# *Le Jardin de Mère Nature dans une Petite Planète*

(Mother Nature's Garden on a Small Planet)

a SPECIES DISTRIBUTION LISTING for

## TOWNSHIP 11 SOUTH, RANGE 08 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

Looking southeast toward Ragged Top.
William T. Kendall, May 9, 2005

"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

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

John F. Wiens, Vascular Plants of Ragged Top, compiled by from 1987 - 2000, The Arizona Native Plant Society, Plant Press, Volume 25 Number 1, Spring 2001 *102*.

Township Bird Listing T11S/R08E Bird List, Created by Cindy Coping in collaboration with the Pima Natural Resource Conservation District *TBL*

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)*

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 ($1^{st}$-$10^{th}$), mid-month ($11^{th}$-$20^{th}$) and late month ($21^{st}$-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.

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Acknowledgements

Footnotes and References for the Species Distribution Listings

## TOWNSHIP NOTES

LOCATION: This township is located in north-central Pima County in south-central Arizona. This township is bounded on the north by the Pima / Pinal County Line. Portions of this township are located within the Ironwood Forest National Monument. The historic site of Silverbell is located in this township.

Historic Ranching Activities: General ranching activities included the placement of corrals, stock tanks and windmills.

Historic Mining Activities: General mining activities included mining and prospecting. Historic mine: the BS&K mine.

LANDMARKS: The northern portion of the Silver Bell Mountains is located in the south half of this township. The southwest end of the Samaniego Hills is located in the northeast corner of the township.

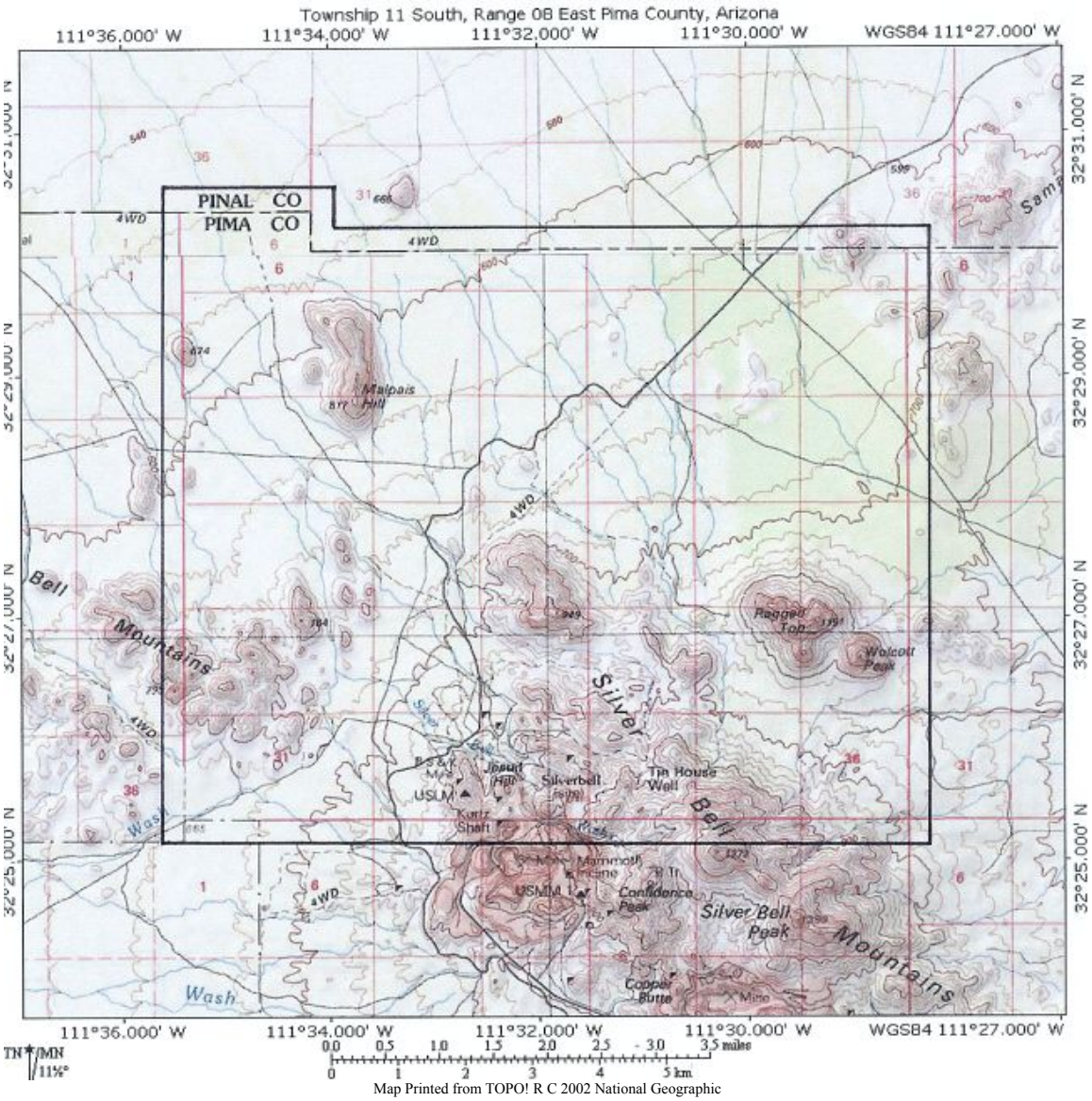
Named peaks in the township include: Jesuit Hill, Malpais Hill (2,682 feet), Quartzite Peak, Ragged Top (3,907 feet) and Wolcott Peak (3,327 feet). Named washes include the El Tiro Wash and Silver Bell Wash.

ELEVATION: Elevations range from approximately 1,825 feet at the northwest corner to approximately 3,907 feet at Ragged Top located in the southeast quarter (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 Hyperthermic (very hot) Arid Soils (soils with mean annual soil temperatures of more than 72 degrees Fahrenheit (22 degrees Centigrade) and less than 10 inches (25 cm) mean annual precipitation) of the Gilman-Antho-Valencia Association (deep soils on floodplains and alluvial fans), Gunsight-Rillito-Harqua Association (deep, gravelly, calcareous soils on the upper slopes) and the Rock Outcrop-Lomitas-Cherioni Association (rock outcrops and very shallow, and shallow soils on low hills and mountains), and 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 Pinaleno-Nickel-Palos Verdes Association (deep, arid, gravelly soils on deeply dissected 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

LISTED 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)

Saguaro (*Carnegiea gigantea* - 5’ to 60’)
Velvet Mesquite (*Prosopis velutina* - 2’ to 56’)
Blue Paloverde (*Parkinsonia florida* - 40” to 40’)
Desert Ironwood (*Olneya tesota* - 10’ to 33’)

Ocotillo (*Fouquieria splendens* - 5’ to 33’)
Foothill Paloverde (*Parkinsonia microphylla* - 40” to 26’)
Catclaw Acacia (*Acacia greggii* var. *greggii* - 40” to 25’)
Desert Olive (*Forestiera shrevei* - 40” to 25’)
Sonoran Scrub Oak (*Quercus turbinella* - 10” to 25’)
Garambullo (*Pisonia capitata* - 8’to 23’)
Desert Hackberry (*Celtis ehrenbergiana* - 3’ to 20’)
Rosary Babybonnets (*Coursetia glandulosa* - 3’ to 20’)
Bitter Snakewood (*Condalia globosa* var. *pubescens* - 2’ to 20’)
Whitethorn Acacia (*Acacia constricta* - 1’ to 20’)
Sonora Rosewood (*Vauquelinia californica* subsp. *sonorensis* - 5’ to 17’)
Longleaf Joint-fir (*Ephedra trifurca* - 20” to 16½’)
Chain-fruit Cholla (*Cylindropuntia fulgida* var. *fulgida* - 3’ to 15’)
Desert Lavender (*Hyptis emoryi* - 8” to 15’)
Greythorn (*Ziziphus obtusifolia* var. *canescens* - 3’ to 13’)
Kearney Snakewood (*Condalia warnockii* var. *kearneyana* - 20” to 13’)
Creosote Bush (*Larrea tridentata* var. *tridentata* - 20” to 13’)
Fremont Lycium (*Lycium fremontii* - 20” to 13’)
Jojoba (*Simmondsia chinensis* - 8” to 13’)
Fishhook Barrel Cactus (*Ferocactus wislizeni* - 1’ to 11’)
Desert Broom (*Baccharis sarothroides* - 3’ to 10’)
Pancake Pricklypear Cactus (*Opuntia chlorotica* - 2’ to 10’)
Teddybear Cholla (*Cylindropuntia bigelovii* - 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’)
Arizona Yucca (*Yucca* x *schottii* (pro sp.) [*baccata* x *elata*] - trunkless to 10’) - do not confuse this species with the Schott or Mountain Yucca (*Yucca schottii* now considered to be *Yucca madrensis*)
Resinleaf Brickellbush (*Brickellia baccharidea* - 18” to 8¼”)
Parish Goldeneye (*Viguiera deltoidea* var. *parishii* - 16” to 8¼’)
Desert Honeysuckle (*Anisacanthus thurberi* - 3’ to 8’)
Ragged Rockflower (*Crossosoma bigelovii* - 20” to 8’)
Desert Pricklypear Cactus (*Opuntia engelmannii* var. *engelmannii* - 20” to 8’)
Fourwing Saltbush (*Atriplex canescens* var. *canescens* - 1’ to 8’)

## Vines and Climbers

Drummond Clematis (*Clematis drummondii* - 10’ to 40’)
Fingerleaf Gourd (*Cucurbita digitata* - 3’ to 40’)
Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum* - 20” to 20’)
Schott Yellowhood (*Nissolia schottii* - 9’ to 16’)
Scarlet Creeper (*Ipomoea cristulata* - 8” to 11½’)
Slender Janusia (*Janusia gracilis* - 16” to 10’)
Tepary Bean (*Phaseolus acutifolius* var. *latifolius* - 6” to 10’)
Climbing Plumbago (*Plumbago scandens* - 1’ to 10’)
Little Snapdragon Vine (*Maurandella antirrhiniflora* - 1’ to 8’)
Slimjim Bean (*Phaseolus filiformis* - 2’ to 7’)
Tumamoc Globeberry (*Tumamoca macdougalii* - 28” to 5’)

Watson Indian Root (*Aristolochia watsoni* - 8” to 40”)

## Shrubs (2 to 7 feet maximum height)

Major Cholla (*Cylindropuntia acanthocarpa* var. *major* - 2’ 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’)
Tulip Pricklypear Cactus (*Opuntia phaeacantha* - 10” to 7’)
Desert Rosemallow (*Hibiscus coulteri* - 3” to 7’)
Wright Beebrush (*Aloysia wrightii* - 20” to 78”)
California Justicia (*Justicia californica* - 3’ to 6’)
Desert Christmas Cactus (*Cylindropuntia leptocaulis* - 1’ to 6’)
White Brittlebush (*Encelia farinosa* - 1’ to 6’)
American Threefold (*Trixis californica* - 10” to 6’)
Black-spined Pricklypear Cactus (*Opuntia macrocentra* var. *macrocentra* - 2’ to 5’)
Coulter Brickellbush (*Brickellia coulteri* - 1’ to 5’)
Rough Jointfir (*Ephedra aspera* - 1’ to 5’)
Gumhead (*Gymnosperma glutinosum* - 1’ to 5’)
White Rantany (*Krameria grayi* - 8” to 5’)
Desert Mistletoe (*Phoradendron californicum* - 8” to 5’, see note)
Fairyduster (*Calliandra eriophylla* - 4” to 5’)
Turpentine Bush (*Ericameria laricifolia* - 10” to 50”)
Triangleleaf Bursage (*Ambrosia deltoidea* - 1’ to 4’)
Arizona Rosemallow (*Hibiscus biseptus* - 18” to 40”)
White Bursage (*Ambrosia dumosa* - 7” to 40”)
Arizona Cockroach Plant (*Haplophyton crooksii* - 7” to 40”)
Burroweed (*Isocoma tenuisecta* - 6” to 40”)
Eastern Mojave Buckwheat (*Eriogonum fasciculatum* var. *polifolium* - 4” to 40”)
Arizona Wrightwort (*Carlowrightia arizonica* - 2” to 40”)

## Grasses

Wright Sacaton (*Sporobolus wrightii* - 36” to 100”)
Alkali Sacaton (*Sporobolus airoides* - 14” to 84”)
Spidergrass (*Aristida ternipes* var. *ternipes* - 16” to 79”)
California Brome (*Bromus carinatus* - 12” to 72”)
Deergrass (*Muhlenbergia rigens* - 14” to 63”)
Cane Bluestem (*Bothriochloa barbinodis* - 24” to 60”)
Sourgrass (*Digitaria insularis* - 24” to 60”)
Bullgrass (*Muhlenbergia emersleyi* - 20” to 60”)
Tanglehead (*Heteropogon contortus* - 8” to 60”)
Green Sprangletop (*Leptochloa dubia* - 4” to 60”)
Sideoats Grama (*Bouteloua curtipendula* - 3” to 52”)
Arizona Cottontop (*Digitaria californica* - 12” to 48”)
Plains Bristlegrass (*Setaria vulpiseta* - 12” to 48”)
Sand Dropseed (*Sporobolus cryptandrus* - 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”)
Desert Needlegrass (*Achnatherum speciosum* - 8” to 40”)
Plains Lovegrass (*Eragrostis intermedia* - 8” to 40”)
Blue Threeawn (*Aristida purpurea* var. *nealleyi* - 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”)
Slender Grama (*Bouteloua repens* - 4” to 32”)
Slim Tridens (*Tridens muticus* - 3” to 32”)
Rothrock Grama (*Bouteloua rothrockii* - 8” to 30”)
Fall Witchgrass (*Digitaria cognata* - 10” to 28”)
Slender Muhly (*Muhlenbergia tenuifolia* - 8” to 28”)
Purple Threeawn (*Aristida purpurea* var. *purpurea* - 4” to 24”)
Sixweeks Fescue (*Vulpia octoflora* var. *hirtella* - 2” to 24”)
Sixweeks Fescue (*Vulpia octoflora* var. *octoflora* - 2” to 24”)
Squirreltail (*Elymus elymoides* subsp. *elymoides* - 6” to 20”)
Spike Pappusgrass (*Enneapogon desvauxii* - 4” to 20”)
Bigelow Bluegrass (*Poa bigelovii* - 2” to 20”)
Sixweeks Grama (*Bouteloua barbata* - ½” to 18”)
False Grama (*Cathestecum erectum* - 4” to 16”)
Red Grama (*Bouteloua trifida* var. *trifida* - 2” to 16”)
Desert Fluffgrass (*Dasyochloa pulchella* - ½” to 6”)

