillsides; rocky slopes; alluvial fans; sandy bajadas; clayey banks; prairies; sandy plains; gravelly, sandy, sandy-clayey, clayey and silty flats; valley floors; along rocky, gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; springs; along and in gravelly, gravelly-sandy-silty and sandy washes; drainages; lakebeds; sandy, clayey and silty playas; edges of playas; mudflats; bottomlands; lowlands; sandy-clayey floodplains; mesquite bosques; stock

tanks; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; sandy clay and clay ground, and rocky silty, gravelly-sandy silty and silty ground, occurring from 400 to 6,400 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a toy or in games and as a drug or medication. *Quincula lobata* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (recorded as *Physalis lobata*, color photograph), 43 (050510 - *Quincula lobata* Raf., *Physalis lobata* f. var. *albiflora* Waterf.), 46 (recorded as *Physalis lobata* Torr., Page 754), **57**, 63 (050510 - color presentation), **77** (recorded as *Physalis lobata* Torr.), 80 (Species of the genus *Physalis* are listed as being Rarely Poisonous and Suspected Poisonous Range Plants. "It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs."), **85** (050510 - color presentation of dried material), 86 (recorded as *Physalis lobata*, color photograph), **89** (recorded as *Physalis lobata* Torr.), 115 (color presentation), 127*

***Solanum douglasii* M.F. Dunal: Greenspot Nightshade**

SYNONYMY: *Solanum nigrum* C. Linnaeus var. *douglasii* (M.F. Dunal) A. Gray. COMMON NAMES: Douglas Nightshade, Green-spot Nightshade, Greenspot Nightshade. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (1 to 6½ feet in height, one plant was reported as being 32 inches in height and 5 feet in width); the flowers may be blue-violet, blue-white, cream, pale lavender, lavender, pale purple, purple, purple-white, white, white-pale lavender, white-lavender, white-purple or whitish; the anthers are yellow; flowering generally takes place between early February and early December (additional records: two for early January, two for mid-January and three for late December); the mature fruits may be black, blue-black, green or orange-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; plateaus; rocky and gravelly-loamy canyons; rocky canyon bottoms; chasms; bases of cliffs; talus slopes; crevices in cliffs and rocks; bluffs; wet meadows; foothills; bouldery and rocky hills; hilltops; bouldery and rocky hillsides; bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy, loamy and clayey slopes; rocky-sandy-loamy alluvial fans; rocky outcrops; amongst rocks; bouldery-sandy and clayey flats; basins; valley floors; coastal beaches; along rocky, rocky-gravelly, gravelly and gravelly-sandy roadsides; draws; gulches; gullies; ravines; seeps; springs; in rock along streams; along rocky streambeds; along creeks; along sandy creekbeds; silty-clayey riverbeds; within gravelly and sandy washes; drainages; within rocky drainage ways; oases; freshwater marshes; banks of creeks and rivers; sandy edges of washes and salt marshes; gravelly and sandy terraces; bottomlands; floodplains; margins of charcos (stock tanks); ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam, rocky-sandy loam, gravelly loam, sandy loam and loam ground; rocky-clayey, silty clay and clay ground, and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or dye crop; it was also noted as having been used as a drug or medication and for body art. A bee (*Ptiloglossa* sp.) was observed and reported as gathering nectar from the flowers in early September. *Solanum douglasii* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (050610 - no record for *Solanum nigrum* var. *douglasii*), 46 (Page 758), 58, 63 (050610 - color presentation), 77 (color photograph #98), 85 (050610 - color preentation), **89**, 127*

***Solanum elaeagnifolium* A.J. Cavanilles: Silverleaf Nightshade**

COMMON NAMES: Arrebenta-cavalo (Portuguese), Bull Nettle, Bull-nettle, Bullnettle, Desert Nightshade, Melãozinho-do-campo (Portuguese), Prairie-berry, Satansbos (Afrikaans), Silver Horse Nettle, Silver Horse-nettle, Silver Horsenettle, Silverleaf Bitter-apple, Silverleaf Nightshade, Silverleaf-

nettle, Tomato Weed, Trompillo (Spanish), White Horse Nettle, White Horse-nettle, White Horsenettle. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 inches to 2 feet in height, plants were described as being 8 inches in height and 2 to 4 inches in width, plants were observed and described as being 10 to 12 inches in height and width, plants were observed and described as being 16 inches in height and 8 inches in width); the leaves are bluish-gray, gray, grayish-green, greenish-gray or silvery; the star-like flowers (¾ to 1½ inch in diameter) may be light blue, blue, blue-lavender, blue-purple, dark blue, bluish-purple, bluish-violet, lavender, lavender-purple, light purple, purple, dark purple, violet, deep violet, violet-purple or white; the anthers are yellow; flowering generally takes place between late March and early November (additional records: one for mid-February, one for early March and one for late November); the mature fruits (1/3 to 1/2 inch in diameter) are a golden, golden-brown, orange, orange-yellow or yellow berry. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; sandy plateaus; tablelands; rocky-sandy rims of craters; rocky canyons; canyonsides; along bouldery-sandy, rocky and sandy canyon bottoms; chasms; rocky-sandy and sandy ridges; sandy-loamy bosques; sandy meadows; rocky foothills; hills; rocky and gravelly hillsides; along rocky, rocky-gravelly, gravelly-sandy and sandy slopes; sandy-clayey-loamy bajadas; sandy lava flows; sand dunes; prairies; plains; gravelly-loamy, sandy, loamy, clayey and silty flats; basins; shaley-silty valley floors; along railroad right-of-ways; in roadways; along rocky, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; clayey bottoms of arroyos; silty bottoms of draws; springs; sandy streambeds; along creeks; rocky-gravelly-sandy and sandy creekbeds; along rivers; bouldery-cobbly-sandy and rocky-sandy riverbeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along pebbly-sandy, sandy and clayey-loamy drainages; along drainage ways; cienegas; swampy areas; swales; sandy and clayey banks of arroyos and rivers; clayey edges of playas and cienegas; margins of rivers; rocky-sandy, gravelly and sandy-loamy shores of ponds, lakes and playas; sandy beaches; benches; sandy terraces; sandy bottomlands; sandy floodplains; mesquite bosques; along stony fencelines; around stock tanks; clayey levees; along ditches; along stony ditch banks; bouldery-cobbly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; sandy clay and clay ground, and rocky silty, shaley silty and silty ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub; grassland, desertscrub and wetland ecological formations. NOTES: The Silverleaf Nightshade may or may not be native to Arizona or to North America. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (berries used as a rennet to curdle milk), as a drug or medication and the dried berries were worn as jewelry. The green fruits may be poisonous. *Solanum elaeagnifolium* is native to southern South America. *5, 6, 15, **16**, 18 (genus), 28 (color photograph), 43 (073009), 46 (Page 758), **56**, **57**, 58, 63 (050610 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. “The toxic principle in these species is a glycoalkaloid to which the name solanine is applied. The toxicity of a given species may vary considerably. ... Poisoning by *Solanum* species does not always terminate in death. In the acute poisoning, nervous symptoms rapidly build to a maximum, and death or recovery occurs within a few hours to one or two days. Death is the result of paralysis. ... Where the plants are known to exist, animals should be watched closely for symptoms. The best control is to grub out the plants and remove them from the area. This should be done prior to seed development to prevent additional seeding.”), **85** (050610 - color presentation), 86 (color photograph), **89**, 97, 101 (color photograph), 115 (color presentation), 127, **WTK** (July 2008)*

Solanum nigrum var. *douglasii* (see *Solanum douglasii*)

***Solanum rostratum* M.F. Dunal: Buffalobur Nightshade**

COMMON NAMES: Buffalo Burr, Buffalo-berry, Buffalo-bur, Buffalo-burr, Buffalobur, Buffalobur Nightshade, Colorado Bur, Duraznillo (Hispanic), Horned Nightshade, Kansas Thistle,

Kansas-thistle, Mala Mujer (Hispanic), Manca Mula (Hispanic), Mexican Thistle, Ojo de Toro (Hispanic), Prickly Nightshade, Soíwari (Tarahumara), Stachel-Nachtschatten, Texas Thistle, Toru Esku (Purépecha). DESCRIPTION: Terrestrial annual forb/herb (6 to 40 inches in height); the plant is armed with golden-yellow spines; the spiny leaves are dark green or yellow-green; the star-like flowers (1 to 1½ inches in diameter) may be orange-yellow or bright yellow; the anthers are yellow; flowering generally takes place between late May and mid-November; the seedpod (to 1 inch in diameter) is enclosed within a spiny bur. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-clayey mesas; canyonsides; sandy pockets of soil in rocks; meadows; foothills; rocky hillsides; rocky and sandy-loamy slopes; amongst rocks; sand dunes; prairies; sandy-loamy plains; sandy flats; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along rocky-cobbly-gravelly, rocky-gravelly, gravelly-loamy and sandy roadsides; along rocky and sandy arroyos; bottoms of arroyos; sandy-loamy draws; rocky and sandy streambeds; along creeks; along rivers; within sandy riverbeds; along and in rocky-sandy and clayey washes; drainages; clayey-loamy waterholes; cienegas; along sandy banks of arroyos, rivers and washes; margins of creeks, ponds and lakes; around gravelly and sandy shores of lakes; mudflats; terraces; sandy and sandy-loamy bottomlands; floodplains; along fences; along canals; ditch banks; bouldery-cobbly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry bouldery-cobbly-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, cindery-gravelly, gravelly and sandy ground; gravelly loam, gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and sandy clay and clay ground, occurring from 100 to 7,600 feet in elevation in the forest; woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may have been introduced into Arizona from further east. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The leaves and seed pods of this plant have been reported to be poisonous. Large bumblebees have been observed visiting the flowers. This species is believed to be the original host plant for the Colorado Potato Beetle (*Leptinotarsa decimlineata*). *Solanum rostratum* is native to south-central and southern North America. *5, 6, 18 (genus), 28 (color photograph), 30, 43 (073009), 46 (Page 757), 60 (color photograph of the Colorado Potato Beetle), 63 (050610 - color presentation), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This spiny annual forb is poisonous but is not eaten by any livestock except hogs.” Figure 69), **85** (050610 - color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 127, 130*

Sterculiaceae: The Cacao Family

Ayenia californica (see *Ayenia compacta*)

***Ayenia compacta* J.N. Rose: California Ayenia**

SYNONYMY: *Ayenia californica* W.L. Jepson. COMMON NAMES: California Ayenia, Compact Ayenia. DESCRIPTION: Terrestrial perennial shrub (4 to 16 inches in height); the branching stems are green; the oval leaves are green; the inconspicuous flowers may be brownish, cream, light pink, pink, dark pink or white; based on few flowering records available, flowering generally takes place between mid-January and late October (flowering records: one for mid-January, one for mid-March, one for mid-April, one for early May, one for late May, one for early August, one for late August, one for early September, one for mid-September, one for early October, one for mid-October and one for late October); the spherical fruits (¼ inch in diameter) are golden or yellow with a red or purple tint. HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; canyons; gravelly canyon bottoms; crevices in rocks; bouldery ridges; foothills; bouldery hills; rocky, rocky-gravelly-clayey and gravelly slopes; amongst rocks; flats; rocky gullies; gravelly and sandy washes; drainages; rocky-gravelly-clayey banks of gullies, and along riparian areas growing in dry bouldery, rocky, gravelly and sandy ground and rocky-gravelly clay ground, occurring from sea level to 4,800 feet in elevation in the desertscrub ecological formation. NOTE: *Ayenia compacta* is native to southwest-

central and southern North America. *5, 6, **16**, 43 (050610), 46 (no record of this species), 63 (050610), 85 (050610), 106 (color presentation)*

***Ayenia filiformis* S. Watson: Trans-Pecos Ayenia**

COMMON NAMES: Desert Ayenia, Trans-Pecos Ayenia, TransPecos Ayenia. DESCRIPTION: Terrestrial perennial subshrub (4 inches to 4 feet in height); the leaves may be bronze, dark green or red; the tiny flowers may be brownish, maroon, purple, red, red-cream, white or white with purple tips; flowering generally takes place between late February and early November (additional records: one for mid-January, two for late January, one for late November, two for mid-December and three for late December); the fruits are bur-like round balls with red tipped spines. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliffs; rocky canyons; along canyon walls; rocky canyon bottoms; talus slopes; crevices in boulders and rocks; rocky ridges; ridgetops; foothills; rocky hills, rocky hilltops; rocky hillsides; bouldery-gravelly and rocky slopes; bajadas; rocky outcrops; amongst boulders and rocks; flats; basins; along roadsides; arroyos; rocky bottoms of arroyos; gulches; seeps; springs; along streams; rocky streambeds; along and in rocky and sandy washes; in rocky and gravelly drainages; along rocky banks of ravines, creeks and washes; along bouldery edges of washes; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, gravelly and sandy ground and rocky silty ground, occurring from 100 to 5,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Ayenia filiformis* is native to southwest-central and southern North America. *5, 6, 43 (073009), 46 (no record of this species), 63 (050610), 77 (color photograph #99), **85** (050610 - color presentation)*

***Ayenia microphylla* A. Gray: Dense Ayenia**

COMMON NAMES: Ayenia, Dense Ayenia, Littleleaf Ayenia, Shrubby Ayenia. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 5 feet in height); flowering generally takes place between mid-July and mid-September (additional records: one for mid-April, two for late April, two for early May and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bases of cliffs; sandy ledges; foothills; rocky hills; hilltops; rocky hillsides; bedrock and rocky slopes; amongst boulders and rocks; plains; gravelly flats; basins; along roadsides; arroyos, and washes growing in dry bouldery, rocky and gravelly ground, occurring from 500 to 5,100 feet in elevation in the desertscrub ecological formation in the scrub, grassland and desertscrub ecological formation. NOTE: *Ayenia microphylla* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (050710), 46 (Page 555), 63 (050710), 77, **85** (050710 - color presentation of dried material), **89***

***Hermannia pauciflora* S. Watson: Santa Catalina Burstwort**

COMMON NAMES: Burstwort, Few-flowered Hermannia, Hierba del Soldado, Santa Catalina Burstwort, Sparseleaf Hermannia. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (trailing to erect stems 8 to 16 inches in height); the small flowers are orange, orange-yellow or yellow; based on few available records, flowering generally takes place between mid-January and mid-November (flowering records: three for mid-January, one for early February, 3 for mid-February, one for early March, two mid-March, two for late March, three for mid-April, one for late May, one for mid-July, three for late August, two for early September, one for late October and one for mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; along canyon bottoms; rocky gorges; talus slopes; crevices in rocks; soil pockets in rocky slopes; foothills; rocky hills; rocky hillsides; bedrock and rocky slopes; rocky outcrops; amongst rocks; alluvial fans; basins; arroyos; along and in rocky washes; floodplains, and riparian areas growing in dry rocky ground, occurring from sea level to 4,300 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTE: *Hermannia pauciflora* is native to southwest-central and southern North America. *5, 6, 8, 13, **16**, 43 (050710), 46 (Page 555), 63 (050710), 77, 85 (050710 - color presentation), **89***

***Tamarix aphylla* (C. Linnaeus) G.K. Karsten: Athel Tamarisk**

COMMON NAMES: Athel (a biblical name), Athel Tamarisk, Athel-pine, Athel Tree, Athel-tree, Desert Tamarix, Evergreen Tamarisk, Farash (India), Salt Cedar, Salt-cedar, Saltcedar, Tamarisk, Tamaris (French), Tamarisk, Tamarix, Tamariske (German), Taray (Spanish), Woestyntamarisk (Afrikaans). DESCRIPTION: Terrestrial perennial deciduous (appearing to be evergreen) shrub or tree (26 to 60 feet in height with a rounded or irregular crown 25 to 50 or more feet in width); the bark is brown, gray, gray-brown, reddish-brown or reddish-tan; the branches are purplish-brown; the jointed branchlets are blue-green, gray-green, greenish or greenish-brown or greenish-brown; the scale leaves encircle the branchlets; the minute flowers are pinkish, pinkish-white, white or whitish-pink and located in clusters at the end of twigs; flowering generally takes place between early August and late October (additional record: one for early May, flowering beginning as early as March has been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; gravelly-sandy alluvial fans; sand dunes; sand hummocks; sandy flats; basins; coastal dunes; coastal plains; roadsides; springs; along streams; along rivers; riverbeds; along and in sandy washes; oases; ponds; along lakes; playas; depressions; along banks of rivers and lakes; along margins of rivers and washes; mudflats; bottomlands; floodplains; sandy-silty stock tanks; canal banks; along ditches; riparian areas, and disturbed areas growing in moist and dry gravelly-sandy and sandy ground and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fuel. *Tamarix aphylla* is native to western and southern Asia and northern, western and eastern Africa. *5, 6, 13, 18, 26 (color photograph), 43 (050710), 46 (note under *Tamarix pentandra*, Page 557), 52 (color photograph), 53, **56**, **57**, 63 (050710 - color presentation), **85** (050710 - color presentation), 109 (color photograph of a *Tamarix* sp.), 127*

***Tamarix chinensis* João de Loureiro: Five-stamen Tamarisk**

SYNONYMY: *Tamarix pentandra* P. Simon von Pallas. COMMON NAMES: Cheng Liu (transcribed Chinese), China Tamarisk, Chinese Saltcedar, Chinese Tamarisk, Five-stamen Tamarisk, Fivestamen Tamarisk, French Tamarisk, Pino Salado, Salt Cedar, Salt-cedar, Saltcedar, Tamarisco, Tamarisk, Tamarix. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (4 to 33 feet in height); the bark is black, brown or reddish-brown; the branches are grayish-green; the twigs are green becoming purplish or reddish; the scale-like leaves are bluish-green, grayish-green or green; the flowers are cream, pale pink, pink, deep pink, pinkish-white, purplish, deep purplish-pink, red, reddish-pink, white or white-pink; flowering generally takes place between early March and mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; along rocky and sandy canyon bottoms; chasms; shaley knolls; rocky and sandy hillsides; sandy-loamy, clayey-loamy and silty slopes; sand dunes; clayey-loamy plains; gravelly-sandy, gravelly-loamy, sandy-loamy and clayey-loamy flats; basins; hollows; valley floors; along roadsides; silty arroyos; bottoms of arroyos; within gulches; along and in gravelly-sandy ravines; seeps; shaley and sandy springs; in sand along streams; along and in streambeds; along creeks; along and in sandy creekbeds; in sand along rivers; along rocky-cobbly-sandy, gravelly-sandy and sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-silty washes; along and in drainages; along watercourses; tanks; along lakes; lakebeds; cienegas; marshy areas; along rocky, rocky-gravelly-silty and sandy banks of gullies, streams, creeks, rivers, washes and ponds; gravelly and sandy edges of streams, rivers, ponds and lakes; along margins of rivers and lakes; shores of lakes; mudflats; sand bars; sandy beaches; sandy benches; terraces; bottomlands; lowlands; sandy floodplains; mesquite bosques; dams; banks of reservoirs; canals; along canal banks; along ditches; ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in

shallow water and wet and moist rocky, rocky-cobbly-sandy, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground, and rocky-gravelly silty, sandy silty and silty ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Tamarix chinensis* is native to eastern Asia. *5, 6, 13, **16** (recorded as *Tamarix pentandra* Pall.), 18, 26 (note), 28 (color photograph), 43 (050710), 46 (recorded as *Tamarix pentandra* Pall., Page 557), 52 (color photograph), 63 (050710 - color presentation), 68, 85 (050810 - color presentation), 91, 109 (color photograph of a *Tamarix* sp.)*

Tamarix pentandra (see *Tamarix chinensis*)

***Tamarix ramosissima* C.F. von Ledebour: Saltcedar**

COMMON NAMES: Atarfe, Perstamarisk (Afrikaans), Pink Tamarisk, Pino Salado, Salado, Salt Cedar, Salt-cedar, Saltcedar, Talaya, Tamarisco, Tamarisk, Tamarix, Tamariz, Taray. DESCRIPTION: Terrestrial perennial winter deciduous or evergreen shrub or tree (2 to 33 feet in height, one shrubby tree was recorded as being 20 feet in height with a crown 20 feet in width); the bark is red or reddish-brown; the scale-like leaves are grayish-green; the flowers may be pale lavender, lavender-pink, pale pink, pale pink-purple, pink, deep pink, pink-lavender, pink-white, pinkish-purple, purple, purple-pink, red, deep rose, white or white-pink; flowering generally takes place between early March and late November (additional records: one for early January, two for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; rocky and stony canyons; bouldery-gravelly-sandy and sandy canyon bottoms; meadows; bluffs; ledges; foothills; rocky and cindery slopes; rocky outcrops; sand dunes; hummocks; plains; sandy flats; sandy basins; valley floors; along sandy roadsides; along and in sandy arroyos; along bottoms of arroyos; draws; seeps; around springs; along streams; streambeds; along creeks; along and in bouldery-cobbly-sandy, rocky, rocky-sandy and sandy creekbeds; in clayey-loams along rivers; sandy and sandy-loamy riverbeds; along and in bouldery-sandy and sandy washes; along rocky-loamy drainages; around pebbly-sandy waterholes; lagoons; lakebeds; playas; silty marshy areas; saltwater marshes; clayey depressions; along sloughs; clayey banks of streambeds and rivers; rocky-sandy, gravelly and sandy edges of arroyos, streams, rivers, washes, pools, ponds, lakes and bogs; along muddy, rocky, sandy and clayey margins of creeks, pools, ponds and lakes; clayey shores of lakes; mud flats; sand bars; sandy-clayey beaches; sandy benches; sandy terraces; rocky bottomlands; floodplains; margins of stock tanks (charcos); reservoirs; canals; canal banks; along edges of canals; sandy ditches; ditch banks; rocky-gravelly-sandy, rocky-sandy and sandy riparian areas, and disturbed areas growing in wet and moist bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, stony, cindery, gravelly, pebbly-sandy and sandy ground; rocky loam, sandy loam and clayey loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. Saltcedar is similar to and may be confused with Smallflower Tamarisk (*Tamarisk parviflora* DC.), Tamarisk flowers are 5-petaled and Smallflower Tamarisk flowers are 4-petaled, and the bark on the stems of Saltcedar is reddish-brown whereas on Smallflower Tamarisk it is brown to deep purple. Some Arizona populations of *Tamarix ramosissima* may have historically been referred to as *Tamarix pentandra*. Some botanists consider *Tamarix ramosissima* to be a synonymous with *Tamarix chinensis*. *Tamarix ramosissima* is native to eastern Europe and western and central Asia. *5, 6, 13, 18 (note under *Tamarix chinensis*), 22 (color photograph), 26 (note), 43 (050810), 46 (no record of species), 58, 63 (050810 - color presentation), **77**, **85** (050810 - color presentation), 91, 101 (color photograph), 109 (color photograph of a *Tamarix* sp.), **WTK** (October 28, 2009)*

***Celtis ehrenbergiana* (J.F. Klotzsch) F.M. Liebmann: Spiny Hackberry**

SYNONYMY: *Celtis pallida* J. Torrey, *Celtis tala* J. Gillies ex J. É. Planchon var. *pallida* (J. Torrey) J. É. Planchon. COMMON NAMES: Acebuche, Bainoro, Capul, Desert Hackberry, Garabato, Garambullo, Granjeno (Spanish), Huasteco, Kunwo (Yaqui), Palo de Aguila, Rompecapa, Shiny Hackberry, Spiny Hackberry. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (3 to 20 feet in height, one plant was reported to be 7 feet in height with a crown 7 feet in width); the bark is gray; the thorny branches are whitish-gray; the leaves are dark green; the inconspicuous flowers may be green, greenish-yellow, white-green or yellow, flowering generally takes place between early March and late October (possibly flowering into November); the ripe fruits are orange, bright red, reddish-orange or yellow. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and rocky-gravelly canyons; canyon bottoms; rocky bases of cliffs; ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; bedrock, bouldery, rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders; coves; plains; gravelly-sandy and sandy flats; rocky-gravelly basins; along roadsides; rocky arroyos; rocky bottoms of arroyos; draws; gullies; seeps; springs; along seeping streams; along streams; along and in streambeds; in sand along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in gravelly and sandy washes; in drainages; banks of arroyos, rivers, washes and drainages; along margins of arroyos and washes; benches; gravelly terraces; gravelly-clayey floodplains; mesquite bosques; around stock tanks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, and gravelly clay ground, occurring from sea level to 5,600 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The small fruits are reportedly juicy and sweet. The Desert Hackberry may live to be more than 88 years of age and may be useful in controlling erosion. The Desert Hackberry is a larval food plant for the American Snout (*Libytheana carinenta*) and Empress Leilia (*Asterocampa leilia*) and is browsed by deer; it provides a nesting site for the White-wing Dove (*Zenaida asiatica*), and cover for Gambel's Quail (*Callipepla gambelii gambelii*) and other birds and mammals. The fruits are eaten by many birds, small desert mammals, coyotes (*Canis latrans*), foxes and javelinas (*Peccari tajacu*). *Celtis ehrenbergiana* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and western, eastern and southern South America. *5, 6, 13 (recorded as *Celtis tala* Gillies var. *pallida* (Torrey) Planch.), 15 (recorded as *Celtis pallida* Torr.), **16** (recorded as *Celtis pallida* Torr.), 18, 26 (recorded as *Celtis pallida*, color photograph), 28 (recorded as *Celtis pallida*, color photograph), 43 (050810), 46 (recorded as *Celtis pallida* Torr., Page 220), 48, 58 (recorded as *Celtis pallida* Torr.), 63 (050810), 77 (recorded as *Celtis pallida* Torr.), **85** (050810 - also recorded as *Celtis pallida* var. *pallida* Torrey), **89** (recorded as *Celtis pallida* Torr.), 91 (recorded as *Celtis pallida* Torr.), 115 (color presentation), **WTK** (October 28, 2009)*

***Celtis laevigata* C.L. von Wildenow var. *reticulata* (J. Torrey) L.D. Benson: Netleaf Hackberry**

SYNONYMY: *Celtis reticulata* J. Torrey. COMMON NAMES: Canyon Hackberry, False Elm, Hack Berry, Hackberry, Netleaf Hackberry, Palo Blanco, Sugar-berry, Sugarberry, Western Hackberry. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (6 to 60 feet in height, one plant was described as being 30 feet in height and width, stunted trees or shrubs of up to 2 feet in height were reported from forests at higher elevations); the bark is gray, dark gray or reddish-brown becoming "warty" with age; the twigs are reddish-brown; the leaves are gray-green, dark green or yellow-green appearing in early April to late May developing fully in June, they turn yellow in the fall; the inconspicuous flowers are green or yellow-green; the anthers are green; the stigmas are whitish-green; flowering generally takes place between mid-March and mid-September; the fruits are black, purplish, pale orange, orange, orange-red-brown, reddish or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; rocky edges of mesas; plateaus; rocky cliffs; along bouldery, rocky, rocky-gravelly and gravelly-loamy canyons; bouldery, rocky, gravelly and gravelly-sandy-clayey canyon bottoms; chasms; gorges; bases of cliffs; bouldery talus; crevices in rocks; bluffs; ledges; rocky ridges; rocky ridgetops; foothills; sandy hills; rocky hillsides; bouldery, bouldery-sandy, rocky and loamy

slopes; alluvial fans; rocky outcrops; amongst boulders and rocks; rocky and sandy alcoves; sandy lava flows; lava beds; sand dunes; shell banks; breaks; prairies; plains; sandy flats; basins; sandy valley floors; valley bottoms; along gravelly-loamy roadsides; along arroyos; sandy bottoms of arroyos; bottoms of draws; gulches; rocky gullies; ravines; sandy seeps; springs; along streams; along and in gravelly-sandy and sandy streambeds; in sand along creeks; along and in bouldery and sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly, sandy and sandy-clayey-loamy washes; drainages; loamy drainage ways; watercourses; oases; among and in pools; ponds; lakes; tanks; rocky banks of arroyos, ravines, streams, streambeds, creeks, rivers, washes and drainages; sandy edges of arroyos, springs, streams and washes; margins of ponds; shores of lakes; rocky-sandy and gravelly-sandy benches; gravelly, sandy and silty-loamy terraces; silty bottomlands; along floodplains; mesquite bosques; fencerows; gravelly canal banks; along ditches; rocky-gravelly and sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay ground, and silty ground, occurring from 400 to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fiber and/or dye crop; it was also noted as having been used for tools, as a drug or medication or as a fuel. The Netleaf Hackberry may be useful in the rehabilitation of disturbed sites and suitable for planting in patios, yards and along streets in urban areas and may live to be 100 to 200 years in age. The Netleaf Hackberry provides cover and food for many species of birds and mammals; the American Beaver (*Castor canadensis*) feeds on the wood; the plant is browsed by Pronghorn (*Antilocapra americana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*); the fruit is eaten by wildlife; and Scrub Jays (*Aphelocoma californica*) feed on the leaf galls that form on the foliage. The Netleaf Hackberry has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Celtis laevigata* var. *reticulata* is native to south-central and southern North America. *5, 6, 13, 15 (recorded as *Celtis reticulata* Torr.), 18, 26 (recorded as *Celtis reticulata*, color photograph), 28 (recorded as *Celtis reticulata*, color photograph), 43 (050910 - *Celtis laevigata* var. *reticulata* (Torr.) L.D. Benson), 46 (Page 220), 48, 52 (recorded as *Celtis reticulata*, color photograph), 53, 58 (recorded as *Celtis reticulata* Torr.), 63 (050910 - color presentation), **85** (050910 - color presentation), **89** (recorded as *Celtis mississippiensis* Bosc var. *reticulata* (Torr.) Sargent), 115 (color presentation), 127, **WTK** (June 2, 2005)*