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

Hoary Indian Mallow (*Abutilon incanum* - 8” to 13’)
Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus* - 1’ to 8’)
White Cheesebush (*Hymenoclea salsola* - 10” to 8’)
Shrubby Indian Mallow (*Abutilon abutiloides* - 1’to 6½’)
Apricot Mallow (*Sphaeralcea ambigua* - 16” to 78”)
Parish Indian Mallow (*Abutilon parishii* - 40” to 6’)
Coulter Globemallow (*Sphaeralcea coulteri* - 6” to 6’)
Parry Penstemon (*Penstemon parryi* - 2’ to 5’)
Pineneedle Milkweed (*Asclepias linaria* - 1’ to 5’)
Brownfoot (*Acourtia wrightii* - 1’ to 5’)
Mexican Fireplant (*Euphorbia heterophylla* - 8” to 5’)
California Plumeseed (*Rafinesquia californica* - 8” to 5’)
Yellow Monkeyflower (*Mimulus guttatus* - 2” to 5’)
Rock Hibiscus (*Hibiscus denudatus* - 10” to 56”)
Parry False Prairie-clover (*Marina parryi* - 8” to 50”)
Bladdermallow (*Herissantia crispa* - 8” to 4’)
Spreading Fanpetals (*Sida abutifolia* - 8” to 4’ in length)
Tall Mountain Larkspur (*Delphinium scaposum* - 6” to 4’)
Deceptive Sunflower (*Helianthus petiolaris* subsp. *fallax* - 6” to 4’?)
Yellow Menodora (*Menodora scabra* - 6” to 4’)
Desert Tobacco (*Nicotiana obtusifolia* var. *obtusifolia* - 12” to 42”)

Violet Snapdragon (*Sairocarpus nuttallianus* - 12” to 40”)
Scarlet Hedgenettle (*Stachys coccinea* - 12” to 40”)
Longflowered Tubetongue (*Justicia longii* - 8” to 40”)
Prairie Flax (*Linum lewisii* var. *lewisii* - 4” to 40”)
Purplestem Phacelia (*Phacelia crenulata* var. *ambigua* - 4” to 40”)
Chia (*Salvia columbariae* var. *columbariae* - 4” to 40”)
Distant Phacelia (*Phacelia distans* - 3” to 40”)
Emory Rock-daisy (*Perityle emoryi* - 1” to 40”)
Desert Senna (*Senna covesii* - 10” to 32”)
Texas Toadflax (*Nuttallanthus texanus* - 8” to 32”)
Mojave Lupine (*Lupinus sparsiflorus* - 6” 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”)
Wright Buckwheat (*Eriogonum wrightii* var. *wrightii* - 4” to 30”)
Caliche Globemallow (*Sphaeralcea laxa* - 12” to 28”)
Nichol Hedgehog Cactus (*Echinocereus nicholii* - 8” to 28”)
Manyflowered Ipomopsis (*Ipomopsis multiflora* - 6” to 28”)
Spreading Fleabane (*Erigeron divergens* - 4” to 28”)
Nichol Hedgehog Cactus (*Echinocereus nicholii* - 12” to 24”)
Goodding Mock Vervain (*Glandularia gooddingii* - 6” to 24”)
Rose Bladderpod (*Lesquerella purpurea* - 6” to 2’)
Mojave Milkweed (*Asclepias nyctaginifolia* - 4” to 24”)
Wavy Scaly Cloakfern (*Astrolepis sinuata* subsp. *sinuata* - 4” to 24”)
Desert Mariposa Lily (*Calochortus kennedyi* - 4” to 24”)
New Mexico Plumeseed (*Rafinesquia neomexicana* - 4” to 24”)
Gordon Bladderpod (*Lesquerella gordonii* var. *gordonii*) - 3” to 24”)
Golden Dogweed (*Thymophylla pentachaeta* - 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”)
Lacy Tansyaster (*Machaeranthera pinnatifida* subsp. *pinnatifida* - 6” to 20”)
Skyblue Phacelia (*Phacelia coerulea* - 6” to 20”)
Desert Windflower (*Anemone tuberosa* var. *tuberosa* - 4” to 20”)
Lobed Fleabane (*Erigeron lobatus* - 4” to 20”)
Desert Zinnia (*Zinnia acerosa* - 3” to 20”)
Bundle Hedgehog Cactus (*Echinocereus fasciculatus* - 2” to 18”)
Spiny Cliffbrake (*Pellaea truncata* - 3” to 16½”)
Desert Evening Primroase (*Camissonia chamaenerioides* 4” to 16”)
Common Owl’s Clover (*Castilleja exserta* subsp. *exserta* - 4” to 16”)
Desert Broomrape (*Orobanche cooperi* - 4” to 16”)
Maxon’s Goldback Fern (*Pentagramma triangularis* subsp. *maxonii* - 2” to 16”)
Beaded Lip Fern (*Cheilanthes wootonii* - 3” to 15½”)
Needle-spined Hedgehog Cactus (*Echinocereus engelmannii* var. *acicularis* - 6” to 15”)
Miniature Woollystar (*Eriastrum diffusum* - 1½” to 14”)
Fairyswords (*Cheilanthes lindheimeri* - 3” to 13½”)
Star Cloakfern (*Notholaena standleyi* - 2” to 13”)
White Tackstem (*Calycoseris wrightii* - 10” to 12”)
Manyflowered Monkeyflower (*Mimulus floribundus* - 8” to 12”)
Desert Unicorn-plant (*Proboscidea althaeifolia* - 7” to 12”)

Indian Rushpea (*Hoffmannseggia glauca* - 4" to 12")
Arizona Poppy (*Kallstroemia grandiflora* - 4" to 12" in height, with stems extending to 4' in length)
Largeflower Onion (*Allium macropetalum* - 3" to 12")
Cochise Scaly Cloakfern (*Astrolepis cochisensis* subsp. *cochisensis* - 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")
Desert Holly (*Acourtia nana* - 2" to 10")
Wright's Lipfern (*Cheilanthes wrightii* - 1½" to 10")
Woolly Crinklemat (*Tiquilia canescens* var. *canescens* - 4" to 8")
California Caltrop (*Kallstroemia californica* - 2" to 8" in height, with stems extending to 5' in length)
Yellow Desert Evening-primrose (*Oenothera primiveris* - 2" to 8")
Purplemat (*Nama demissum* - ½" to 3")
Arizona Spikemoss (*Selaginella arizonica* - ½" to 1½")

## 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

## Division Lycopodiophyta: The Lycopods

### CLASS LYCOPODIOPSIDA: The CLUBMOSSES, FIRMOSSES and SPIKEMOSSES

#### Selaginellaceae: The Spike-moss Family

***Selaginella arizonica* W.R. Maxon: Arizona Spikemoss**

COMMON NAMES: Arizona Selaginella, Arizona Spike-moss, Arizona Spikemoss, Desert Spike-moss, Flor de Piedra (Hispanic), Resurrection Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (mat-forming and spreading prostrate or decumbent stems ½ to 1½ inches in height); the minute leaves are green or yellowish-green; the strobili are solitary; the megaspores of the sporangium are orange or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rocky cliffs; rocky canyons; bases of cliffs; pockets of soil in bedrock; crevices in rocks; rocky bluffs; rocky ledges; rocky ridges; rocky foothills; rocky hilltops; rocky hillsides; rocky, stony, stony-sandy, gravelly, gravelly-sandy-loamy and loamy slopes, bajadas; rocky outcrops; on boulders and rocks; amongst boulders and rocks; bases of rocks; basins; streambeds; bouldery-gravelly-sandy, rocky, gravelly and sandy washes; rocky-gravelly drainages; banks of rivers, and riparian areas growing in wet, moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, stony, stony-sandy, gravelly and sandy ground and gravelly-sandy loam and loam ground, occurring from 1,900 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. *Selaginella arizonica* is native to southwest-central and southern North America. *5, 6, 15, 43 (052510), 46 (Page 28), 51, 63 (052510), 77, 85 (052510 - color presentation), **102***

## 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 fronds are olive green or green above and reddish-brown beneath with brown to reddish-brown stipes; sporulation generally takes place between summer and 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; valleys; 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), **102**, 115 (color presentation of species), 122*

***Astrolepis sinuata* (M. Lagasca y Segura ex O. Swartz) D.M. Benham & M.D. Windham (subsp. *sinuata* is the subspecies reported as occurring in Arizona): Wavy Scaly Cloakfern**

SYNONYMY: (for *A.s.* subsp. *sinuata*: *Cheilanthes sinuata* (M. Lagasca y Segura ex O. Swartz) K. Domin, *Notholaena sinuata* (M. Lagasca y Segura ex O. Swartz) G.F. Kaulfuss). COMMON NAMES: Bulb Cloakfern, Canaguala (Hispanic), Cloak-fern, Helecho (Hispanic), Jimmy-fern, Kalawala (Tarahumara), Wavy Cloak Fern, Wavy Cloakfern, Wavy Scaly Cloakfern, Wavy-leaved Star Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 4 to 52 inches in length); the fronds are gray-green, dark green or olive green with reddish-brown or brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; along rocky cliffs; cliff faces; rocky and gravelly-loamy canyons; canyon walls; rocky canyon bottoms; rocky gorges; talus slopes; gravelly-loamy bases of cliffs; along crevices in boulders and rocks; pockets of soil on bedrock; rocky knolls; rocky ledges; ridges; ridgetops; foothills; rocky hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-stony, stony and gravelly-loamy slopes; rocky outcrops; amongst boulders and rocks; rock niches; shaded nooks; lava flows; rocky banks; arroyos; draws; along bedrock ravines; along streams; creekbeds; sandy riverbeds; along rocky and sandy washes; rocky drainages; banks of creeks; rocky margins of seeps, and riparian areas growing in moist and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-stony, gravelly and sandy ground; gravelly loam and sandy-clayey loam ground, and silty ground, occurring from 700 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. *Astrolepis sinuata* is native to south-central and southern North America; Central America and coastal Caribbean Islands, and northern, western and southern South America. *5, 6, 15, 28 (color photograph - *Notholaena sinuata*), 30, 43 (052610 - *Astrolepis sinuata* (Lag. ex Sw.) D.M. Benham & Windham, *Cheilanthes sinuata* Domin, *Notholaena sinuata* (Lag.) Kaulf.), 46 (recorded as *Notholaena sinuata* (Lag.) Kaulf., Page 41), 51 (color photograph, recorded as *Notholaena sinuata* var. *sinuata*), 58, 63 (052610 - color presentation), 77, **85** (052610 - color presentation), 122*

***Astrolepis sinuata* (M. Lagasca y Segura ex O. Swartz) D.M. Benham & M.D. Windham subsp. *sinuata*: Wavy Scaly Cloakfern**

SYNONYMY: *Cheilanthes sinuata* (M. Lagasca y Segura ex O. Swartz) K. Domin, *Notholaena sinuata* (M. Lagasca y Segura ex O. Swartz) G.F. Kaulfuss. COMMON NAMES: Bulb Cloakfern, Canaguala (Hispanic), Cloak-fern, Helecho (Hispanic), Jimmy-fern, Kalawala (Tarahumara), Wavy Cloak Fern, Wavy Cloakfern, Wavy Scaly Cloakfern, Wavy-leaved Star Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 4 to 24 inches in length); the fronds are dark green or olive green with reddish-brown or brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; along cliffs; cliff walls; gravelly-loamy canyons; canyon bottoms; rocky gorges; talus slopes; bases of cliffs; along crevices in boulders and rocks; rocky ledges; rocky ridges; ridgetops; hills; rocky hillsides; bouldery, rocky, rocky-stony, stony and gravelly-loamy slopes; rocky outcrops; amongst boulders and rocks; rock niches; banks; arroyos; draws; along bedrock ravines; along streams; creekbeds; sandy riverbeds; along rocky and sandy washes; rocky drainages; banks of creeks; rocky margins of seeps, and riparian areas growing in moist and dry bouldery, bouldery-rocky-sandy, rocky, rocky-stony, gravelly and sandy ground and gravelly loam and sandy-clayey loam ground, occurring from 700 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, consider planting with native Selaginella (Spikemosses). *Astrolepis sinuata* subsp. *sinuata* is native to south-central and southern North America; Central America; coastal Caribbean Islands, and northern, western and southern South America. *5, 6, 15, 28 (color photograph), 30, 43 (052610 - *Astrolepis sinuata* (Lag. ex Sw.) D.M. Benham & Windham, *Cheilanthes sinuata* Domin, *Notholaena sinuata* (Lag.) Kaulf.), 46 (recorded as *Notholaena sinuata* (Lag.) Kaulf., Page 41), 51 (color photograph, recorded as *Notholaena sinuata* var. *sinuata*), 58, 63 (052510), 77, 85 (052610 - color presentation), **102**, 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 fronds 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), **102**, 122*

*Cheilanthes sinuata* (see *Astrolepis sinuata* subsp. *sinuata*)

*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 fronds 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 often growing in shaded and sheltered areas growing in dry bouldery, bouldery-rocky-gravelly, bouldery-gravelly, rocky and gravelly ground and gravelly loam and silty loam ground and on rotting logs, 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), **102**, 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 fronds 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; in 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), **102**, 122*

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

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

*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 fronds 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 lavabeds; 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), **102**, 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 fronds 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; in 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), **102**, 115 (color presentation)*

***Pentagramma triangularis* (G.F. Kaulfuss) G.A. Yatskievych, M.D. Windham & E. Wollenweber f. (subsp. *maxonii* (C.A. Weatherby) G.A. Yatskievych, M.D. Windham & E. Wollenweber is the subspecies reported as occurring in Arizona): Goldback Fern**

SYNONYMY: (for *P.t.* subsp. *maxonii*: *Pityrogramma triangularis* (G.F. Kaulfuss) W.R. Maxon var. *maxonii* C.A. Weatherby). COMMON NAMES: Goldback Fern, Goldfern, Maxon Goldback Fern, Maxon's Goldback Fern, Silver Fern, Western Goldfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 2 to 16 inches in length); the fronds are green above and silver, white, yellow or

yellow-green below with black, brown or reddish-brown stipes. HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; plateaus; rocky cliffs; along rock faces; along bases of cliffs; rocky canyons; canyonsides; bouldery and rocky canyon bottoms; chasms; rocky gorges; crevices in boulders and rocks; pockets of sandy-humusy soil in rock; buttes; rocky ledges; ridges; foothills; hillsides; bedrock, bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, rocky, rocky-sandy, rocky-loamy, rocky-clayey and clayey-loamy slopes; rocky alluvial fans; rocky banks; rocky outcrops, amongst boulders and rocks; shaded areas at bases of boulders and rocks; flats; valley floors with exposed bedrock; arroyos; within rocky ravines; seeps; along streams, rocky streambeds; along creeks; bouldery creekbeds; in bouldery-rocky-sandy and rocky washes; within rocky drainages; along water courses; moist depressions; along swales; along rocky banks of streams; rocky edges of washes; margins of ponds; rocky and sandy benches; sandy terraces; floodplains; along ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-sandy and sandy soils; rocky loam, sandy loam, clayey loam and loam soils; rocky clay and clay soils, and sandy humus soils and often reported as growing in sheltered or shaded areas, occurring from 100 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. *Pentagramma triangularis* is native to west-central and southern North America. *5, 6, 15, 43 (081209), 46, 51 (color photograph of variety, recorded as *Pityrogramma triangularis* var. *triangularis*), 63 (081209 - color presentation), **85** (081209 - color presentation of dried material), **102***

*Ptyrogramma triangularis* var. *maxonii* (see *Pentagramma triangularis* subsp. *maxonii*)

## Superdivision Spermatophyta: The Seed Plants

## Division Gnetophyta: The Gnetophytes

## CLASS GNETOPSIDA: The GNETOPS

### Ephedraceae: The Mormon-tea Family

***Ephedra aspera* G. Engelmann ex S. Watson: Rough Jointfir**

SYNONYMY: *Ephedra nevadensis* S. Watson var. *aspera* (G. Engelmann ex S. Watson) L.D. Benson. COMMON NAMES: Aspera Mormon Tea, Boundary Ephedra, Canatillo, Canutillo, Mormon Tea, Nevada Ephedra, Nevada Joint-fir, Pitamo Real (Hispanic), Popotillo (Hispanic), Rough Jointfir, Sanguinaria, Tepopote. DESCRIPTION: Terrestrial perennial evergreen subshrub or shrub (1 to 5 feet in height, one plant was described as being 1 foot in height with a crown 4 feet in width); the bark is gray; the young branches are pale green, green or dark green aging to yellow; the production of strobili (female and male cones) generally takes place between January and June. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; along rocky canyons; rocky ledges; hills; rocky hillsides; rocky fans; rocky and gravelly slopes; bajadas; rocky outcrops; amongst boulders and rocks; gravelly flats; along arroyos; rocky ravines; sandy streambeds; along and in rocky and gravelly washes; sandy banks; terraces, and riparian areas growing in dry bouldery, rocky, gravelly and sandy ground and gravelly loam 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 Rough Jointfir may reach full size within 20 years living to be 100 years or more in age. This plant is browsed by wildlife, including the Bighorn Sheep (*Ovis canadensis*). *Ephedra aspera* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Ephedra nevadensis* S. Wats. var. *aspera* (Engelm.) L. Benson), 18 (genus), 43 (062910 - *Ephedra nevadensis* var. *aspera* (Engelm. ex S. Watson) L.D. Benson), 46 (recorded as *Ephedra nevadensis* Wats. var. *aspera* (Engelm.) L. Benson, Page 61), 48 (genus), 63 (062910), 77, 85 (062910 - color presentation including habitat, unable to access species information), 91, **HR***

*Ephedra nevadensis* var. *aspera* (see *Ephedra aspera*)

***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 stems are blue-green, green, olive-green or yellow-green; the tiny flowers are pale yellow with male and female flowers occurring on separate plants; the production of the tan-brown strobili (female and male cones) generally takes 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 drainages; 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 as a soil binder. 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), 91, **102**, 127, **WTK** (May 9, 2005)*

## Division Magnoliophyta: The Flowering Plants

## CLASS LILIOPSIDA: The MONOCOTS

### Agavaceae: The Century-plant Family

*Yucca arizonica* (see *Yucca* x *schottii* (pro sp.) [*baccata* x *elata*])

*Yucca baccata* var. *brevifolia* (see *Yucca* x *schottii* (pro sp.) [*baccata* x *elata*])

***Yucca* x *schottii* G. Engelmann (pro sp.) [*baccata* x *elata*]: Schott's Yucca**

SYNONYMY: *Yucca arizonica* S.A. McKelvey, *Yucca baccata* J. Torrey var. *brevifolia* (H.W. Schott ex J. Torrey) L.D. Benson & R.A. Darrow, *Yucca thornberi* S.A. McKelvey. COMMON NAMES: Arizona Yucca, Banana Yucca, Blue Yucca, Datil, Palma Criolla, Schott's Yucca, Spanish Dagger, Thornber Yucca. DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub, shrub or tree (cespitose without trunks to 10 feet in height with a flowering stalk 13 inches to 5 feet in height); the leaves are blue-green, gray-green, green, dark green, dark olive-green, yellow-green (older leaves), dark yellow-green or yellowish-green; the flowers are cream, cream-white, green-creamish-yellow & cream-white with maroon-purple markings, greenish-cream lightly flushed with maroon in center, greenish-yellow-cream or white; the anthers are white or yellow; flowering generally takes place between early March and early June (additional records: one for early February, one for late August, one for late September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; canyon bottoms; bases of cliffs; bluffs; knolls; ridges; ridgetops; foothills; hills; rocky hillsides; rocky slopes; bajadas; plains; gravelly flats; valley floors; arroyos; draws; along and in washes; along margins of washes, and benches growing in dry rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,900 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. Do not confuse this plant with the Mountain Yucca, *Yucca schottii* auct non G. Engelmann [misapplied] which is now considered to be *Yucca madrensis* H.S. Gentry. *Yucca* x *schottii* is native to southwest-central and southern North America. *5, 6, 13 (color photograph, recorded as *Yucca baccata* Torrey var. *brevifolia* (Schott) Benson & Darrow), 15 (color photograph on back cover of *Yucca thornberi* in habitat), 26 (genus), 43 (052610 - *Yucca baccata* Torr. in Emory var. *brevifolia* L.D. Benson & R.A. Darrow), 45 (color photograph, *Yucca arizonica*), 46 (recorded as *Yucca arizonica* McKelvey, Page 187 and *Yucca thornberi* McKelvey, Page 187), 48 (genus), 58, 63 (052610 - color presentation), 77, 85 (052710), 91 (recorded as *Yucca arizonica* McKelvey), **102** (recorded as *Yucca arizonica*)*

*Yucca thornberi* (see *Yucca* x *schottii* (pro sp.) [*baccata* x *elata*])

## Cyperaceae: The Sedge Family

***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), 101 (color photograph), **102**, 127*

Juncaceae: The Rush Family

***Juncus ambiguus* G. Gussone: Seaside Rush**

SYNONYMY: *Juncus bufonius* C. Linnaeus var. *halophilus* F.G. Buchenau & M.L. Fernald, *Juncus bufonius* C. Linnaeus var. *ranarius* O.A. Farwell. COMMON NAMES: Doubtful Toad-rush, Frog Rush, Rush, Saline Toad Rush, Seaside Rush, Seaside Toad-rush, Toad Rush, Tulillo. DESCRIPTION: Terrestrial annual graminoid (4 to 7 inches in height); flowering may take place between September and March. HABITAT: Within the range of this species it has been reported from seashore meadows; banks of streams, and poolbeds growing in muddy and moist ground, occurring from near sea level to 3,000 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Juncus ambiguus* is native to northwestern, northeastern, central and southern North America and western Europe, possibly being cosmopolitan in distribution. *5, 6, 43 (052710 - *Juncus bufonius* var. *halophilus* Buchenau & Fernald, *Juncus bufonius* var. *ranarius* Farw.), 46 (recorded as *Juncus bufonius* L. var. *halophilus* Buch. & Fern., Page 171), 63 (052710 - color presentation), 80 (Species of the genus *Juncus* are listed as a Rarely Poisonous and Suspected Poisonous Range Plant, based on the report that a species of this genus has caused loss of cattle in Europe, but no losses have been reported from American species.), 85 (052710 - one record under *Juncus bufonius* ssp. *ranarius* (Perrier & Song.) Hayek), 101 (genus), **102** (recorded as *Juncus bufonius* var. *halophilus*), 106 (052710)*

*Juncus bufonius* var. *halophilus* (see *Juncus ambiguus*)

*Juncus bufonius* var. *ranarius* (see *Juncus ambiguus*)

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), **102**, 127*

*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), **102**, 106 (081509), 115 (color presentation)*

***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 (color photograph of *Dichelostemma pulchellum*), 43 (081609), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller var. *pauciflorum* (Torr.) Hoover, Page 182), 58, 63 (081609 - color presentation), 77 (color photograph #56 and #103 labeled *Dichelostemma pulchellum*), 85 (081609 - color presentation), 86 (note - *Dichelostemma pulchellum*), **102**, 115 (color presentation of the species)*

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

Poaceae (Gramineae): The Grass Family

***Achnatherum speciosum* (C.B. von Trinius & F.J. Ruprecht) M.E. Barkworth: Desert Needlegrass**

SYNONYMY: *Stipa speciosa* C.B. von Trinius & F.J. Ruprecht. COMMON NAMES: Desert Needlegrass, Needlegrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect culms 8 to 40 inches in height, to 5 feet in height with inflorescence, clumps with a 4 inch to 1 foot diameter at base have been reported); the spikelets are silvery; the awns may be brown; flowering generally takes place between early April and late June (additional records: one for early March, one for late July and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mesas; plateaus; rock cliffs; bouldery, rocky and rocky-gravelly canyons; along canyon walls; bouldery and rocky canyon bottoms; gorges; bouldery talus slopes; bouldery and powdery bases of cliffs; crevices in boulders and rocks; sandy pockets of soil in rock; rocky buttes; rock and rocky-clayey ledges; ridges; rocky and sandy ridgetops; rocky spurs; cindery cinder cones; foothills; bouldery-rocky, rocky and sandy hills; hilltops; rocky, rocky-stony and clayey hillsides; along escarpments; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-clayey-loamy slopes; bouldery-stony-gravelly-sandy, gravelly, gravelly-sandy and sandy alluvial fans; bajadas; bouldery, rocky and shaley outcrops; amongst boulders and rocks; bases of boulders and rocks; caves; stabilized sand dunes; steppes; rocky and sandy plains; sandy-loamy, sandy-clayey and loamy flats; valley floors; along roadsides; within arroyos; along rocky-sandy-silty gulches; gullies; along creeks; along in rocky-gravelly, gravelly, gravelly-sandy and sandy washes; bedrock, bouldery-cobbly, sandy-silty and silty drainages; gravelly depressions; rocky edges of streams and washes; margins of washes; gravelly-sandy shores of lakes; beaches; gravelly-sandy benches; bouldery and sandy terraces; along fencelines, and gravelly riparian areas growing in dry bouldery, bouldery-rocky, bouldery-stony-gravelly-

sandy, bouldery-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; rocky clay, sandy clay, silty clay and clay ground; rocky-sandy silty, rocky silty, sandy silty and silty ground, and powdery ground, occurring from 900 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. Desert Needlegrass is grazed by the Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). The sharp-pointed seeds with long awns may cause injury to the mouths and eyes of grazing animals. *Achnatherum speciosum* is native to southwest-central and southern North America and southern South America. *5, 6, 33 (recorded as *Stipa speciosa* Trin. & Rupr., Page247), 43 (052710), 46 (recorded as *Stipa speciosa* Trin. & Rupr., Page 117), 48, 63 (052710 - color presentation), 77 (recorded as *Stipa speciosa* Trin. & Rupr.), **85** (052810 - color presentation), **102** (recorded as *Stipa speciosa*), 127*

*Andropogon barbinodis* (see *Bothriochloa barbinodis*)

*Andropogon contortus* (see *Heteropogon contortus*)

***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), **102**, 105*

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

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

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

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

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

***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), 63 (081809), 77, **85** (092709 - color presentation of dried material), **102**, 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), **102** (recorded as *Aristida parishii*), 105 (species)*

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

SYNONYMY: *Aristida purpurea* T. Nuttall var. *laxiflora* E.D. Merrill. COMMON NAMES: Perennial Three-awn, Purple Needle-grass, Purple Threeawn, Tres Barbas Purpurea. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with erect culms 4 inches to 2 feet in height); the awns are purple; the spikelets are maroonish or reddish-violet; based on few available flowering records flowering generally takes place between early April and late May (additional records: one for early February and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky summits; sandy canyon bottoms; crevices in rocks; gravelly bluffs; sandy foothills; rocky hills; rocky hillsides; sandy bases of escarpments; rocky, cindery, gravelly, sandy and sandy-loamy slopes; bajadas; sand hills; sand dunes; breaks; rocky-sandy and sandy steppes; clayey prairies; plains; cindery, gravelly and sandy flats; valley floors; along railroad right-of-ways; along sandy roadsides; rocky arroyos; along bouldery streambeds; along and in gravelly washes; rocky drainage ways; swamps; sandy banks; rocky-clayey benches; terraces; gravelly floodplains; riparian areas, and disturbed areas growing in dry in rocky desert pavement; bouldery-cindery, rocky, rocky-sandy, cindery, gravelly and sandy ground; rocky-clayey loam, gravelly-clayey loam, sandy loam and clayey loam ground, and rocky 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: This plant may be an attractive component of a restored native habitat. *Aristida purpurea* var. *purpurea* is native to south-central and southern North America. *5, 6, 33 (species, *Aristida purpurea* Nutt., Page 244), 43 (081809), 46 (recorded as *Aristida purpurea* Nutt., Page 120 and *Aristida purpurea* Nutt. var. *laxiflora* Merr., Page 120), 48 (species), 63 (081809), 77, 85 (092609 - color presentation of dried material), **102**, 105 (species)*

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

***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), 58 (recorded as *Aristida hamulosa* Henr.), 63 (092709), 77 (recorded as *Aristida hamulosa* Henr.), 85 (092709 - color presentation of dried material), **102**, 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), 63 (092709), **85** (092709), **102***

***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), **102**, 105 (recorded as *Andropogon barbinodis* Lag.)*

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

COMMON NAMES: Aceitilla, Navajita, Needle Grama, Pasto Cabra (Hispanic), Six-weeks Needle Grama, Tochite (Hispanic), Zacate Saitillo. DESCRIPTION: Terrestrial annual tufted graminoid (2 to 15 inches in height); the foliage is light green or violet curing to straw; flowering generally takes place between mid-August and late October (flowering records: two for early January, four for early April, two for early September, two for late September, two for mid-October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky cliffs; rocky canyons; canyon bottoms; chasms; ridges; rocky hills; rocky hillsides; rocky, gravelly, gravelly-sandy and sandy slopes; gravelly and sandy bajadas; rocky coves; sand hills; sand dunes; sand hummocks; edges of dune fields; plains; gravelly and sandy flats, basins; valley floors; loamy valley bottoms; coastal dunes; along gravelly and sandy roadsides; in arroyos; bottoms of arroyos; stony-sandy draws, along streams; streambeds; creekbeds; along rivers; sandy riverbeds; along and in rocky, gravelly, sandy, clayey and silty-clayey washes; in drainage ways; depressions; sandy and sandy-loamy banks of rivers and washes; sandy borders of ponds; benches; sandy terraces; loamy bottomlands; sandy floodplains; mesquite bosques; gravelly ditches; waste places, and disturbed areas growing in dry in desert pavement; bouldery, rocky, stony-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground, and silty clay and clay ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Bouteloua aristidoides* var. *aristidoides* is native to southwest-central and southern North America. *5, 6, 33 (Page 141), 43 (092809), 46 (species, Page 128), 63 (052809), 68, 85 (052809), **102**, 105 (species)*

***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), 58, 63 (092809 - color presentation), 68, 77, 85 (092909 - color presentation of dried material), **102**, 105*

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

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

***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), 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."), **102**, 106 (061407), 127*

*Bouteloua diversispicula* (see *Cathestecum erectum*)

*Bouteloua filiformis* (see *Bouteloua repens*)

***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*), **102**, 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 graminoid (a bunchgrass (clumpgrass) 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, 58, 63 (093009 - color presentation), 77, 85 (100109 - color presentation of dried material), **102**, 105*

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

*Bouteloua diversispicula* (see *Cathestecum erectum*)

***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), **102***

*Brachiaria arizonica* (see *Urochloa arizonica*)