Celtis mississippiensis var. *reticulata* (see footnote 89 under *Celtis laevigata* var. *reticulata*)

Celtis pallida (see *Celtis ehrenbergiana*)

Celtis pallida var. *pallida* (see footnote 85 under *Celtis ehrenbergiana*)

Celtis reticulata (see *Celtis laevigata* var. *reticulata*)

Celtis tala var. *pallida* (see *Celtis ehrenbergiana*)

Urticaceae: The Nettle Family

Parietaria debilis (see footnote 89 under *Parietaria hespera*)

***Parietaria hespera* B.D. Hinton: Rillita Pellitory**

COMMON NAME: California Pellitory, Rillita Pellitory. DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate, decumbent, ascending or erect stems ¾ to 22 inches in height); the stems may be purple; the leaves are pale green or green; the inconspicuous flowers may be cream, pale green, green, greenish, white or white-green; flowering generally takes place between early February and early June (additional records: one for mid-January, two for late June, one for early July, one for mid July, one for late July and one for late August). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; bouldery, rocky and stony canyons; along rocky and sandy-loamy canyon bottoms; bases of cliffs; talus slopes; crevices in rocks; buttes; ledges; loamy and clayey-loamy ridges; rocky ridgetops; foothills; bouldery and rocky hills; clayey hilltops; rocky hillsides; along bouldery, bouldery-silty, rocky, cobbly, gravelly and clayey-loamy slopes; bouldery-stony-gravelly-sandy and rocky-sandy-loamy alluvial fans; bajadas; boulder and rock outcrops; bases of boulders and rocks; sheltered areas below rocks, shrubs and trees; caves; rocky niches; sand dunes; sandy-loamy plains; flats; valley floors; roadsides; rocky arroyos; rocky draws; springs; along streams; along creeks; along rocky creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; within bouldery-rocky drainages; cobbly-sandy drainage ways; tanks; depressions; rocky swales; loamy banks of arroyos; streambeds, rivers and washes; bouldery edges of washes, drainage ways and salt marshes; margins of rivers and washes; benches; rocky-sandy floodplains; canals; bottoms of stock tanks; sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-stony-gravelly-sandy, rocky, rocky-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, sandy loam, clayey loam and loam ground; bouldery clay, rocky clay, sandy clay and clay ground, and silty ground often in shaded areas, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Parietaria hespera* B.D. Hinton var. *californica* B.D. Hinton, the California Pellitory has been described as being either annual or perennial, and *Parietaria hespera* B.D. Hinton var. *hespera* has been described as a perennial. *Parietaria hespera* is native to southwest-central and southern North America. *5, 6, 15, **16**, 43 (050910), 46 (no record of this species), 58, 63 (050910), **85** (050910), **89** (recorded as *Parietaria debilis* Forst. f.)*

***Parietaria hespera* B.D. Hinton var. *hespera*: Rillita Pellitory**

COMMON NAME: Rillita Pellitory. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, decumbent, ascending or erect stems 1¼ to 22 inches in height); the stems may be purple, the leaves are pale green or green; the inconspicuous flowers may be green, white or white-green; flowering generally takes place between late January and February and early June (additional record: one for early July and one for late August). HABITAT: Within the range of this species it has been reported from mountains;

cliffs; rocky canyons; sandy-loamy canyon bottoms; bases of cliffs; crevices in rocks; buttes; ledges; ridgetops; hills; rocky hillsides; bouldery, bouldery-silty, rocky and gravelly slopes; bajadas; rocky outcrops; amongst rocks; bases of boulders and rocks; in cobble under ledges and shrubs; caves; rocky niches; sand dunes; sandy-loamy plains; valley floors; roadsides; along rocky arroyos; draws; springs; along streams; along creeks; rocky creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; in bouldery-rocky drainages; cobbly-sandy drainage ways; rocky swales; tanks; banks of draws, rivers and washes; bouldery edges of drainage ways; canals; bottoms of stock tanks, and riparian areas growing moist and damp bouldery, bouldery-rocky, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy clay and clay ground, and bouldery-silty and silty ground often in shaded areas, occurring from sea level to 6,100 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Parietaria hespera* var. *hespera* is native to southwest-central and southern North America. *5, 6, 15, 43 (050910), 46 (no record of this species), 58, 63 (050910), **85** (050910 - color presentation of dried material)*

Verbenaceae: The Verbena Family

***Aloysia wrightii* (A. Gray) A.A. Heller: Wright's Beebrush**

SYNONYMY: *Lippia wrightii* A. Gray. COMMON NAMES: Altamisa, Bee Brush, Beebrush, Lemon Verbena, Mexican Oregano (a common name which is also applied to *Aloysia lycioides* which is the Mexican Oregano of commerce), Mintbush Lippia, Oreganillo, Vara Dulce, Wild Lemon Verbena, Wright Aloysia, Wright Beebrush, Wright's Beebrush, Wright Aloysia, Wright Lippia. DESCRIPTION: Terrestrial perennial drought-deciduous or semi-evergreen shrub (20 inches to 6½ feet in height and about the same in width); the small flowers, located in dense elongate spikes (¾ to 2¾ inches in length and ½ inch in width) are cream-white or white; flowering generally takes place between early March and early May and between mid-July and mid-December (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; rocky and clayey mesas; cliffs; rims of gorges; bedrock, bouldery-sandy, rocky, gravelly and gravelly-loamy canyons; along rocky canyon bottoms; gorges; rocky and gravelly bases of cliffs; talus slopes; crevices in rocks; buttes; rocky ledges; ridges; rocky ridgetops; clearings in woodlands; rocky foothills; rocky hills; rocky and rocky-clayey hillsides; bedrock, bouldery, rocky, rocky-gravelly-loamy, rocky-sandy-clayey-loamy, stony, gravelly and gravelly-sandy-loamy slopes; bajadas; rocky outcrops; amongst rocks; sandy lava flows; lava beds; debris fans; breaks; plains; rocky flats; basins; rocky valley floors; along roadsides; along rocky arroyos; bottoms of arroyos; within rocky draws; within ravines; along streams; creekbeds; along rivers; along and in bouldery, rocky, cobbly, gravelly and sandy washes; in drainages; marshy areas; rocky banks of rivers and washes; edges of arroyos and washes; rocky margins of arroyos; rocky-sandy shores of lakes; gravel bars; terraces; floodplains; along ditches, and riparian areas growing in damp and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, cindery-sandy, gravelly and sandy ground; rocky-gravelly loam, rocky-sandy-clayey loam, gravelly loam and gravelly-sandy loam ground, and rocky clay and clay ground, occurring from 1,000 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has been suggested for use as an informal hedge; in herb gardens, and natural landscapes. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial beverage crop; it was also noted as having been used as a drug or medication. The Wright Beebrush may live to be more than 72 years of age. is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Lippia wrightii* A. Gray), 15, **16**, 18, 43 (050910 - *Aloysia wrightii* A.A. Heller), 46 (Page 729), 58, 63 (050910 - color presentation), 77, **85** (050910 - color presentation), **89** (recorded as *Lippia wrightii* Gray), 91, 127*

***Glandularia bipinnatifida* (T. Nuttall) T. Nuttall var. *ciliata* (G. Bentham) B.L. Turner: Davis Mountain Mock Vervain.**

SYNONYMY: *Glandularia wrightii* (A. Gray) R.E. Umber, *Verbena bipinnatifida* T. Nuttall var. *latilobata* L.M. Perry, *Verbena ciliata* G. Bentham, *Verbena wrightii* A. Gray. COMMON NAMES: Davis Mountain Mock Vervain, Desert Vervain, Mexican Vervain, Prostrate Vervain, Sweet William, Vervain, Wright Vervain. DESCRIPTION: Terrestrial annual or perennial forb/herb (decumbent stems 6 inches to 2 feet in height); the leaves are dark green; the flowers may be blue, blue-lavender, blue-violet, bluish-purple, fuchsia, lavender, lavender-bluish, magenta-purple, pink, deep pink, bright pink, hot pink, pink-purple, pinkish-purple, light purple, purple, purplish, purplish-pink, reddish-violet (aging purple), rose-purple, violet or white; flowering generally takes place between early March and early November. HABITAT: Within the range of this species it has been reported from mountains; gravelly-loamy mountainsides; mesas; bouldery and gravelly-loamy canyons; rocky canyonsides; along canyon bottoms; rocky gorges; talus; bases of cliffs; crevices in rocks; knolls; rocky ridges; clearings in forests; meadows; clayey-loamy foothills; hills; bouldery and rocky hillsides; escarpments; along rocky, rocky-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy, silty-loamy and clayey slopes; amongst boulders; sandy lava flows; amongst lava beds; sandy plains; flats; valley floors; railroad right-of-ways; along rocky, rocky-sandy, shaley, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; within clayey arroyos; bottoms of arroyos; draws; bouldery-rocky gullies; ravines; along streams; streambeds; creeks; along rivers; riverbeds; within rocky washes; drainage ways; bogs; sumps; cobbly-sandy-loamy swales; banks of streambeds, washes and drainage ways; edges of springs; benches; floodplains; ditches; riparian areas, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, rocky, rocky-sandy, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky loam, rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy-loamy, sandy loam, clay loam, silty loam and loam ground, and clay ground, occurring from 2,000 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The flowers may be fragrant. *Glandularia bipinnatifida* var. *ciliata* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Verbena ciliata*, color photograph), 43 (051110 - *Glandularia bipinnatifida* var. *ciliata* (Benth.) B.L. Turner, *Verbena bipinnatifida* var. *latilobata* L.M. Perry), 46 (recorded as *Verbena bipinnatifida* Nutt. var. *latilobata* Perry, Page 727; *Verbena ciliata* Benth., Page 727 and *Verbena wrightii* Gray, Page 727), 48 (genus), 63 (051110 - color presentation), **85** (051310 - color presentation of dried material provided under *Glandularia wrightii*), **89** (recorded by J.J. Thornber as *Verbena ciliata* Benth. but currently believed by some to have been *Glandularia gooddingii*), 115 (color presentation of the species), 127*

***Glandularia gooddingii* (J.I. Briquet) O.T. Solbrig: Southwestern Mock Vervain**

SYNONYMY: *Verbena gooddingii* J.I. Briquet, *Verbena gooddingii* J.I. Briquet var. *nepetifolia* I. Tidestrøm. COMMON NAMES: Desert Verbena, Desert Vervain, Goodding Glandularia, Goodding Mock Vervain, Goodding Verbena, Goodding's Verbena, Goodding Vervain, Mexican Vervain, Southwestern Mock Vervain, Southwestern Verbena, Southwestern Vervain, Sweet William, Verbena, Vervain. DESCRIPTION: Terrestrial perennial forb/herb (6 inches to 2 feet in height, one plant was described as being 6 to 10 inches in height and 6 inches in width, one plant was described as being 24 inches in height and 12 inches in width); the leaves are gray-green, green or dark green; the flowers may be light blue, blue, sky blue, blue-lavender, blue-violet, bluish-purple, pale lavender, lavender, lavender-blue, lavender-purple, magenta, pink, pink-lavender, pink-purple, pink-violet, light purple, purple, purple-lavender, purplish-pink, rose-pink or white-lavender; flowering generally takes place between early February and mid-October (additional records: one for mid-November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; cobbly-gravelly mesas; plateaus; along canyons; bouldery-cobbly, rocky, gravelly and sandy canyon bottoms; rock cliffs; talus slopes; crevices in rocks; rocky ledges; rocky-sandy and sandy ridges; rocky

ridgetops; meadows; cinder cones; gravelly, gravelly-sandy and sandy foothills; rocky hills; hilltops; rocky hillsides; bouldery-sandy, rocky and rocky-gravelly slopes; rocky outcrops; amongst boulders; rocky plains; sandy flats; sandy valley floors; in roadways; along rocky, cindery, gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy, pebbly, sandy, sandy-loamy and loamy roadsides; within rocky and gravelly arroyos; rocky bottoms of arroyos; gravelly gulches; seeps; springs; along and in streambeds; along creeks; creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly and sandy washes; drainages; around pools; playas; sandy and silty banks of creeks, rivers and washes; gravelly-sandy and silty edges of streambeds and washes; margins of washes; cobbly benches; shelves; terraces; sandy bottomlands; sandy-clayey floodplains; rocky, cobbly-gravelly, gravelly and sandy riparian areas; recently burned areas of forests, and disturbed areas growing in dry bouldery, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground; bouldery clay, sandy clay and clay ground, and powdery-silty and silty ground, occurring from 700 to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers may be fragrant. *Glandularia gooddingii* is native to southwest-central and southern North America. *5, 6, 15, **16**, 28 (color photograph), 43 (073109), 46 (recorded as *Verbena gooddingii* Briq., Pages 726-727 and *Verbena gooddingii* Briq. var. *nepetifolia* Tidestrøm, Pages 726-727), 48 (genus), 63 (051410), 77 (recorded as *Verbena gooddingii* Briq., color photograph #53), **85** (051410 - color presentation), **89** (recorded by J.J. Thornber as *Verbena ciliata* Benth. but currently believed by some to have been *Glandularia gooddingii*), 115 (color presentation)*

Glandularia wrightii (see *Glandularia bipinnatifida* var. *ciliata*)

***Lantana camara* C. Linnaeus: Lantana**

COMMON NAMES: Achamasiri-uandaku (Purépecha), Alfombrillo (Hispanic), Alfrombrilla Hedionda (Hispanic), Bush Lantana, Cambará-de-Cheiro (Portuguese), Cambará-de-Chumbo (Portuguese), Cambara de Espinho, Cambara-de-espinho (Portuguese), Cambará-juba (Portuguese), Cambará-miúdo (Portuguese), Cambara-verdadeiro (Portuguese), Cambarazinho (Portuguese), Cariaquillo, Chichietlacotl (Hispanic), Cinco Negritos (Hispanic), Confituría (Hispanic), Confiturilla (Hispanic), Corona (Hispanic), Corona de Sol (Hispanic), Cuasquito, Doradillo (Oaxaca), Erva-de-grilo (Portuguese), Frutilla (Hispanic), Gobernadora (Hispanic), Granadilla (Hispanic), Hedgeflower, Hierba de Cristo (Hispanic), Hierba de Pedro Antonio (Hispanic), Hierba de San Pedro (Hispanic), Hierba Negra, Laurel (Hispanic), Lantana, Lantana-cambará (Portuguese), Largeleaf Lantana, Mesehua (Hispanic), Morita Negra (Hispanic), Moscete (Hispanic), Ojo de Pescado (Hispanic), Orégano del Monte (Hispanic), Orosus (Hispanic), Palabra de Caballero (Hispanic), Palabra de Hombre (Hispanic), Pionía (Hispanic), Pionía de Cerro (Hispanic), Qita Pesal (Hispanic), Quelite de Arroyo (Hispanic), Red-flowered Sage, Rinyonina (Hispanic), Salverreal (Hispanic), Salvia (Hispanic), Shrub Verbena, Siete Colores (Hispanic), Siete Negritos Macho (Hispanic), Tootskumot (Oax), Tres Colores (Hispanic), Uña de gato (Hispanic), Verbena-arbustiva (Portuguese), White Sage, Wild Sage. DESCRIPTION: Terrestrial perennial evergreen shrub or vine (1 to 10 feet in height, one plant was described as being 40 inches in height and 16 to 20 feet in width); the flowers may be cream (aging pink), green & red, orange, orange (aging to pink, red or white), orange-red, orange & red & yellow, orange & yellow, pink & orange & yellow, pink-rose, pink-rose to yellow-white, pink & yellow & white, purple, red, red & orange, yellow, yellow aging to orange or yellow-white; flowering generally takes place between mid-January and mid-November, the tiny fruits are black, metallic gray-blue, purple or dark purple. HABITAT: Within the range of this species it has been reported from mountains; cliff faces; oak bosques; meadows; rocky hills; hilltops; rocky hillsides; rocky and sandy slopes; cobbly plains; sandy flats; sandy coastal plains; along roadsides; along gravelly-sandy arroyos; streams; along rivers; sandy riverbeds; washes; freshwater and saltwater marshes; depressions, and disturbed areas growing in moist and dry rocky, gravelly-sandy and sandy ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland

ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Lantana camara* plant is native to southern North America; Central America, and northern South America. *5, 6, 18, 26 (color photograph), 30, 43 (051410), 46 (no record of this species), 63 (051410 - color presentation), **77**, 80 (Species in the genus *Lantana* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Two species of these poisonous ornamental shrubs have escaped along streams in western Pima and Santa Cruz Counties." Species in the genus *Lantana* are considered to be Poisonous Cropland and Garden Plants. "All parts of this ornamental shrub are poisonous and have caused photosensitization and death of livestock. Also berries have poisoned children."), **85** (051410 - color presentation), 97*

Lantana horrida (see *Lantana urticoides*)

***Lantana urticoides* A. von Hayek: West Indian Shrubverbena**

SYNONYMY: *Lantana horrida* auct. non K.S. Knuth. COMMON NAMES: Bunchberry, Calico Bush, Common Lantana, Common Verbena, Hierba de Cristo, Lantana, Texas Lantana, Trailing Lantana, West Indian Shrub-verbena, West Indian Shrubverbena. DESCRIPTION: Terrestrial perennial evergreen subshrub (4 to 8½ feet in height); the flowers may be orange, orange-yellow, red, rose-yellow, yellow or bright yellow (fading to orange or orange-red); flowering generally takes place between early February and late October (based on few flowering records: one for early February, one for early March, one for mid-July, one for mid-August, one for late August, one for early September and two for late October); the fruits are black or deep blue-black. HABITAT: Within the range of this species it has been reported from mountains; canyons; along gravelly-sandy canyon bottoms; slopes; plains; sandy flats; roadsides; streams; riverbeds; washes; watersheds; banks of streams; lowlands; riparian areas, and disturbed areas growing in dry gravelly-sandy and sandy ground, occurring at from near sea level to 4,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant that poses a significant threat to our native biotic communities. *Lantana urticoides* plant is native to southwest-central (Texas) and southern North America. *5, 6, 13 (recorded as *Lantana horrida* H.B.K.), **16** (*Lantana horrida* H.B.K.), 43 (051410), 46 (recorded as *Lantana horrida* H.B.K., Page 728), 63 (051410), 80 (Species in the genus *Lantana* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Two species of these poisonous ornamental shrubs have escaped along streams in western Pima and Santa Cruz Counties." Species in the genus *Lantana* are considered to be Poisonous Cropland and Garden Plants. "All parts of this ornamental shrub are poisonous and have caused photosensitization and death of livestock. Also berries have poisoned children."), **85** (051410), 97*

Lippia wrightii (see *Aloysia wrightii*)

***Tetraclea coulteri* A. Gray: Coulter's Wrinklefruit**

COMMON NAMES: Coulter Tetraclea, Coulter Wrinklefruit, Coulter's Wrinklefruit. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 20 inches in height); the foliage may be ash-gray or gray-green; the flowers are pale apricot with a pale peach floral tube, cream, cream with a pinkish floral tube, cream-white, creamy-tan, greenish-white, pink-cream, white, pale yellow or yellow; the anthers are dark brown; flowering generally takes place between mid-April and late October (additional records: one for mid-March and one for late March). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; gravelly mesas; rims of gorges; canyons; gravelly ridges; bosques; rocky foothills; hills; rocky, rocky-gravelly, rocky-gravelly-silty and gravelly hillsides; rocky, rocky-gravelly-sandy-loamy, cobbly and gravelly slopes; sandy bajadas; sandy bases of escarpments; amongst boulders; silty plains; gravelly and sandy flats; sandy basins; gravelly valley floors; gravelly-silty-loamy valley bottoms; along gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; sandy bottoms of arroyos; along and in bedrock-rocky, rocky and sandy washes; drainages; drainage ways; swales; rocky banks of arroyos and washes; edges of washes; benches; sandy-loamy terraces; floodplains; ditches; in silty-clay at stock tanks, and disturbed areas

growing in dry bouldery, rocky, rocky-gravelly, shaley, cobbly, gravelly and sandy ground; rocky-gravelly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam and sandy-clayey loam ground; silty clay ground, and rocky-gravelly silty and silty ground, occurring from 400 to 7,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The genus Tetraclea is sometimes placed in the Lamiaceae (Labiatae), the Mint Family. *Tetraclea coulteri* is native to southwest-central and southern North America. *5, 6, **16**, 43 (051410), 46 (Page 730), 58, 63 (051410 - color presentation), **77**, **85** (051410 - color presentation), **89**, 115 (color presentation), 127*

Verbena bipinnatifida var. *latilobata* (see *Glandularia bipinnatifida* var. *ciliata*)

***Verbena canescens* K.S. Kunth: Gray Vervain**

COMMON NAMES: Alfombrilla (Hispanic), Gray Verbena, Gray Vervain, Moradilla (Hispanic). DESCRIPTION: Terrestrial perennial forb/herb (4 to 16 inches in height); the flowers are blue, bluish-purple or purple; based on few records located flowering generally takes place between early March and late September (flowering records: one early March, two for mid-March, one for late March, one for early April, two for early May, one for early June, three for mid-June, three for late June, two for early July, one for mid-July, one for mid-August, two for late August, one for early September, one for mid-September and one for late September). HABITAT: Within the range of this species it has been reported from rocky mesas; gravelly hills; grassy slopes; valley floors; along roadsides; bottoms of arroyos, and playa valleys growing in dry rocky and gravelly ground and sandy loam ground, occurring from 700 to 8,200 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: EXOTIC Plant. This plant was possibly misidentified, this plant is included in the 1909 J.J. Thornber listing for Tumamoc Hill. *Verbena canescens* is native to south-central and southern North America. *5, 6, 30, 43 (051710), 46 (no record of species), 63 (051410), 85 (051410), **89**, 95 (Personal Communication - 052206)*

Verbena bipinnatifida var. *latilobata* (see *Glandularia bipinnatifida* var. *ciliata*)

Verbena ciliata (see *Glandularia bipinnatifida* var. *ciliata*)

Verbena ciliata (see footnote 89 under *Glandularia gooddingii*)

Verbena gooddingii (see *Glandularia gooddingii*)

Verbena gooddingii var. *nepetifolia* (see *Glandularia gooddingii*)

Verbena wrightii (see *Glandularia bipinnatifida* var. *ciliata*)

Viscaceae (Loranthaceae): The Christmas Mistletoe Family

***Phoradendron californicum* T. Nuttall: Mesquite Mistletoe**

SYNONYMY: *Phoradendron californicum* T. Nuttall var. *distans* W. Trelease. COMMON NAMES: American Mistletoe, Desert Mistletoe, Mesquite American Mistletoe, Mesquite Mistletoe, Toji, Western Dwarf Mistletoe. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 5 feet in height, one clump was described as being 16 inches in length and 36 inches in width); the stems (16 to 40 inches in length) may be brown, green, green-reddish, dark olive-green, reddish, red-brown, yellow-green or yellowish; the fragrant flowers are greenish-yellow; flowering generally takes place between late July and early June (additional records: one record for late June and one record for early July); the fruits may

be orange, orange-pink, pink, pink-red, pale red, reddish, red-orange, white, white-pink or white-reddish with the older berries turning brown-red or red. HABITAT: Partial parasite observed growing on Catclaw Acacia, Whitethorn Acacia, Kearney Condalia, Desert Ironwood, Velvet Mesquite, Blue Paloverde and Foothill Paloverde, and commonly reported as growing on: *Acacia spp.* (*Acacia constricta*, Whtitethorn Acacia; *Acacia farnesiana*, Sweet Acacia, and *Acacia greggii*, Catclaw Acacia); *Condalia spp.* (*Condalia globosa*, Bitter Snakewood and *Condalia warnockii*, Kearney Snakewood); *Larrea tridentata*, Creosote Bush; *Olneya tesota*, Desert Ironwood; *Parkinsonia spp.* (*Parkinsonia aculeata*, Jerusalem Thorn; *Parkinsonia florida*, Blue Palo Verde; *Parkinsonia microphylla*, Yellow Palo Verde, and *Parkinsonia praecox*, Sonoran Palo Verde); *Prosopis spp.* (*Prosopis glandulosa*, Honey Mesquite; *Prosopis pubescens*, Screwbean Mesquite, and *Prosopis velutina*, Velvet Mesquite); *Simmondsia chinensis*, Jojoba, and *Ziziphus obtusifolia*, Lotebush, occurring from sea level to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (berries) and as a drug or medication. When removing the Mesquite Mistletoe from the trees and shrubs on your property don't remove all of it, consider leaving some of the plants for the wildlife. The Phainopepla (*Phainopepla nitens*) feeds on the berries and disperses the seeds to other host plants and Verdins nest in the stems. *Phoradendron californicum* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 15, **16**, 28 (color photograph), 43 (051710 - *Phoradendron californicum* var. *distans* Trel. in Trel.), 46 (recorded as *Phoradendron californicum* Nutt., Page 224 and *Phoradendron californicum* Nutt. var. *distans* Trelease, Page 224), **56**, **57**, 58, 63 (051410 - color presentation), 77, 80 (Species of the genus *Phoradendron* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Cattle may be killed by browsing these parasitic forbs, but plants are unpalatable and poisoning is rare. Also children may be poisoned by eating the berries."), **85** (051410 - color presentation), 97, 115 (color presentation), 127, **WTK** (August 12, 2005)*

Phoradendron californicum var. *distans* (see *Phoradendron californicum*)

Vitaceae: The Grape Family

Parthenocissus inserta (see *Parthenocissus quinquefolia* and/or *Parthenocissus vitacea*)

***Parthenocissus vitacea* (E.B. Knerr) A.S. Hitchcock: Woodbine**

SYNONYMY: *Parthenocissus inserta* (A.J. Kerner) K. Fritsch, *Psedera vitacea* (E.B. Knerr) E.L. Greene. COMMON NAMES: American Ivy, False Virginia-creeper, Fünfblättrige Jungfernrebe (German), Hiedra Creeper, Grape Woodbine, Thicket Creeper, Thicket-creeper, Vigne Vierge Commune (French), Virginia Creeper, Woodbine. DESCRIPTION: Terrestrial perennial deciduous vine (a woody prostrate, clambering, climbing, scrambling, sprawling and/or trailing vine (liana) 10 to 33 feet in length, possibly longer with one report of the vines reaching 98 feet in length); the leaves are green or dark green turning burgundy crimson, gold, mauve, purple or red in the fall; the inconspicuous flowers may be cream-white, green, greenish, red, reddish or white-cream; the anthers are cream-white or yellow; flowering generally takes place between early April and mid-September; the fruits (¼ inch in diameter) are black, bluish, bluish-black, dark purple, or purplish-black. HABITAT: Within the range of this species it has been reported from mountains; along rock walls; bouldery, gravelly, gravelly-loamy and sandy canyons; canyonsides; along canyon bottoms; talus slopes; crevices; bluffs; bouldery-loamy and sandy slopes; amongst boulders and rocks; grottos; valley floors; sandy coastal dunes; coastal saltwater marshes; roadsides; along arroyos; draws; sandy-silty seeps; along springs; along streams; along streambeds; along creeks; bouldery-loamy creekbeds; along rivers; riverbeds; in bouldery and sandy washes; bouldery drainages; along rocky banks of streams and rivers; edges of streams and rivers; along margins of rivers; along shores of lakes; sandy benches; sandy terraces; fencelines; rocky riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, gravelly and sandy ground; bouldery loam, gravelly loam,

sandy loam and clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as a drug or medication. Consider using Woodbine as a ground cover, it may be useful in controlling erosion. The fruits are eaten by birds, deer, squirrels and other small animals; deer may browse the foliage, and the foliage provides cover for many birds and mammals. *Parthenocissus vitacea* is considered by some authors to be the western species of *Parthenocissus*. *Parthenocissus vitacea* differs from *Parthenocissus quinquefolia* of eastern North America by having fewer-branched tendrils without the adherent disks (or having only weakly developed disks) and a somewhat different branching floral structure. The berries (and probably the leaves) of this plant are reportedly poisonous to mammals. The Woodbine has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Parthenocissus vitacea* is native to eastern, southwest-central and southern North America. *15 (recorded as *Parthenocissus inserta* (Kerner) K. Fritsch), 18 (recorded as *Parthenocissus inserta*), 28 (recorded as *Parthenocissus inserta*, color photograph), 43 (051710), 46 (recorded as *Parthenocissus inserta* (Kerner) K. Fritsch (*P. vitaceae* (Knerr) A.S. Hitchc.), Page 535), 63 (051510 - color presentation), 85 (051510 - color presentation), **89** (recorded as *Psedera vitacea* (Knerr) Greene), 97 (recorded as *Parthenocissus inserta*), 106 (051510 - color presentation), 127*