***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), **102** (recorded as *Bromus carinatus* incl. *B. arizonicus*)*

***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), 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), **102** (recorded as *Bromus carinatus* incl. *B. arizonicus*), 127*

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

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

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

***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 promontories; 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), 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), **102**, 105*

***Cathestecum erectum* G. Vasey & E. Hackel: False Grama**

SYNONYMY: *Bouteloua diversispicula* J.T. Columbus. COMMON NAMES: Cathestecum, False Grama, Zacate Borreguero. DESCRIPTION: Terrestrial perennial tufted graminoid (erect culms 4 to 16 inches in height); the spikelets are reddish; based on very few records available flowering generally takes place between early October and early January (flowering records: one for early January, one for early October, one for late October and two for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; hills; hillslopes; rocky, rocky-clayey and stony slopes; bajadas; rocky outcrops; plains; flats; sandy vales; coastal beaches; gravelly roadsides; arroyos bottoms; riparian areas, and disturbed areas growing in dry rocky, stony, gravelly and sandy ground; clay ground, and silty ground, occurring from sea level to 2,600 feet in elevation in the desertscrub ecological formation. NOTES: PERIPHERAL PLANT(S). This plant may be an attractive component of a restored native habitat. *Cathestecum erectum* is native to southwest-central and southern North America and Central America. *5, 6, **8**, 33 (Page 154), 43 (052910), 46 (Page 129), 63 (053010), 85 (052910 - color presentation of dried material), **102** (recorded as *Bouteloua diversispicula*)*

*Cenchrus ciliaris* (see *Pennisetum ciliare*)

*Chaetochloa leucopila* (see *Setaria leucopila*)

*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), 58, 63 (100509 - color presentation), 68, 77, 85 (100509 - color presentation of dried material), **102**, 105*

***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), **102***

***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 as a veterinary aid by native peoples of North America. 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), 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), 101 (color photograph), **102**, 105, 109, 127*

***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 as a drug or medication by native peoples of North America. 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), **102** (recorded as *Erioneuron pulchellum*), 105 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc.), 127*

***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), **102**, 105 (recorded as *Trichachne californica* (Benth.) Chase)*

***Digitaria cognata* (J.A. Schultes) R.K. Pilger: Carolina Crabgrass**

SYNONYMY: *Digitaria cognata* (J.A. Schultes) R.K. Pilger var. *cognata, Leptoloma cognatum* (J.A. Schultes) M.A. Chase. COMMON NAMES: Carolina Crabgrass, Carolina Cottontop, Diffuse Crabgrass, Fall Witchgrass. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) 10 to 28 inches in height), the anthers are purple or yellow; based on few records located, flowering generally takes place between late April and mid-September (flowering records: two for late April, one for early June, one for early September and one for mid-September, flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; bases of cliffs; foothills; rocky hills; rocky hillsides; rocky and sandy-loamy slopes; sandy bajadas; sand hills; sand dunes; loamy steppes; gravelly plains; rocky-gravelly-sandy and sandy basins; sandy and sandy-loamy flats; coastal prairies; sandy railroad right-of-ways; arroyos; bottoms of arroyos; along gullies; ravines; along streams; creeks; drainages; sandy depressions; edges of washes; rocky shores of lakes; gravelly-sandy terraces, and disturbed areas growing in moist and dry

rocky, rocky-gravelly-sandy, gravelly and sandy ground; rocky-clayey loam, sandy loam and loam ground, and clay ground, occurring from 1,500 to 5,600 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. 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. *Digitaria cognata* is native to northeast, south-central and southern North America. *5, 6, 15, 33 (recorded as *Leptoloma cognatum* (Schult.) Chase, Page 298), 43 (053010 - *Leptoloma cognata* (Schult.) Chase), 46 (recorded as *Leptoloma cognatum* (Schult.) Chase, Page 132), 63 (053010), 85 (053010 - color presentation of dried material), **102**, 127*

*Digitaria cognata* var. *cognata* (see *Digitaria cognata*)

***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), 58, 63 (100609), 77, **85** (100609 - color presentation of dried material), **102***

***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 (recorded as *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 (*Sitanion hystrix* (Nutt.) J.G. Smith), 63 (100909 - color presentation), 85 (100909), **102**, 127 (species)*

***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), **102**, 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 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. This plant is native to eastern, middle and southern Europe; western, eastern and southern Asia, and Africa. *5, 6, 15, 16, 30, 33 (*Eragrostis megastachya* (Koel.) Link, Pages 82-83), 43 (101009), 46 (Page 86), 58, 63 (101009 - color presentation), 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), 101 (color photograph), **102**, 105 (*Eragrostis megastachya* (Koel.) Link)*

*Eragrostis diffusa* (see *Eragrostis pectinacea* var. *pectinacea*)

***Eragrostis intermedia* A.S. Hitchcock: Plains Lovegrass**

COMMON NAMES: Plains Love Grass, Plains Lovegrass, Zacate Amor de Planicie (Hispanic), Zacate de Amor (Hispanic), Zacate Llanero (Hispanic), Zacate Pradera (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect or ascending culms 8 to 40 inches in height, plants in clumps 2 inches to 1 foot in width at the base were observed and reported); the foliage is gray-green, green or yellow-green curing to a light straw-yellow; the branches of the inflorescence is red-purple; the spikelets (flowers) are green or greenish-tan; flowering generally takes place between early July and late October (additional records: one for mid-March, one for late March, one for mid-April, three for mid-May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bases of mountains; rocky, gravelly-sandy and sandy mesas; plateaus; canyons; canyon walls; along rocky and sandy canyon bottoms; talus slopes; bases of cliffs; crevices in rocks; clefts in granite domes; rocky bluffs; along rocky ridges; ridgetops; ridgelines; meadows; rocky and rocky-gravelly-loamy foothills; rocky hills; rocky hilltops; bouldery, rocky, gravelly-loamy and silty hillsides; rocky, rocky-gravelly, stony-clayey-loamy, gravelly, sandy, sandy-clayey, sandy-clayey-loamy, clayey and clayey-loamy slopes; bases of slopes; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; sandy prairies; rocky, gravelly-sandy and sandy plains; clayey flats; sandy basins; dells; valley floors; roadbeds; along gravelly roadsides; sandy bottoms of arroyos; gulches; within sandy ravines (barrancas); springs; in cobbles and sand along streams; rocky and cobbly streambeds; along sandy creeks; riverbeds; along and in rocky, rocky-sandy and sandy washes; along and in sandy drainages; low spots; along rocky-sandy, gravelly and sandy banks of creeks, rivers and washes; edges of washes and lakes; along margins of streams; rocky shores of lakes and bays; benches; rock shelves; floodplains; along fencelines; 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, rocky-gravelly loam, rocky-clayey loam, stony loam, stony-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-clay, gravelly clay, sandy clay and clay ground, and silty ground, occurring from 1,200 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. *Eragrostis intermedia* is native to south-central and southern North America and Central America. *5, 6, 15, 30, 33 (Pages 80-81),

43 (053110), 46 (Page 87), 48, 58, 63 (053110 - color presentation), 77, 85 (060810 - color presentation), **102**, 105*

***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 valley floors; 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), 58, 63 (101009 - color presentation of seeds), 77, 85 (101009 - color presentation of dried material), **102**, 105*

*Eragrostis megastachya* (see *Eragrostis cilianensis*)

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

SYNONYMY: *Eragrostis diffusa* S.B. Buckley. COMMON NAMES: Carolina Love Grass, Carolina Lovegrass, Ihta Zaa (Mixteco), Pasto de Semillas de Pajarito (Hispanic), Purple Lovegrass, Spreading Lovegrass, Tufted Love Grass, Tufted Lovegrass. DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass (clumpgrass) with ascending or erect culms 10 to 40 inches in height); 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; mountainsides; mesas; canyons; canyon bottoms; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly, sandy, sandy-loamy and clayey slopes; rock outcrops; amongst boulders; sand dunes; prairies; sandy, clayey and silty-loamy flats; basins; valley floors; coastal plains; along railroad right-of-ways; along sandy and silty roadsides; along rocky and stony arroyos; sandy and sandy-silty bottoms of arroyos; gulches; ravines; seeps; springs; sandy soils along streams; along and in sandy streambeds; along creeks; rocky creekbeds; along rivers; along and in sandy washes; drainages; within sandy drainage ways; around pools; lakebeds; playas; cienegas; depressions; along rocky-sandy, sandy and sandy-loamy banks of streams and washes; clayey edges of pools and ponds; margins of pools; shores of lakes; sandy benches; terraces; sandy floodplains; mesquite bosques; sandy edges of canals; ditches; rocky-sandy and sandy riparian areas; waste places, and disturbed areas growing in wet and dry bouldery, rocky, rocky-sandy, stony, gravelly and sandy ground; sandy loam, silty loam and humus-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* var. *pectinacea* is native to northeast-central, south-central and southern North America; Central America, and South America. *5, 6, 30 (species), 33 (*Eragrostis diffusa* Buckl., Page 85), 43 (101009), 46 (*Eragrostis diffusa* Buckl., Page 86), 63 (101009), 85 (101009 - color presentation of dried material), **102***

*Erioneuron pulchellum* (see *Dasyochloa pulchella*)

*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, 58, 63 (101209 - color presentation), 77, **85** (101209 - color presentation), **102**, 105 (Reports that Tanglehead Grass "is one of the easiest grasses to establish under conditions of low rainfall.")*

***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 as food and as a drug or medication by native peoples of North America. *Hordeum murinum* subsp. *glaucum* is native to southwestern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, 43 (101309), 46 (*Hordeum stebbinsii* Covas, Page 97), 58, 63 (101309 - color presentation), 77, 85 (101309 - color presentation of dried material), **102**, 127*

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

***Leptochloa dubia* (K.S. Kunth) C.G. Nees von Esenbeck: Green Sprangletop**

COMMON NAMES: Green Spangletop, Green Sprangletop, Texas Crowfoot, Zacate Gigante (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms (few-stemmed) 4 to 60 inches in height, plants 2 to 4 inches in width at the base have been observed and reported); the foliage is bluish-green, gray-green, green or dark green; the spikelets (flowers) may be light brown, greenish or dark olive-green; flowering generally takes place between early July and early November (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly mountaintops; mountainsides; plateaus; rocky mesas; along bouldery-sandy, rocky and gravelly-loamy canyons; rocky-gravelly-sandy, rocky-gravelly-sandy-loamy and sandy canyon bottoms; bases of cliffs; crevices in rocks; buttes; sandy ledges; ridges; ridgetops; clearings in woodlands; meadows; foothills; rocky hills; rocky hillsides; escarpments; bouldery, rocky, shaley, gravelly, sandy, loamy and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; sandy plains; clayey-loamy flats; rocky valley floors; along gravelly and gravelly-loamy roadsides; along rocky arroyos; bottoms of arroyos; gulches; ravines; seeps; springs; along streams; sandy streambeds; along creeks; along clayey creekbeds; along rivers; along cobbly riverbeds; along and in rocky, gravelly, sandy and clayey washes; within drainages; marshes; banks of rivers; margins of creeks and cienegas; gravel bars; benches; along terraces; floodplains; sandy mesquite bosques; ditches; rocky-gravelly-sandy-loamy and sandy riparian areas, and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-gravelly, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground, and sandy clay and clay 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. *Leptochloa dubia* is native to south-central and southern North America; Central America, and central and southern South America. *5, 6, 33 (Pages 135-136), 43 (060810), 46 (Page 123), 48, 63 (060810 - color presentation), 77, **85** (060810 - color presentation of dried material), **102**, 105*

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

***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 (*Leptochloa mucronata pulchella* Scribn., brief note on page 135), 43 (101509), 46 (no record), 63 (101509), 85 (101509), **102***

*Leptoloma cognatum* (see *Digitaria cognata*)

***Muhlenbergia emersleyi* G. Vasey: Bullgrass**

COMMON NAMES: Bull Grass, Bullgrass, Cola de Zorra. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent or erect culms 20 inches to 5 feet in height and up to 8 inches to 5 feet in width at the base); the foliage is gray-green or light green curing to a light gray; the panicles (inflorescences) are light brownish, maroon or light purplish; the spikelets (flowers) are light-maroonish-brown or purple; the anthers are purple, purplish or yellowish; flowering generally takes place between mid-August and late September (additional records: one for late July, one for late October, one for early November and one for late November); the grain is reddish-brown. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; bouldery-gravelly mountainsides; plateaus; rocky cliffs; rocky canyons; rocky canyonsides; along rocky canyon bottoms; talus; crevices in boulders and rocks; bluffs; rocky ledges; rocky ridges; ridgetops; openings in forests and woodlands; foothills; bouldery, bouldery-rocky and rocky hills; hilltops; bouldery, rocky and rocky-clayey hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-loamy, gravelly, gravelly-loamy, loamy and clayey-loamy slopes; rocky bases of slopes; rocky outcrops; amongst boulders and rocks; sandy bases of boulders; along breaks; prairies; flats; gravelly dells; valley floors; along roadsides; along arroyos; within rocky draws; within ravines; bottoms of ravines; springs; rocky, rocky-sandy and sandy streambeds; in sand along creeks; along gravelly-sandy creekbeds; along and in rocky-sandy, gravelly and sandy washes; within drainages; rocky banks of gullies, streams and drainages; along bouldery and rocky edges of gullies, ravines (barrancas), seeps, washes and drainages; benches; rocky-gravelly terraces; floodplains, and sandy riparian areas growing in wet, moist and dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, sandy-clayey loam, clayey loam, humusy loam and loam ground; rocky clay and rocky-gravelly clay ground, and rocky-silty ground, occurring from 2,600 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 and is grown as an ornamental. *Muhlenbergia emersleyi* is native to southwest-central and southern North America. *5, 6, 15, 18, 33 (Pages 219-220), 43 (060810), 46 (Page 112), 48, 58, 63 (060810 - color presentation), 77, **85** (060810 - color presentation), **102**, 105*

***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), **102***

*Muhlenbergia monticola* (see *Muhlenbergia tenuifolia*)

***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 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), **102**, 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.")*

***Muhlenbergia rigens* (G. Bentham) A.S. Hitchcock: Deergrass**

COMMON NAMES: Deer Grass, Deergrass, Liendrilla de Venado (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 14 to 63 inches in height and in clumps to 4 to 40 inches in width at the base, one plant was observed and reported to be 30 inches in height and 30 inches in width, one plant was observed and reported to be 40 inches in height and 28 inches in width); the foliage is blue-green, gray-green or grayish curing to a gray straw color; the flowers are in long narrow spikes (3 to 16 inches in length and 1/4 to 3/8 inch in diameter); the panicles (inflorescences) are grayish-green; the spikelets (flowers) are grayish or light green; the anthers are purplish or yellow; flowering generally takes place between mid-July and late November (additional records: one for mid-April, three for early May, four for early June and two for late June); the grain is brownish. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; plateaus; along rocky canyons; along bouldery, rocky, rocky-sandy, gravelly and sandy canyon bottoms; gorges; crevices in bedrock; meadows; foothills; rocky hills; rocky hillsides; rocky, rocky-sandy-loamy and sandy slopes; alluvial fans; amongst boulders and rocks; flats; basins; valley bottoms; roadsides; along rocky and sandy arroyos; bottoms of arroyos; rocky and rocky-gravelly-sandy draws; bottoms of draws; gulches; along and in rocky gullies; bouldery and rocky bottoms of ravines; along seeps; around

and in gravely and sandy springs; along streamlets; along streams; along and in bedrock, rocky, gravelly and sandy streambeds; in boulders and rocky-sandy soil along creeks; along and in rocky, rocky-sandy, stony and sandy creekbeds; rocky riverbeds; along and in bouldery, rocky, rocky-gravelly, cobbly, gravelly and sandy washes; along and in bouldery and rocky drainages; bases of waterfalls; along rocky, cobbly and sandy banks of draws, streams, creeks, rivers and washes; gravelly-sandy edges of arroyos, seeps, streams, streambeds, rivers and washes; along margins of streambeds and washes; sand bars; sandy terraces; bottomlands; floodplains; along fencelines; along ditch banks, and bouldery-cobbly-sandy, rocky-gravelly-sandy, cobbly, gravelly and sandy riparian areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly-clayey-loamy and gravelly-silty loam ground; clay ground, and silty ground, occurring from 200 to 8,400 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, fodder and/or fiber crop; it was also noted as having been used as a tool and as a ceremonial item. *Muhlenbergia rigens* is native to southwest-central and southern North America. *5, 6, 15, 18, 30, 33 (Page 218), 43 (060910), 46 (Page 110), 48, 58, 63 (060910 - color presentation), 77, **85** (060910 - color presentation), **102**, 105, 127*

***Muhlenbergia tenuifolia* (K.S. Kunth) C.B. von Trinius: Slender Muhly**

SYNONYMY: *Muhlenbergia monticola* S.B. Buckley. COMMON NAMES: Mesa Muhly, Slender Muhly, Slimflower Muhly. DESCRIPTION: Terrestrial annual or perennial densely tufted graminoid (a bunchgrass (clumpgrass) with decumbent, ascending or erect culms 8 to 28 inches in height and in clumps to 4 to 12 inches in width at the base); the spikelets (flowers) may be purplish; the anthers are yellowish; based on few records located, flowering generally takes place between mid-August and late October (additional records: flowering beginning as early as July and ending as late as November has been reported); the grains are brownish. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky cliffs; cliff faces; rocky and rocky-gravelly canyons; rocky canyon bottoms; rocky gorges; talus slopes; along bases of cliffs; crevices in rocks; rocky ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky hills; rocky and gravelly hillsides; escarpments; rocky, rocky-clayey, rocky-clayey-loamy, gravelly and clayey-loamy slopes; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; within niches; plains; gravelly flats; valley floors; railroad right-of-ways; along rocky and gravelly roadsides; arroyos; gravelly bottoms of arroyos; draws; gulches; along ravines (barrancas); in rocks along streams; streambeds; along creeks; rocky creekbeds; along and in bouldery-gravelly, rocky and sandy washes; sandy drainages; rocky-gravelly banks of arroyos and streams; rocky and rocky-gravelly edges of arroyos and draws; terraces; sandy-clayey-loamy ditches; riparian areas; waste places, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, gravelly and sandy ground; rocky-clayey loam, sandy-clayey loam and clayey loam ground, and rocky clay ground, occurring from 2,600 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. *Muhlenbergia tenuifolia* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 15 (recorded as *Muhlenbergia monticola* Buckl.), 33 (recorded as *Muhlenbergia monticola* Buckl., Page 215), 43 (060910 - *Muhlenbergia tenuifolia* Trin.), 46 (recorded as *Muhlenbergia monticola* Buckl., Page 111), 63 (060910), 77 (recorded as *Muhlenbergia monticola* Buckl.), **85** (061010 - color presentation of dried material), **102** (recorded as *Muhlenbergia monticola*)*

*Panicum arizonicum* (see *Urochloa arizonica*)

***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 ), 58, 63 (101809 - *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 - *Panicum hirticaule* J. Presl, color presentation of dried material), **102**, 127*

***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), 63 (101909 - color presentation), 77, 85 (101909 - color presentation of dried material), **102***

***Phalaris canariensis* C. Linnaeus: Annual Canarygrass**

COMMON NAMES: Alpista (Portuguese), Alpiste (Spanish), Alpiste des Canaries (French), Annual Canarygrass, Canary Grass, Common Canary Grass, Common Canarygrass, Kanariengras (German), Phalaris des Canaries, Southern Canarygrass. DESCRIPTION: Terrestrial annual graminoid (decumbent, geniculate, ascending or erect culms 10 inches to 6 feet in height); the foliage is green; the inflorescences are green or purplish aging to tan; the spikelets (flowers) may be straw-colored or gray-brown; based on few records located, flowering generally takes place between early May and early June (flowering records: one for early May, two for late May and one for early June, flowering ending in mid-June or possibly as late as August has been reported). HABITAT: Within the range of this species it has been reported from clearings in woodlands; along rocky-sandy roadsides; along creeks; freshwater marshes; clayey depressions; sandy benches; floodplains; clayey edges of stock tanks; waste places, and disturbed areas growing in moist and dry rocky-sandy and sandy ground; rocky-sandy loam ground, and clay ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. *Phalaris canariensis* is native to northern Africa; Azores and Canary and Madeira Islands in the North Atlantic Ocean. *5, 6, 33 (Page 263), 43 (061010), 46 (Page 131), 63 (061010 - color presentation of seed), 85 (061010 - color presentation of dried material), **102**, 106 (061010), 135 (061010 - color presentation)*

***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 as a food by native peoples of North America. *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), **102**, 127*

***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 tufted graminoid (usually erect culms 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 (Pages 64-65), 43 (102009), 46 (Page 83), 48 (genus), 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), **102***

***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 inch to 1 foot 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), **102** (recorded as *Schismus barbatus* incl. *S. arabicus*)*

***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), **102** (recorded as *Schismus barbatus* incl. *S. arabicus*)*

***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), **102***

***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), **102***

*Setaria macrostachya* (see NOTES and related footnotes 33, 46, 85 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 and reidentified as in the Supplement, Page 1041), 48 (recorded as *Setaria macrostachya*), 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), **102** (recorded as *Setaria macrostachya*), 105 (recorded as *Setaria macrostachya* H.B.K.)*

***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), **102***

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

***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, 63 (102409 - color presentation), 77, 85 (102409 - color presentation of dried material), **102**, 105, 127*

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

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

***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, 58, 63 (102409 - color presentation), 77, 85 (102409 - color presentation of dried material), **102**, 105, 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), **102**, 105, 127*

*Stipa speciosa* (see *Achnatherum speciosum*)

*Trichachne californica* (see *Digitaria californica*)

*Trichachne insularis* (see *Digitaria insularis*)

***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 (102509 - *Tridens muticus* Nash,), 46 (Page 91), 63 (102509 - color presentation), 77, 85 (102509 - color presentation of dried material), **102**, 105*

*Tridens pulchellus* (see *Dasyochloa pulchella*)

*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), **102**, 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 (*Panicum arizonicum* Scribn. & Merr., Page 281), 43 (102609), 46 (recorded as *Panicum arizonicum* Scribn. & Merr., Page 135), 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), **102***

***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), 63 (102709), 77, 85 (102709), **102***

***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), 63 (102709), 77, 85 (102709), **102***

## 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; along bouldery and rocky canyons; rocky canyon bottoms; bases of cliffs; meadows; foothills; hills; gravelly hilltops; rocky and rocky-gravelly-loamy hillsides; escarpments; 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, 58, 63 (102909 - color presentation of seed), 77 (color photograph #1), **85** (102909), 91, 115 (color presentation), **102***

*Beloperone californica* (see *Justicia californica*)

***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), 58, 63 (103009), 77 (color photograph #2), 85 (103009 - color presentation of dried material), **102**, 115 (color presentation)*

***Justicia californica* (G. Bentham) D.L. Gibson: Beloperone**

SYNONYMY: *Beloperone californica* G. Bentham. COMMON NAMES: Beloperone, California Beloperone, California Justicia, Chuparosa (Spanish, for "hummingbird"), Chuparosa-honeysuckle, Desert Hummingbird Bush, Honeysuckle, Hummingbird-bush, Rama Parda, Water-willow. DESCRIPTION: Terrestrial perennial deciduous shrub (3 to 6 feet in height); the leaves are grayish-green; the tubular flowers (1 to 1½ inches in length), located in terminal clusters, are dull red or dull scarlet; flowering generally takes place throughout the year. HABITAT: Within the range of this species it has been reported from mountains; along rocky canyons; canyon bottoms; foothills; rocky slopes; boulderfields; rocky coves; basins; along roadsides; along arroyos; bottoms of arroyos; along rivers; along and in gravelly and sandy washes, and along watercourses growing in dry bouldery, rocky, gravelly and sandy ground, occurring from sea level to 4,000 feet in elevation in the desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, recovers quickly from frost damage. 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 nectar-rich flowers are pollinated by hummingbirds and eaten by linnets and sparrows. The Costa's Hummingbird (*Calypte costae*) and Rufous Hummingbird (*Selasphorus rufus*) have been observed visiting the flowers. *Justicia californica* is native to southwest-central and southern North America. *5, 6, 10, 13 (color photograph), 18, 26, 28 (recorded as *Beloperone californica*, color photograph), 43 (062610), 46 (recorded as *Beloperone californica* Benth., Page 802), 77 (color photograph #57), 63 (062610 - color presentation), 85 (062610 - color presentation, unable to access species information), 86 (color photograph), 91, **102**, 115 (color presentation), 127*

***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), **102**, 115 (color presentation)*

*Siphonoglossa longiflora* (see *Justicia longii*)

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), 101 (color photograph), **102**, 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), **102**, 115 (color presentation), 127*

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

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

***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), 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 of seed), 101 (color photograph), **102**, 115 (color presentation), 127*

***Amaranthus* x *tucsonensis* J.S. Henrickson [*hybridus* x]: Tucson Amaranth**

COMMON NAMES: Tucson Amaranth, Tucson Pigweed. DESCRIPTION: Terrestrial annual forb/herb (to 32 inches in height); based on few records located, flowering generally takes place between mid-August and late December (flowering records: one for mid-August, one for late August, one for early September, two for mid-September, two for late November, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; rocky slopes; roadsides; along washes, and distubed areas growing in dry rocky ground, occurring from 2,200 to 4,800 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This species was not found in either BONAP or NRCS Plants Database. *Amaranthus* x *tucsonensis* is native to southwest-central North America. *5, 6, 43 (071710), 46 (no record of species, genus Pages 265-267 & 1048), 63 (071710), 77, **85** (071710), **102** (recorded as *Amaranthus tucsonensis*)*

*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), 58, 63 (110109 - color presentation), 77, 85 (110209 - also recorded as *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), **102**, 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation)*

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

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

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

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

## 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), 58, 63 (110209 - color presentation), 68, 77, **85** (110309 - color presentation), **102**, 106 (110209), 115 (color presentation)*

*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), 58, 63 (110309 - color presentation), 77, 85 (110409 - color presentation), **102**, 115 (color presentation), 127*

***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), **102***

***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 (*Caucalis microcarpa* Hook. & Arn., Page 612), 58, 63 (110509), 77, 85 (110509 - color presentation), **102***

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; within rocky and gravelly drainages; within 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), **102**, 115 (color presentation), MBJ*

Aristolochiaceae: The Birthwort Family

***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; within 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 reported as 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), 58, 63 (110609), 77 (color photograph #59), **85** (110608 - color presentation), **102**, 106 (071708 - information relating to the Pipevine Swallowtail Butterfly), 115 (color presentation)*

Asclepiadaceae: The Milkweed Family

***Asclepias linaria* A.J. Cavanilles: Pineneedle Milkweed**

COMMON NAMES: Algodoncillo (Hispanic), Atu'sh-jiuátsi (en Mich), Chiche de Burra (Hispanic), Chichivilla Cimarrona (Hispanic), Chucuipe (en Mich), Cinco Negritos (Hispanic), Cola de Gato (Hispanic), Guajito (Hispanic), Hierba de Cuervo (Hispanic), Hierba de Vibora (Hispanic), Hierba del Cuervo (Hispanic), Lumu Turhipiti Xukurhi (en Mich), Oreja de Liebre (Hispanic), Patito (Hispanic), Pineneedle Milkweed, Pinillo (Hispanic), Plumilla (Hispanic), Romerillo (Hispanic), Soliman (Hispanic), Talayote de Coyote (Hispanic), Torbisco (Hispanic). DESCRIPTION: Terrestrial perennial fob/herb or subshrub (ascending or erect stems 1 to 5 feet in height, plants were observed and described as being 2½ feet in height and 3½ feet in width); the needle-like leaves are green; the flowers are cream or white; flowering generally takes place between mid-March and late October (additional records: two for mid-December; flowering beginning as early as February has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyon rims; rock cliffs; rock walls; gravelly canyons; canyonsides; canyon bottoms; bases of cliffs; crevices in bedrock; talus slopes; rocky ledges; foothills; hills; rocky and rocky-clayey hillsides; rocky, rocky-clayey, gravelly-loamy and sandy-loamy slopes; bedrock and rocky outcrops; amongst rocks; plains; along roadsides; draws; springs; along streams; within washes; rocky drainages; banks of ravines; rocky and sandy bars; rocky margins of reservoirs; around stock tanks; around reservoirs, and riparian areas growing in dry rocky, rocky-gravelly, gravelly and sandy ground; gravelly loam, sandy loam and sandy-clayey loam ground, and rocky clay ground, occurring from 1,500 to 9,200 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 has a milky sap. *Asclepias linaria* is native to southwest-central and southern North America. *5, 6, 15, 28, 30, 43 (071710), 46 (Page 661, species

within this genus may contain a glucoside that is poisonous to livestock, especially to sheep; however, the plants are seldom eaten), 63 (071710), 85 (071710 - color presentation), **102**, 115 (color presentation)*

***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 south-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), **102**, 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 (*Metastelma arizonicum* Gray, Page 663), 58, 63 (110709), 77 (color photograph #61), **85** (110709), **102***

***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/or twining stem 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 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) R. Holm), 63 (110709), 68, 77 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) Holm), 85 (110809 - color presentation), 115 (color presentation of species), **102** (recorded as *Sarcostemma cynanchoides* subsp. *hartwegii*)*

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

*Gonolobus arizonicus* (see *Matelea arizonica*)

*Gonolobus parvifoliu*s (see *Matelea parvifolia*)

*Lachnostoma arizonicum* (see *Matelea arizonica*)