Psedera vitacea (see *Parthenocissus vitacea*)

***Vitis arizonica* G. Engelmann: Canyon Grape**

SYNONYMY: *Vitis arizonica* G. Engelmann var. *glabra* T.V. Munson, *Vitis treleasei* T.V. Munson ex L.H. Bailey. COMMON NAMES: Arizona Grape, Arizona Wild Grape, Canyon Grape, Gulch Grape, Parra Cimarrona (Hispanic), Parra del Monte (Hispanic), U´li (Hispanic), Uva de Monte (Hispanic), Uva Silvestre (Hispanic), Vid, Wild Grape. DESCRIPTION: Terrestrial perennial deciduous vine (clambering, climbing scrambling, sprawling, spreading, trailing and/or twining stems 16 inches to 33 feet in length); the bark is red-brown; the heart-shaped leaves are green, dark green or yellow-green; the stems may be reddish; the tiny flowers may be cream-white-yellow, cream-yellow, pale green, greenish, white, greenish-white, greenish-yellow, pale yellow, yellow, yellow-green or yellowish-white; flowering generally takes place between early April and late June (additional records: one for mid-July

and one for late August); the color of the mature fruits (¼ to ¾ inch in diameter, juicy with a few large seeds) has been described as black, dark blue, blue-black, dark blue-purple, deep purple or purple. HABITAT: Within the range of this species it has been reported from mountains; plateaus; cliffs; along rocky, rocky-clayey, gravelly-sandy, sandy and clayey-loamy canyons; canyon walls; rocky, stony and sandy canyon bottoms; chasms; bases of cliffs; along talus; crevices; bluffs; along rocky ledges; meadows; hills; hillsides; rocky escarpments; bouldery-cobbly, rocky, rocky-loamy, gravelly, gravelly-sandy and sandy slopes; bajadas; rock outcroppings; amongst boulders and rocks; shaded alcoves; gravelly flats; sandy basins; valley floors; along gravelly roadsides; within arroyos; bottoms of arroyos; within rocky draws; gulches; rocky ravines; seeps; along springs; along streams; along and in rocky-gravelly-sandy streambeds; along and in bouldery creeks; along rocky, rocky-sandy and sandy-clayey creekbeds; riverbeds; along and in rocky and sandy washes; along watercourses; within bedrock and bouldery-rocky drainages; along and in lakes; boggy areas; along rocky banks of streams, creeks, creekbeds, rivers, washes and lakes; sandy edges of rivers and washes; along rocky shores of lakes; benches; sandy bottomlands; floodplains; along fencelines; in ditches; ditch banks; bouldery, bouldery-sandy, rocky, sandy and sandy-clayey riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 2,000 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a toy or in games, as a love medicine and for ceremonial items. The flowers may be fragrant. The Canyon Grape may be useful in controlling erosion along drainages. Birds feed on the berries. Canyon Grape is useful in controlling erosion along creeks. The Arizona Grape has been EXTIRPATED from this township. When restoring the floodplains of the major river systems in this township consider including the following plants in the mix: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii* subsp. *fremontii*). *Vitis arizonica* is native to southwest-central and southern North America. *5, 6, 13, 15, 18 (genus), 28 (color photograph), 30, 43 (080209), 46 (recorded as *Vitis arizonica* Engelm., Page 535; *Vitis arizonica* Engelm. var. *glabra* Munson, Page 535 and *Vitis treleasei* Munson - note, Page 535), 48, 58, 63 (051510 - color presentation), **85** (051510 - color presentation), **89**, 115 (color presentation), 125, 127*

Vitis arizonica var. *glabra* (see *Vitis arizonica*)

Vitis treleasei (see *Vitis arizonica*)

Zygophyllaceae: The Creosote-bush Family

Kallstroemia brachystylis (see footnote 89 under *Kallstroemia californica*)

***Kallstroemia californica* (S. Watson) A.M. Vail: California Caltrop**

SYNONYMY: *Kallstroemia brachystylis* A.M. Vail, *Kallstroemia californica* (S. Watson) A.M. Vail var. *brachystylis* (A.M. Vail) T.H. Kearney & R.H. Peebles. COMMON NAMES: California Caltrop, California Carpetweed, Little Summer Poppy, Mal de Ojo. DESCRIPTION: Terrestrial annual forb/herb (prostrate, decumbent, ascending and sprawling stems 2 inches to 5 feet in length); the stems may be light pink or reddish; the leaves are gray-green; the flowers (¼ to ½ inch in diameter) may be pale orange, orange, dull orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between early July and mid-November (additional records: one for early February, one for mid-April, one for early June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; canyon bottoms; bases of cliffs; pockets of sand; meadows; hills; rocky hillsides; rocky, rocky-gravelly, gravelly-sandy, sandy and sandy-silty slopes; gravelly and sandy bajadas; amongst rocks; bedrock foothills; sand hills; sand dunes; sandy plains; gravelly, sandy and silty flats; basins; sandy and silty valley floors; coastal dunes; coastal shores; along rocky-gravelly, gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; along streams; along streambeds; along rivers; along and in rocky, sandy and silty washes; along drainages; sandy playas; sandy-silty depressions; silty swales; along sandy banks of rivers and washes; along edges of washes; along margins of washes; mudflats; sandy beaches; sandy benches; clayey bottomlands; along sandy floodplains; mesquite bosques; along fencelines; around stock tanks; silty ditches; riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Kallstroemia californica* is native to southwest-central and southern North America. *5, 6, 15, 43 (051710 - *Kallstroemia californica* Vail), 46 (Page 492), **56**, **57**, 58, 63 (051510), 68, 77 (color photograph #100), 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs.”), **85** (051510 - color presentation of dried material), 86 (note under *Kallstroemia grandiflora*), **89** (recordered as *Kallstroemia brachystylis* Vail), 127*

Kallstroemia californica var. *brachystylis* (see *Kallstroemia californica*)

***Kallstroemia grandiflora* J. Torrey ex A Gray: Arizona Poppy**

COMMON NAMES: Arizona Caltrop, Arizona Poppy, Arizona-poppy, Arizona Summer Poppy, Baiborin, Caltrop, Desert Poppy, Desert-poppy, Mexican Poppy, Mexican-poppy, Orange Caltrop, Summer Poppy, Summer-poppy. DESCRIPTION: Terrestrial annual forb/herb (prostrate, decumbent or spreading-ascending stems 4 inches to 1 foot in height and to 4 feet in length); the stems may be reddish-orange; the leaves gray-green or green; the flowers (½ to 1¼ inches in diameter) may be apricot-orange, harvest-moon-orange, melon-orange, light orange, orange, orange with a crimson or red center, orangish-yellow, pink-orange, yellow-orange or yellowish-orange; the anthers are orange; flowering generally takes place between late June and early November (additional records: one for mid-May, one for late

November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; rocky ridgetops; foothills; sandy hills; rocky hillsides; sandy escarpments; rocky, gravelly, gravelly-loamy, sandy and silty slopes; gravelly bajadas; rocky outcrops; lava flows; llanos; plains; rocky, gravelly and gravelly-sandy flats; basins; valley floors; along sandy railroad right-of-ways; along rocky-gravelly, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, sandy and loamy roadsides; sandy arroyos; streambeds; creeks; sandy creekbeds; along and in rocky, gravelly, gravelly-sandy-silty and sandy washes; drainages; along banks of rivers; benches; sandy terraces; bottomlands; floodplains; mesquite bosques; around stock tanks; ditches; sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam and loam ground; gravelly clay and sandy clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Arizona Poppy is a food plant of doves, quail and Whitetail Deer (*Odocoileus virginianus* subsp. *couesi*). *Kallstroemia grandiflora* is native to southwest-central and southern North America. *5, 6, **16**, 28 (color photograph), 43 (073109), 46 (Page 492), 48, **56**, **57**, 58, 63 (051510 - color presentation), 68, 77, 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (051510 - color presentation), 86 (color photograph), **89**, 115 (color presentation)*

***Kallstroemia hirsutissima* A.M. Vail ex J.K. Small: Hairy Caltrop**

COMMON NAMES: Carpetweed, Hairy Caltrop. DESCRIPTION: Terrestrial annual forb/herb (prostrate, erect and spreading stems 12 to 40 inches in length); the flowers are pale orange, salmon-orange, yellow, dark yellow or yellowish-orange; based on few records located, flowering generally takes place between mid-July and late September (flowering records: one for mid-July, three for late July, two for late August, six for early September and two for late September). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky talus; meadows; foothills; hills; slopes; bajadas; sandy-clayey plains; silty flats; valley floors; valley bottoms; along gravelly roadsides; arroyos; along streams; gravelly washes; swales; floodplains, and disturbed areas growing in dry rocky and gravelly ground; sandy clay and clay ground, and silty ground, occurring from 1,300 to 8,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Kallstroemia hirsutissima* is native to southwest-central and southern North America. *5, 6, **16**, 43 (051710), 46 (Page 492), 63 (051510), 80 (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (051510 - color presentation of dried material), 86 (note under *Kallstroemia grandiflora*)*

Larrea divaricata (see *Larrea tridentata* var. *tridentata*)

Larrea divaricata subsp. *tridentata* (see *Larrea tridentata* var. *tridentata*)

***Larrea tridentata* (A.P. de Candolle) F.V. Coville (var. *tridentata* is the variety reported as occurring in Arizona): Creosote Bush**

SYNONYMY: (for *L.t.* var. *tridentata*: *Larrea divaricata* auct. non A.J. Cavanilles, *Larrea divaricata* A.J. Cavanilles subsp. *tridentata* (A.P. de Candolle) R.S. Felger & C.H. Lowe). COMMON NAMES: Chaparral, Chihuahuan Creosote, Coville Creosotebush, Creosote Bush, Creosote-bush, Creosotebush, Gobernadora (Spanish), Greasewood (erroneously called), Guamis, Hediondilla (Spanish - for Little Bad Smeller), Kreosotstrauch (German), Shea Goi (Pima), Spreading Creosote, Z'xat (Seri). DESCRIPTION: Terrestrial perennial evergreen shrub (20 inches to 13 feet in height and about the same in width, plants were observed and described as being 13 inches in height and 10 inches in width, one

plant was observed and described as being 40 inches in height and 2 feet in width, plants were observed and described as being 40 inches in height and 50 inches in width, one plant was observed and described as being 4 feet in height and 5 feet in width, plants were observed and described as being 4 feet in height and 3 feet in width, one plant was observed and described as being 6 feet in height and 8 feet in width); the bark is gray; the leaves are bright glossy green or yellow-green; the flowers (½ to 1 inch in diameter) are yellow or yellow-white; flowering takes place throughout the year with the peak blooming periods occurring in the spring, between March and April, and then again between November and December; the round, fuzzy fruits (¼ inch in diameter) are gray, reddish, white or rust colored. HABITAT: Within the range of this species it has been reported from mountains; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly and sandy mesas; plateaus; rocky cliffs; rims of canyons; rocky, sandy and clayey canyons; rocky canyon bottoms; rocky talus slopes; sandy pockets of soil; sandy buttes; along rocky ridges; bedrock, bouldery-cobbly and rocky foothills; amongst bouldery, rocky, rocky-sandy, gravelly and sandy hills; hilltops; rocky and sandy hillsides; bedrock, rocky, rocky-sandy, rocky-clayey-loamy, stony-gravelly-sandy, gravelly, gravelly-sandy, sandy and sandy-silty slopes; rocky alluvial fans; stony-gravelly-sandy, gravelly, sandy and sandy-silty bajadas; pediments; rocky outcrops; amongst boulders and rocks; lava fields; sandy lava beds; sand dunes; breaks; rocky-gravelly, gravelly and sandy plains; rocky, rocky-sandy, cindery-gravelly, gravelly, gravelly-sandy, sandy, sandy-clayey and clayey-silty flats; basins; sandy valley floors; along rocky-sandy, stony, gravelly, gravelly-loamy and sandy roadsides; stony-gravelly-sandy arroyos; along sandy bottoms of arroyos; springs; rocky streambeds; creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; along sandy banks of streams, creeks, rivers and washes; sandy edges of washes, lakes and swales; margins of washes; rocky and rocky-sandy shores of rivers and lakes; gravel and sand bars; benches; shelves; gravelly, sandy and sandy-silty terraces; floodplains; mesquite bosques; around margins of charcos; in gravelly-sand and sandy-clay along canals; gravelly and gravelly-sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly, rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly-sandy, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam and clayey loam ground; sandy clay and clay ground, and rocky-sandy silty, sandy silty, clayey silty and silty ground, occurring from below sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America, it was noted as having been used as a building material (L.t. var. *tridentata*), as tools, in the making of brooms, brushes and musical instruments (L.t. var. *tridentata*), as a drug or medication and in body art (L.t. var. *tridentata*). Older stems of the Creosote Bush may be 40 to 90 years of age. Using Creosote Bush in the restoration of disturbed sites may increase water infiltration and storage, transplants recommended over spot-seeding and rodent protection for the transplanted seedlings is necessary. When planting a Creosote Bush consider planting a small Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus*) at the base of the plant. The branches will provide support and the roots will protect the tuber of the cereus from hungry Javelinas. The Creosote Bush is the characteristic plant of the southwestern deserts in North America with its distribution very closely delineating the desert regions. As the Creosote Bush ages the older central stems of the plant die off and new stems form at the outer edge of the crown. New stems are not created at the center of the plant. As the crown of the plant expands a "clonal ring", made up of genetically identical individual shrublets, develops which continues the outward expansion of the ring eventually reaching several yards in diameter. It has been estimated that some of the older rings approach from 9,400 to 11,700 years of age. The Creosote Bush provides cover for many animals; Lac Scale insects (*Tachardiella larreae*), jackrabbits, desert woodrats and other small mammals feed on this plant; stem galls are produced in response to the Creosote Gall midge (*Asphondylia* sp.), and the Desert Tortoise (*Gopherus agassizi*) often digs its shelter under the base of the plant where the roots help to stabilize the soil. *Larrea tridentata* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), 18, 26 (color photograph), 28, (color photograph), 43 (051710 - *Larrea tridentata* Coville, *Larrea divaricata* Cav. subsp. *tridentata* (Sessé & Moc. ex DC.) Felger), 46 ("An outstanding xerophyte and a very important element of the perennial desert flora in southern and western

Arizona. ... Creosote-bush has a strong characteristic odor, especially noticeable when the foliage is wet. The plant is ordinarily not touched by livestock, although it is reported that sheep, especially pregnant ewes, have been killed by partaking of it. This plant is reported to cause dermatitis in exceptional persons who are allergic to it.", Page 491), 48, 63 (051610 - color presentation), 77 (color photograph #101), 80 (This species is listed under Rarely Poisonous and Suspected Poisonous Range Plants. "Early reports accusing this common desert shrub of being poisonous have been proven wrong."), **85** (051610 - color presentation), **89**, 91, 101 (color photograph), 107, 115 (color presentation), 127*

***Larrea tridentata* (A.P. de Candolle) F.V. Coville var. *tridentata*: Creosote Bush**

SYNONYMY: *Larrea divaricata* auct. non A.J. Cavanilles, *Larrea divaricata* A.J. Cavanilles subsp. *tridentata* (A.P. de Candolle) R.S. Felger & C.H. Lowe. COMMON NAMES: Chaparral, Coville Creosotebush, Creosote Bush, Creosote-bush, Creosotebush, Gobernadora, Greasewood (erroneously called), Guamis, Hediondilla (Spanish - for Little Bad Smeller). DESCRIPTION: Terrestrial perennial evergreen shrub (20 inches to 13 feet in height and about the same in width); the bark is gray; the leaves are bright glossy green or yellow-green; the flowers (½ to 1 inch in diameter) are yellow or yellow-white; flowering takes place throughout the year with the peak blooming periods occurring in the spring, between March and April, and then again between November and December; the round, fuzzy fruits (¼ inch in diameter) are gray, reddish, white or rust colored. HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly and sandy mesas; plateaus; rims of canyons; sandy canyons; canyon bottoms; talus slopes; sandy pockets of soil; rocky ridges; foothills; hills; hillsides; rocky and gravelly slopes; alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sandy plains; cindery-gravelly, gravelly and sandy flats; valley floors; sandy roadsides; arroyos; bottoms of arroyos; riverbeds; along and in gravelly-sandy and sandy washes; sandy banks of streams, creeks and rivers; edges of washes; gravelly and sandy terraces; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam and clayey loam ground; sandy clay ground, and rocky-sandy silty and silty ground, occurring from below sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America, it was noted as having been used as a, building material, as tools, in the making of brooms, brushes and musical instruments, as a drug or medication and in body art. Older stems of the Creosote Bush may be 40 to 90 years of age. Using Creosote Bush in the restoration of disturbed sites may increase water infiltration and storage, transplants recommended over spot-seeding and rodent protection for the transplanted seedlings is necessary. When planting a Creosote Bush consider planting a small Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus*) at the base of the plant. The branches will provide support and the roots will protect the tuber of the cereus from hungry Javelinas. The Creosote Bush is the characteristic plant of the southwestern deserts in North America with its distribution very closely delineating the desert regions. As the Creosote Bush ages the older central stems of the plant die off and new stems form at the outer edge of the crown. New stems are not created at the center of the plant. As the crown of the plant expands a "clonal ring", made up of genetically identical individual shrublets, develops which continues the outward expansion of the ring eventually reaching several yards in diameter. It has been estimated that some of the older rings approach from 9,400 to 11,700 years of age. The Creosote Bush provides cover for many animals; Lac Scale insects (*Tachardiella larreae*), jackrabbits, desert woodrats and other small mammals feed on this plant; stem galls are produced in response to the Creosote Gall midge (*Asphondylia* sp.), and the Desert Tortoise (*Gopherus agassizi*) often digs its shelter under the base of the plant where the roots help to stabilize the soil. *Larrea tridentata* var. *tridentata* is native to southwest-central and southern North America. *5, 6, 13 (color photograph), **16**, 18, 26 (species, color photograph of species), 28 (species, color photograph of species), 43 (051710 - *Larrea tridentata* Coville, *Larrea divaricata* Cav. subsp. *tridentata* (Sessé & Moc. ex DC.) Felger), 46 (species, *Larrea tridentata* (DC.) Coville: "An outstanding xerophyte and a very important element of the perennial desert flora in southern and western Arizona. ... Creosote-bush has a strong

characteristic odor, especially noticeable when the foliage is wet. The plant is ordinarily not touched by livestock, although it is reported that sheep, especially pregnant ewes, have been killed by partaking of it. This plant is reported to cause dermatitis in exceptional persons who are allergic to it.", Page 491), 48, **56**, **57**, 63 (051610 - color presentation), 77 (color photograph #101), 80 (This species is listed under Rarely Poisonous and Suspected Poisonous Range Plants. "Early reports accusing this common desert shrub of being poisonous have been proven wrong."), **85** (051610 - color presentation), 91, 101 (species, color photograph of species), 107, 115 (color presentation), 127, **WTK** (August 12, 2005)*

***Tribulus terrestris* C. Linnaeus: Puncturevine**

COMMON NAMES: Abrojos (Spanish), Abrojo de Flor Amarilla, Bemo K'yatchipba (Zuni - "grass round' refers to the rounded spiny fruits), 'Bull-head, Bullhead, Bur-nut, Burnut, Cadillo, Caltrop, Cat's-head, Common Doubletjie, Devil's-thorn, Devil's-weed, Espigón (Spanish), Goathead, Goat-heads, Goat's Head, Gokhru (India), Ground Bur-nut, Ji Li (transcribed Chinese), Mexican Sandbur, Puncture Vine, Puncture-vine, Puncturevine, Puncture Weed, Tackweed, Texas Sandbur, Toboso, Torito, Torrito, Tribule Terrestre (French), Tribulus. DESCRIPTION: Terrestrial annual forb/herb (prostrate, mat forming stems to 2 inches in height and 6 inches to 8 feet in length); the stems may be reddish; the foliage is green or dark green; the small flowers (¼ to ½ inch in diameter) may be greenish-yellow, orange or yellow; flowering generally takes place between late April and early November (additional records: one for early January (southern hemisphere), two for early February, one for mid-March, two for early April, one for early December and one for late December); the star-shaped seedpod is made up of 5 nutlets which separate ate maturity, each of the nutlets having two very sharp, stout, vicious spines. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; talus; ridge crests; gravelly hills; rocky hillsides; rocky, sandy, sandy-loamy and clayey slopes; rocky alluvial fans; sand dunes; sand hummocks; sandy and clayey prairies; gravelly, sandy, clayey and clayey-loamy flats; cobbly-loamy and loamy hollows; clayey and silty valley floors; coastlines; island beaches; along cindery railroad right-of-ways; rocky roadways; along gravelly, gravelly-loamy, sandy and clayey roadsides; within rocky-sandy-clayey arroyos; sandy bottoms of arroyos; within ravines; springs; along creeks; creekbeds; along rivers; along rocky-cobbly-sandy and sandy riverbeds; along and in gravelly. gravelly-sandy and sandy washes; lakes; silty lakebeds; sinks; swales; banks of creeks, rivers; riverbeds and washes; margins of washes; sandy-loamy shores of ponds; mudflats; sand bars; sandy beaches; benches; rocky-sandy-clayey, sandy-loamy and sandy terraces; bottomlands; floodplains; lowlands; shores of reservoirs; within ditches; along gravelly and clayey-loamy ditch banks; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-sandy clay, gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as ceremonial medicine. *Tribulus terrestris* is native to central, eastern and southern Europe; Asia; Africa, and Australia; however, the exact native range is obscure. *5, 6, 15, **16**, 28 (color photograph), 43 (051710), 46 (Page 491), **56**, **57**, 58, 63 (051610 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Puncturevine has caused extensive losses of sheep in South Africa, Australia, and the United States due to photosensitization or bighead. In addition, the plant has caused nitrate poisoning in both sheep and cattle and the burs have produced lesions of the mouth and feet. Symptoms of photosensitization observed in the United States include the typical swelling of the head, blindness, dying of the skin, loss of lips and ears, and high mortality among young animals. Losses may be reduced by removing animals from infested ranges, providing shade, feed and water, and keeping the animals quiet."), **85** (051610 - color presentation), 86 (color photograph), **89**, 101 (color photograph), 115 (color presentation), 127*

LISTING OF EUKARYTIC ALGAE, ONE-CELLED ANIMALS and SLIME MOLDS

Kingdom Protista: The Eukaryotic Algae, One-celled Animals and Slime Molds

***Cladophora* sp.: a Green Algae**
COMMON NAME: a Green Algae. DESCRIPTION: Aquatic branched filamentous (attached or free-floating) green algae. HABITAT: Reported from fresh and salt water. *74, **89***

***Closterium* sp.: a Green Algae**
COMMON NAME: a Green Algae. DESCRIPTION: Aquatic solitary (free-floating) green algae. HABITAT: Reported from fresh water. ***89***

***Hydrodictyon* sp.: Water Net**
COMMON NAMES: a Green Algae, Water Net. DESCRIPTION: Aquatic net-forming green algae. HABITAT: Reported from fresh water. *74, **89***

***Oedogonium* sp.: a Green Algae**
COMMON NAME: a Green Algae. DESCRIPTION: Aquatic filamentous (attached or free-floating) green algae. HABITAT: Reported from fresh water. *74, **89***

***Penium* sp.: a Green Algae, Blanket Weed**
COMMON NAMES: a Green Algae, Blanket Weed. DESCRIPTION: Aquatic green algae. HABITAT: Reported from fresh water. ***89***

***Spirogyra* sp.: a Green Algae**
COMMON NAME: a Green Algae. DESCRIPTION: Aquatic unbranched filamentous free-floating green algae. HABITAT: Reported from fresh water habitats. *74, **89***

***Vaucheria* sp.: Water Felt**
COMMON NAME: Water Felt. DESCRIPTION: Aquatic branched filamentous yellow-green algae. HABITAT: Reported from fresh and salt water habitats. *74, **89***

LISTING OF ANIMALS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S NATIVE ANIMALS FROM COLLECTION AND FROM BEING DISTURBED OR KILLED

Operation GAME THIEF: 602-942-3000

Kingdom Animalia: The Animal Kingdom
Subkingdom Metazoa: The Multicellular Animals

Section Protostomia: The Protosomes
Phylum Arthropoda: The Arthropods
Subphylum Mandibulata: The Mandibulates

CLASS INSECTA: The INSECTS

ORDER HYMENOPTERA: The ANTS, BEES, AWFLIES, WASPS and Their Allies

Apidae: The Honeybee Family

It has been suggested that, if stung, you should remove the stinger as soon as possible, call 911 or 1-800-222-1222 for additional information and consider transport to a medical facility, it may take hundreds of bee stings to inflict a fatal toxic dose of venom in a healthy adult; however, one sting can cause a fatal allergic (anaphylactic) reaction in a hypersensitive person. *97*
http://www.pharmacy.arizona.edu/outreach/poison

If stung contact the Arizona Poison and Drug Information Center: 1-800-222-1222.