***Matelea arizonica* (A. Gray) L.H. Shinners: Arizona Milkvine**

SYNONYMY: *Gonolobus arizonicus* (A. Gray) R.E. Woodson, *Lachnostoma arizonicum* A. Gray. COMMON NAMES: Arizona Milkvine, Rincon Milkweed Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing and twining stems to 6½ feet in length); the flowers are white, whitish or yellowish; based on few records located, flowering generally takes place between early July and late November (flowering records: one for early July, one for late July, one for late August, two for early September and one for late November, flowering beginning as early as May was also reported). HABITAT: Within the range of this species it has been reported from mountains; cliff faces; rocky canyons; bottoms of canyons; crevices; bases of cliffs; foothills; hillsides; rocky slopes; amongst boulders; roadsides; along streams; bouldery streambeds; rocky creekbeds; riverbeds; along and in washes; drainages; rocky banks of streams, and riparian areas growing in bouldery and rocky ground often in shaded areas, occurring from 400 to 4,500 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Matelea arizonica* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 46 (recorded as *Lachnostoma arizonicum* A. Gray, Pages 665-666), 63 (111806), **85** (072910), **102***

***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 (*Gonolobus parvifolius* Torr., Page 665), 63 (110809), 77, 85 (110809 - color presentation), **102***

*Metastelma arizonicum* (see *Cynanchum arizonicum*)

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

*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; within 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), **102**, 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), **102**, 115 (color presentation), 127*

***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; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; 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), **102**, 115 (color presentation)*

***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, **102**, 115 (color presentation), 127, **WTK** (May 9, 2005)*

***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), 58, 63 (111009), 68, 77, 85 (111009 - color presentation), **102**, 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), 43 (070910), 46 (recorded as *Franseria deltoidea* Torr., Page 896), 63 (111009 - color presentation), 77 (color photograph #68), 85 (111009 - color presentation), 91, **102**, 115 (color presentation), **WTK** (May 9, 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 (recorded as *Franseria dumosa* Gray, Page 895), 63 (111109 - color presentation), 77, **85** (111109 - color presentation), 91, **102***

*Ambrosia salsola* (see *Hymenoclea salsola*)

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

SYNONYMY: *Eriophyllum lanosum* (A. Gray) A. Gray. COMMON NAMES: White Easterbonnets, 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), **102** (recorded as *Eriophyllum lanosum*), 115 (color presentation)*

*Aplopappus cuneatus* var. *spathulatus* (see footnote 46 under *Ericameria cuneata* var. *spathulata*)

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

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

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

***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, 58, 63 (111209), 77, 85 (111309 - color presentation), 115 (color presentation), **102**, 127*

***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; within 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), **102**, 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 var. *aspera* (G. Bentham) E.L. Greene: Sweetbush**

COMMON NAMES: Chuckwalla Delight, Chuckwalla's Delight, Junco, Rush Bebbia, Sweetbush, Sweetbush Bebbia. DESCRIPTION: Terrestrial perennial subshrub or shrub (16 inches to 5 feet in height, one plant was described as being 20 inches in height and 26 inches in width); 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-yellow or yellow, flowering takes place throughout the year. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; rocky cliff faces; rocky-sandy canyons; rocky bluffs; buttes; foothills; bouldery and rocky hills; rocky and gravelly hillsides; rocky, shaley and sandy slopes; bajadas; bouldery outcrops; amongst boulders; sand dunes; sandy plains; gravelly and sandy flats; sandy valley floors; beach dunes; along gravelly roadsides; arroyos; bottoms of arroyos; sandy draws; springs; along streams; along creeks; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky and gravelly drainages; within drainage ways; stony and gravelly-sandy banks of river and washes; bouldery sandy edges of streams, rivers, washes, ponds and lakes; sand bars; rocky, rocky-sandy, gravelly and sandy beaches; sandy benches; sandy terraces; sandy-loamy floodplains;

riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and silty loam 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: The flowers are reportedly sweet-scented. *Bebbia juncea* var. *aspera* is native to southwest-central and southern North America. *5, 6, 13, 15, 43 (061409), 46 (Page 912), 63 (111309 - color presentation), 77, 85 (111309 - color presentation of dried material), **102**, 115 (species)*

***Brickellia baccharidea* A. Gray: Resinleaf Brickellbush**

COMMON NAMES: Baccharis-leaf Brickellia, Baccharisleaf Brickellbush, Brickell-bush, Brickellbush, Resinleaf Brickellbush. DESCRIPTION: Terrestrial perennial subshrub or shrub (18 inches to 8¼ feet in height, one plant was described as being 8¼ feet in height and width); the leaves are green; the flowers are pale yellow with a green tinge; flowering generally takes place between mid-September and late November. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliff faces; shaded canyons; bases of cliffs; crevices in boulders; bedrock and rocky ridges; foothills; hills; rocky-clayey and cobbly hillsides; bouldery-rocky-sandy and rocky slopes; rocky outcrops; amongst boulders; gravelly road banks; draws; riverbeds; clayey washes; within drainages; rocky waterholes, and riparian areas growing in dry bouldery, bouldery-rocky-sandy, rocky, cobbly, gravelly and sandy ground and rocky clay and clay ground, occurring from 500 to 5,800 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Brickellia baccharidea* is native to southwest-central and southern North America. *5, 6, 13, 15, 43 (063010), 46 (Page 849), 48 (genus), 58, 63 (063010), 77, **85** (080810 - color presentation of dried material), **102***

***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; 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; escarpments; 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. 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 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), **102**, 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; valley floors; 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 photograph), 43 (111409), 46 (Page 849), 48 (genus), 58, 63 (111409), 77, **85** (111409 - color presentation), **102**, 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; rocky 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*), **102**, 115 (color presentation)*

***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), **102***

*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), **102**, 115 (color presentation), 127*

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

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

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

*Dyssodia porophylloides* (see *Adenophyllum porophylloides*)

***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), 91, **102**, 115 (color presentation), 127*

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

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

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

***Ericameria cuneata* (A. Gray) A.J. McClatchie var. *spathulata* (A. Gray) H.M. Hall: Cliff Goldenbush**

SYNONYMY: *Aplopappus cuneatus* A. Gray var. *spathulatus* (A. Gray) S.F. Blake ex P.A. Munz, *Haplopappus cuneatus* A. Gray var. *spathulatus* (A. Gray) S.F. Blake ex P.A. Munz. COMMON NAMES: Cliff Goldenbush, Desert Rock Goldenbush, Desert Rock Golden Weed, Wedgeleaf Golden Weed, Wide-leaved Rock Goldenbush. DESCRIPTION: Terrestrial perennial subshrub or shrub (12 to 40 inches in height with a rounded crown); the flowers are yellow; flowering generally takes place between late September and mid-November (additional records: one for mid-February, two for mid-April, one for early May, one for mid-August, two for early September, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; along mountaintops; rocky crags; rocky cliffs; rock faces; bouldery and rocky canyons; canyon walls; crevices in boulders and rocks; bases of cliffs; tops of buttes; rocky ledges; atop windswept prominences; rocky ridges; ridgetops; rocky hillsides; rocky and sandy slopes; rocky outcrops; amongst boulders, and on boulders and rocks growing in moist and dry bouldery, rocky, rocky-sandy and sandy ground and sandy silty ground, occurring from 3,000 to 7,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Ericameria cuneata* var. *spathulata* is native to southwest-central and southern North America. *5, 6, 13 (species), 15, 43 (071710 - *Ericameria cuneata* McClatchie var. *spathulata* (A. Gray) H.M. Hall), 46 (recorded as *Aplopappus cuneatus* Gray var. *spathulatus* (Gray) Blake, Page 861), 63 (100506), 77, **85** (072910), **102***

***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; valley floors; 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 (*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), **102**, 115 (color presentation)*

***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 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 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), 58, 63 (112209 - color presentation), 77, 85 (112409 - color presentation), 86 (color photograph), **102**, 115 (color presentation), 127*

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

***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: This plant may be an attractive component of a restored native habitat. *Erigeron lobatus* is native to southwest-central and southern North America. *5, 6, **8**, 43 (112609), 46 (Page 880), 48 (genus), 63 (112409), 77, 85 (112609 - color presentation of dried material), **102***

*Eriophyllum lanosum* (see *Antheropeas lanosum*)

*Eupatorium solidaginifolium* (see *Koanophyllon solidaginifolium*)

*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 deltoidea* (see *Ambrosia deltoidea*)

*Franseria dumosa* (see *Ambrosia dumosa*)

*Gnaphalium canescens* (see *Pseudognaphalium canescens* subsp. *canescens*)

*Gnaphalium wrightii* (see *Pseudognaphalium canescens* subsp. *canescens*)

***Gymnosperma glutinosum* (C.P. Sprengel) C.F. Lessing: Gumhead**

SYNONYMY: *Selloa glutinosa* C.P. Sprengel. COMMON NAMES: Cola de Zorro, Escobilla, Glutinous Gymnosperma, Gumhead, Hierba Pegajosa, Jarilla, Jucu Ndede, Mariquita, Motita, Moto, Nakedseed Weed, Pegajosa, Tatalencho, Tata Lencho, Xonequilitl, Zazal. DESCRIPTION: Terrestrial perennial subshrub or shrub (erect stems 1 to 5 feet in height); the leaves are green; the flowers are golden or yellow; flowering generally takes place between late July and late November (additional records: one for late January, one for mid-February, five for mid-March, three for early April, one for mid-April, two for late April, one for late May, three for mid-June, one for late June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; rocky, gravelly and sandy canyon bottoms; bases of cliffs; crevices; rocky ridges; bouldery ridgetops; foothills; rocky, rocky-gravelly and gravelly hills; rocky hillsides; rocky and gravelly-loamy slopes; amongst boulders; bases of rocks; volcanic dikes and plugs; gravelly-loamy flats; rocky valley floors; rocky roadcuts; along roadsides; within sandy arroyos; bottoms of arroyos; bottoms of gullies; within ravines; springs; along streams; streambeds; creekbeds; along and in rocky, gravelly and sandy washes; within drainages; palm oases; along gravelly-sandy banks of ravines, streams and washes; edges of arroyos; rocky margins of arroyos; floodplains, and riparian areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground and gravelly loam and sandy loam ground, occurring from 100 feet 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. *Gymnosperma glutinosum* is native to southwest-central and southern North America and Central America. *5, 6, 13, 15, 28, 43 (071710 - *Gymnosperma glutinosum* Less.), 46 (recorded as *Selloa glutinosa* Spreng., Page 851), 77, **85** (072910 - color presentation), **102***

*Haplopappus cuneatus* var. *spathulatus* (see *Ericameria cuneata* var. *spathulata*)

*Haplopappus laricifolius* (see *Ericameria laricifolia*)

*Haplopappus tenuisectus* (see *Isocoma tenuisecta*)

***Helianthus petiolaris* T. Nuttall subsp. *fallax* C. B. Heiser: Prairie Sunflower**

SYNONYMY: *Helianthus petiolaris* T. Nuttall var. *fallax* (C. B. Heiser) B.L. Turner. COMMON NAME: Deceptive Sunflower, Prairie Sunflower, Sunflower. DESCRIPTION: Terrestrial annual forb/herb (6” to 4’?); the ray flowers are yellow; flowering generally takes place between early May and early November. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyon bottoms; escarpments; slopes; sand dunes; sandy steppes; sandy prairies; plains; valleys; along cindery-gravelly roadsides; arroyos; streambeds; along creeks; riverbeds; along sandy-clayey washes; sandy floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in dry cindery-gravelly ground; gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from 2,900 to 8,000 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. The species, *Helianthus petiolaris*, 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* subsp. *fallax* is native to southwest-central North America. *5, 6, 28 (28 (color photograph of species), 43 (061709), 46 (species, Page 903), 58 (species), 63 (113009), 68 (species), 77 (species), 85 (120109 - color presentation of dried material), 86 (note on species under *Helianthus annuus*), **102**, 127 (species)*

*Helianthus petiolaris* var. *fallax* (see *Helianthus petiolaris* subsp. *fallax*)

*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; in 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 on Page 1071 in the supplement), 58, 63 (120109 - color presentation), 68, 77, 85 (120209 - color presentation), 101 (color photograph), **102**, 115 (color presentation)*

***Hymenoclea salsola* J. Torrey & A. Gray ex A. Gray: Burrobrush**

SYNONYMY: *Ambrosia salsola* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin. COMMON NAMES: Burro Brush, Burrobrush, Burrobush, Cheesebush, Cheeseweed, Desert Pearl, Ivdat (Pima), Jecota, Pearlbush, Romerillo, White Burrobrush, White Burro-bush, White Burrobush, White Cheesebush. DESCRIPTION: Terrestrial perennial drought-deciduous subshrub (10 inches to 8 feet in height and possibly two to three times as wide, one plant was observed and reported to be 2 feet in height and 40 inches in width, one plant was observed and reported to be 3 feet in height and 2 feet in width, one plant was observed and reported to be 3 feet in height and 5 feet in width with a trunk diameter of 2 inches, one plant was observed and reported to be 40 inches in height and 32 inches in width); the stems are green or yellow-green; the leaves are creamish-green, dark green or yellow-green; the flowers may be brown (male), cream, creamish-green, greenish-white (female), metallic gold, light pink, silvery, silvery-white, white, light yellow or yellow; flowering generally takes place between mid-January and early June (additional records: one for early October, flowering through June has been reported); the fruit has silvery-white wings. HABITAT: Within the range of this species it has been reported from mountains; sandy plateaus; rocky canyons; rocky canyon bottoms; sandy bases of cliffs; buttes; cinder cones; foothills; rocky, rocky-gravelly, sandy and clayey hills; rocky hillsides; bouldery, rocky, rocky-gravelly,

rocky-sandy, cindery, gravelly and sandy slopes; rocky-sandy alluvial fans; sandy-silty bajadas; sand dunes; rocky-sandy outwash fans; rocky and rocky-gravelly banks; gravelly-sandy and sandy plains; gravelly-sandy, sandy and clayey flats; valley floors; along rocky, rocky-sandy and sandy roadsides; arroyos; bottoms of arroyos; gullies; gravelly-sandy ravines; along streams; streambeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; around ponds; rocky-sandy edges of washes; margins of washes; gravelly-sandy shores of lakes; gravel and sand bars; bouldery beaches; benches; loamy bottomlands; floodplains; canal banks; recently burned areas in woodlands and desertscrub, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground; clay ground, and sandy silty and silty ground, occurring from below sea level to 5,300 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. White Cheesebush may be useful in the re-vegetation of disturbed sites. *Hymenoclea salsola* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph), 43 (052010 - *Hymenoclea salsola* Torr. & A. Gray), 46 (Page 893), 48 (genus), 63 (052010 - color presentation), 85 (052110 - color presentation, also recorded as *Ambrosia salsola* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin), 91, **102**, 115 (color presentation)*

***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), 58, 63 (120209), 77, 85 (120209 - color presentation), **102**, 115 (color presentation)*

***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), **102**, 115 (color presentation)*

***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), **102** (recorded as *Eupatorium solidaginifolium*)*

***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), 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), **102**, 115 (color presentation), 127*

***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), **102** (recorded as *Filago arizonica*)*

***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 flowers are 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 rocky outcrops; 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; within 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), **102** (recorded as *Filago californica*)*

***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 deposits; 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 (*Filago depressa* Gray), 43 (120509), 46 (*Filago depressa* Gray, Page 886), 58, 63 (120509), 77 (*Filago depressa* Gray), 85 (120509 - color presentation of dried material), **102** (recorded as *Filago depressa*)*

***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; rocky 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 (recorded as *Haplopappus spinulosus*, color photograph)*

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shinners subsp. *pinnatifida*: Lacy Tansyaster**

COMMON NAMES: Cutleaf Goldenweed, Cutleaf Ironplant, Lacy Tansy-aster, Lacy Tansyaster, Pinnate Machaeranthera, Spiny Goldenweed, Spiny Haplopappus Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 20 inches in height); the foliage is gray-green; the disk and ray flowers are yellow; flowering generally takes place between mid-February and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky-sandy rims of craters; cliffs; canyon bluffs; talus slopes; bouldery hillsides; sandy escarpments; rocky slopes; gravelly bajadas; amongst boulders; gravelly, gravelly, sandy and sandy-clayey flats; along roadsides; arroyos; sandy-silty draws; streambeds; banks of rivers; beaches; sandy benches; dry bottoms of stock tanks (charcos), and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; sandy clay and clay ground, and sandy silty ground, occurring from 1,500 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* is native to central and southern North America. *5, 6, 43 (062109), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860 and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 58, 63 (120609), 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 - (*Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*), *Haplopappus spinulosus*), **102***

*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), 115 (color presentation), **102***

***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), 127, **102** (recorded as *Malacothrix californica* var. *glabrata*)*

***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), 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 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), 101 (color photograph), **102**, 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; in 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 (*Microseris linearifolia* (DC.) Schultz Bip.), 28 (recorded as *Microseris lindleyi* and *Microseris linearifolia*, color photographs), 43 (120809 - *Microseris lindleyi* A.Gray), 46 (*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), **102** (recorded as *Uropappus lindleyi*), 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), **102**, 115 (color presentation)*

***Pectis cylindrica* (M.L. Fernald) P.A. Rydberg: Sonoran Cinchweed**

COMMON NAMES: Sonoran Cinchweed, Summer Mat. DESCRIPTION: Terrestrial annual forb/herb (to 4 inches in height); the ray flowers are yellow; flowering generally takes place between May and September. HABITAT: Within the range of this species it has been reported from gravelly-sandy mesas; foothills, and gravelly-sandy plains growing in gravelly-sandy ground, occurring from 1,500 to 5,000 feet in elevation. NOTE: *Pectis cylindrica* is native to southwest-central and southern North America. *5, 6, 43 (071710), 46 (Page 935), 63, 77, 85 (color presentation of dried material), **102***

***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; floodplains; lowlands; 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 record reported that it has 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), **102**, 127*

*Perezia nana* (see *Acourtia nana*)

*Perezia wrightii* (see *Acourtia wrightii*)

***Perityle emoryi* J. Torrey: Emory's Rockdaisy**

COMMON NAMES: Desert Rock Daisy, Emory Rockdaisy, Emory's Rockdaisy, Emory Rocklily, Hee Imkát (Seri), Hehemozcopol (Seri), Pee Inkát (Seri), Rock Daisy, Rock-daisy. DESCRIPTION: Terrestrial annual forb/herb (spreading and erect stems 1 to 40 inches in height with rounded crowns, plants were observed and described as being 8 inches in height and 16 inches in width); the semi-succulent leaves are dark green; the disk flowers are orange-yellow or yellow; the ray flowers are white; flowering generally takes place between late October and early June (additional records: two for late June, two for mid-August, one for early September, four for mid-September and two for late September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery bases of mountains; mesas; cliffs; rocky canyons; rocky canyon walls; rocky canyon bottoms; talus slopes; bases of cliffs; crevices in boulders and rocks; rocky and sandy knolls; rocky ledges; along ridges; volcanic ridgelines; cinder cones; rocky foothills; bouldery-rocky and rocky hills; rocky, gravelly-clayey, gravelly-sandy-clayey and sandy-clayey hillsides; bouldery, bouldery-gravelly, rocky, rocky-clayey, gravelly, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; rocky and gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; sandy lava flows; sandy dunes; sand hummocks; berms; plains; rocky, gravelly and sandy flats;

coastal bluffs; coastal sand dunes; sandy coastal plains; rocky and sandy coastal beaches; along sandy coastlines; along rocky roadsides; within rocky-gravelly and sandy arroyos; gravelly and sandy bottoms of arroyos; within rocky-gravelly draws; gullies; along rocky ravines; along streams; creekbeds; along and in bouldery-gravelly-sandy, rocky, rocky-sandy, rocky-silty, gravelly and sandy washes; within drainages; sandy and silty depressions; lakebeds; playas; muddy and sandy banks of arroyos, waterfalls and lakes; gravelly and gravelly-sandy edges of streams and washes; rocky shores of lakes; rocky and shaley-sandy beaches; sandy terraces; rocky bottomlands; floodplains; canal banks; riparian areas, and disturbed areas growing in muddy and wet, moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and silty loam ground; rocky clay, gravelly clay, gravelly-sandy clay and sandy clay ground, and rocky-silty and silty ground, occurring from sea level to 4,200 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Perityle emoryi* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (071710), 46 (Page 916), 63 (071710 - color presentation), 77, **85** (073110 - color presentation), **102***

***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; within 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), 58, 63 (121109 - color presentation), 77, **85** (121209 - color presentation), **102**, 115 (color presentation), 127*

***Pseudognaphalium canescens* (A.P. de Candolle) W.A. Weber subsp. *canescens*: Wright's Cudweed**

SYNONYMY: *Gnaphalium canescens* A.P. de Candolle, *Gnaphalium wrightii* A. Gray. COMMON NAMES: Everlasting, Gordolobo, Wright Cudweed, Wright's Cudweed. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (12 to 40 inches in height); the foliage is gray; the

flowers are cream, straw, white, yellow or yellow-cream; flowering generally takes place between early July and early November, late October (additional records: one for mid-January, one for late January, one for early February, one for late February, one for early April, one for mid-April, one for late April, one for late May, one for early June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; along canyon bottoms; bases of cliffs; sandy crevices in boulders and rocks; knolls; meadows; hills; sandy hillsides; rocky and gravelly slopes; bases of slopes; rocky outcrops; banks; flats; along roadsides; gullies; along streambeds; riverbeds; rocky and sandy washes; in pools; edges of seeps; cobbly-sandy terraces; gravelly-sandy riparian areas, and disturbed areas growing in moist and dry rocky, gravelly, 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: The foliage may be scented. *Pseudognaphalium canescens* subsp. *canescens* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 46 (recorded as *Gnaphalium wrightii* Gray, Page 888), 58, 63 (071710), 77, **85** (073110), **102** (recorded as *Gnaphalium wrightii*)

***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), 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), **102**, 115 (color presentation)*

***Rafinesquia californica* T. Nuttall: California Plumeseed**

COMMON NAMES: California Chicory, California Plumeseed. DESCRIPTION: Terrestrial annual forb/herb (erect stem 8 inches to 5 feet in height); the ray flowers are cream, cream-white with a pinkish tint, cream-yellow or white possibly tinged with rose; flowering generally takes place between mid-February and late June (flowering ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; plateaus; rocky canyons; along canyon floors; bases of cliffs; pockets of soil in boulders; clayey-loamy ridges; ridgetops; openings in

chaparrals; rocky-sandy meadows; rocky hills; hilltops; cobbly-loamy hillsides; bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-loamy-clayey, cobbly-sandy-loamy and clayey slopes; amongst rocks; rocky banks; clay lenses; silty flats; along rocky and gravelly roadsides; gulches; along streams; in streambeds; in rocky-gravelly creekbeds; along and in rocky and sandy washes; drainages; rocky-sandy bases of waterfalls; gravelly banks of streams; gravelly-sandy riparian areas; recently burned areas of pinyon-juniper woodland, grassland, chaparral and coastal sage scrub, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, cobbly-sandy loam, clayey loam and silty loam ground; rocky-loamy clay and clay ground, and silty ground, occurring from 600 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. *Rafinesquia californica* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 46 (Page 961), 63 (071710), 77, 80 (Listed as a Rarely Poisonous and Suspected Poisonous Range Plant, this annual forb has been reported to accumulate toxic levels of nitrate.), **85** (073110 - color presentation), **102***

***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), **102**, 115 (color presentation)*

*Selloa glutinosa* (see *Gymnosperma glutinosum*)

*Senecio douglasii* (see *Senecio flaccidus* var. *douglasii*)

*Senecio douglasii* var. *douglasii* (see *Senecio flaccidus* var. *douglasii*)

*Senecio douglasii* var. *monoensis* (see *Senecio flacciduss* var. *monoensis*)

***Senecio flaccidus* C.F. Lessing var. *douglasii* (A.P. de Candolle) B.L. Turner & T.M. Barkley: Douglas' Ragwort**

SYNONYMY: *Senecio douglasii* A.P. de Candolle, *Senecio douglasii* A.P. de Candolle var. *douglasii*. COMMON NAMES: Douglas Butterweed, Douglas Groundsel, Douglas Ragwort, Douglas' Ragwort, Groundsel. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (1 to 5 feet in height, one plant was described as being 20 inches in height and 12 inches in width, one plant was described as being 3 feet in height and width); the leaves are gray, gray-green or silvery; the disk and ray flowers are yellow; flowering generally takes place between early March and late November (additional record: one for late January). HABITAT: Within the range of this species it has been reported from mountains; stony and sandy mesas; cliffs; rocky, stony and gravelly canyons; canyon walls; along rocky, sandy and sandy-loamy canyon bottoms; bases of cliffs; rocky-clayey talus slopes; sandy crevices in rocks; ridges; ridgetops; foothills; bouldery and rocky hills; rocky and rocky-clayey hillsides; bouldery-sandy, rocky, rocky-gravelly, stony, cindery-gravelly, gravelly, gravelly-sandy and sandy slopes; bouldery-stony-gravelly-sandy alluvial fans; rocky lava flows; rocky-sandy and sandy steppes; rocky, sandy and sandy-clayey prairies; rocky and gravelly plains; rocky and sandy flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-clayey roadsides; along and in arroyos; sandy bottoms of arroyos; draws; bottoms of draws; rocky gullies; along and in sandy streambeds; along creeks; creekbeds; riverbeds; along and in rocky-sandy and sandy washes; sandy drainages; freshwater marshes; depressions; playas; clayey banks of arroyos, gulches, rivers and washes; clayey edges of creeks; margins of washes; rocky-sandy beaches; benches; shaley terraces; sandy bottomlands; floodplains; stock tanks; clayey riparian areas, and disturbed areas growing in dry bouldery, bouldery-stony-gravelly-sandy bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clay loam and sandy loam ground; rocky clay, sandy clay and clay ground, and rocky-silty, gravelly-sandy silty and sandy silty ground, occurring from 300 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Senecio flaccidus* var. *douglasii* is native to southwest-central and southern North America. *5, 6, 28, 43 (062409), 46 (no record), 58, 63 (121309 - color presentation), 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), 86, **102** (recorded as *Senecio monoensis* / *Senecio douglasii* var. *douglasii*)*

***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 (color photograph labeled Sand Wash Groundsel), 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), **102** (recorded as *Senecio monoensis* / *Senecio douglasii* var. *douglasii*), 115 (color presentation)*

***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), **102**, 115 (color presentation)*

*Senecio monoensis* (see *Senecio flaccidus* var. *monoensis*)

***Silybum marianum* (C. Linnaeus) J. Gaertner: Blessed Milkthistle**

COMMON NAMES: Blessed Milkthistle, Bull Thistle, Cardo de Maria (Spanish), Cardo Lechero (Spanish), Cardo Mariano (Spanish), Cardo-leiteiro (Portuguese), Chardon-marie (French), Gundagai Thistle, Holy Thistle, Lady's Thistle, Marian Thistle, Mariendistel (German), Mary Thistle, Mediterranean Milk Thistle, Milk Thistle, Milkthistle, Silybe de Marie (French), Spotted Thistle, St. Mary's Thistle, Variegated Thistle. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 16 to 40 inches in height with a flowering stem reaching to 6 feet in height); the leaves are dark green with white markings; the flowers (1 to 2¼ inches in width) are pink, pink-purple, purple, purplish-red or red-purple; flowering generally takes place between May and September. HABITAT: Within the range of this species it has been reported from roadsides; ditch banks; waste places, and disturbed areas growing in moist and dry ground, occurring from 1,000 to 3,500 feet in elevation in the desertscrub ecological formation. NOTES: EXOTIC Invasive Plant. *Silybum marianum* is native to southern Europe; western Asia, and northern Africa. *5, 6, 28 (color photograph), 43 (071110 - *Silybum marianum* (L.) Gaertn.), 46 (Page 954), 63 (071110 - color presentation), 68, 80 (Listed as a Rarely Poisonous and Suspected Poisonous Range Plant "This tall, prickly forb is an occasional weed in waste places in southern Arizona. It accumulates dangerous levels of nitrate."), 85 (071110 - color presentation), 101, **102**, 106 (071110 - contains potassium nitrate, color presentation)*

***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), 101 (color photograph), **102**, 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), 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), 101 (color photograph), **102**, 115 (color presentation)*

***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 has a milky 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 food (candy) crop; it was also noted as having been used as a ceremonial item and as a drug or medication. *Stephanomeria pauciflora* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph), 43 (121909), 46 (Page 960), 58, 63 (121909 - color presentation), 77 (color photograph #70), 85 (121909 - color presentation), **102**, 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), **102***

***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), **102***

***Thymophylla pentachaeta* (A.P. de Candolle) J.K. Small: Fiveneedle Pricklyleaf**

COMMON NAMES: Common Dogweed, Dahlberg Daisy, Dogweed, Five-needle Fetid Marigold, Five-needle Pricklyleaf, Fiveneedle Pricklyleaf, Golden Dogweed, Golden Dyssodia, Golden Fleece, Parralena, Parvialena, Scale Glandbush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (3 inches to 2 feet in height); the foliage is dark green; the disk flowers are orange, orange-yellow, yellow or yellow-orange; the ray flowers are orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between mid-March and mid-December (additional records: two for early January, two for mid-January, two 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; rocky rims of canyons; cliffs; bouldery and rocky canyons; rocky canyon walls; bouldery-gravelly-sandy and rocky canyon bottoms; gorges; rocky talus slopes; gravelly bases of cliffs; crevices in boulders; sandy bluffs; rocky knolls; rocky ledges; ridges; ridgetops; foothills; rocky, rocky-gravelly and sandy hills; rocky and gravelly hillsides; bouldery, bouldery-gravelly, rocky and gravelly slopes; rocky alluvial fans; bajadas; rocky outcrops; amongst boulders; sand dunes; rocky plains; gravelly flats; basins; rocky valley floors; along rocky, gravelly, gravelly-sandy and sandy roadsides; gulches; rocky gullies; rocky ravines; along and in gravelly streambeds; along and in bouldery, rocky-sandy, cobbly, gravelly and sandy washes; sandy drainages; swales; sandy banks of rivers; edges of washes; rocky and cobbly beaches; pebbly benches; shelves; gravelly terraces; sandy bottomlands; floodplains; ditches; riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, sandy-clayey loam and clayey loam ground; sandy-silty clay, silty-clay, chalky clay and clay ground, and 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 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, 43 (122209 - *Thymophylla pentachaeta* Small), 46 (*Dyssodia pentachaeta* (DC.) Robins., Page 933 and *Dyssodia thurberi* (Gray) A. Nels., Page 933), 63 (122209 - color presentation), 82, 85 (122309 - color presentation), **102**, 115 (color presentation)*