***Apis mellifera* C. Linnaeus: Honeybee**
COMMON NAMES: African Honeybee, European Honeybee, Honeybee, Western Honeybee. HABITS: Found in bee boxes, buildings, water boxes and holes in ground, caves, cavities in saguaros, crevices, hollow trees and logs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. NOTES: Introduced EXOTIC Invasive Species. The Honeybee is an exotic domesticated animal kept for crop pollination and for the production of honey and beeswax. *60, 97, 106 (071006), **WTK** (December 2008)*

ORDER LEPIDOPTERA: The BUTTERFLIES, MOTHS AND SKIPPERS

Papilionidae: The Swallowtail Family

***Heraclides crephontes* (Cramer): Giant Swallowtail Butterfly**
SYNONYMY: *Papillo cresphontes*. COMMON NAMES: Giant Swallowtail, Giant Swallowtail Butterfly, Orange Dog (larvae), Orange Puppy (larvae). HABITS: The larvae feed on citrus, hop trees and prickly ash. HABITAT: Within the range of this species it has been reported as occurring in the grassland and desertscrub ecological formations. *14 (071006), 60, **WTK** (August 2006)*

Papillo cresphontes (see *Heraclides crephontes*)

Sphingidae: The Sphinx Moth Family

***Daraspa myron* (Cramer): Hog Sphinx Moth**

COMMON NAMES: Grape-vine Sphinx, Hog Caterpillar, Hog Sphinx, Hog Sphinx Moth, Virginia Creeper Sphinx, Virginia-creeper Sphinx. HABITS: Feeds on grape (larva) and Virginia creeper (larva). HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. NOTE: The adults feed on decaying fruit and tree sap. *14 (081810), 60 (color photograph), 106 (081810 - color presentation), **WTK** (August 18, 2010)*

Pieridae: The Sulfur Butterfly and White Family

***Anthocharis cethura* (C. & R. Felder): Desert Orangetip Butterfly**

COMMON NAMES: Cethura, Cethura Orange Tip, Desert Orangetip, Desert Orangetip Butterfly, Felder's Orange Tip Butterfly, Felder's Orangetip Cethura. HABITS: The larvae feed on the buds and pods of Crucifers (Brassicaceae). HABITAT: Within the range of this species it has been reported from the woodland, grassland and desertscrub ecological formations. ***8**, 14 (071006), 106 (053006)*

Section Deuterostomia: The Deuterostomes
Phylum Chordata: The Chordates
Subphylum Vertebrata: The Vertebrates

CLASS AMPHIBIA: The AMPHIBIANS

Bufonidae: The Toad Family

***Bufo alvarius* C.F. Girard in S.F. Baird: Colorado River Toad**

COMMON NAMES: Colorado River Toad, Sonoran Desert Toad. HABITS: Feeds on beetles, grasshoppers, lizards, mice, snails, spiders and other toads. Takes shelter in underground burrows. Breeding corresponds to spring and summer rains when they congregate at temporary pools and other bodies of water. HABITAT: Within the range of this species it has been reported from near springs, streams, reservoirs, and pools in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Skin secretions are toxic to dogs and other animals and the mouthing a Colorado River Toad may cause temporary paralysis or death. *14, 37, 55, 73, **78**, 87, 106 (052506)*

***Bufo cognatus* (T. Say): Great Plains Toad**

COMMON NAME: Great Plains Toad. HABITS: Feeds on algae (larvae), arachnids, insects, mites (juveniles) and snails. Takes shelter by burrowing into soil. Breeding takes place in streams, irrigation ditches, temporary pools, and fields under irrigation. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87, 106 (052506)*

***Bufo punctatus* S.F. Baird & C.F. Girard: Red-spotted Toad**

COMMON NAME: Red-spotted Toad. HABITS: Feeds on algae (larvae), arachnids, carrion (larvae), cyanobacteria (larvae), organic detritus (larvae) and insects. Takes shelter in underground

burrows and rock crevices. Breeding takes place in springs, reservoirs, and temporary pools associated with intermittent streams. HABITAT: Within the range of this species it has been reported from rocky areas in arroyos, canyons, flats, floodplains and oases near water in the forest, woodland, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, **85** (recorded as having been observed in *Cyperous squarosus*), 87, 106 (052506)*

Microhylidae: The Microhylid Family

***Gastrophryne olivacea* E. Hallowell: Great Plains Narrow-mouthed Toad**

COMMON NAMES: Great Plains Narrow-mouthed Toad, Plains Narrow-mouthed Toad, Sinaloan Narrow-mouthed Toad, Western Narrow-mouthed Toad. HABITS: Feeds on ants and other insects. Takes shelter in underground burrows, crevices and under bark and rocks. Breeding takes place in temporary rain pools, ponds, and other aquatic habitats. HABITAT: Within the range of this species it has been reported from moist areas, pools along intermittent streams, cattle tanks, and spring seepages in the woodland, grassland, desertscrub and wetland ecological formations. *8, 14, 55, 73, **78**, 87, 106 (052506)*

Pelobatidae: The Spadefoot Toad Family

***Scaphiopus couchi* S.F. Baird: Couch's Spadefoot**

COMMON NAMES: Couch's Spadefoot. HABITS: Feeds on amphibians (larvae), ants, arachnids, beetles, carrion (larvae), centipedes, crickets, cyanobacteria (larvae), organic detritus (larvae), millipedes, plant matter, tadpoles and termites. Takes shelter in underground burrows. Breeding takes place in temporary ponds, rain pools, irrigation ditches, reservoirs, and slow moving streams. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87*

Scaphiopus hammondi (see *Spea multiplicata*)

Scaphiopus multiplicatus (see *Spea multiplicata*)

***Spea multiplicata* E.D. Cope: New Mexico Spadefoot**

SYNONYMY: *Scaphiopus hammondi* Degenhardt, *Scaphiopus multiplicatus* E.D. Cope. COMMON NAMES: New Mexico Spadefoot, Western Spadefoot. HABITS: Feeds on larval amphibia (larvae), arachnids, carrion (larvae), centipedes, cyanobacteria (larvae), organic detritus (larvae), gastropods, insects, and mollusks. Takes shelter in underground burrows and cracks (juveniles). Breeding takes place in temporary ponds and rain pools. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87*

Ranidae: The Frog Family

***Rana yavapaiensis* Platz and Frost: Lowland Leopard Frog**

COMMON NAMES: Lowland Leopard Frog, San Felipe Leopard Frog, Yavapai Leopard Frog. HABITS: Feeds on algae (larvae), organic debris (larvae), insects, plant tissue (larvae), snails and spiders). Takes shelter in underground burrows and rock fissures. Breeding takes place in cienegas, impoundments, ponds, rivers, springs and streams. HABITAT: Within the range of this species it has been reported from marsh habitats, springs, small to medium-sized streams and rivers, small ponds, and stock

tanks being generally restricted to permanent and semi permanent waters often concentrating in deep pools in association with root masses of large riparian trees in the woodland, grassland and wetland ecological formations. The Lowland Leopard Frog may be EXTIRPATED from this township. *8, 14, 87*

CLASS AVES: The BIRDS

Accipitridae: The Eagle, Hawk, Kite and Allies Family

***Accipiter cooperii* (L.C. Bonaparte): Cooper's Hawk**

COMMON NAMES: Cooper's Hawk, Galvilan Palomero (Hispanic), Galvilan Pollero (Hispanic). HABITS: Feeds on small birds and mammals. Nests are platforms made of sticks located in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Accipiter striatus* L.J. Vieillot: Sharp-shinned Hawk**

COMMON NAMES: Galvilan Pajerero (Hispanic), Sharp-shinned Hawk; Wishag. HABITS: Feeds on birds and small mammals. Nests are platforms made of twigs located in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606), **WTK** (June 30, 2009 - M,F&1Im)*

***Buteo jamaicensis* (J.F. Gmelin): Red-tailed Hawk**

COMMON NAMES: Buzzard, Buzzard Hawk, Chicken Hawk, Eastern Redtail, Gavilan Cola Roja (Hispanic), Hen Hawk, Mouse Hawk, Red Hawk, Redtail, Red-tailed Buzzard, Red-tailed Hawk, Western Redtail. HABITS: Feeds on birds, lizards and rodents. Nests are platforms made of sticks located on cliffs and in saguaro cacti and trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071706 - subspp. *calurus*, *fuertesi* and *harlani*), 20, 55, 69, 73, **78**, 84, 93, 106 (071706)*

***Circus cyaneus* (C. Linnaeus): Northern Harrier**

COMMON NAMES: Gavilan Norteno (Hispanic), Hen Harrier, Marsh Hawk, Northern Harrier. HABITS: Feeds on birds, mice and other small mammals. Nests are made of grasses, reeds and stalks located on the ground in grasses or marshes. HABITAT: Within the range of this species it has been reported from the tundra, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Parabuteo unicinctus* C.J. Temminck: Harris's Hawk**

COMMON NAMES: Aguililla Cinchada (Hispanic), Aguililla Roja (Hispanic), Bay-winged Hawk, Harris Hawk, Harris's Hawk. HABITS: Feeds on rabbits, rodents, and birds. Nests are platforms made of sticks located in mesquites, small trees and yuccas. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Alcidinidae: The Kingfisher Family

***Chloroceryle americana* (J.F. Gmelin): Green Kingfisher**

COMMON NAMES: Green Kingfisher, Texas Kingfisher. HABITS: Feeds on insects, fishes and lizards. Eggs are laid at the end of burrows located on the banks of streams. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *8, 14, **55** (reported from Tucson), 69, 73, 93, 106 (0514-2606)*

Apodidae: The Swift Family

***Aeronautes saxatalis* (S.W. Woodhouse): White-throated Swift**

COMMON NAMES: White-throated Swift, Vencejo Montanes (Hispanic). HABITS: Feeds on insects. Nests are brackets made of saliva cemented twigs located in caves and crevices in mountain and sea cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Chaetura pelagica* (C. Linnaeus): Chimney Swift**

COMMON NAMES: Chimney Swift, Vencejo de Chimenea (Hispanic). HABITS: Feeds on arachnids and flying insects. Nests are brackets, quarter cups and half saucers made of twigs cemented together with saliva located in caves and holes in logs, snags and trees (and chimneys). HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (072506), 20, **55** (non-breeding pair reported from Tucson May 30 to mid-June, 1952), 69, 73, 93, 106 (072506) *

Cardinalidae: The Bunting, Cardinal and Grosbeak Family

***Cardinalis cardinalis* (C. Linneaus): Northern Cardinal**

SYNONYMY: *Richmondena cardinalis* (C. Linneaus). COMMON NAMES: Cardenal (Hispanic), Cardenal Rojo (Hispanic), Northern Cardinal, Sipuk (Tohono O'odham). HABITS: Feeds on small fruits, insects and seeds. Nests are loose cups of shredded bark and twigs located in a low shrubs or thickets. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606), **WTK** (July 1, 2009 - M)*

***Cardinalis sinuatus* C.L. Bonaparte: Pyrrhuloxia**

SYNONYMY: *Pyrrhuloxia sinuata* C.L. Bonaparte. COMMON NAMES: Bichpod (Tohono O'odham), Cardenal Gris, Cardinal Torito (Hispanic), Desert Cardinal, Gray Cardinal, Pyrrhuloxia. HABITS: Feeds on small fruits, insects and seeds. Nests are neat cups located in thorny bushes. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Pyrrhuloxia sinuata (see *Cardinalis sinuatus*)

Richmondena cardinalis (see *Cardinalis cardinalis*)

Cathartidae: The New World Vulture Family

***Cathartes aura* (C. Linnaeus): Turkey Vulture**

COMMON NAMES: Nuwi (Tohono O'odham), Turkey Buzzard, Turkey Vulture, Zopilote (Hispanic). HABITS: Feeds on carrion. No nest, eggs are laid in crevices in rocks, on cliffs, on the ground in thickets and in tree hollows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (subspp. *septentrionalis* and *teter* - 071706), 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Charadriidae: The Lapwing and Plover Family

***Charadrius vociferus* (C. Linnaeus): Killdeer**

COMMON NAMES: Chiwi-Chuhch (Tohono O'odham), Killdeer, Tildio (Hispanic). HABITS: Feeds on arachnids, insects, marine invertebrates and worms. No nest, eggs are laid in a scrape on bare ground in fields and shores. HABITAT: Within the range of this species it has been reported from the forest, grassland, desertscrub and wetland ecological formations. *14 (subsp. *vociferous* - 071806), 20, 55, 69, 73, **78**, 84, 93, 106 (071806)*

Columbidae: The Dove and Pigeon Family

***Columba livia* J.F. Gmelin: Rock Dove**

COMMON NAMES: Domestic Pigeon, Feral Pigeon, Pigeon, Paloma Domestica (Hispanic), Rock Dove, Rock Pigeon. HABITS: Feeds on insects, green plant matter and seeds. Nests on buildings and cliffs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC. *14, 20, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Columbina inca* (R.P. Lesson): Inca Dove**

SYNONYMY: *Scardafella inca* (R.P. Lesson). COMMON NAMES: Gugu (Tohono O'odham), Inca Dove, Tortola (Hispanic), Tortolita Comun (Hispanic). HABITS: Feeds on fruit, insects and seeds, Saucer shaped nests are made of mixed vegetation and located in shrubs and low trees. HABITAT: Within the range of this species it has been reported from the grassland and desertscrub ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Scardafella inca (see *Columbina inca*)

***Zenaida asiatica* (C. Linnaeus): White-winged Dove**

COMMON NAMES: Mexican Dove, Okokoi (Tohono O'odham), Paloma ala Blancha (Hispanic), Paloma de alas Blanchas, Sonora Dove, White-wing, White-winged Dove, White-wing Pigeon. HABITS: Feeds on berries, fruit, gastropods, insects, mollusks and seeds. Nests are flimsy stick platforms located in thickets and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (subspp. *asiatica*, *grandis* (Saunders), *mearnsi* (R. Ridgway) and *monticola* (Saunders) - 071806), 20, 55, 69, 73, **78**, 84, 93, 106 (071806), **WTK** (April 28, 2010)*

***Zenaida macroura* (C. Linnaeus): Mourning Dove**

SYNONYMY: *Zenaidura macroura* (C. Linnaeus). COMMON NAMES: Hohhi (Tohono O'odham), Huilota (Hispanic), Paloma Triste (Hispanic), Mourning Dove, Turtle Dove, Wild Dove. HABITS: Feeds on fruit, insects and seeds. Nests are loose platforms made of forbs, grasses, leaves, rootlets, sticks and twigs located in cacti, shrubs, trees and on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland

ecological formations. *14 (subspp. *carolinensis* (C. Linnaeus) and *marginella* (S.W. Woodhouse) - 071806), 20, 55, 69, 73, **78**, 84, 93, 106 (071806), **WTK** (July 4, 2009)*

Zenaidura macroura (see *Zenaida macroura*)

Corvidae: The Crow, Jay, Magpie and Raven Family

***Corvus corax* C. Linnaeus: Common Raven**

COMMON NAMES: American Raven, Common Raven, Hawani (Tohono O'odham), Cuervo Comun (Hispanic), Cuervo Grande (Hispanic). HABITS: Feeds on small animals and birds, berries, carrion, insects and seeds. Nests are made of bones, sticks and wool located on cliffs, saguaros and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Cuculidae: The Ani, Cuckoo and Roadrunner Family

***Coccyzus americanus* (C. Linnaeus) subsp. *occidentalis*: Yellow-billed Cuckoo**

COMMON NAMES: California Yellow-billed Cuckoo, Chow-chow, Kow-kow, Pajaro Vaquero Pico Amarillo (Hispanic), Rain Bird, Rain Crow, Rain Dove, Storm Crow, Western Yellow-billed Cuckoo, Yellow-billed Cuckoo. HABITS: Feeds on ants, beetles, berries, bird's eggs, butterflies, caterpillars, cicadas, dragonflies, flies, frogs, fruit, grasshoppers, katydids, lizards, moths, spiders and wasps. Nests are a frail stick or twig platform or saucer lined with leaves located in low bushes and small trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations. *8, 20, 50, 55, 69, 73, **78** (reported this species from an area just south of this township), 93, 106 (sp. - 0514-2606)*

***Geococcyx californianus* (R.P. Lesson): Greater Roadrunner**

COMMON NAMES: Correcaminos Norteno (Hispanic), Greater Roadrunner, Paisano (Hispanic), Roadrunner, Tadai. HABITS: Feeds on the young of ground nesting birds, insects, lizards, scorpions and snakes. Nests are course shallow cups of sticks located in cacti, mesquite trees and shrubs. HABITAT: Within the range of this species it has been reported from the forest, scrub, grassland, desertscrub and wetland ecological formations. *20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606), **WTK** (October 17, 2009)*

Emberizidae: The Junco, Longspur, Sparrow and Towhee Family

***Aimophila carpalis* (E. Coues): Rufous-winged Sparrow**

COMMON NAME: Rufous-winged Sparrow. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of woven course and fine grasses located in low bushes and cacti, in young mesquite trees and on the ground. HABITAT: Within the range of this species it has been reported from the woodland, grassland and desertscrub ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Calamospiza melanocorys* L.H. Stejneger: Lark Bunting**

COMMON NAME: Lark Bunting. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are loose cups made of grasses and plant down located in tussocks of grass on the ground and in scrapes. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Chlorura chlorura (see *Pipilo chlorurus*)

***Chondestes grammacus* (T. Say): Lark Sparrow**

COMMON NAMES: Gorrion Alondra (Hispanic), Lark Sparrow. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of grasses and lined with fine fibers and hairs located on the ground and in small bushes and vines. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Junco hyemalis* (C. Linnaeus): Dark-eyed Junco**

COMMON NAMES: "Cassiar" Junco, Dark-eyed Junco, Gorrion Ojas Negros (Hispanic), Gray-headed Junco, Grey-headed Junco, Oregon Junco, Slate-colored Junco, White-winged Junco. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made up of shreds of bark, grasses, mosses, rootlets and twigs lined with grasses and hair located on the ground in protected areas or on lower branches of shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Dark-eyed Junco is a predator of the Douglas-fir Tussock Moth (feeding on egg masses, larvae and pupae) and the Western Spruce Budworm. *14 (112206 - subsp. *aikeni* (R. Ridgway), *caniceps* (Woodhouse), *cismontanus* (Dwight), *dorsalis* (Henry), *hyemalis*, *mearnsi* (R. Ridgway), *montanus* (R. Ridgway), *oreganus* (Townsend), *shufeldti* (Coale) and *thurberi* (Anthony)), 20, 55, 69, 73, **78**, 93, 106 (112206 - subsp. *aikeni* (R. Ridgway), *caniceps* (Woodhouse), *dorsalis* (Henry), *mearnsi* (R. Ridgway), *oreganus* (Townsend))*

Junco hyemalis subsp. *aikeni*: White-winged Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *caniceps*: Grey-headed Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *cismontanus* (see *Junco hyemalis*)

Junco hyemalis subsp. *dorsalis*: Red-backed Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *hymenalis*: Slate-colored Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *mearnsi*: Pink-sided Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *montanus* (see *Junco hyemalis*)

Junco hyemalis subsp. *oreganus*: Oregon Junco (see *Junco hyemalis*)

Junco hyemalis subsp. *shufeldti* (see *Junco hyemalis*)

Junco hyemalis subsp. *thurberi* (see *Junco hyemalis*)

***Melospiza lincolnii* (J.J. Audubon): Lincoln's Sparrow**

COMMON NAMES: Gorrion Lincoln (Hispanic), Lincoln's Sparrow. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of grasses located in bogs and muskegs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Pipilo aberti* (S.F. Baird): Abert's Towhee**

COMMON NAMES: Abert's Towhee, Toqui de Abert (Hispanic). HABITS: Feeds on buds, berries, small fruit, insects and seeds. Nests are cups made of grasses located close to the ground in bushes and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 93, 106 (0514-2606)*

***Pipilo chlorurus* (J.J. Audubon): Green-tailed Towhee**

SYNONYMY: *Chlorura chlorura* (J.J. Audubon). COMMON NAMES: Green-tailed Towhee, Toqui Cola Verde (Hispanic). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are made of shredded bark and grasses located under brush and on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Pipilo fuscus* W. Swainson: Canyon Towhee**

COMMON NAMES: Bichput (Tohono O'odham), Brown Towhee, Canyon Towhee, Hichput; Toqui Pinto (Hispanic), Vieja (Hispanic). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are large deep cups of grasses and rootlets located in bushes and low trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Pooecetes gramineus* (J.F. Gmelin): Vesper Sparrow**

COMMON NAME: Vesper Sparrow. HABITS: Feeds on berries, buds, fruits, insects, seeds and small fruit. Nests are grass lined cups located on the ground in grass and low vegetation. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Spizella breweri* (J. Cassin): Brewer's Sparrow**

COMMON NAMES: Brewer's Sparrow, Gorrion Brewer (Hispanic). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are cups made of grasses located in low conifers, sagebrush or on the ground. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (071806 - subspp. *breweri* and *taverneri*), 55, 69, 73, **78**, 84, 93, 106 (071806)*

***Zonotrichia atricapilla* (J.F. Gmelin): Golden-crowned Sparrow**

COMMON NAMES: Golden-crowned Sparrow, Gorrion Copete de Oro (Hispanic). HABITS: Members of this family feed on berries, buds, fruit, insects and seeds. Nests are cups made of grass and lined with rootlets located on the ground or close to the ground in clumps of vegetation, bushes and shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071806), **55** (reported from Tucson), 73, 84, 93, 106 (071806)*

***Zonotrichia leucophrys* (J.R. Forster): White-crowned Sparrow**

COMMON NAMES: Gambel's Sparrow, Gorrion Copete Blanco (Hispanic), Gorrion Corona Blanca (Hispanic), Intermediate Sparrow, Nuttall's Sparrow, Tomtol (Tohono O'odham), White-crown, White-crowned Sparrow. HABITS: Members of this family feed on berries, buds, fruit, insects and seeds. Nests are cups made of grasses located in bushes or on the ground. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Falco mexicanus* H. Schlegel: Prairie Falcon**

COMMON NAMES: Halcon Cafe' (Hispanic), Prairie Falcon. HABITS: Feeds on birds, insects and rodents. Nests are made on sticks located on cliff niches or on the bare ground. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Falco peregrinus* M. Tunstall: Peregrine Falcon**

COMMON NAMES: American Peregrine Falcon, Duck Hawk, Halcon Peregino (Hispanic), Peregrine Falcon. HABITS: Feeds on bats, birds, insects, reptiles and rodents. Eggs are laid on potholes, scrapes or sticks located on cliff ledges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Peregrine Falcon has been reported as being the fastest creature on earth, able to free fall at speeds exceeding 260 mph. *14 (082506 - subspp. *anatum* (C.L. Boneparte) and *tundrius* (White)), 20, 35, 55, 69, 73, **78**, 84, 93, 106 (082506)*

***Falco sparverius* C. Linnaeus: American Kestrel**

COMMON NAMES: Cernicalo Americano (Hispanic), American Kestrel, Desert Sparrow Hawk, Sisiki (Tohono O'odham), Sparrow Hawk. HABITS: Feeds on amphibians, birds, insects, reptiles, rodents and small birds. Eggs are laid in holes in saguaros and trees and on cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Fringillidae: The Cardueline and Fringilline Finch Family

***Carduelis lawrencei* J. Cassin: Lawrence's Goldfinch**

SYNONYMY: *Spinus lawrencei* J. Cassin. COMMON NAME: Lawrence's Goldfinch. HABITS: Feeds on berries, buds, small fruit, insects and seeds. Nests are small, neat, tightly woven cups located in bushes and small trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071906), 55, 69, 73, **78**, 84, 93, 106 (071906)*

***Carduelis psaltria* (T. Say): Lesser Goldfinch**

SYNONYMY: *Spinus psaltria* (T. Say). COMMON NAMES: Arkansas Goldfinch, Arkansas Green-back, "Dark-backed" Goldfinch, Green-backed Goldfinch, Lesser Goldfinch, Tarweed Canary. HABITS: Feeds on tree buds, insects (larval and adult stages) and seeds. Nests are small cups made of fine plant materials including strips of bark, cocoons, cotton, feathers, grasses, leaves, lichens, mosses, plant stems, rootlets, thistle, twigs, spider webbing and wool with the nest height being from 1 to 30 feet and located in bushes, shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082208 - subspp. *hesperophilus* (Oberholser) and *psaltria*), 55, 69, 73, **78**, 84, 93, 106 (082208)*

***Carduelis psaltria* (T. Say) subsp. *hesperophilus* (Oberholser): Green-backed Goldfinch**

SYNONYMY: *Spinus psaltria* (T. Say) subsp. *hesperophila* (Schmitt). COMMON NAMES: Green-backed Goldfinch, Lesser Goldfinch. HABITS: Feeds on tree buds, insects (larval and adult stages) and seeds. Nests are small cups made of fine plant materials including strips of bark, cocoons, cotton, feathers, grasses, leaves, lichens, mosses, plant stems, rootlets, thistle, twigs, spider webbing and wool with the nest height being from 1 to 30 feet and located in bushes, shrubs and trees bushes, shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082208), 55 (sp.), 69, 73, 84 (sp.), 93, 106 (082208), **WTK** (August 2008, July 24, 2009, F&M observed feeding on seed of the Red Sage)*

***Carpodacus cassinii* S.F. Baird: Cassin's Finch**

COMMON NAMES: Cassin's Finch, Cassin's Purple Finch. HABITS: Feeds on berries, buds, fruits, insects and seeds. Nests are cups and saucers made of bark, feathers, forbs, grasses, hair, leaves, lichens, rootlets and sticks and lined with fine bark and hairs located on the branches of conifer trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: The Cassin's Finch is a predator of the Douglas-fir Tussock Moth and Western Spruce Budworm. *14 (071906), **55** (reported from Tucson), 69, 73, 93, 106 (071906)*

***Carpodacus mexicanus* (P.L. Müller): House Finch**

COMMON NAMES: "Hollywood Finch", House Finch, "Linnet", Pinzon Mexicano (Hispanic). HABITS: Feeds on buds, berries, fruit, insects and seeds. Nests are tightly woven, compact cups made of debris, feathers, grasses, hair, lichens, plant tufts, sticks and twigs located in cavities and in bushes, cacti, shrubs, trees and vines, sometime uses abandoned nests of other birds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071906 - subsp. *frontalis* (T. Say)), 20, 55, 69, 73, **78**, 84, 93, 106 (071906)*

Spinus lawrencei (see *Carduelis lawrencei*)

Spinus psaltria (see *Carduelis psaltria*)

Spinus psaltria subsp. *hesperophila* (see *Carduelis psaltria* subsp. *hesperophilus*)

Hirundinidae: The Martin and Swallow Family

***Tachycineta thalassina* (W. Swainson): Violet-green Swallow**

COMMON NAMES: Golondrina Verde (Hispanic), Violet-green Swallow. HABITS: Feeds on insects. Nests are cups made of grasses lined with feathers located in holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (reported from Tucson in mid-November 1944), 69, 73, 84, 93, 106 (0514-2606)*

Icteridae: The Blackbird, Oriole and Allies Family

Cassidix mexicanus (see *Quiscalus mexicanus*)

***Euphagus carolinus* (P.L. Müller): Rusty Blackbird**

COMMON NAMES: Rusty Blackbird, Tordo Morhoso (Hispanic). HABITS: Feeds on amphibians, arachnids, crustaceans, insects, mollusks and seeds. Nests are bulky cups made of grasses, leaves, mosses and sticks located above water in bushes and trees; within the range of this species it has been reported from wetland ecological formations. HABITAT: Within the forest, woodland, grassland and desertscrub ecological formations. *14 (0082106 - subsp. *carolinus* (P.L. Miller)), 20, **55** (reported from Tucson), 69, 73, 93, 106 (0514-2606)*

***Icterus cucullatus* W. Swainson: Hooded Oriole**

COMMON NAMES: Calandria (Hispanic), Calandria Copetona (Hispanic), Hooded Oriole, S-Oam Shashani (Tohono O'odham). HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; nests are a long, hanging basket or woven pouch located under palm fronds, shrubs and yuccas.

HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14, 20, **55** (reported from Tucson December 23, 1951, January 26, 1952 and December 1959), 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Molothrus aeneus* (J.G. Wagler): Bronzed Cowbird**

SYNONYMY: *Tangavius aeneus* (J.G.Wagler). COMMON NAMES: Bronzed Cowbird, Red-eyed Cowbird, Tordo Ojos Rojos (Hispanic). HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; parasitic. Eggs are laid in the nests of orioles and other birds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Molothrus ater* (P. Boddaert): Brown-headed Cowbird**

COMMON NAMES: Brown-headed Cowbird, Common Cowbird, Dwarf Cowbird, Nevada Cowbird, Tordo (Hispanic), Tordo Copete Café (Hispanic). HABITS: Feeds on small aquatic animals, small fruit, insects and seeds; parasitic. Eggs are laid in the nests or other birds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

***Quiscalus mexicanus* (J.F. Gmelin): Great-tailed Grackle**

SYNONYMY: *Cassidix mexicanus* (J.F. Gmelin). COMMON NAMES: Boat-tailed Grackle, Chanate Cola Grande (Hispanic), "Crow", "Cuervo" (Hispanic), Great-tailed Grackle, "Jackdaw", Zanate (Hispanic). HABITS: Feeds on small aquatic animals, small fruit, insects and seeds. Nests are cups made of sticks, grasses, mud and sticks lined with grasses located in trees, bushes and marsh reeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Tangavius aeneus (see *Molothrus aeneus*)

***Xanthocephalus xanthocephalus* (C.L. Bonaparte): Yellow-headed Blackbird**

COMMON NAMES: Tordo Cabeza Amarilla (Hispanic), Yellow-headed Blackbird. HABITS: Feeds on small aquatic life, insects, small fruit, waste grain and seeds. Nests are woven cups made of grasses and sedges located above water on cattails, reeds and tules in marshy areas. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Laniidae: The Shrike Family

***Lanius ludovicianus* C. Linnaeus: Loggerhead Shrike**

COMMON NAMES: "Butcher Bird", Loggerhead Shrike, Verdugo (Hispanic), White-rumped Shrike. HABITS: Feeds on small birds, large insects, lizards and small mammals. Nests are made of feathers, rootlets and twigs located in bushes and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14, 20, 55, 69, 73, **78**, 84, 93, 106 (0514-2606)*

Mimidae: The Catbird, Mockingbird and Thrasher Family

***Mimus polyglottos* (C. Linnaeus): Northern Mockingbird**

COMMON NAMES: Cenzontle (Hispanic), Cenzontle Norteno (Hispanic), Mockingbird, Northern Mockingbird, Shug (Tohono O'odham). HABITS: Feeds on arachnids, berries, crustaceans,

fruits, gastropods, insects, mollusks, reptiles and seeds. Nests are bulky cups made of grasses, hair, leaves, mosses, plant stems, rootlets, sticks, twigs and wool and lined with fine plant material and rootlets located near ground in bushes, chollas, shrubs, thickets, dense trees and vines. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072206 - subsp. *leucopterus* (N.A. Vigors)), 20, 55, 69, 73, **78**, 84, 93, 106 (072206)*

***Toxostoma bendirei* (E. Coues): Bendire's Thrasher**

COMMON NAMES: Bendire's Thrasher, Cuitlacoche Bendire (Hispanic). HABITS: Feeds on berries, fruits and insects. Nests are cups and stick nests lined with down, feathers, grasses, leaves, rootlets and other fine, soft material located in cholla cacti, paloverdes and thorny bushes. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14, **55**, 69, 73, 84, 93, 106 (0514-2606)*

***Toxostoma curvirostre* (W. Swainson): Curve-billed Thrasher**

COMMON NAMES: Cuitlacoche Comun (Hispanic), Cuitlacoche Curve-billed Thrasher, Kudwik (Tohono O'odham), Palmer's Thrasher, Pico Curvo (Hispanic). HABITS: Feeds on arachnids, berries, crustaceans, diplopods, fruits, gastropods, insects, mollusks and seeds. Nests are woven cups made of bark, grasses, hair, rootlets, sticks and twigs located in bushes, cholla cacti and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072006 - subsp. *celsum* (Moore)), 20, 55, 69, 73, **78**, 84, 93, 106 (072006)*

Odontophoridae: The Quail Family

***Callipepla gambelii* W. Gambel subsp. *gambelii*: Gambel's Quail**

SYNONYMY: *Lophortyx gambelii* W. Gambel. COMMON NAMES: Arizona Quail, Cordoniz de Gambel (Hispanic), Codorniz (Hispanic) Chiquiri (Hispanic), Desert Quail, Gambel's Quail, Kikaichu (Tohono O'odham). HABITS: The species feeds on insects, plant material and seeds. The eggs are laid in scrapes or grass lined nests located on the ground under prickly-pear cacti. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (071906), 55, 69, 73, **78**, 84, 93, 106 (071906)*

Lophortyx gambelii (see *Callipepla gambelii* var. *gambelii*)

Parulidae: The Wood Warbler Family

***Dendroica coronata* (C. Linnaeus): Yellow-rumped Warbler**

COMMON NAMES: Audubon Warbler, "Myrtle" Warbler, Yellow-rumped Warbler, Verdin Cola Amarilla (Hispanic). HABITS: Feeds on insects and spiders. Nests are cupped-shaped and made of shredded bark, feathers and twigs located in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Dendroica petechia* (C. Linnaeus): Yellow Warbler**

COMMON NAMES: Yellow Warbler, Verdin Amarillo (Hispanic). HABITS: Feeds on insects and spiders. Nests are felted cups of plant fibers located in the forks of shrubs and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Dendroica virens* (J.F. Gmelin): Black-throated Green Warbler**

COMMON NAMES: Black-throated Green Warbler, Verdin Verde Gargantan Negra (Hispanic). HABITS: Feeds on arachnids, berries and insects. Nests are neat cups made of birch bark, grasses, mosses, plant fibers, spider webbing and twigs and lined with feathers and hair located in conifer trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (subsp. *virens* (J.F. Gmelin) - 072006), 20, **55** (reported from Tucson), 69, 84 (sighting considered to be far from the normal range of this species), 106 (072006)*

***Icteria virens* (C. Linnaeus): Yellow-breasted Chat**

COMMON NAMES: Long-tailed Chat, Yellow-breasted Chat. HABITS: Feeds on arachnids, berries, crustaceans, insects and spiders. Nests are large open cups made of bark, stems of forbs, grasses, leaves, rootlets and twigs located in briars, bushes, thick shrubs, thickets and small trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, scrub, grassland, desertscrub ecological formations. *14 (subsp. *auricollis* (F. Deppe) - 082106), 20, 55, 69, 73, **78**, 84, 93, 106 (091006)*

***Oporornis tolmiei* (J.K. Townsend): MacGillivray's Warbler**

COMMON NAMES: MacGillivray's Warbler, Verdin MacGillivray (Hispanic). HABITS: Feeds on insects and spiders. Nests are cupped-shaped and made of grasses located in briars, low brush and weeds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Vermivora luciae* J.G. Cooper: Lucy's Warbler**

COMMON NAMES: Lucy's Warbler, Verdin Lucy (Hispanic). HABITS: Feeds on insects and spiders. Nests are cup-shaped and located in trees, under loose bark or in a hole. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Wilsonia pusilla* (A. Wilson): Wilson's Warbler**

COMMON NAMES: Pileolated Warbler, Wilson's Warbler, Verdin Wilson (Hispanic). HABITS: Feeds on insects and spiders. Nests are cups made of bark, grasses, deer and horse hair, leaves, mosses and plant fibers and stems located on the ground or near to the ground in shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTE: The Wilson's Warbler is a predator of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*) and Western Spruce Budworm (*Choristoneura occidentalis*). *14 (072006 - subspp. *chryseola* (R. Ridgway), *pileolata* (P.S. von Pallas) and *pusilla*), 20, 55, 69, 73, **78**, 84, 93, 106 (072006)*

Passeriidae: The Old World Sparrow Family

***Passer domesticus* (C. Linnaeus): House Sparrow**

COMMON NAMES: English Sparrow (United States), Gorrion Casero (Hispanic), Gorrion Ingles (Hispanic), House Sparrow, O'Odopiwa (Tohono O'odham), Phillip Sparrow, Zacatero (Hispanic). HABITS: Feeds on fruit, garbage, grain, insects and insect larvae and seeds; nests are bulky masses of debris, feathers, forbs, grasses, straw and twigs located in cavities, crannies, ivy, niches, rocks and suspended from trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Species, partially responsible for the near extinction of Bluebirds in the United States. The House

Sparrow is an agricultural pest feeding on grains. The House Sparrow prefers agricultural and urban areas close to human habitation. *14 (082106), 20, 55, 69, 73, **78**, 84, 93, 106 (091006)*

Picidae: The Woodpecker and Wryneck Family

Centurus uropygialus (see *Melanerpes uropygialis*)

***Colaptes chrysoides* (A. Malherbe): Gilded Flicker**

COMMON NAMES: Carpintero Collarejo Cesertico (Hispanic), Common Flicker, Gilded Flicker, Kudat (Tohono O'odham), Mearn's Gilded Flicker. HABITS: Feeds on acorns, fruits, insects, seeds and spiders. Nests are made in hollowed out holes in posts, saguaros, stumps and trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, grassland and desertscrub ecological formations. *14 (072006), 55, 69, **78**, 84, 93, 106 (072006)*

Dendrocopus scalaris (see *Picoides scalaris*)

***Melanerpes uropygialis* (S.F. Baird): Gila Woodpecker**

SYNONYMY: *Centurus uropygialus* (S.F. Baird). COMMON NAMES: Carpintero del Desierto (Hispanic), Carpintero Gila (Hispanic), Gila Woodpecker, Hikiwigi (Tohono O'odham). HABITS: Feeds on berries, fruit, honey and wood boring insects. Nests are made in hollowed out holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Picoides scalaris* (J.G. Wagler): Ladder-backed Woodpecker**

SYNONYMY: *Dendrocopus scalaris* (J.G. Wagler). COMMON NAMES: Cactus Woodpecker, Carpintero Listado (Hispanic), Chehegam (Tohono O'odham), Ladder-backed Woodpecker, Pajaro Carpintero (Hispanic). HABITS: Feeds on wood boring insects and fruits. Nests are made in hollowed out holes in agaves, cacti, posts and yuccas. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Sphyrapicus nuchalis* S.F. Baird: Red-naped Sapsucker**

SYNONYMY: *Sphyrapicus varius* subsp. *nuchalis*. COMMON NAMES: Carpintero Rojo (Hispanic), Red-naped Sapsucker. HABITS: Feeds on wood boring insects and tree sap. Nests are made in hollowed out holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

Sphyrapicus varius subsp. *nuchalis* (see *Sphyrapicus nuchalis*)

Ptilogonatidae: The Silky Flycatcher Family

***Phainopepla nitens* (W. Swainson): Phainopepla**

COMMON NAMES: Capulinero (Hispanic), Capulinero Negro (Hispanic), Phainopepla. HABITS: Feeds on berries, elderberries, fruits, grapes, insects and mistletoe berries. Nests are shallow cups on the forks of limbs of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072006 - subsp. *lepida* (Van Tyne)), 55, 69, 73, **78**, 84, 93, 106 (072006)*

Rallidae: The Coot, Gallinule and Rail Family

***Laterallus jamaicensis* (J.F. Gmelin) (subsp. *coturniculus* is the subspecies reported as occurring in Arizona): Black Rail**

COMMON NAMES: Black Rail, California Black Rail. HABITS: Feeds on small crustaceans, insects and other small invertebrates and seeds. Nests are domed cups made of grasses concealed in vegetation located in freshwater and saltwater marshes. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the desertscrub ecological formation. *14 (subsp. *coturniculus* - 072006), 20 (species), **55** (species reported from Tucson by Stephens, April 23, 1881), 69 (species), 73 (species), 84 (species), 93 (species), 106 (species -072006)*

***Rallus limicola* (L.J. Vieillot): Virginia Rail**

COMMON NAMES: Gallereta (Hispanic), Virginia Rail. HABITS: Feeds on arachnids, berries, crustaceans, earthworms, small fishes, frogs, insects, mollusks, aquatic plants, seeds, slugs, snails and small snakes. Platform nests are saucers made of woven cattails, grasses, reeds, rushes and sedges lined with fine materials attached to aquatic plants located in marshes and other fresh bodies of water. HABITAT: Within the range of this species it has been reported from wetland ecological formations in the forest, woodland, grassland and desertscrub ecological formation. *14 (072406 - subsp. *limicola* (L.J. Vieillot)), 20, **55** (reported from Tucson), 69, 73, 84, 93, 106 (072406)*

Remizidae: The Verdin Family

***Auriparus flaviceps* (C.J. Sundevall): Verdin**

COMMON NAMES: Baloncillo (Hispanic), Gisop (Tohono O'odham), Verdin. HABITS: Feeds on berries, insects, insect eggs and larvae and seeds. Nests are spheres of thorny twigs lined with grasses and feathers located in bushes, chollas, shrubs, trees and the stems of the Desert Mistletoe. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (072206 - subsp. *ornatus* (G.N. Lawrence)), 20, 55, 69, 73, **78**, 84, 93, 106 (072206)*

Strigidae: The Typical Owl Family

***Athene cunicularia* (G.I. Molina) (subsp. *hypugaea* is the subspecies reported as occurring in Arizona): Western Burrowing Owl**

SYNONYMY: (*Speotyto cunicularia* (G.I. Molina)). COMMON NAMES: Lechuza Llanera (Hispanic), Billy Owl, Burrowing Owl, Ground Owl, Long-legged Owl, North American Burrowing Owl, Prairie Dog Owl, Prairie Owl, Western Burrowing Owl. HABITS: Feeds on small birds, frogs, large insects, lizards, small mammals, scorpions and snakes. Nests are grass lined and located at the end of a rodent burrow in open ground. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14, 20 (species), 55 (species), 69 (species), 73 (species), 84, 93 (species), 106 (0527-2806)*

Speotyto cunicularia (see *Athene cunicularia*)

Sturnidae: The Myna and Starling Family

***Sturnus vulgaris* C. Linnaeus: European Starling**

COMMON NAMES: Common Starling, European Starling, Starling. HABITS: Feeds on amphibians, arachnids, berries, crustaceans, decapods, grubs, insects, mollusks, seeds and worms. Nests are made of bark, down, feathers, grass, hair, leaves, lichen, moss, rootlets and sticks; located in abandoned bird nests, cavities in cliffs and trees, depressions, posts, rocks, shrubs, trees and underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC. Starlings can damage crops, cause substantial loss to feeding operations for cattle, and compete with native birds for nesting sites and food. *14 (081006), 20, 55, 69, 73, **78**, 84, 93, 106 (081006)*

Sylviidae: The Gnatcatcher and Old World Warbler Family

***Polioptila caerulea* (C. Linnaeus): Blue-gray Gnatcatcher**

COMMON NAMES: Blue-gray Gnatcatcher, Pisita Gris (Hispanic), Western Gnatcatcher. HABITS: Feeds on insects. Nests are small cups made up of lichens, plant down and spider webs located on limbs of trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Polioptila melanura* (G.N. Lawrence): Black-tailed Gnatcatcher**

COMMON NAMES: Black-tailed Gnatcatcher, Perlita del Desierto (Hispanic), Pisita Cola Negra (Hispanic), Plumbeous Gnatcatcher, Schuk Mookam Gisop (Tohono O'odham). HABITS: Feeds on insects and spiders; nests are felted cups in forks of low shrubs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (072106 - subsp. *melanura* (G.N. Lawrence)), 55, 69, 73, **78**, 84, 93, 106 (072106)*

Thraupidae: The Tanager Family

***Piranga ludoviciana* (A. Wilson): Western Tanager**

COMMON NAMES: Louisiana Tanager, Piranga Cabeza Roja (Hispanic), Western Tanager. HABITS: Feeds on berries, insects and small fruits. Nests are shallow saucers of shredded bark, grasses, rootlets and weed stalks located on the branches of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

Trochilidae: The Hummingbird Family

***Archilochus alexandri* (J. Bourcier and M.E. Mulsant): Black-chinned Hummingbird**

COMMON NAMES: Black-chinned Hummingbird, Chuparosa (Hispanic), Colibri Barba Negra (Hispanic), Wipismal (Tohono O'odham). HABITS: Feeds on small insects and nectar. Nests are tiny cups of lichens and plant wool woven together with spider webbing located in shrubs and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *10, 14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

C*alypte anna* (R.P. Lesson): Anna's Hummingbird

COMMON NAMES: Anna's Hummingbird, Chuparosa Anna (Hispanic), Colibri Cabeza Roja (Hispanic), Wipismal (Tohono O'odham). HABITS: Feeds on small insects and nectar. Nests are tiny woven cups made of lichens and small twigs located in shrubs and trees. HABITAT: Within the range of

this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *10, 14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Calypte costae* (J. Bourcier): Costa's Hummingbird**

COMMON NAMES: Chuparosa Costa (Hispanic), Costa's Hummingbird. HABITS: Feeds on small insects and nectar. Nests are tiny leaf-thatched and lichen woven cups located in shrubs and trees. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *10, 14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Selasphorus rufus* (J.F. Gmelin): Rufous Hummingbird**

COMMON NAMES: Rufous Hummingbird, Wipismal (Tohono O'odham), Zumbador Rufo (Hispanic). HABITS: Feeds on small insects and nectar. Nests are lichen-covered cups located in shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *10, 14, 20, **55** (reported from Tucson December 1950 to January 14, 1951), 69, 73, 84, 93, 106 (0527-2806)*

Troglodytidae: The Wren Family

***Campylorhynchus brunneicapillus* N.F. de Lafresnaye: Cactus Wren**

COMMON NAMES: Cactus Wren, Hokkad (Tohono O'odham), Matraca del Desierto (Hispanic), Saltapared del Disierto (Hispanic). HABITS: Feeds on fruits, insects and spiders. Nests are spheroid masses made of grasses and straw and lined with feathers and hair located in cacti, yuccas and thorny bushes. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (072106 - subsp. *couesi* (Sharpe)), 20, 55, 69, 73, **78**, 84, 93, 106 (072106), **WTK** (July 4, 2009)*

***Salpinctes obsoletus* (T. Say): Rock Wren**

COMMON NAMES: Rock Wren, Saltapared Rocosa (Hispanic). HABITS: Feeds on insects and spiders. Nests are cups made of bark, grasses, moss, rootlets and weeds lined with feathers, hairs and wool located in rock crannies. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (090606)*

Turdidiae: The Bluebird, Solitaire and Thrush Family

***Sialia currucoides* (J.M. Bechstein): Mountain Bluebird**

COMMON NAMES: Mountain Bluebird, Ventura de Montana (Hispanic). HABITS: Feeds on berries, fruits, grubs, insects, seeds, snails, spiders and worms. Nests are made of grasses and lined with bark chips or feathers located in holes in tree stubs, trees or in cliffs. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

Tyrannidae: The Tyrant Flycatcher Family

***Contopus sordidulus* (P.L. Sclater): Western Wood Pewee**

COMMON NAME: Western Wood Pewee. HABITS: Feeds on flying insects. Nests are tightly built grass or lichen-covered cups located on the horizontal branches of trees. HABITAT: Within the

range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Contopus virens* (C. Linnaeus): Eastern Wood Pewee**

COMMON NAME: Eastern Wood Pewee. HABITS: Feeds on arachnids, berries, fruits and insects. Nests are cups made of grasses and fine plant fibers and covered with lichens attached to the horizontal branches of trees with mud. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (072506), 20, **55** (reported from Tucson May 24, 1886), 69, 73, 106 (072506)*

***Empidonax flaviventris* (S.F. Baird & Baird): Yellow-bellied Flycatcher**

COMMON NAMES: Mosquerito Estomago Amarillo (Hispanic); Yellow-bellied Flycatcher. HABITS: Feeds on berries, insects and seeds. Nests are deep cups made of mosses and rootlets in sphagnum moss located on or near the ground. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (072506), 20, **55** (reported from Tucson September 22, 1956), 69, 106 (072506)*

***Empidonax traillii* (Phillips): Willow Flycatcher**

COMMON NAMES: Alder Flycatcher, Little Flycatcher, Traill's Flycatcher, Willow Flycatcher. HABITS: Feeds on berries and insects. Nests are bulky, loose cups made of bark, feathers, forbs, grasses, hair, lichens and mosses and lined with fine fibers located low in shrubs in forked braches. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, grassland, desertscrub and wetland ecological formations. *8, 14 (082106 - subsp. *extimus* (Phillips)), 20, 55, 69, 73, **78** (reported this species from an area just south of this township), 84, 93*

***Empidonax virescens* (L.J. Vieillot): Acadian Flycatcher**

COMMON NAME: Acadian Flycatcher. HABITS: Feeds on berries, insects and seeds. Nests are woven cups made of plant fibers located on horizontal forks of branches of shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14 (072506), 20, **55** (reported from Tucson May 24, 1886), 69, 106 (072506)*

***Empidonax wrightii* (S.F. Baird): Gray Flycatcher**

COMMON NAMES: Gray Flycatcher, Mosquerito Gris (Hispanic). HABITS: Feeds on flying insects; nests are woven grass cups located in junipers, pinyon pine, sagebrush and small trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93*

***Myiarchus cinerascens* (G.N. Lawrence): Ash-throated Flycatcher**

COMMON NAMES: Ash-throated Flycatcher, Copeton Cinezo (Hispanic), Papamoscas Cenizo (Hispanic). HABITS: Feeds on flying insects. Nests are made of materials including snake skins located in knotholes and woodpecker holes in posts, trees and yuccas. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93*

***Myiarchus tyrannulus* (S. Müller): Brown-crested Flycatcher**

COMMON NAMES: Arizona Crested Flycatcher, Brown-crested Flycatcher, Mexican Crested Flycatcher, Mexican Flycatcher, Mosquerito Café (Hispanic), Papamoscas Tirano (Hispanic), Weid's Crested Flycatcher. HABITS: Feeds on flying insects. Nests lined with feathers and hairs are located in holes in posts, saguaros and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 106 (0527-2806)*

Nuttallornis borealis (see *Contopus cooperi*)

***Pyrocephalus rubinus* (P. Boddaert): Vermilion Flycatcher**

COMMON NAMES: Cardenalito (Hispanic), Vermilion Flycatcher. HABITS: Feeds on flying insects. Nests are flat saucers made of feathers, fibers, spider webbing and twigs lined with animal or plant hair and lichen located on the horizontal crotches and forks of branches of conifers. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (072206 - subspp. *flammeus* (Van Rossem) and *mexicanus* (P.L. Sclater)), 20, 55, 69, 73, **78**, 84, 93, 106 (072206)*

***Sayornis saya* (C.L. Bonaparte): Say's Phoebe**

COMMON NAMES: Papamoscas Boyero (Hispanic), Say's Phoebe. HABITS: Feeds on berries and flying insects. Nests are cups or brackets of grasses, moss, mud and wool located on ledges or rock walls. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Tyrannus verticalis* T. Say: Western Kingbird**

COMMON NAMES: Arkansas Kingbird, Madrugador Avispero (Hispanic), Western Kingbird. HABITS: Feeds on flying insects. Nests are bulky, neatly-lined saucers made up of grasses, twigs and wool lined with matted hair located in bushes and on horizontal branches of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 84, 93, 106 (0527-2806)*

***Tyrannus vociferans* W. Swainson: Cassin's Kingbird**

COMMON NAMES: Cassin's Kingbird, Madrugador Chilero (Hispanic). HABITS: Feeds on flying insects. Nests are bulky cups lined with grasses, hair, twigs and wool located on a tree limbs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55, 69, 73, **78**, 84, 93*

Vireonidae: The Vireo Family

***Vireo bellii* (J.J. Audubon): Bell's Vireo**

COMMON NAMES: Arizona Bell's Vireo, Arizona Vireo, Bell's Vireo, Vireo Aceitunado (Hispanic). HABITS: Feeds on insects, mollusks, snails and spiders. Nests are pensile well camouflaged cups made of downy plant fibers, insect silk, grasses, spider webbing, sticks and wool suspended from branches of dense bushes, shrubs and low trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the woodland, grassland and desertscrub ecological formations. ***8**, 14 (082106 - subspp. *arizonae* R. Ridgway and *medius*), 20, 55, 69, 73, **78** (reported this species from an area just south of this township), 84, 93, 106 (091106 - species)*

***Vireo huttoni* J. Cassin: Hutton's Vireo**

COMMON NAMES: Hutton's Vireo, Stephen's Vireo, Vireo Hutton (Hispanic). HABITS: Feeds on insects. Nests are downy or mossy suspended cups lined with feathers and moss hanging from branches of shrubs and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (091106 - subsp. *stephenii* (Brewster)), 55, 69, 73, **78**, 84, 93, 106 (091106 - genus with species listing)*

***Vireo olivaceus* (C. Linnaeus): Red-eyed Vireo**

COMMON NAMES: Red-eyed Vireo, Vireo Ojos Rojos (Hispanic). HABITS: Feeds on berries, fruits, insects and insect larvae, mollusks, plant material including buds, flowers, fruits and seeds, snails and spiders. Nests are woven basket-like cups made of cocoons silk, lichens, paper from wasp nests, plant fibers and spider webbing suspended from forks in bushes and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (subsp. *olivaceous* (C. Linnaeus) - 091106), 20, **55** (reported from Tucson on July 6, 1952), 69, 73, 84 (sighting considered to be far from the normal range of this species), 93, 106 (091106)*

***Vireo plumbeus* E. Coues: Plumbeous Vireo**

SYNONYMY: *Vireo solitarius* A. Wilson. COMMON NAMES: Plumbeous Vireo, Solitary Vireo. HABITS: Feeds on insects. Nests are neat baskets made from long fibers and grasses lined with soft material camouflaged with bark chips, catkins, leaves and lichen hanging from forked branches in bushes and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, **78**, 93, 106 (0527-2806)*

Vireo solitarius (see *Vireo cassinii and/*or *Vireo plumbeus*)

CLASS MAMMALIA: The MAMMALS

Antilocapridae: The Pronghorn Family

***Antilocapra americana* G. Ord: Pronghorn**

COMMON NAMES: American Pronghorn, “Antelope”, Chihuahuan Pronghorn, Chihuahuan Pronghorn Antelope, Prong-horn, Pronghorn, Pronghorn Antelope, Prong-horned Antelope, Sonoran Pronghorn, Sonoran Pronghorn Antelope. HABITS: Feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (113006 - subspp. *americana* (Ord), *mexicana* Merriam and *sonoriensis* Goldman), **55** (recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), 65, 73, 106 (052806), 100 (color photograph), 110 (Historic Range: Southwest Arizona, south of the Bill Williams River and east to the Santa Cruz River. In Mexico, the northern part of the State of Sonora.), 118 (recorded as *Antilocapra americana americana* (Ord) - Distribution: mapping and records for northeastern and northwestern Arizona; *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona, and *Antilocapra americana sonoriensis* Goldman - Distribution: Southwestern Arizona. Figure 111, Page 255)*

***Antilocapra americana* subsp. *sonoriensis* Goldman: Sonoran Pronghorn**

COMMON NAMES: “Antelope”, Prong-horn, Pronghorn, Pronghorn Antelope, Prong-horned Antelope, Sonoran Pronghorn, Sonoran Pronghorn Antelope. HABITS: The species feeds on cacti including chain-fruit cholla, forbs, grasses, ocotillo and sagebrush. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *8, 14 (113006 - a marginal distribution record was identified near Cipriano Well in Organ Pipe Cactus National Monument), 55 (species, recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), 65 (species), 73 (species), 100 (color photograph of species, note on subspecies), 106 (052806), **110** (Historic Range: Southwest Arizona, south of the Bill Williams River and east to the Santa Cruz

River. In Mexico, the northern part of the State of Sonora.), **118** (recorded as *Antilocapra americana sonoriensis* Goldman - Distribution: Southwestern Arizona. Figure 111, Page 255)*

Bovidae: The Cow, Sheep and Allies Family

***Ovis canadensis* G. Shaw: Rocky Mountain Bighorn Sheep**

COMMON NAMES: Berrego Cimarron (Hispanic), Bighorn, Bighorn Sheep, Desert Bighorn, Desert Bighorn Sheep, Mountain Sheep, Rocky Mountain Bighorn Sheep. HABITS: Feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear, ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom. Young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Ovis canadensis* Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains.), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257)*

***Ovis canadensis* subsp. *mexicana* C.H. Merriam: Desert Bighorn Sheep**

COMMON NAMES: Berrego Cimarron (Hispanic), Berrego Cimarron del Desierto (Hispanic), Bighorn, Bighorn Sheep, Desert Bighorn, Desert Bighorn Sheep, Mountain Sheep, Rocky Mountain Bighorn Sheep. HABITS: The species feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear, ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom; young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55 (species: recorded as *Ovis canadensis* Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains."), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (072306), **118** (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257)*

Canidae: The Dog and Allies Family

Canis familiaris (see *Canis lupus* subsp. *familiaris*)

***Canis latrans* T. Say: Coyote**

COMMON NAME: Coyote. HABITS: Feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (052906), 118 (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217)*

***Canis latrans* subsp. *mearnsi* Merriam: Coyote**

COMMON NAME: Coyote. HABITS: The species feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from

the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph of species), 73 (species), 100 (color photograph of species), 106 (052906 - species), **118** (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217)*

***Canis lupus* Nelson and Goldman: Mexican Gray Wolf**

COMMON NAMES: Lobo, Lobo Mexicano (Hispanic), Mexican Gray Wolf, Mexican Wolf, Timber Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock, small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (082608), **55** (recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73, 85 (082608 - no records), 100 (color photograph), 106 (082608), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), 118 (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219)*

***Canis lupus* subsp. *baileyi* Nelson and Goldman: Mexican Gray Wolf**

COMMON NAMES: Lobo, Lobo Mexicano (Hispanic), Mexican Gray Wolf, Mexican Wolf, Timber Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock, small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (082608), 55 (species: recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73 (species), 100 (color photograph of species), 106 (082608), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), **118** (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219)*

***Canis lupus* C. Linnaeus subsp. *familiaris* (C. Linnaeus): Dog**

SYNONYMY: *Canis familiaris* (C. Linnaeus). COMMON NAMES: Dog, Domestic Dog. HABITS: The species feeds on small mammals and domestic stock. Generally found around areas of human habitation, in dense vegetation and other natural shelter. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC (native to eastern Asia). Feral dogs and packs of feral dogs pose a serious threat to humans and wildlife. *14 (species), 55 (species), 65 (species), **78**, 100, 106 (052906), **WTK** (August 2008)*

***Urocyon cinereoargenteus* (J.C. von Schreber): Common Gray Fox**

COMMON NAMES: Common Gray Fox, Gray Fox, Zorra Gris (Hispanic). HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations.

NOTE: The Gray Fox climbs trees. *14 (082608 - subsp. *scottii* (Mearns)), **55** (recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (052906 - species with a listing of 16 subspecies), 118 (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222)*

***Urocyon cinereoargenteus* subsp. *scottii* Mearns: Common Gray Fox**

COMMON NAMES: Common Gray Fox, Gray Fox, Zorra Gris (Hispanic). HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Gray Fox climbs trees. *14 (082608 - subsp. *scottii* (Mearns)), 55 (species: recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (color photograph of species), 73 (species), 100 (color photograph of species), 106 (052906 - species with a listing of 16 subspecies), **118** (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222)*

***Vulpes macrotis* C.H. Merriam: Kit Fox**

COMMON NAMES: Kit Fox, Zorra del Desierto (Hispanic). HABITS: Feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (T. Say): The Swift Fox is generally considered a separate species by most authors. *14 (050907 - subspp. *macrotis* Merriam and *neomexicanus* Merriam), **55** (recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,000 feet).), 65, 73, **78**, (100 - color photograph), 106 (052906), 118 (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state. *Vulpes macrotis neomexicana* Merriam - Distribution: Extreme southeastern Arizona. Figure 89, Page 220)*

***Vulpes macrotis* subsp. *arispus* Elliot: Kit Fox**

COMMON NAMES: Kit Fox, Zorra del Desierto (Hispanic). HABITS: The species feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (T. Say): The Swift Fox is generally considered a separate species by most authors. *14 (050907 - subspp. *macrotis* Merriam and *neomexicanus* Merriam), 55 (species: recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,800 feet).) 65 (species), 73 (species), 78 (species), (100 - color photograph), 106 (052906), **118** (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state. Figure 89, Page 220)*

Vulpes velox (see Note under *Vulpes macrotis*)

Castoridae: The Beaver Family

Castor canadensis H. Kuhle: **American Beaver**

COMMON NAMES: American Beaver; Beaver; Beaver Castor (Hispanic). HABITS: Feeds on bark, branches, buds, leaves or needles and twigs of alder, aspen, birch, cattail, cottonwood, maple, mesquite, tamarix and willow, and the roots of pond lilies and other tuberous plants; kits are born in lodges or dens dug into banks, nest materials include stalks and leave of tules, sedges, herbs and fine rootlets. HABITAT: Within the range of this species it has been reported that riparian habitats are required with beaver reported from creeks, streams, rivers, marshes, cienegas, ponds and lakes in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Beaver dams help reduce erosion, collect and retain organic matter and sediment and raise water tables (Las Cienegas National Conservation Area, Appendix 1, Chapter 3). Beaver dams may also help to reduce flooding and provide habitat for other animals including otters and waterfowl. The extent of the historical distribution of the American Beaver in Pima County is unknown. *14, 49, **55** (formerly widespread in all of the permanent streams of the state; now restricted in distribution), 73, 100 (color photograph), 106 (052906), 118 (subsp. *repentinus* Goldman - Distribution: Formerly in the Colorado River from the Grand Canyon southward to Mexico and subsp. *frondator* Mearns - Distribution: Formerly San Pedro and Gila River drainages. Figure 60, Page 155)*

Cervidae: The Deer and Allies Family

***Odocoileus hemionus* (C.S. Rafinesque-Schmaltz): Mule Deer**

COMMON NAMES: Black-tailed Deer, Burro, Desert Mule Deer, Mule Deer, Venado Pardo (Hispanic). HABITS: Feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush, saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Odocoileus hemionus* (Rafinesque). Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252)*

***Odocoileus hemionus* subsp. *crooki* (Mearns): Mule Deer**

COMMON NAMES: Black-tailed Deer, Burro, Desert Mule Deer, Mule Deer, Venado Pardo (Hispanic). HABITS: The species feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush, saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurges. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Odocoileus hemionus* (Rafinesque) Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet).), 65, 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252)*

***Odocoileus virginianus* (Zimmermann): Coues' White-tailed Deer**

COMMON NAMES: Arizona Whitetail, Coues' Deer, Coues' White-tailed Deer, Desert Whitetail, Maso (Yaqui), Fantail, Sonora White-tailed Deer, Sonoran Fantail, Venado Cola Blanca (Hispanic), Virginia Deer, Whitetail, White-tailed Deer, Whitetail Deer. HABITS: The species feeds on

fungi, grass and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254)*

Odocoileus virginianus **subsp. *couesi* (E. Coues & Yarrow): Coues' White-tailed Deer**

COMMON NAMES: Arizona Whitetail, Coues' Deer, Coues' White-tailed Deer, Desert Whitetail, Fantail, Maso (Yaqui), Sonora White-tailed Deer, Sonoran Fantail, Venado Cola Blanca (Hispanic), Virginia Deer, Whitetail, White-tailed Deer, Whitetail Deer. HABITS: The species feeds on fungi, grass and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55 (species: recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet).), 65, 73 (species), 100 (color photograph of species), 106 (052906 - species), **118** (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254)*

Erethizontidae: The Porcupine Family

Erethizon dorsatum **C. Linnaeus: Common Porcupine**

COMMON NAMES: American Porcupine, Canadian Porcupine, Common Porcupine, North American Porcupine, Porcupine, Puerco Espin (Hispanic). HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and beachnuts, buckbrush (Ceanothus sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (121108 - subspp. *couesi* (Mearns) and *epixanthum* (Brandt)), **55** (recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet).), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215)*

Erethizon dorsatum **subsp. *couesi* Mearns: Common Porcupine**

COMMON NAMES: American Porcupine, Canadian Porcupine, Common Porcupine, North American Porcupine, Porcupine, Puerco Espin (Hispanic). HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and beachnuts, buckbrush (Ceanothus sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles

of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (121108 - subspp. *couesi* (Mearns) and *epixanthum* (Brandt)), 55 (species: recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet).), 65 (species), 73 (species), 100 (color photograph of species), 106 (052906), **118** (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215)*

Felidae: The Cat Family

***Felis catus* (C. Linnaeus): House Cat**

COMMON NAMES: Cat, Domestic Cat, Feral Cat, House Cat. HABITS: Feeds on birds and small mammals and reptiles; kittens are born in burrows or protected areas. HABITAT: Found around areas of human habitation. NOTES: EXOTIC (native to southeastern Asia). Feral cats pose a serious threat to wildlife. ***78**, 100, 106 (052906), **WTK** (May 18, 2010)*

***Felis concolor* (C. Linnaeus): Mountain Lion**

SYNONYMY: *Puma concolor* (C. Linnaeus). COMMON NAMES: American Lion, Brown Tiger, California Lion, Cat-a-Mountain, Catamount, Catamount Cat (a mountain Red Tiger), Cougar, Deer Tiger, El Leon (Mexico), Florida Panther, Ghost Cat, Indian Devil, King Cat, Leon de Montana (Hispanic), Mexican Lion, Mountain Lion, Mountain Screamer, Painted Cat, Painter, Panther; Puma (Indian), Ted Tiger (Belize), Silver Lion, Sneak Cat, Sucuarana (Brazil), Yuma Mountain Lion. HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats, cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (091108 - *Puma concolor* subspp. *azteca* (Merriam); *hippolestes* (Merriam); *kaibabensis* (Nelson and Goldman), and *stanleyana* (Goldman). The Yuma Mountain Lion (*Felis concolor browni*) is included as a separate record.), **55** (recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts; *Felis concolor browni* (Merriam) - Distribution: Southwestern part of the state, and *Felis concolor kaibabensis* Nelson and Goldman - Distribution: Northwestern Arizona, north and west of the Colorado River. Figure 105, Page 245), **ADS** (Sunday, April 13, 2008, Section A, Pages 1 and 10, includes a map of recent sightings)

***Felis concolor* (C. Linnaeus) subsp. *azteca* Merriam: Mountain Lion**

SYNONYMY: *Puma concolor* subsp. *azteca* Merriam. COMMON NAMES: American Lion, Brown Tiger, California Lion, Cat-a-Mountain, Catamount, Catamount Cat (a mountain Red Tiger), Cougar, Deer Tiger, El Leon (Mexico), Florida Panther, Ghost Cat, Indian Devil, King Cat, Leon de Montana (Hispanic), Mexican Lion, Mountain Lion, Mountain Screamer, Painted Cat, Painter, Panther; Puma (Indian), Silver Lion, Sneak Cat. HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats, cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located

in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (091108 - subspp. *azteca* (Merriam), 55 (species: recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts. Figure 105, Page 245)*

Felis onca (see *Panthera onca*)

Felis onca subsp. *arizonensis* (see *Panthera onca* subsp. *arizonensis*)

Felis pardalis (see *Leopardus pardalis*)

Felis pardalis subsp *sonoriensis* (see *Leopardus pardalis* subsp *sonoriensis*)

Felis rufus (see *Lynx rufus*)

Felis rufus subsp. *baileyi* (see *Lynx rufus* subsp. *baileyi*)

Felis yaguarondi (see *Herpailurus yaguarondi*)

***Herpailurus yaguarondi* B.G. Lacepede: Jaguarundi**

SYNONYMY: *Felis yaguarondi* Fischer, *Puma yaguarondi*. COMMON NAMES: Jaguarundi, Jaguarundi Cat. HABITS: Feeds on birds, fishes, fruits, small to medium-size mammals and reptiles. Dens are located in brush, thickets and under downed trees. HABITAT: Within the range of this species it has been reported from woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Herpailurus yaguarondi tolteca*), 14 (091108 - *Herpailurus yaguarondi tolteca*), **55** (recorded as *Felis yaguarondi* Fischer. Jaguarundi. Rare in the southern part of the state; no recent records.), 100 (color photograph), 106 (072306 - includes a listing of subspecies), **118** (recorded as *Felis yaguarondi cacomitli* Berlandier - Distribution: Rare in southern part of the state.)*

***Leopardus pardalis* (C. Linnaeus): Ocelot**

SYNONYMY: (*Felis pardalis* Linnaeus). COMMON NAMES: Jaguatirica (Brazil), Manigordo (Costa Rica), McKenney's Wildcat, Ocelot, Painted Leopard, Tigrillo. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8, 14 (091108 - subsp *sonoriensis*), **55** (recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (color photograph), 106 (091108 - includes a listing with location of subspecies), 118 (recorded as *Felis pardalis* subsp. *sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244)*

***Leopardus pardalis* subsp *sonoriensis* Goldman: Ocelot**

SYNONYMY: (*Felis pardalis* Linnaeus, *Felis pardalis* subsp. *sonoriensis* Goldman). COMMON NAMES: Jaguatirica (Brazil), Manigordo (Costa Rica), McKenney's Wildcat, Ocelot, Painted

Leopard, Tigrillo. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8 (species), 14 (091108 - subsp *sonoriensis*), 55 (species: recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (color photograph of species, species record), 106 (091108 - includes a listing with location of subspecies), **118** (recorded as *Felis pardalis* subsp. *sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244)*

***Lynx rufus* (J.C. von Schreber): Bobcat**

SYNONYMY: *Felis rufus* (J.C. von Schreber). COMMON NAMES: Bobcat, Gato Montes (Hispanic), Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (091108 - *Lynx rufus baileyi* Schreber), **55** (recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet).), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247)*

***Lynx rufus* subsp. *baileyi* Merriam: Bobcat**

SYNONYMY: *Felis rufus* subsp. *baileyi* Elliot. COMMON NAMES: Bobcat, Gato Montes (Hispanic), Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (091108 - *Lynx rufus baileyi* Schreber), 55 (species: recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet).), 65, 73 (species), 100 (color photograph of species, species record), 106 (052906 - spies), **118** (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247)*

***Panthera onca* (C. Linnaeus): Jaguar**

SYNONYMY: *Felis onca* (C. Linnaeus). COMMON NAMES: Black Panther, Blank Panther, Jaguar, Jaguar (Hispanic), Jaguarete (Spanish), Yaguar. HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (091008 - *Panthera onca* subsp. *arizonensis* Goldman), **55** (recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65, 100 (color photograph), 106 (052906), 118 (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244)*

***Panthera onca* subsp. *arizonensis* Goldman: Jaguar**

SYNONYMY: *Felis onca* subsp. *arizonensis* Goldman. COMMON NAMES: Black Panther, Blank Panther, Jaguar, Jaguar (Hispanic), Jaguarete (Spanish), Yaguar. HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (091008 - *Panthera onca* subsp. *arizonensis* Goldman), 55 (species: recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65 (species), 100 (color photograph of species, species record), 106 (052906), **118** (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244)*

Puma concolor (see *Felis concolor*)

Puma concolor subsp. *azteca* (see *Felis concolor* subsp. *azteca*)

Puma yaguarondi (see *Herpailurus yaguarondi*)

Geomyidae: The Pocket Gopher Family

***Thomomys bottae* (J.F. Eydoux & P. Gervais): Botta's Pocket Gopher**

COMMON NAMES: Botta's Pocket Gopher, Southwestern Pocket Gopher, Tuza de Botta (Hispanic), Valley Pocket Gopher. HABITS: Feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051107 - subspp. *actuosus*, *albatus*, *alexandrae*, *alienus*, *aureus*, *catalinae*, *cervinus*, *collis*, *connectens*, *cultellus*, *desertorum*, *fulvus*, grahamensis, *guadalupensis*, *hualpaiensis*, *lachuguilla*, *mearnsi*, *modicus*, *morulus*, *muralis*, *opulentus*, *paguatae*, *pectoralis*, *peramplus*, *pervagus*, *pinalensis*, *planirostris*, *planorum*, *pusillus*, *rufidulus*, *ruidosae*, *suboles*, *subsimilus*, *taylori*, *toltecus* and *tularosae*), **55** (recorded as *Thomomys bottae* (Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65, 73, 100 (color photograph), 106 (052906), 118 (Distribution: mapping and records show numerous varieties throughout Arizona, only those shown as occurring in Pima County are listed here. recorded as *Thomomys bottae catalinae* Goldman - Distribution: Known only from the higher elevations of the Santa Catalina Mountains, Pima County. *Thomomys bottae comobabiensis* Huey - Distribution: Slopes of Comobabi Mountains, Pima County. *Thomomys bottae growlerensis* Huey - Distribution: Known from southwestern Pima County. *Thomomys bottae hueyi* Goldman - Distribution: Known only from the higher elevations in the Rincon Mountains, Pima County. *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. *Thomomys bottae phasma* Goldman - Distribution: Known from southeastern Yuma County. *Thomomys bottae proximus* Burt & Campbell - Distribution: Oak Zone of the Santa Rita and Huachuca Mountains. *Thomomys bottae pusillus* Goldman - Distribution: Known only from the region of the type locality [Coyote Mountains, 3,000 feet, Pima County, Arizona]. Figure 46, Page 107)*

***Thomomys bottae* subsp. *modicus* Goldman: Botta's Pocket Gopher**

COMMON NAMES: Botta's Pocket Gopher, Southwestern Pocket Gopher, Tuza de Botta (Hispanic), Valley Pocket Gopher. HABITS: The species feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051107 - species, several varieties listed), 55 (species: recorded as *Thomomys bottae*

(Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. Figure 46, Page 107)*

Heteromyidae: The Kangaroo Rat and Pocket Mouse Family

***Chaetodipus baileyi* C.H. Merriam: Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* C.H. Merriam. COMMON NAMES: Bailey's Pocket Mouse, Raton de Bailey (Hispanic). HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (082508 - subsp. *baileyi* Merriam), **55** (recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).) , 65 (genus), 73, 100 (color photograph), 106 (082508), 118 (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133)*

***Chaetodipus baileyi* subsp. *baileyi* C.H. Merriam: Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* subsp. *baileyi* C.H. Merriam. COMMON NAMES: Bailey's Pocket Mouse, Raton de Bailey (Hispanic). HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (082508 - subsp. *baileyi* Merriam), 55 (species: recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (082508), **118** (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133)*

***Chaetodipus hispidus* S.F. Baird: Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* S.F. Baird. COMMON NAME: Hispid Pocket Mouse. HABITS: Feeds on insects (grasshoppers) and seeds. Nests are constructed of grasses and located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082508 - subspp. *hispidus* Baird and *conditi*), **55** (recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet).), 65 (genus), 73, 100, 106 (082508), 118 (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132)*

***Chaetodipus hispidus* subsp. *conditi* Allen: Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* subsp. *conditi* Allen S.F. Baird. COMMON NAME: Hispid Pocket Mouse. HABITS: The species feeds on insects (grasshoppers), leaves and seeds. Nests are constructed of grasses and located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082508 - subsp. *conditi*), 55 (species: recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet).), 65 (genus), 73 (species), 100 (species), 106 (082508 - species), **118** (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132)*

***Chaetodipus intermedius* C.H. Merriam: Rock Pocket Mouse**

SYNONYMY: *Perognathus intermedius* C.H. Merriam. COMMON NAMES: Raton de Rocas de Bosla (Hispanic), Rock Pocket Mouse. HABITS: Feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (051007 - subspp. *altar* Dice; *beardi*; *crititus*; *intermedius* (Merriam); *nigrimontis*; *phasma*; *rupestris* Benson, and *umbrosus*), 55 (recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet)."), 65 (genus), 73 (recorded as *Perognathus intermedius*), 100, 106 (051007), 118 (recorded as *Chaetodipus intermedius crinitis* Benson - Distribution: Known from south of the upper Colorado River. *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. *Chaetodipus intermedius nigrimontis* Blossom - Distribution: Known only from the vicinity of the type locality (Black Mountain, 10 mi SW Tucson). *Chaetodipus intermedius phasma* Goldman - Distribution: Known from southern Yuma County and extreme southwestern Pima County. *Chaetodipus intermedius pinicate* Blossum - Distribution: Known from the Pinicate lava area in southern Yuma County. *Chaetodipus intermedius umbrosus* Benson - Distribution: Known from grassland area just south of the Mogollon Rim. Figure 54, Page 141)*

***Chaetodipus intermedius* subsp. *intermedius* C.H. Merriam: Rock Pocket Mouse**

SYNONYMY: *Perognathus intermedius* subsp. *intermedius* C.H. Merriam. COMMON NAMES: Raton de Rocas de Bosla (Hispanic), Rock Pocket Mouse. HABITS: The species feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species - recorded as *Perognathus intermedius*), 100 (species), 106 (051007 - species), 118 (recorded as *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. Figure 54, Page 141)*

***Chaetodipus intermedius* subsp. *nigrimontis* Blossom: Black mountain Black Pocket Mouse**

SYNONYMY: *Perognathus intermedius* subsp. *nigrimontis* Blossom. COMMON NAMES: Black mountain Black Pocket Mouse, Raton de Rocas de Bosla (Hispanic), Rock Pocket Mouse. HABITS: The species feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species), 100 (species), 106 (051007 - species), 118 (recorded as *Chaetodipus intermedius nigrimontis* Blossom - Distribution: Known only from the vicinity of the type locality. (Black Mountain, 10 mi SW Tucson). Figure 54, Page 141)*

***Chaetodipus penicillatus* S.W. Woodhouse: Desert Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* S.W. Woodhouse. COMMON NAMES: Desert Pocket Mouse, Raton de Desierto (Hispanic), Sonoran Desert Pocket Mouse. HABITS: Feeds on seeds of creosote bush, grass, greythorn, herbs and mesquite. Nests are made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (051007 - subsp. *pricei* (J.A. Allen)), 55 (recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet.).), 65 (genus), 73 (recorded as *Perognathus penicillatus*), 78, 100 (color photograph), 106 (051007), 118 (recorded as *Perognathus penicillatus angustirostris* Osgood - Distribution: Known from southern Yuma County. *Perognathus penicillatus eremicus* Mearns - Distribution: Known from extreme southeastern Arizona. *Perognathus penicillatus penicillatus* Woodhouse - Distribution: Known from southern Mohave and northern Yuma Counties. *Perognathus*

penicillatus pricei Allen - Distribution: Known from south-central Arizona and *Perognathus penicillatus sobrinus* Goldman - Distribution: Perhaps occurs in extreme northwestern Arizona. Figure 53, Page 137)*

***Chaetodipus penicillatus* subsp. *pricei* (S.W. Woodhouse): Desert Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* subsp. *pricei* S.W. Woodhouse). COMMON NAMES: Desert Pocket Mouse, Raton de Desierto (Hispanic), Sonoran Desert Pocket Mouse. HABITS: The species feeds on seeds of creosote bush, grass, greythorn, herbs and mesquite. The nest is made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet).), 65 (genus), 73 (species, recorded as *Perognathus penicillatus*), 100 (species, color photograph of species), 106 (051007 - species), **118** (recorded as *Perognathus penicillatus pricei* Allen - Distribution: Known from south-central Arizona. Figure 53, Page 137)*

***Dipodomys merriami* Mearns: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam's Kangaroo Rat, Rata de Nopalera Merriam (Hispanic). HABITS: Feeds on ants, green plant material and seeds of creosote bush, grama grass, mesquite, ocotillo and purselane. Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007 - subspp. *ambiguus* (Merriam) and *olivaceus* (Swarth)), **55** (recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (genus, with a listing of species), 118 (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. *Dipodomys merriami regillus* Goldman - Distribution: Known from extreme southern Yuma County and *Dipodomys merriami vulcani* Benson - Distribution: Known from northern Arizona north of the Colorado River. Figure 56, Page 145)*

***Dipodomys merriami* subsp. *merriami* Mearns: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam's Kangaroo Rat, Rata de Nopalera Merriam (Hispanic). HABITS: The species feeds on ants, green plant material and seeds of creosote bush, grama grass, mesquite, ocotillo and purselane. Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (genus with a listing of species), **118** (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. Figure 56, Page 145)*

***Dipodomys spectabilis* C.H. Merriam: Banner-tailed Kangaroo Rat**

COMMON NAMES: Banner-tailed Kangaroo Rat, Kangaroo Rat, Rata de Nopalera (Hispanic). HABITS: Feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007 - subspp. *baileyi* (Goldman); *perblandus*, and *spectabilis* (Merriam)), **55** (recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (color photograph), 100 (color photograph), 106 (genus, with a listing of species), 118 (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County and *Dipodomys spectabilis spectabilis* Merriam - Distribution: Known from the grasslands of Cochise County. Figure 55, Page 143)*

***Dipodomys spectabilis* subsp. *perblandus* Goldman: Banner-tailed Kangaroo Rat**

COMMON NAMES: Banner-tailed Kangaroo Rat, Kangaroo Rat, Rata de Nopalera (Hispanic). HABITS: The species feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (species, color photograph), 100 (species, color photograph), 106 (genus, with a listing of species), **118** (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County. Figure 55, Page 143)*

***Perognathus amplus* Osgood: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse. HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73, 100 (color photograph), 118 (subsp. *ammodytes* Benson - Distribution: Known only from the upper part of the Colorado River; subsp. *amplus* - Distribution: Known only from the vicinity of Fort Verde, Yavapai County; subsp. *cineris* Benson - Distribution: Known only from the region of the Wupatki National Monument; subsp. *jacksoni* Goldman - Distribution: known from central Arizona; subsp. *pergracilis* Goldman - Distribution: Known from Mojave County south of the Colorado and extreme northern Yuma County [now La Paz County]; subsp. *rotundus* Goldman - Distribution: Southwestern Yuma County, and subsp. *taylori* Goldman - Distribution: Known from south central Arizona. Figure 50, Page 129)*

***Perognathus amplus* subsp. *taylori* Goldman: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse. HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *55 (species: recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), **118** (recorded as *Perognathus amplus taylori* Goldman. Distribution: Known from south central Arizona. Figure 50, Page 129)*

Perognathus baileyi (see *Chaetodipus baileyi*)

Perognathus baileyi subsp. *baileyi* (see *Chaetodipus baileyi* subsp. *baileyi*)

***Perognathus flavus* S.F. Baird: Silky Pocket Mouse**

COMMON NAME: Silky Pocket Mouse. HABITS: Feeds on seeds and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082508 - subspp. *bunkeri* (Cockrum); *flavus* (Baird); *gilvus* (Osgood); *goodpasteri* (Hoffmeister); *hopiensis* (Goldman), and *sanuluisi* (Hill)), **55** (recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (082508), 118 (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124)*

***Perognathus flavus* subsp. *flavus* S.F. Baird: Silky Pocket Mouse**

COMMON NAME: Silky Pocket Mouse. HABITS: The species feeds on seeds and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (082508 - subsp. *flavus* (Baird)), 55 (species: recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (082508), **118** (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124)*

Perognathus hispidus (see *Chaetodipus hispidus*)

Perognathus hispidus subsp. *conditi* (see *Chaetodipus hispidus* subsp. *conditi*)

Perognathus intermedius (see *Chaetodipus intermedius*)

Perognathus intermedius subsp. *intermedius* (see *Chaetodipus intermedius* subsp. *intermedius*)

Perognathus intermedius subsp. *nigrimontis* (see *Chaetodipus intermedius* subsp. *nigrimontis*)

Perognathus penicillatus (see *Chaetodipus penicillatus*)

Perognathus penicillatus subsp. *pricei* (see *Chaetodipus penicillatus* subsp. *pricei*)

Leporidae: The Hare and Rabbit Family

***Lepus alleni* (Mearns): Antelope Jack Rabbit**

COMMON NAME: Antelope Jack Rabbit. HABITS: Feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68)*

***Lepus alleni* subsp. *alleni* Mearns: Antelope Jack Rabbit**

COMMON NAME: Antelope Jack Rabbit. HABITS: The species feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68)*

***Lepus californicus* (J.E. Gray): Black-tailed Jack Rabbit**

COMMON NAMES: Black-tailed Jack Rabbit, "Jackass Rabbit". HABITS: Feeds on grass, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65, 73, 78, 100 (color photograph), 106

(052906), 118 (recorded as *Lepus californicus deserticola* Mearns - Distribution: Occurs in the western half of the state; *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona, and *Lepus californicus texianus* Waterhouse - Distribution: Occurs in the northeastern quarter of the state. Figure 32, Page 69)*

***Lepus californicus* subsp. *eremicus* J.A. Allen: Black-tailed Jack Rabbit**

COMMON NAMES: Black-tailed Jack Rabbit, "Jackass Rabbit". HABITS: The species feeds on grass, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona. Figure 32, Page 69)*

***Sylvilagus audubonii* (S.F. Baird): Desert Cottontail**

COMMON NAME: Desert Cottontail. HABITS: Feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Sylvilagus audubonii* (Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65, 73, 100 (color photograph), 106 (052906), 118 (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state; *Sylvilagus audubonii minor* (Mearns) - Distribution: Known only from the southeastern part of the state, and *Sylvilagus audubonii warreni* Nelson - Distribution: Known only from the northeastern part of the state. Figure 34, Page 74), **WTK** (October 28, 2009)*

***Sylvilagus audubonii* (S.F. Baird) subsp. *arizonae*: Desert Cottontail**

COMMON NAME: Desert Cottontail. HABITS: The species feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Sylvilagus audubonii* (Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state. Figure 34, Page 74)*

Mephitidae: The Skunk Family

***Conepatus leuconotus* M.H. Lichtenstein: Common Hog-nosed Skunk**

SYNONYMY: *Conepatus mesoleucus* M.H. Lichtenstein. COMMON NAMES: Common Hog-nosed Skunk, Hog-nosed Skunk, Hognose Skunk, Rooter Skunk, Zorrillo Nariz de Puerco (Hispanic). HABITS: Feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072306 - subspp. *mearnsi* (C.H. Merriam) and *venaticus* (Goldman)), **55** (recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65, 73 (recorded as *Conepatus mesoleucus*), 100 (*Conepatus mesoleucus*, color

photograph), 106 (072306 - genus), 118 (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241)*

***Conepatus leuconotus* subsp. *venaticus* (Goldman): Common Hog-nosed Skunk**

SYNONYMY: *Conepatus mesoleucus* subsp. *venaticus* Goldman. COMMON NAMES: Common Hog-nosed Skunk, Hog-nosed Skunk, Hognose Skunk, Rooter Skunk, Zorrillo Nariz de Puerco (Hispanic). HABITS: The species feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072306 - subsp. *venaticus* (Goldman)), 55 (species: recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65 (species), 73 (species: recorded as *Conepatus mesoleucus*), 100 (color photograph of species, species record: *Conepatus mesoleucus*), 106 (072306 - genus), **118** (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241)*

Conepatus mesoleucus (see *Conepatus leuconotus*)

Conepatus mesoleucus subsp. *venaticus* (see *Conepatus leuconotus* subsp. *venaticus*)

***Mephitis macroura* M.H. Lichtenstein: Hooded Skunk**

COMMON NAMES: Hooded Skunk, Zorrillo (Hispanic). HABITS: Feeds on small birds, insects and other invertebrates, rodents and plant material. The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050807 - subsp. *milleri* (Mearns)), **55** (recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65, 73, 100 (color photograph), 106 (053006 - genus), 118 (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240) *

***Mephitis macroura* subsp. *milleri* (Mearns): Hooded Skunk**

COMMON NAMES: Hooded Skunk, Zorrillo (Hispanic). HABITS: The species feeds on small birds, insects and other invertebrates, rodents and plant material. The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050807 - subsp. *milleri* (Mearns)), 55 (species: recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet).), 65 (species), 73 (species), 100 (color photograph of species, species record), 106 (053006 - genus), **118** (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240)*

***Mephitis mephitis* (J.C. von Schreber): Striped Skunk**

COMMON NAMES: Striped Skunk, Zorrillo Rayado (Hispanic). HABITS: Feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, fruits, insects (beetles, crickets and grasshoppers among others), mollusks, plant material, reptiles, rodents, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (082308 - subspp. *estor* Merriam, *hudsonica* (Richardson) and

varians (Gray)), **55** (recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (053006 - genus), 118 (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239)*

***Mephitis mephitis* (J.C. von Schreber) subsp. *estor* Merriam: Striped Skunk**

COMMON NAMES: Striped Skunk, Zorrillo Rayado (Hispanic). HABITS: Feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, fruits, insects (beetles, crickets and grasshoppers among others), mollusks, plant material, reptiles, rodents, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (082308 - subsp. *estor* Merriam), 55 (species: recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (color photograph of species, species record), 73 (species), 100 (color photograph of species, species), 106 (053006 - genus), **118** (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239)*

***Spilogale gracilis* Merriam: Western Spotted Skunk**

SYNONYMY: *Spilogale putorius* subsp. *gracilis* Merriam. COMMON NAMES: Spotted Skunk, Western Spotted Skunk, Zorillo Pinto (Hispanic). HABITS: Feeds on arachnids, berries, birds and bird eggs, carrion, fruits, insects, small mammals, scorpions and seeds. Dens are made in rock crevices and hollow logs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051107 - *Spilogale putorius* subsp. *gracilis* Merriam is a synonym for *Spilogale gracilis* C. Linnaeus the Western Spotted Skunk. *Spilogale putorius* subsp. *leucoparia* is a synonym for *Spilogale putorius* C. Linnaeus the Eastern Spotted Skunk), **55** (recorded as *Spilogale putorius* (Linnaeus). Spotted Skunk. Probably statewide (120 - 7,000 feet).), 65 (*Spilogale putorius*), 73 (*Spilogale gracilis*), 100 (*Spilogale gracilis*, color photograph), 106 (053006 - genus), **118** (recorded as *Spilogale putorius gracilis* Merriam - Distribution: Probably statewide. Figure 99, Page 237)*

Spilogale putorius (see footnotes 14, 55, 65 and 85 under *Spilogale gracilis*)

Spilogale putorius subsp. *gracilis* (see *Spilogale gracilis*)

Molossidae: The Free-tailed Bat Family

***Eumops perotis* (H. Schinz): Greater Western Mastiff Bat**

COMMON NAMES: Bonnet Bat, Greater Western Bonneted Bat, Greater Mastiff Bat, Greater Western Mastiff Bat, Mastiff Bat, Murcielago Mastiff (Hispanic), Western Mastiff Bat. HABITS: Feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8** (*Eumops perotis californicus*), 14 (051107 - subsp. *californicus* (Merriam)), **55** (recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65, 73, 92, 100 (color photograph), 106 (053006 - family), 118 (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone.)*

***Eumops perotis* subsp. *californicus* (Merriam): Greater Western Mastiff Bat**

COMMON NAMES: Bonnet Bat, Greater Western Bonneted Bat, Greater Mastiff Bat, Greater Western Mastiff Bat, Mastiff Bat, Murcielago Mastiff (Hispanic), Western Mastiff Bat. HABITS: The species feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (051107), 55 (species: recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65 (species), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (053006 - family), **118** (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone. Figure 29, Page 65)*

***Nyctinomops femorosaccus* (C.H. Merriam): Pocketed Free-tailed Bat**

SYNONYMY: Also recorded as *Nyctinomops femorosacca* (C.H. Merriam), *Tadarida femorosacca* (Miller). COMMON NAMES: Pocketed Free-tailed Bat, Murcielago Cola en Bolsa (Hispanic). HABITS: Feeds on ants, leafhoppers, moths, wasps and other insects. Roosts in rocky crevices. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, **55** (recorded as *Tadarida femorosacca* (Merriam). Pocketed Free-tailed Bat. Rare; found at lower elevations in the western and southern part of the state.), 100, 106 (053006 - family), **118** (recorded as *Tadarida femorosacca* (Miller) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of southern Arizona. Figure 27, Page 63)*

***Nyctinomops macrotis* (J.E. Gray): Big Free-tailed Bat**

SYNONYMY: *Tadarida macrotis* (J.E. Gray), *Tadarida molossa* (Pallas). COMMON NAMES: Big Free-tailed Bat, Murcielago Cola Libre (Hispanic), Murcielago Cola Suelta Mayor (Spanish) HABITS: Feeds on insects. Roosts in rocky cliffs, crevices, fissures, caves and holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations ecological formations. *8, 14, 42 (053006), **55** (recorded as *Tadarida molossa* (Pallas). Big Free-tailed Bat. Rare; statewide, mainly at elevations below 5,000 feet.), 73, 100 (color photograph), 106 (053006 - family), **118** (recorded as *Tadarida molossa* (Pallas) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of Arizona. Figure 28, Page 64)*

***Tadarida brasiliensis* (I.G. Saint-Hilaire): Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat, Guano Bat, Mexican Free-tail Bat, Mexican Free-tailed Bat, Murcielago Braziliano (Hispanic). HABITS: Feeds on ants, beetles, leafhoppers, moths and other small insects. Roosts in caverns; caves; crevices in rocks; fissures in cliffs; buildings; mines, and under bridges. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, **55** (recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65, 73, 92, 100 (color photograph), 106 (053006), 118 (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62)*

***Tadarida brasiliensis* (I.G. Saint-Hilaire) subsp *mexicana* (Saussure): Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat, Guano Bat, Mexican Free-tail Bat, Mexican Free-tailed Bat, Murcielago Braziliano (Hispanic). HABITS: Feeds on ants, beetles, leafhoppers, moths and other small insects. Roosts in caverns; caves; crevices in rocks; fissures in cliffs; buildings; mines, and under bridges. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, 55 (species: recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65 (species), 73 (species), 92 (species), 100 (species,

color photograph of species), 106 (053006), **118** (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62)*

Tadarida femorosacca (see *Nyctinomops femorosacca*)

Tadarida macrotis (see *Nyctinomops macrotis*)

Tadarida molossa (see *Nyctinomops macrotis*)

Muridae: The Mouse and Rat Family

***Neotoma albigula* Hartley: White-throated Wood Rat**

COMMON NAMES: Packrat, White-throated Packrat, Trade Rat, White-throated Wood Rat. HABITS: Feeds on cacti, forbs, fruits, juniper, leaves, mesquite beans, seeds and yucca. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051106 - subspp. *albigula*; l*aplataensis* (F.W. Miller); *melas* (Dice); *mernsi*; *warreni* (Merriam), and *venusta*), **55** (recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (053006 - genus), 118 (subsp. *albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim; subsp. *mearnsi* Goldman - Distribution: Know from southern Yuma County; subsp. *laplataensis* F.W. Miller - Distribution: Known from northeastern Arizona, and subsp. *venusta* True - Distribution: Known from western Arizona. Figure 76, Page 193)*

***Neotoma albigula* subsp. *albigula* Hartley: White-throated Wood Rat**

COMMON NAMES: Packrat, White-throated Packrat, Trade Rat, White-throated Wood Rat. HABITS: The species feeds on cacti, forbs, fruits, juniper, leaves, mesquite beans, seeds and yucca. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051107 - subsp. *albigula*), 55 (species: recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet).), 65 (color photograph of species, species record), 73 (species), 100 (color photograph of species, species record), 106 (053006 - genus), **118** (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim. Figure 76, Page 193)*

***Onychomys torridus* (E. Coues): Southern Grasshopper Mouse**

COMMON NAMES: Chapulinero del Sur (Hispanic), Scorpion Mouse, Southern Grasshopper Mouse. HABITS: Feeds on arthropods, beetles, grasshoppers, insects, lizards, other species of mice, scorpions, seeds and small vertebrates. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (020307 - subsp. *torridus*), **55** (recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet).), 65 (genus), 73, 100 (color photograph), 106 (020307 - genus, listing of species), 118 (recorded as *Onychomys torridus longicaudus* Merriam - Distribution: Extreme northwestern Arizona; *Onychomys torridus perpallidus* Mearns - Distribution: Wesern Arizona, and *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161)*

***Onychomys torridus* subsp. *torridus* (E. Coues): Southern Grasshopper Mouse**

COMMON NAMES: Raton Chapulinero del Sur (Hispanic), Scorpion Mouse, Southern Grasshopper Mouse. HABITS: The species feeds on arthropods, beetles, grasshoppers, insects, lizards, other species of mice, scorpions, seeds and small vertebrates. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (020307 - subsp. *torridus*), 55 (species: recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (053006 - genus, listing of species), **118** (recorded as *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161)*

***Peromyscus eremicus* (S.F. Baird): Cactus Mouse**

COMMON NAMES: Cactus Mouse, Raton de Cactaceas (Hispanic). HABITS: Feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73, 100 (color photograp), 106 (053006 - genus), 118 (recorded as *Peromyscus eremicus anthonyi* (Merriam) - Distribution: Southeastern part of the state; *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state; *Peromyscus eremicus papagensis* Goldman - Distribution: Known only from the Pinacate lava in southern Yuma County, and *Peromyscus eremicus pullus* Blossum - Distribution: Known only from Black Mountain 10 mi. SSW Tucson, Pima County, Arizona. Figure 67, Page 171)*

***Peromyscus eremicus* subsp. *eremicus* (S.F. Baird): Cactus Mouse**

COMMON NAMES: Cactus Mouse, Raton de Cactaceas (Hispanic). HABITS: The species feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (species), 55 (species: recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet).), 65 (genus), 73 (species), 100 (color photograph of species, species), 106 (053006 - genus), **118** (recorded as *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state. Figure 67, Page 171)*

***Peromyscus leucopus* (C.S. Rafinesque): White-footed Mouse**

COMMON NAME: Raton Patas Blancas (Hispanic), White-footed Mouse, Wood Mouse. HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (121008 - subspp. *arizonae* (J.A. Allen) and *tornillo* (Mearns)), **55** (recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (053006 - genus), 118 (subsp. *arizonae* (Allen) - Distribution: Southeastern part of the state and subsp. *ochraceus* Osgood - Distribution: Along the Little Colorado River and an isolated population on the south edge of the Mogollon Rim which probably represents an unnamed race. Figure 70, Page 180)*

***Peromyscus leucopus subsp. arizonae* (J.A. Allen): White-footed Mouse**

COMMON NAME: Raton Patas Blancas (Hispanic), White-footed Mouse, Wood Mouse. HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (121008 - subsp. *arizonae* (J.A. Allen)), 55 (species: recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet).), 65 (genus), 73 (species), 100 (color photograph of species, species), 106 (053006 - genus), **118** (recorded as *Peromyscus leucopus arizonae* (Allen) - Distribution: Southeastern part of the state. Figure 70, Page 180)*

***Peromyscus maniculatus* (Wagner): Deer Mouse**

COMMON NAMES: Deer Mouse, Raton Venado (Hispanic). HABITS: Feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subspp. *blandus* (Osgood) and *rufinus* (Merriam)), **55** (recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet).), 65 (genus), 73, 100 (color photograph), 106 (053006 - genus), 118 (recorded as *Peromyscus maniculatus blandus* Osgood - Distribution: Extreme southeastern part of the state; *Peromyscus maniculatus rufinus* (Merriam) - Distribution: Higher elevations throughout the state, and *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177)*

***Peromyscus maniculatus* subsp. *sonoriensis* (Le Conte): Deer Mouse**

COMMON NAMES: Deer Mouse, Raton Venado (Hispanic). HABITS: The species feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - species, and subspp. *blandus* (Osgood) and *rufinus* (Merriam)), 55 (species: recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet).), 65 (genus), 73 (species), 100 (color photograph of species, species), 106 (053006 - genus), **118** (recorded as *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177)*

***Peromyscus merriami* Mearns: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse, Mesquite Mouse. HABITS: Probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (082308), **55** (recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet).), 73 (note on species), 100, 106 (072306 - genus, listing of species), 118 (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174)*

***Peromyscus merriami* subsp. *merriami* Mearns: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse, Mesquite Mouse. HABITS: The species probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (082308), 55 (species: recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet).), 73 (note on species), 100 (species), 106 (072306 - genus,

listing of species), **118** (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174)*

***Rattus rattus* (Linnaeus): Black Rat**

COMMON NAME: Alexandrine Rat, Asian Black Rat, Black Rat, House Rat, Old English Rat, Rat, Rata Negra (Hispanic), Roof Rat, Ship Rat. HABITS: Feeds on cereals, fruits, grains and other vegetation and insects and other invertebrates. Nests may be made from leaves and sticks and located in burrows or vines and trees. HABITAT: Usually found near areas of human habitation, on agricultural land and sometimes in the wild in the forest, woodland, grassland, scrub, desertscrub and wetland ecological formations. NOTES: EXOTIC (native to southeastern Asia). The Black Rat is a carrier of a number of diseases and is extremely destructive to crops, farms and fruit trees. *14 (121108), 55 (recorded as *Rattus rattus* (Linnaeus). Black Rat. Introduced but not common; may not be established in the state at present.), 73, 100 (color photograph), 106 (121008), **118** (recorded as *Rattus rattus* - Distribution: Formerly known in association with human habitations but probably absent at present)*

***Reithrodontomys megalotis* (Baird): Western Harvest Mouse**

COMMON NAME: Western Harvest Mouse. HABITS: Feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses, forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subspp. *arizonensis*; *aztecus* J.A. Allen, and *megalotis* (Baird)), **55** (recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet).), 73, 100 (color photograph), 106 (053006), 118 (recorded as *Reithrodontomys megalotis arizonensis* (Allen) - Distribution: Known only from the region of the type locality (Chiricahua Mountains); *Reithrodontomys megalotis aztecus* (Allen) - Distribution: Extreme northeastern part of state, and *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164)*

***Reithrodontomys megalotis* subsp. *megalotis* (Baird): Western Harvest Mouse**

COMMON NAME: Western Harvest Mouse. HABITS: The species feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *megalotis* (Baird)), 55 (species: recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet).), 73 (species), 100 (species, color photograph of species), 106 (053006), **118** (recorded as *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164)*

***Sigmodon arizonae* Mearns: Arizona Cotton Rat**

COMMON NAMES: Arizona Cotton Rat, Cotton Rat. HABITS: Possibly feeding on berries, carcasses, fruits, insects and seeds. The nests are made of grasses and other plant material. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (082608), 73 (note), **78**, 100, 106 (053005 - genus)*

***Sigmodon arizonae* subsp. *ciengae* A.B. Howell: Arizona Cotton Rat**

SYNONYMY: *Sigmodon hispidus* subsp. *cienegae* A.B. Howell. COMMON NAMES: Arizona Cotton Rat, Cotton Rat. HABITS: Possibly feeding on berries, carcasses, fruits, insects and seeds. The nests are made of grass. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (082608), 73 (note on species),

100 (species), 106 (053005 - genus), **118** (recorded as *Sigmodon hispidus* subsp. *cienegae* A.B. Howell - Distribution: Locally common in southeastern Arizona. Figure 74, Page 188)*

Sigmodon hispidus subsp. *cienegae* (see *Sigmodon arizonae* subsp. *ciengae*)

Mustelidae: The Weasel and Allies Family

***Lontra canadensis* (J.C. von Schreber): Southwestern River Otter**

SYNONYMY: *Lutra canadensis* (J.C. von Schreber). COMMON NAMES: Arizona Otter, Arizona River Otter, Nearctic River Otter, Northern River Otter, Pah-hua-pe'na (Tewa - Taos Indians), River Otter, Southwestern River Otter. HABITS: Feeds on amphibians, crustaceans, fishes, large aquatic insects, small mammals, aquatic plants and turtles. Nests are made of grasses, leaves, reeds and sticks located in dens dug in banks or within abandoned beaver and nutria dens and man-made structures. HABITAT: Within the range of this species it has been reported from permanently flowing water of streams and rivers, ponds, including beaver ponds, lakes, marshes and cienegas in areas where there is overhanging bank vegetation and haul-out and slide sites for access and where dens can be established in banks in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. It is believed that it formerly inhabited the Black river, Colorado River, Gila River and Salt River. NOTES: Subspecies *sonora* (Rhoads) is the only subspecies reported as occurring in Arizona. The historical presence of the River Otter in Pima County is unknown. *Lontra canadensis lataxina* (Cuvier) was introduced into central Arizona during 1981 - 1983. *8 (recorded as *Lontra canadensis sonora* Rhoads), 14 (051507 - subsp. *sonorae* (Rhoads) and introduced subsp. *lataxina* (Cuvier)), **55** (recorded as *Lutra canadensis* (Schreber) "Formerly in all of the larger permanent river systems; now rare."), 73 (*Lutra canadensis*), 100 (recorded as *Lutra canadensis*, color photograph), 106 (051507 - recorded as *Lontra canadensis* (Schreber)), **118** (recorded as *Lontra canadensis sonora* Rhoads - Distribution: Formerly occurred in the Colorado and Gila rivers and their major tributaries. Today greatly reduced in numbers. Figure 103, Page 242)*

Lutra canadensis (see *Lontra canadensis*)

***Taxidea taxus* (J.C. von Schreber): American Badger**

COMMON NAMES: American Badger, Badger, Badger Tejon (Hispanic). HABITS: Feeds on ground dwelling birds (and eggs), carrion, insects, rodents and snakes. Young are born in dens in underground burrows. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *berlandieri* Schreber), **55** (recorded as *Taxidea taxus* (Schreber). Badger. Statewide (120 - 7,000 feet).), 65, 73, 100 (color photograph), 106 (053006), **118** (recorded as *Taxidea taxus* - Distribution: Statewide. Figure 98, Page 235)*

Phyllostomidae: The Leaf-nosed Bat Family

***Choeronycteris mexicana* Tschudi: Mexican Long-tongued Bat**

COMMON NAMES: Hognose Bat, Hog-nosed Bat, Long-tongued Bat, Mexican Hog-nosed Bat, Mexican Long-tailed Bat, Mexican Long-tongued Bat, Murcielago Lengua Larga Mexicano (Hispanic). HABITS: Feeds on fruits, insects, nectar and pollen. Roosts are located under bridges, and in shallow caves, rock fissures and mine tunnels. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14, 55 (recorded as *Choeronycteris mexicana* Tschudi. Mexican Long-tailed Bat. Uncommon; usually found near the fronts of shallow caves and mine tunnels. Known from Pima, Santa Cruz and Cochise counties.), 73,

92, 100 (color photograph), 106 (053006), **118** (recorded as *Choeronycteris mexicana* Tschudi - Distribution: Known only from the southeastern part of the state. Figure 8, Page 33)*

***Leptonycteris curasoae* subsp. *yerbabuenae* (Martinez & Villa-R.): Southern Long-nosed Bat**

SYNONYMY: *Leptonycteris nivalis sanborni* D.F. Hoffmeister, *Leptonycteris sanborni* (Saussure). COMMON NAMES: Lesser Long-nosed Bat, Little Long-nosed Bat, Mexican Long-nosed Bat, Murcielago de Sanborn (Hispanic), Sanborn's Long-nosed Bat, Sanborn's Southern Long-nosed Bat, Southern Long-nosed Bat. HABITS: The species feeds on insects, nectar, pollen and the nectar and soft-bodied fruits of agaves and cacti. Roosts are located in caves, rock crevices, abandoned mines and tunnels. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Long-nosed bats are pollinators of Agaves, Cardons, Organ Pipe Cacti and Saguaros. *8, 14 (050907 - Populations may be compromised by roost-site disturbance, loss of food sources and direct killing by humans.), 35 (This species is vulnerable to disturbances at roosting sites by cave explorers.), 55 (recorded as *Leptonycteris nivalis* (Saussure). Long-nosed Bat. Locally common in moist caves. Known from Pinal, Pima, Santa Cruz and Cochise Counties.), 92 (recorded as *Leptonycteris sanborni*), 100 (species, recorded as *Leptonycteris curasoae* and *Leptonycteris nivalis*, color photographs), 106 (053006), 110 (*Leptonycteris sanborni*), **118** (recorded as *Leptonycteris nivalis nivalis* (Saussure) - Distribution: Known only from the southeastern part of the state. Figure 9, Page 35)*

Leptonycteris nivalis (see footnote 55 under *Leptonycteris curasoae* subsp. *yerbabuenae*)

Leptonycteris nivalis nivalis (see footnote 118 under *Leptonycteris curasoae* subsp. *yerbabuenae*)

Leptonycteris nivalis sanborni (see *Leptonycteris curasoae* subsp. *yerbabuenae*)

Leptonycteris sanborni (see *Leptonycteris curasoae* subsp. *yerbabuenae*)

***Macrotus californicus* S.F. Baird: California Leaf-nosed Bat**

COMMON NAMES: California Leaf-nosed Bat, Leaf-nosed Bat, Leafnose Bat, Waterhouse's Leaf-nosed Bat, Murcielago de California (Hispanic). HABITS: Feeds on beetles, butterflies, caterpillars, cicadas, crickets, dragonflies, grasshoppers, leafhoppers, moths and other insects. Roosts are located in caves and abandoned mine tunnels. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. ***8**, 14 (050907 - subspp. *californicus* (Audubon & Bachman) and *stephensi* (Dalquest)), **55** (recorded as *Macrotus californicus* Baird. Leaf-nosed Bat. Locally common in shallow caves, mine tunnels and under bridges. Occurs widely at lower elevations in the western and southern parts of the state."), 73, 92, 100 (color photograph), 106 (053006), **118** (recorded as *Macrotus californicus* Baird - Distribution: Known from lower elevations in the southern and western parts of the state. Figure 7, Page 32)*

Procyonidae: The Raccoon and Allies Family

***Bassariscus astutus* (M.H. Lichenstein): Ringtail**

COMMON NAMES: Band-tailed Cat, Cacomistle, Civet Cat, Coon CatGato Minero (Hispanic), Miner's Cat, Ringtail, Ringtail Cat, Ring-tailed Cat. HABITS: Feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (subspp. *arizonensis*; *nevadensis*, and *yumanensis*), 14 (050907 - subspp. *arizonensis* Goldman; *flavus* Rhoads; *nevadensis*, and

yumanensis Huey), **55** (recorded as *Bassariscus astutus* (Lichenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (051107), 118 (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts; *Bassariscus astutus flavus* Rhoads - Distribution: Extreme southeastern part of the state, and *Bassariscus astutus yumanensis* Huey - Distribution: Southwestern Arizona. Figure 93, Page 227)*

***Bassariscus astutus* subsp. *arizonensis* Goldman: Ringtail**

COMMON NAMES: Band-tailed Cat, Cacomistle, Civet Cat, Coon CatGato Minero (Hispanic), Miner's Cat, Ringtail, Ringtail Cat, Ring-tailed Cat. HABITS: The species feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050907), 55 (species: recorded as *Bassariscus astutus* (Lichenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (053106 - species), **118** (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts. Figure 93, Page 227)*

***Nasua narica* (C.H. Merriam): White-nosed Coati**

COMMON NAMES: Antoon, Chula, Chulo, Coati (Indian Name), Coatimundi, El Gato Solo (Los Gatos en Familia), Pizote, White-nosed Coati. HABITS: Feeds on the berries of juniper and manzanita, birds, carrion, eggs, fruits, insects (including among others crickets and grasshoppers) and other invertebrates, prickly pear fruit, lizards, small mammals, nuts, snakes, tubers, worms and yucca fruits. Young are born in dens located in caves, crevices in rocks, mines shafts and cavities among tree roots. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (091008), **55** (recorded as *Nasua narica* (Linnaeus). Coati. In woodland situations in the Graham, Chiricahua, Huachuca, Patagonia and Pena Blanca mountains (5,000 to 7,500 feet).), 65, 73, 100 (color photograph), 106 (053106), **118** (recorded as *Nasua narica pallida* Allen - Distribution: Mountains of southern and southeastern part of the state. Figure 95, Page 230)*

***Procyon lotor* (C. Linnaeus): Common Raccoon**

COMMON NAMES: Common Raccoon, Mexican Raccoon, Northern Raccoon, Raccoon, Racuno (Hispanic). HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (090108 - subspp. *fuscipes* (Mearns); *hirus* (Nelson & Goldman); *mexicanus* (Baird), and *pallidus* (Merriam)), **55** (recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila river systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (053106), 118 (*Procyon lotor* subsp. *mexicanus* Merriam - Distribution: Northern and Western Arizona and *Procyon lotor* subsp. *mexicanus* (Baird) - Distributio: Southeastern Arizona. Figure 94, Page 229)*

***Procyon lotor* subsp. *mexicanus* Baird: Common Raccoon**

COMMON NAMES: Common Raccoon, Mexican Raccoon, Northern Raccoon, Raccoon, Racuno (Hispanic). HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in

cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (090108 - subspp. *fuscipes* (Mearns); *hirus* (Nelson & Goldman); *mexicanus* (Baird), and *pallidus* (Merriam)), 55 (species: recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila River systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet).), 65 (color photograph), 73 (species), 100 (color photograph of species, species record), 106 (053106), **118** (recorded as *Procyon lotor mexicanus* Baird - Distribution: Southeastern Arizona. Figure 94, Page 229)*

Sciuridae: The Squirrel and Allies Family

***Ammospermophilus harrisii* (J.J. Audubon & Bachman): Harris' Antelope Squirrel**

SYNONYMY: *Citellus harrisii* (J.J. Audubon & Bachman). COMMON NAMES: Ardilla de Tierra Harris (Hispanic), Harris Antelope Squirrel, Harris' Antelope Squirrel, Yuma Antelope Squirrel. HABITS: Feeds on fruits, insects, plants and seeds. Dens are located in underground burrows. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (082308), **55** (recorded as *Citellus harrisii* (Audubon & Bachman). Harris Antelope Squirrel. Southern and western parts of the state at elevations below 6,500 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (053106 - genus), **118** (recorded as *Citellus harrisii harrisii* (Audubon & Bachman) - Distribution: Southern and western Arizona except for most of Yuma County. *Citellus harrisii saxicola* (Mearns) - Distribution: Southwestern Arizona. Figure 38, Page 85)*

Citellus harrisii (see *Ammospermophilus harrisii*)

Citellus harrisii subsp. *harrisii* (see footnote 118 under *Ammospermophilus harrisii*)

Citellus harrisii subsp. *saxicola* (see footnote 118 under *Ammospermophilus harrisii*)

Citellus tereticaudus (see *Spermophilus tereticaudus*)

Citellus tereticaudus subsp. *neglectus* (see footnote 118 under *Spermophilus tereticaudus*)

Citellus variegatus (see *Spermophilus variegatus*)

Citellus variegatus subsp. *grammurus* (see *Spermophilus variegatus* subsp. *grammurus*)

***Spermophilus tereticaudus* S.F. Baird: Round-tailed Ground Squirrel**

SYNONYMY: *Citellus tereticaudus* S.F. Baird. COMMON NAME: Round-tailed Ground Squirrel. HABITS: Feeds on buds of burroweed and mesquite, cacti, green vegetation, insects, seeds of creosote bush, mesquite, flowers of ocotillo, paloverde, plantain, and saltbush, observed visiting road kill and taking scavenging Gambel's Quail chicks; nests are made of plant fibers and stems and located in dens in underground burrows. HABITAT: Within the range of this species it has been reported from the desertscrub ecological formation. *14, **55** (recorded as *Citellus tereticaudus* Baird. Round-tailed Ground Squirrel. Lower Sonoran Life-zone of the western part of the state (below 3,200 feet).), 65, 73, 100 (color photograph), 106 (053106 - genus), **118** (recorded as *Citellus tereticaudus neglectus* (Merriam) - Distribution: Lower Sonoran Life Zone of southwestern Arizona. Figure 39, Page 90)*

***Spermophilus variegatus* (Erxleben): Rock Squirrel**

SYNONYMY: *Citellus variegatus* (Erxleben). COMMON NAMES: Ardilla Coluda (Hispanic), Rock Squirrel. HABITS: Feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits,

small mammals, nuts and seeds. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, **55** (recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (053106 - genus), 118 (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82), **WTK** (July 2007)*

***Spermophilus variegatus* subsp. *grammurus* (Erxleben): Rock Squirrel**

SYNONYMY: *Citellus variegatus* subsp. *grammurus* (Say). COMMON NAMES: Ardilla Coluda (Hispanic), Rock Squirrel. HABITS: The species feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits, small mammals, nuts and seeds burrows. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55 (species: recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (053106 - genus), **118** (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82)*

Soricidae: The Shrew Fmaily

***Notiosorex crawfordi* (E. Coues): Crawford's Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew, Crawford's Gray Shrew, Desert Shrew, Gray Shrew, Musarana del Deseirto Crawford (Hispanic). HABITS: Feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *crawfordi* (Coues)), **55** (recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65, 73, 100 (color photograph), 106 (051107), 118 (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30)*

***Notiosorex crawfordi* subsp. *crawfordi* (E. Coues): Crawford's Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew, Crawford's Gray Shrew, Desert Shrew, Gray Shrew, Musarana del Deseirto Crawford (Hispanic). HABITS: The species feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *crawfordi* (Coues)), 55 (species: recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (051107 - species), **118** (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30)*

Tayassuidae: The Javelina Family

Dicotyles tajacu (see *Peccari tajacu*)

Dicotyles tajacu subsp. *sonoriensis* (see *Peccari tajacu* subsp. *sonoriensis*)

Pecari angulatus (see footnote 65 under *Peccari tajacu* and *Peccari tajacu* subsp. *sonoriensis*)

***Peccari tajacu* (C. Linnaeus): Collared Peccary**

SYNONYMY: *Dicotyles tajacu* (C. Linnaeus), *Tayassu tajacu* (C. Linnaeus). COMMON NAMES: Collared Peccary, Jabalina (Hispanic), Javelina, "Musk Hog", Peccary. HABITS: Feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subspp. *angulatus* (Cope) and *sonoriensis* (Mearns)), **55** (recorded as *Tayassu tajacu* (Linnaeus), Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet).), 65 (*Pecari angulatus*), 73 (recorded as *Dicotyles tajacu*), 100 (recorded as *Tayassu tajacu*, color photograph), 106 (051107 - recorded as *Tayassu tajacu*), 118 (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), **WTK** (2005, July 26, 2009, 0120 2Lg (M&F?)&1Sm)*

***Peccari tajacu* subsp. *sonoriensis* (Mearns): Collared Peccary**

SYNONYMY: *Dicotyles tajacu* subsp. *sonoriensis* (Mearns), *Tayassu tajacu* subsp. *sonoriensis* (Mearns). COMMON NAMES: Collared Peccary, Jabalina (Hispanic), Javelina, "Musk Hog", Peccary. HABITS: The species feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *sonoriensis* (Mearns)), 55 (species: recorded as *Tayassu tajacu* (Linnaeus). Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet).), 65 (species: recorded as *Pecari angulatus*), 73 (species: recorded as *Dicotyles tajacu*), 100 (species, recorded as *Tayassu tajacu*, color photograph of species), 106 (051107 - species: recorded as *Tayassu tajacu*), **118** (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249)*

Tayassu tajacu (see *Peccari tajacu*)

Tayassu tajacu subsp. *sonoriensis* (see see *Peccari tajacu* subsp. *sonoriensis*)

Ursidae: The Bear Family

Euarctos americanus (see *Ursus americanus*)

Euarctos americanus subsp. *amblyceps* (see *Ursus americanus* subsp. *amblyceps*)

***Ursus americanus* P.S. von Pallas: Black Bear**

SYNONYMY: *Euarctos americanus* (P.S. von Pallas). COMMON NAMES: American Black Bear, Black Bear, Cinnamon Bear, Oso Negro (Hispanic). HABITS: Feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp.

amblyceps (Baird)), **55** (recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73, 100 (color photograph), 106 (050907 - includes a listing of subspecies and their distribution), 118 (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224)*

***Ursus americanus* subsp. *amblyceps* (Baird): Black Bear**

SYNONYMY: *Euarctos americanus* subsp. *amblyceps* (Baird). COMMON NAMES: American Black Bear, Black Bear, Cinnamon Bear, Oso Negro (Hispanic). HABITS: The species feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050907 - subsp. *amblyceps* (Baird)), 55 (species: recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73 (species), 100 (species, color photograph of species), 106 (050907 - includes a listing of subspecies and their distribution), **118** (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224)*

***Ursus arctos* subsp. *horribilus* Ord: Grizzly Bear**

SYNONYMY: *Ursus horribilus* Ord. COMMON NAMES: Apache Grizzly, Arizona Grizzly, Grizzly Bear, Navajo Grizzly, New Mexico Grizzly, Oso Gris (Hispanic), Silvertip Bear, Sonora Grizzly, Texas Grizzly. HABITS: The species feeds on berries, carrion, fish (bass, salmon, trout), fungi, grasses, insects (Army Cutworm moths), leaves, large mammals (Bison, Black Bear, Caribou, Deer, Elk, Moose, Mountain Goats) and small mammals (rodents), nuts (Whitebark Pine nuts), roots and sprouts. The Grizzly Bear beds down in depressions in thickets. Dens are excavated from under rocks or located in caves, crevices or hollow trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The last confirmed "kill" in Arizona was made on the slopes of Mount Baldy (Apache County) in the summer of 1939. Grizzly Bears were killed-off by American immigrants because of the risks posed to humans and livestock. The Grizzly Bear has been EXTIRPATED from Arizona. *14 (050907 - *Ursus arctos* subspp. *horriaeus* (Baird) and *perturbans* (Merriam)), **39** (*Ursus horribilus* - included the following note when referring to Grizzly Bears in the Tucson Area "Jack O'Connor told us of a kill in the Catalinas in 1915. Up until 1912, there were quite a few grizzly bears in the Catalinas and also the Galiuros. The Santa Cruz River bottom was a favorite hangout of these bears, all the way from Nogales to the Tucson area. We have a few authentic reports of desert grizzlies, but Jack talked with some old timers who hunted them in the river bottom." The following dates of last known "kills" were provided: Arizona on September 13, 1935 (however, there was a possible sighting in 1936); California in August 1922; New Mexico has two "last" kills one in the spring of 1923 and the other in 1933; Texas on November 2, 1890, and Utah on August 22, 1923. A grizzly bear was killed in the Sierra del Pinitos in Sonora Mexico, a few miles southeast of Nogales, Arizona, on June 18, 1955. This booklet included the listing of six subspecies taken in Arizona: *Ursus horribilus apache*, the Apache Grizzly; *Ursus horribilus arizonae-merriam*, the Arizona Grizzly; *Ursus horribilus baird*, the New Mexico Grizzly; *Ursus horribilus kennerlyi*, the Sonora Grizzly; *Ursus horribilus navajo*, the Navajo Grizzly, and *Ursus horribilus texensis*, the Texas Grizzly), **40** (*Ursus arctos* - Grizzly Bears were historically present in the Rincon and Santa Catalina Mountains and along the Santa Cruz River bottom from Nogales to Tucson), 55 (*Ursus horribilus* Ord. Grizzly Bear. Formerly throughout the mountainous areas of the state, now extinct in Arizona.), 73 (*Ursus horribilus*), 100 (species: *Ursus arctos*, color photograph), 106 (051207 - *Ursus arctos* subsp. *horribilus* Ord), **118** (*Ursus horribilus* - Distribution: Formerly statewide, now extinct in Arizona. Figure 92, Page 225)*

Ursus arctos (see footnotes 14 and 100 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus (see *Ursus arctos* subsp. *horribilus*)

Ursus horribilus apache (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus arizonae-merriam (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus baird (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus kennerlyi (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus navajo (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Ursus horribilus texensis (see footnote 39 under *Ursus arctos* subsp. *horribilus*)

Vespertilionidae: The Plain-nosed Bat Family

***Antrozous pallidus* (J.L. Le Conte): Pallid Bat**

COMMON NAMES: Murcielago Palid (Hispanic), Pallid Bat. HABITS: Feeds on flightless arthropods on the ground, insects, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, 55 (recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73, 92 (color photograph), 100 (color photograph), 106 (053106), 118 (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60)*

***Antrozous pallidus* subsp. *pallidus* (J.L. Le Conte): Pallid Bat**

COMMON NAMES: Murcielago Pallid (Hispanic), Pallid Bat. HABITS: The species feeds on flightless arthropods on the ground, insects, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, 55 (species: recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (053106 - species), 118 (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60)*

Corynorhinus townsendii (see *Plecotus townsendii*)

Corynorhinus townsendii subsp. *pallescens* (see *Plecotus townsendii* subsp. *pallescens*)

Dasypterus ega (see *Lasiurus xanthinus*)

***Eptesicus fuscus* (Palisot de Beauvois): Big Brown Bat**

COMMON NAMES: Big Brown Bat, Murcielago Cafe' Grande (Hispanic). HABITS: The species feeds on insects. Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 55 (recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73, 92

(color photograph), 100 (color photograph), 106 (053106), 118 (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52)*

***Eptesicus fuscus* subsp. *pallidus* (Young): Big Brown Bat**

COMMON NAMES: Big Brown Bat, Murcielago Cafe' Grande (Hispanic). HABITS: The species feeds on insects. Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14, 55 (species: recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (053106 - species), **118** (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52)*

***Euderma maculatum* (J.A. Allen): Spotted Bat**

COMMON NAMES: Death's Head Bat, Jackass Bat, Murcielago Pinto (Hispanic), Pinto Bat, Spotted Bat. HABITS: Feeds on insects. Roosts in cracks and crevices in caves, cliffs and ledges, and under loose rock in rocky situations, possibly in close proximity to water. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This bat is rarely encountered. Riparian habitats seem to be important. *8, 14 (053007), 55 (recorded as *Euderma maculata* (J.A. Allen). Spotted Bat. Extremely rare; known from four specimens, Maricopa and Yuma counties.), 73, 92, 100 (color photograph), 106 (072306), **118** (recorded as *Euderma maculata* (J.A. Allen) - Distribution: Can be expected almost anywhere in the state although recorded from only four localities. Figure 23, Page 57)*

***Lasionycteris noctivagans* (J.L. Le Conte): Silver-haired Bat**

COMMON NAMES: Murcielago Plateado (Hispanic), Silver-haired Bat. HABITS: Feeds on caddis flies, flies, moths and other insects. Uncommon tree dwelling bat found under bark, in bird nests, dead trees, fissures in rock ledges, tree hollows, and woodpecker holes. HABITAT: Wthin the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14, 55 (recorded as *Lasionycteris noctivagans* (Le Conte). Silver-haired Bat. Uncommon solitary tree-dwelling bat found throughout the state at elevations above 5,000 feet), 73, 92 (color photograph), 100 (color photograph), 106 (053106 - family), **118** (recorded as *Lasionycteris noctivagans* (Le Conte) - Distribution: Probably statewide, at least during certain seasons of the year. Figure 18, Page 48)*

***Lasiurus blossevillii* (Müller): Western Red Bat**

SYNONYMY: *Lasiurus borealis teliotis* (H. Allen). COMMON NAMES: Desert Red Bat, Murcielago Rojo (Hispanic), Red Bat, Western Red Bat. HABITS: Feeds on insects including ants; beetles, bugs, cicadas, crickets, flies, leafhoppers, moths and plant hoppers among others. Roosts in the foliage of herbs, shrubs and trees, saguaro boots and sometimes under leaf litter on the ground or in cave-like situations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: The Red Bat feeds on moths including many crop pests. In Arizona this bat is associated with riparian corridors and wooded areas. *8, 14 (120908), 55 (recorded as *Lasiurus borealis* (Muller). Red Bat. Uncommon solitary tree bat throughout the state in the region of trees.), 73 (recorded as *Lasiurus borealis*), 92 (recorded as *Lasiurus borealis*, color photograph), 100 (recorded as *Lasiurus borealis*, color photograph), 106 (120908), **118** (recorded as *Lasiurus borealis teliotis* (H. Allen) - Distribution: Probably statewide in riparian communities of the Upper Sonoran and Transitional Life Zones. Figure 21, Page 54)*

Lasiurus borealis teliotis (see *Lasiurus blossevillii*)

***Lasiurus cinereus* (Palisot de Beauvois): Hoary Bat**

COMMON NAMES: Hoary Bat, Murcielago (Hispanic). HABITS: Feeds primarily on moths. Roosts in buildings, caves, mines, in dense foliage in shrubs and trees and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (091308 - *Lasiurus cinereus cinereus* (Palisot de Beauvois)), **55** (recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73, 92 (color photograph), 100 (color photograph), 106 (genus - 053106), 118 (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55)*

***Lasiurus cinereus* subsp. *cinereus* (Palisot de Beauvois): Hoary Bat**

COMMON NAMES: Hoary Bat, Murcielago (Hispanic). HABITS: Feeds primarily on moths. Roosts in buildings; caves; mines; in dense foliage in shrubs and trees, and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (091308 - *Lasiurus cinereus cinereus* (Palisot de Beauvois)), 55 (species: recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73, 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (053106 - genus), **118** (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55)*

Lasiurus ega (see *Lasiurus xanthinus*)

Lasiurus ega subsp. *xanthinus* (see *Lasiurus xanthinus*)

***Lasiurus xanthinus* (Thomas): Western Yellow Bat**

SYNONYMY: *Dasypterus ega* (Gervais), *Lasiurus ega*, *Lasiurus ega* subsp. *xanthinus*. COMMON NAMES: Murcielago Amarillo (Hispanic), Southern Yellow Bat, Western Yellow Bat, Yellow Bat. HABITS: Feeds on flying insects. Roosts in shrubs, trees and under vines. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14 (072606), **55** (recorded as *Dasypterus ega* (Gervais). Yellow Bat. Rare; known only from two specimens from Tucson.), 73, 92 (color photograph), 100, 106 (072606 - genus with a listing of species)*

***Myotis californicus* (J.J. Audubon & Bachman): California Myotis Bat**

COMMON NAMES: California Bat, California Myotis, California Myotis Bat, Murcielago de California (Hispanic). HABITS: Feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Myotis californicus* N. Miller), 14 (051007 - subspp. *californicus* (Audubon & Bachman) and *stephensi* (Dalquest)), **55** (recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73, 100 (color photograph), 106 (053106 - genus), 118 (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona, and *Myotis californicus stephensi* Dalquest - Distribution: Northern and western part of the state. Figure 16, Page 45)*

***Myotis californicus* (J.J. Audubon & Bachman) subsp. *californicus*: California Myotis Bat**

COMMON NAMES: California Bat, California Myotis, California Myotis Bat, Murcielago de California (Hispanic). HABITS: The species feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (species: recorded as *Myotis californicus* N. Miller), 14 (051007 - subspp.

californicus (Audubon & Bachman) and stephensi (Dalquest)), 55 (species: recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (053106 - genus), **118** (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona. Figure 16, Page 45)*

***Myotis velifer* (J.A. Allen): Cave Myotis Bat**

COMMON NAMES: Cave Bat, Cave Myotis, Cave Myotis Bat, Mexican Brown Bat, Murcielago de Cueva (Hispanic), Southwestern Cave Myotis. HABITS: Feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. ***8** (recorded as *Myotis velifer velifer* J.A. Allen), 14 (091308 - subspp. *brevis* (Vaughan) and *incautus* (J.A. Allen), subsp. *grandis* (Hayward) has also been reported), **55** (recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73, 92, 100 (color photograph), 106 (053106 - genus), 118 (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37)*

***Myotis velifer* subsp. *brevis* Vaughan: Cave Myotis Bat**

COMMON NAMES: Cave Bat, Cave Myotis, Cave Myotis Bat, Mexican Brown Bat, Murcielago de Cueva (Hispanic), Southwestern Cave Myotis. HABITS: The species feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (051007), 55 (species: recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (053106 - genus), **118** (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37)*

***Myotis yumanensis* (H. Allen): Yuma Myotis Bat**

COMMON NAMES: Murcielago de Yuma (Hispanic), Yuma Myotis, Yuma Myotis Bat. HABITS: Feeds on small insects. Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (072306 - subsp. *yumanensis*), **55** (recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73, 100 (color photograph), 106 (072306 - genus with a listing of species), 118 (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36)*

***Myotis yumanensis* subsp. *yumanensis* (H. Allen): Yuma Myotis Bat**

COMMON NAMES: Murcielago de Yuma (Hispanic), Yuma Myotis, Yuma Myotis Bat. HABITS: Feeds on small insects. Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (072306 - subsp. *yumanensis*), 55 (species: recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73 (species), 100 (species, color photograph of species), 106 (072306 - genus, listing of species), **118** (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36)*

***Pipistrellus hesperus* (H. Allen): Western Pipistrelle Bat**

COMMON NAMES: Canyon Bat, Flittermouse, Murcielago del Poniente (Hispanic), Western Pipistrelle, Western Pipistrelle Bat. HABITS: Feeds on insects. Roosts in buildings, crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (recorded as *Pipistrellus hesperus* N. Miller), 14 (051007 - subspp. *hesperus* (H. Allen) and *maximus* (Hatfield)), **55** (recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73, 100 (color photograph), 106 (053106 - genus), 118 (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona, and *Pipistrellus hesperus hesperus* (H. Allen) - Distribution: Northern and western Arizona. Figure 19, Page 49)*

***Pipistrellus hesperus* (H. Allen) subsp. *apus* Elliot: Western Pipistrelle Bat**

COMMON NAMES: Canyon Bat, Flittermouse, Murcielago del Poniente (Hispanic), Western Pipistrelle, Western Pipistrelle Bat. HABITS: Feeds on insects. Roosts in buildings, crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (species: recorded as *Pipistrellus hesperus* N. Miller), 14 (051007), 55 (species: recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (053106 - genus), **118** (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona. Figure 19, Page 49)*

***Plecotus townsendii* (Cooper): Pale Townsend's Big-eared Bat**

SYNONYMY: (*Corynorhinus townsendii* subsp. *pallescens* (Frost)). COMMON NAMES: Lump-nosed Bat, Mule-eared Bat, Murcielago de Townsend (Hispanic), Pale Townsend's Big-eared Bat, Western Big-eared Bat, Western Long-eared Bat, Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves. *14 (053007), **55** (recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73, 92 (color photograph), 100 (color photograph), 118 (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58)*

***Plecotus townsendii* subsp. *pallescens* (Miller): Pale Townsend's Big-eared Bat**

SYNONYMY: *Corynorhinus townsendii* subsp. *pallescens* (Frost). COMMON NAMES: Lump-nosed Bat, Mule-eared Bat, Murcielago de Townsend (Hispanic), Pale Townsend's Big-eared Bat, Western Big-eared Bat, Western Long-eared Bat, Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves. *14 (053007), 55 (species: recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), **118** (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58)*

CLASS OSTEICHTHYES: The BONY FISHES

Catostomidae: The Sucker Family

***Catostomus clarki* (S.F. Baird & C.F. Girard): Desert Sucker**

SYNONYMY: *Pantosteus clarki* (S.F. Baird & C.F. Girard). COMMON NAMES: Desert Sucker, Gila Mountain Sucker, Gila Sucker. HABITS: Bottom feeders feeding on diatoms, filamentous green algae, insects and plant detritus. Eggs are deposited in flowing water. HABITAT: Lives in small to medium rivers and streams, flowing pools, rapids and riffles. ***8**, 14, 55, 61, 67, 73*

***Catostomus insignis* S.F. Baird & C.F. Girard: Sonora Sucker**

COMMON NAMES: Gila Sucker, Sonora Sucker. HABITS: Bottom feeder feeding on algae, crustaceans, insect larvae, mud, plant debris, protozoans and the seeds of cottonwood trees. Eggs are deposited in riffles. HABITAT: Lives in deep, quiet parts of creeks and small to medium rivers and around gravelly or rocky pools. ***8**, 14, 55, 61, 67, 73*

Pantosteus clarki (see *Catostomus clarki*)

Cyprinidae: The Minnow Family

***Agosia chrysogaster* (C.F. Girard): Longfin Dace**

COMMON NAME: Longfin Dace. HABITS: Feeds on algae, crustaceans, detritus, filamentous algae, insects and zooplankton. Eggs are laid in nests made in shallow depressions on stream bottoms. HABITAT: The Longfin Dace lives in shallow and sandy rocky runs, clear and cool mountain brooks, flowing pools of creeks, gravelly and sandy streams and small to medium rivers. *8, 14, 55, 61, 67, 73, **78**, **ADS** (Sunday, August 1, 2010, Section B, Page 6, Report: Native fish return to Santa Cruz)*

***Gila intermedia* (S.F. Baird & C.F. Girard): Gila Chub**

SYNONYMY: *Gila robusta* (S.F. Baird & C.F. Girard) subsp. *intermedia* (Baird & Girard). COMMON NAME: Gila Chub. HABITS: Feeds on algae, fishes and insects. Eggs are laid over submerged aquatic vegetation. HABITAT: Lives in deep pools of slow velocity water, small creeks, streams and cienegas, pool habitats of small streams and springs and artificial impoundments. *8, 14, 55, 61, 73, **78** (occurred in or near the west branch of the Santa Cruz River at Tucson)*

Gila robusta subsp. *intermedia* (see *Gila intermedia*)

Cyprinodontidae: The Killfish Family

***Cyprinodon macularius* (S.F. Baird & C.F. Girard) subsp. *macularis*: Desert Pupfish**

COMMON NAMES: Desert Pupfish, Quitobaquito Desert Pupfish. HABITS: Feeds on algae, detritus, insects and aquatic plants. Eggs are laid randomly (within an area defended by the male). HABITAT: Lives in the shallow water of springs, small streams and marshes, backwaters and slow moving parts of creeks and small streams and lakes. NOTES: Subspecies *macularis* is EXTIRPATED from Arizona and from most of its natural range. *8, 14 (072306), 35, 55 (species), 61, 67, 73 (species), **78** (occurred in or near the west branch of the Santa Cruz River at Tucson), 106 (072306 - family with a listing of genus and species)*

Poeciliidae: The Topminnow Family

***Gambusia affinis* (S.F. Baird & C.F. Girard) (subsp. *affinis* is the subspecies reported as occurring in Arizona): Western Mosquitofish**

COMMON NAMES: Mosquitofish; Western Mosquitofish. HABITS: Feeds on algae, crustaceans, diatoms, fish fry, insect larvae and zooplankton. Eggs are brooded by the female until hatching the young are then born live in warm, shallow standing or slow moving waters with some aquatic or submerged vegetation. HABITAT: Lives in brackish water and clear vegetated water, marshes, ponds, pools, springs, stream margins in backwater and side pool areas and stock tanks. NOTES: Introduced EXOTIC, poses a significant threat to native species. *55, 61, 67, 73, **78**, 106 (060106), 109*

***Poeciliopsis occidentalis* (S.F. Baird & C.F. Girard) subsp. *occidentalis*: Gila Topminnow**

COMMON NAMES: Gila Topminnow, Sonoran Topminnow. HABITS: Feeds on algae, bottom debris, crustaceans, detritus, insects and plants. The eggs are fertilized in the female where the young develop and then born live. HABITAT: Lives in marshes, ponds and springs, the vegetated backwaters and shallows of rivers and streams and margins of larger bodies of water. ***8**, 35, 55 (species), 61, 67, 73 (species), **78** (occurred in or near the west branch of the Santa Cruz River at Tucson), 106 (060106 - family)*

CLASS REPTILIA: The REPTILES

Colubridae: The Colubrid Family

***Tantilla hobartsmithi* (Taylor): Southwestern Blackhead Snake**

SYNONYMY: *Tantilla planiceps* H.M. de Blainville. COMMON NAMES: Southwestern Black-headed Snake, Southwestern Blackhead Snake, Western Black-headed Snake. HABITS: Feeds on caterpillars, insects, centipedes and millipedes. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A mildly venomous snake. Arizona's native rear-fanged of species of Colubrid Snakes are not considered to be dangerous to man. *14, 54 (genus), 73, **78**, 87, 106 (010807 - genus with a listing of species)*

Tantilla planiceps (see *Tantilla hobartsmithi*)

Gekkonidae: The Gecko Family

***Coleonyx variegatus* (S.F. Baird) subsp. *bogerti* (Klauber): Western Banded Gecko**

COMMON NAMES: Banded Gecko, Tucson Banded Gecko, Western Banded Gecko. HABITS: Feeds on insects and spiders. Takes shelter in rodent burrows, under rocks and under plant debris. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 37 (species), 55 (species), 73, **78**, 87, 106 (060306 - genus)*

Phrynosomatidae: The Horned Lizard Family

***Callisaurus draconoides* (H.M. de Blainville): Arizona Zebratail Lizard**

COMMON NAMES: Arizona Zebratail Lizard, Zebra-tailed Lizard. HABITS: Feeds on insects, lizards, plant material and spiders. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *14 (072306 - subsp. *ventralis*), 37, 55, 73, **78**, 87, 106 (072306 - genus with a listing of species)*

***Holbrookia maculata* (C.F. Girard): Lesser Earless Lizard**

COMMON NAMES: Lesser Earless Lizard, Northern Earless Lizard, Speckled Earless Lizard, Western Earless Lizard. HABITS: Feeds on insects, small lizards and spiders. Takes shelter in underground burrows, under rocks or by burying themselves in loose gravel and sand. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87, 106 (060306 - genus)*

***Phrynosoma solare* (Gray): Regal Horned Lizard**

COMMON NAME: Regal Horned Lizard. HABITS: Feeds on harvester ants, beetles and other insects. Takes shelter by burrowing themselves in loose soil. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87, 106 (060306 - genus)*

***Sceloporus clarkii* (S.F. Baird & C.F. Girard): Clark's Spiny Lizard**

COMMON NAMES: Clark's Spiny Lizard, Sonora Spiny Lizard, Sonoran Spiny Lizard, Spiny Lizard. HABITS: Feeds on insects and plant material including buds, flowers and leaves. Takes shelter in underground burrows and on rocks and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072306 - subsp. *clarkii*), 37, 55, 73, **78**, 87, 106 (060306 - genus)*

***Sceloporus magister* (E. Hallowell): Desert Spiny Lizard**

COMMON NAMES: Desert Spiny Lizard, Orangehead Spiny Lizard, Twin-spotted Spiny Lizard, Yellowback Spiny Lizard. HABITS: Feeds on ants, beetles and other insects, lizards, and plant materials including berries, buds, flowers and leaves. Takes shelter in rodent burrows, crevices, under logs, under rocks, on trees, in clumps of vegetation and in woodrat nests. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14, 55, 73, **78**, 87, 106 (060306)*

***Urosaurus ornatus* (S.F. Baird & C.F. Girard): Northern Tree Lizard**

COMMON NAMES: Big Bend Tree Lizard, Canyon Tree Lizard, Lined Tree Lizard, Northern Tree Lizard, Ornate Tree Lizard, Tree Lizard. HABITS: Feeds on insects and spiders; takes shelter in rock crevices, under slabs of rock and in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87, 106 (060306), **WTK** (July 2, 2009 - M)*

Teiidae: The Whiptail and Allies Family

***Aspidoscelis burti* subsp. *stictogrammus* (Burger): Giant Spotted Whiptail**

SYNONYMY: *Cnemidophorus burti* (Taylor) subsp. *stictogrammus*. COMMON NAME: Giant Spotted Whiptail. HABITS: The species feeds on insects, scorpions and spiders. Takes shelter in underground burrows, piles of debris and under rocks. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. ***8**, 14 (species), 55 (species), 73 (species), **78**, 87, 106 (060306 - genus)*

***Aspidoscelis sonorae* (C.H. Lowe & Wright): Sonoran Spotted Whiptail**

SYNONYMY: *Cnemidophorus sonorae* (Lowe & Wright). COMMON NAMES: Sonoran Spotted Whiptail. HABITS: Feeds on centipedes, insects, other lizards, scorpions, spiders and termites. Takes shelter in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, desertscrub and wetland ecological formations. *14, **78**, 87, 106 (060306 - genus)*

***Aspidoscelis tigris* (S.F. Baird & C.F. Girard): Western Whiptail**

SYNONYMY: *Cnemidophorus tigris* (S.F. Baird & C.F. Girard). COMMON NAMES: Arizona Desert Whiptail, Eastern Marbled Whiptail, Marbled Whiptail, Northern Whiptail, Southern Whiptail, Western Marbled Whiptail, Western Whiptail. HABITS: Feeds on insects, lizards, scorpions and spiders; takes shelter in bushes and underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14, 37, 55, 73, **78**, 87, 106 (060306)*

Cnemidophorus burti subsp. *stictogrammis* (see *Aspidoscelis burti* subsp. *stictogrammus*)

Cnemidophorus sonorae (see *Aspidoscelis sonorae*)

Cnemidophorus tigris (see *Aspidoscelis tigris*)

Testudinidae: The Land Tortoise Family

***Gopherus agassizi* (J.G. Cooper) - Sonoran Population (also spelled *G. agassizii*): Sonoran Desert Tortoise**

COMMON NAMES: Desert Tortoise, Sonoran Desert Tortoise. HABITS: Feeds on cacti, forbs, grasses, Slender Janusia and other plants and plant materials. Takes shelter in underground burrows, caliche caves located along washes and crevices. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. ***8**, 14, 37, 55, 73, 87, 106 (060306)*

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FOOTNOTES and REFERENCES
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(3) Soils Mapping:

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(4) Biotic Communities Mapping and Definitions

Ecological formations used in the listings follow those presented in the mapping for the Biotic Communities of the Southwest.

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(6) Growth Habits of Plants:

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(7) Arid Zone Trees, A Resource for Landscape Professionals, dedicated to providing quality trees to the Landscape Industries that are appropriate to the Desert Southwest
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Arachnids: 2004. *Albiorix anophthalmus*, a cave obligate Pseudoscorpion.

Birds: 2003. *Accipiter gentilis*, American Goshawk; 2003. *Aimophila quinquestriata*, Five-striped Sparrow; 2002. *Aimophila ruficeps* subsp. *rupicola*: Yuma Rufous-crowned Sparrow; 2001. *Ammodramus bairdii*, Baird's Sparrow; 2001. *Ammodramus savannarum* subsp. *ammolequs*, Arizona Grasshopper Sparrow; 2001. *Anthus spragueii*, Sprgaue's Pipit; 2002. *Aquila chrysaetos*, Golden Eagle; 2000. *Asturina nitida*, Northern Grey Hawk; 2001. *Athene cunicularia* subsp. *hypugaea*, Western Burrowing Owl; 2001. *Buteo regalis*, Ferruginous Hawk; 2001. *Buteo swainsoni*, Swainson's Hawk; 2005. *Buteogallus anthracinus*, Common Black-hawk; 2003. *Caracara cheriway*, Crested Caracara; 2002. *Ceryle alcyon*, Belted Kingfisher; 2001. *Chloroceryle americana*, Green Kingfisher; 2002. *Coccyzus americanus* subsp. *occidentalis*, Western Yellow-billed Cuckoo; 2001-08-27. *Colinus virginianus* subsp. *ridgwayi*, Masked Bobwhite; 2002. *Dendrocygna autumnalis*, Black-bellied Whistling-duck; 2001. *Dendrocygna bicolor*, Fulvous Whistling-duck; 2002. *Dolichonyx oryzivorus*, Bobolink; 2002. *Egretta thula*, Snowy Egret; 2002. *Elanus leucurus*, White-tailed Kite; 2003 *Empidonax fulvifrons* subsp. *pygmaeus*, Northern Buff-breasted Flycatcher; 2003. *Empidonax hammondii*, Hammond's Flycatcher; 2002. *Empidonax traillii* subsp. *extimus*, Southwestern Willow Flycatcher; 1998. *Falco peregrinus* subsp. *anatum*, American Peregrine Falcon; 2001. *Glaucidium brasilianum* subsp. *cactorum*, Cactus Ferruginous Pigmy-owl; 2002. *Haliaeetus leucocephalus*, Bald Eagle; 2004. *Lanius ludovicianus*, Loggerhead Shrike; 2005. *Otus flammeolus*, Flammulated Owl; 2002. *Pandion haliaetus*, Osprey; 2002. *Plegadis chihi*, White-faced Ibis; 2002. *Polioptila nigriceps*, Black-capped Gnatcatcher; 2001. *Rallus longirostris* P. Boddaert subsp. *yumanensis*, Yuma Clapper Rail; 2002. *Setophaga ruticilla*, American Redstart; 2005. *Strix occidentalis* subsp. *lucida*, Mexican Spotted Owl; 2001. *Trogon elegans*, Elegant Trogon; 2003. *Tyrannus melancholicus*, Tropical Kingbird, and 2002. *Vireo bellii* subsp. *arizonae*, Arizona Bell's Vireo.

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(AHS) Arizona Historical Society

(ANN) Anonymous

(JFW) John F. Wiens

(MBJ) Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum

(PCM) Personal Communication (Date)

(PDJ) Philip D. Jenkins, Assistant Curator of the University of Arizona Herbarium

(RGM) G. Meades

(TBL) Township Bird Listing

(WTK) William T. Kendall

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