***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 boulderfields; 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; within 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 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 often in the shade of rocks and larger shrubs and trees, 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), 91, **102**, 106 (122309 - color presentation), 115 (color presentation)*

*Trixis californica* var. *californica* (see *Trixis californica*)

*Uropappus lindleyi* (see *Microseris lindleyi*)

*Uropappus linearifolius* (see *Microseris lindleyi*)

*Viguiera deltoidea* var. *parishii* (see *Viguiera parishii*)

***Viguiera parishii* E.L. Greene: Parish's Goldeneye**

SYNONYMY: *Viguiera deltoidea* A. Gray var. *parishii* (E.L. Greene) G. Vasey & J.N. Rose. COMMON NAMES: Ariosa, Golden Eye, Parish Goldeneye, Parish's Goldeneye, Parish Viguiera. DESCRIPTION: Terrestrial perennial subshrub or shrub (16 inches to 8¼ feet in height with a rounded crown one plant was observed and describe as being 24 inches in height and 4 feet in width, one plant was observed and describe as being 28 inches in height and 4 feet in width); the stems are whitish; the leaves are gray-green, green or dark green; the disk flowers are brownish, golden-yellow, orange or yellow; the ray flowers are golden-yellow, yellow or dark yellow; flowering generally takes place between mid-September and early June (additional records: one for mid-august and two for late august). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky chutes; bouldery and rocky canyons; rocky canyon bottoms; bluffs; buttes; bases of buttes; ledges; rocky ridges; bouldery ridgetops; bouldery-rocky ridgelines; foothills; bouldery and rocky hills; bouldery-rocky, rocky and shaley hillsides; bouldery, rocky, rocky-gravelly, rocky-loamy, gravelly and sandy slopes; alluvial fans; bajadas; amongst boulders and rocks; bajadas; blow-sand deposits; gravelly and sandy plains; rocky-sandy and sandy flats; valley floors; rocky railroad right-of-ways; along rocky, gravelly and gravelly-sandy roadsides; arroyos; draws; seeps; springs; along streambeds; along and in rocky, gravelly and sandy

washes; within drainages; along silty banks of arroyos and washes; edges of washes; margins of washes; shores of lakes; gravelly benches; loamy bottomlands; sandy floodplains, and riparian areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly and sandy ground; rocky loam, gravelly loam and loam ground, and silty ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Viguiera deltoidea* var. *parishii* is native to southwest-central and southern North America. *5, 6, 13, 28 (recorded as *Viguiera deltoidea* var. *parishii*, color photograph), 43 (071810), 46 (recorded as *Viguiera deltoidea* var. *parishii* (Greene) Vasey & Rose, Page 901), 63 (071810), 85 (073110 - color presentation), 91, **102** (recorded as *Viguiera deltoidea* var. *parishii*)

***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), **102**, 115 (color presentation), 127*

*Zinnia pumila* (see *Zinnia acerosa*)

## 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), 101, **102** (recorded as *Amsinckia intermedia*), 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), 63 (122709 - color presentation), 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), **102**, 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), **102***

***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), **102***

***Cryptantha decipiens* (M.E. Jones) A.A. Heller: Gravelbar Cryptantha**

COMMON NAMES: Forget-Me-Not, Gravel Cryptantha, Gravelbar Cryptantha, Gravel Nievitas, Peluda. DESCRIPTION: Terrestrial annual forb/herb (ascending to erect stems 4 to 16 inches in height); the herbage is gray-green; the flowers are cream-white and white; flowering generally takes place between early March and mid-June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains, mesas; rocky canyons; sandy and sandy-loamy canyon bottoms; scree slopes; bases of cliffs; crevices in rocks; ledges; rocky ridges; ridgelines; sandy meadows; foothills; around rocky hills; rocky hillsides; rocky, gravelly, gravelly-silty and sandy slopes; bouldery-stony-gravelly-sandy alluvial fans; gravelly bajadas; amongst rocks; debris flows; gravelly-sandy and sandy flats; gravelly and sandy roadsides; along and in rocky, rocky-gravelly, gravelly-sandy and sandy washes; along rocky-silty-loamy and gravelly drainages; sandy-loamy watercourses; banks of washes; edges of washes; gravelly-sandy benches; floodplains; gravelly-sandy riparian areas; recently burned areas in juniper-pinyon woodlands, and disturbed areas growing in dry bouldery-stony-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-silty loam and sandy loam ground, and gravelly silty ground, occurring from 800 to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha decipiens* is native to southwest-central and southern North America. *5, 6, 43 (071810), 46 (Page 721), 63 (071810), 77, 85 (color presentation), **102***

***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), **102***

***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), **102**, 115 (color presentation)*

***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), **102***

***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: 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; 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 (*Lappula redowskii* (Hornem.) Greene), 63 (010110 - color presentation), 77 (recorded as *Lappula redowskii* (Hornem.) Greene), 85 (010210), 101 (color photograph), **102** (recorded as *Lappula redowskii* var. *desertorum*), 115 (color presentation of species), 127*

*Lappula redowskii* (see *Lappula occidentalis* var. *occidentalis*)

*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*)

***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), **102***

***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), **102***

***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), **102***

***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), **102**, 115 (color presentation), 127*

***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 (*Coldenia canescens* DC., Page 709), 63 (010310), 85 (010310), **102**, 115 (color presentation of species)*

## 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), **102**, 115 (color presentation), 127*

*Boechera perennans* (see *Arabis perennans*)

***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 observed and reported, plants 24 to 30 inches in height and 18 inches in width at the base were observed and 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), 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), **102**, 115 (color presentation)*

***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), 101 (color photograph), **102**, 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 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), 101 (note), **102**, 127*

***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; shelves; sandy and loamy bottomlands; 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), **102**, 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)*

***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 (*Caulanthus lasiophyllus* (Hook. & Arn.) Payson var. *lasiophyllus*), 16 (*Caulanthus lasiophyllus* (Hook. & Arn.) Payson), 43 (010910), 46 (*Thelypodium lasiophyllum* (Hook. & Arn.) Greene, Page 330), 63 (010910 - color presentation), 77 (*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), **102** (recorded as *Caulanthus lasiophyllus*), 115 (color presentation)*

***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), 63 (011010 - color presentation), 68, 77, **85** (011010 - color presentation), 127*

***Lepidium lasiocarpum* T. Nuttall var. *wrightii* (A. Gray) C.L. Hitchcock: Wright's Pepperweed**

COMMON NAMES: Hairy-pod Pepperwort, Hairypod Lepidium, Lentejilla, Sand Peppergrass, Wright Pepperweed, Wright's Pepperweed. DESCRIPTION: Terrestrial annual or biennial forb/herb; the flowers are white; flowering generally takes place between late January and early April. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky ledges; sandy ridges; rocky hills; rocky slopes; rocky outcrops; flats; along clayey roadsides; arroyos; creekbeds; riverbeds; sandy washes; sandy banks of rivers; clayey bottomlands; riparian areas; waste places, and disturbed areas in rocky and sandy ground; clayey loam ground; clay ground, and sandy silty ground, occurring from 400 to 6,300 feet in elevation in the grassland and desertscrub 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. *wrightii* is native to southwest-central and southern North America. *5, 6, 43 (011010 - *Lepidium lasiocarpum* var. *wrightii* C.L. Hitchc.), 46 (Page 334), 63 (011010), 85 (011010 - color presentation of dried material), **102**, 127 (species)*

***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), 58, 63 (011310 - color presentation), 68, 77, **85** (011310 - color presentation), 86 (note under Fendler's Bladderpod), **102**, 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), **102**, 115 (color presentation)*

***Lesquerella tenella* A. Nelson: Moapa Bladderpod**

SYNONYMY: *Physaria tenella* (A. Nelson) S.L. O'Kane & I.A. Al-Shehbaz. COMMON NAMES: Bladderpod, Delicate Bladderpod, Moapa Bladderpod, Palmer Bean Pod, Slender Bladderpod. DESCRIPTION: Terrestrial annual forb/herb (4 to 20 inches in height); the flowers are yellow; flowering generally takes place between early January and late May. HABITAT: Within the range of this species it has been reported from mountains; plateaus; bouldery chasms; rocky hills; gravelly slopes; alluvial slopes; sandy bajadas; amongst boulders; sand hills; sand dunes; breaks; gravelly and sandy plains; rocky and sandy flats; valley floors; along rocky roadsides; gulches; along ravines; springs; along sandy streams; along rivers; along and in gravelly, gravelly-sandy and sandy washes; along banks of washes; lakesides, and riparian areas growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground and gravelly loam and sandy loam ground, occurring from 900 to 6,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Lesquerella tenella* is native to southwest-central and southern North America. *5, 6, 34 (genus), 43 (070910), 46 (no record of species), 48 (genus), 63 (070910), **85** (070910 - color presentation of dried material, unable to access species information)*

*Physaria gordonii* (see *Lesquerella gordonii* var. *gordonii*)

*Physaria tenella* (see *Lesquerella tenella*)

***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; within 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), 58, 63 (011410 - color presentation), 68, 77, **85** (011510 - color presentation), 101 (color photograph), **102**, 115 (color presentation), 127*

*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; bowls; along rocky, gravelly, gravelly-clayey-loamy and sandy roadsides; rocky arroyos; along draws; ravines; cobbly-sandy riverbeds; along and in sandy washes; drainages; 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, 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*), **102**, 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 (*Streptanthus arizonicus* Wats.), 28 (color photograph), 43 (063009), 46 (*Streptanthus arizonicus* Wats., Pages 331-332), 63 (011610 - color presentation), **85** (011610 - color presentation of dried material), 86 (color photograph of *Streptanthus arizonicus*), 115 (color presentation of species)*

*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 boulders and rocks; bases of rocks; lava flows; 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), **102**, 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

***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 (erect stems 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; within 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; it was also noted as having been used as tools, ceremonial items and musical instruments, and 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), 91, **102**, 107, 115 (color presentation), 119, 127, 134, **WTK** (May 9, 2005)*

*Cereus giganteus* (see *Carnegiea gigantea*)

*Cereus greggii* var. *transmontanus* (see *Peniocereus greggii* var. *transmontanus*)

***Cylindropuntia acanthocarpa* (G. Engelmann & J. Bigelow) F.M. Knuth: Buck-horn Cholla**

SYNONYMY: *Opuntia acanthocarpa* G. Engelmann & J. Bigelow. COMMON NAMES: Buck-horn Cholla, Buckhorn Cholla, Deer-horn Cactus, Stag-horn Cholla, Yellow Flowered Cane Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (16 inches to 15 feet in height, one plant was described as being 20 inches in height with a crown 60 inches in width, one plant was described as being 5 feet in height with a crown 10 feet in width, one plant was described as being 67 inches in height with a crown 83 inches in width); the stems are bluish-gray-green, gray-green, green or dark green; the spines are golden, golden-yellow, gray, reddish-brown, tan or yellowish; the flowers (1 to 2¼ inches in diameter) may be bronze, bronze with a reddish mid-stripe, bronze-yellow, burnt-orange, copper-yellow, green-yellow, maroon, orange, purple, purplish, red, dark red, reddish-bronze, yellow, yellow-brown, yellow-magenta, yellow-red or variegated; the anthers are light yellow or yellow; flowering generally takes place between early March and late June (additional records: two for early January, one for mid-July, two for early August and one for mid-November); the mature spiny, dry fruits (1¼ inches in length and 5/8 to3/4 inch in diameter) are brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; sandy mountainsides; rocky-sandy and stony mesas; bouldery canyons; canyon bottoms; buttes; ridges; rocky foothills; rocky, gravelly and sandy hills; rocky hillsides; rocky, rocky-gravelly, gravelly and sandy slopes; rocky, gravelly and gravelly-loamy bajadas; rocky outcrops; amongst boulders, rocks and gravels; plains; gravelly and sandy flats; basins; sandy valley floors; along gravelly roadsides; gulches; creekbeds; along and in bouldery, bouldery-gravelly, stony-gravelly, gravelly; gravelly-sandy and sandy washes; banks of washes; along rocky-sandy edges of creeks; margins of washes; rocky benches; gravelly-silty terraces; loamy bottomlands, and sandy riparian areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy loam, rocky-sandy loam, gravelly loam, sandy loam and loam ground; clay ground, and gravelly silty and 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. 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 change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia acanthocarpa* (accessed 041806). *Cylindropuntia acanthocarpa* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia acanthocarpa* Engelm. & Bigelow, Pages 34-37), 26 (genus, recorded as *Opuntia*), 27 (Page 17), 28 (recorded as *Opuntia acanthocarpa*, color photograph), 43 (011710 - *Cylindropuntia acanthocarpa* (Engelm. & J.M. Bigelow) F.M. Knuth, *Opuntia acanthocarpa* Engelm. & J.M. Bigelow), 45 (color photograph), 46 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel., Page 585), 48 (genus, recorded as *Opuntia*), 53 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel.), 63 (011710), 77 (recorded as *Opuntia acanthocarpa* Engelm. & Bigel. var. *major* (Engelm. & Bigel.) L. Benson, color photograph labeled *Opuntia acanthocarpa* #66), 85 (011710 - color presentation), **102** (recorded as *Opuntia acanthocarpa*), 115 (color presentation), 119 (recorded as *Opuntia acanthocarpa* Engelm.), 127*

***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 (Page 19, color photograph: Plates 14 & 14A, Page 96), 28 (recorded as *Opuntia acanthocarpa*, color photograph of species), 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 9, 2005)*

***Cylindropuntia bigelovii* (G. Engelmann) F.M. Knuth: Teddybear Cholla**

SYNONYMY: *Opuntia bigelovii* G. Engelmann. COMMON NAMES: Arizona Jumping Cactus, "Ball" Cholla, Cholla Guera, Go'te (Seri), Jumping Cactus, Jumping Cholla, Silver Cholla, Teddybear Cactus, Teddy Bear Cholla, Teddy-bear Cholla, Teddybear Cholla. DESCRIPTION: Terrestrial perennial stem-succulent subshrub or shrub (20 inches to 10 feet in height, one plant was reported to be just over 8 feet in height and 40 inches in width with 2 to 3 main trunks); the central trunk is black or dark brown; older branches are dark-brown; the stems (3 to 10 inches in length and 1¼ to 2½ inches in diameter) are bluish, light green, green or bluish-green; the spines are golden, silvery, tan, pale yellow or yellow aging to dark brown; the glochids are yellow; the flowers (1 to 1½ inches in diameter) may be chartreuse-yellow, cream tinged with rose, green, green-yellow, greenish-yellow, magenta, pink, white-yellow, yellow tinged with red-purple or white tinged with lavender; the anthers are yellow, deep yellow, yellow-orange or deep yellow-orange; the stigma lobes are cream, dark chartreuse-green, green, dark green or olive green; flowering generally takes place between early March and mid-June (additional records: one for late January, one for early February, one for early September, one for mid-November, two for late November and one for early December); the nearly spineless fruits (½ to ¾ inch in length and ½ to ¾ inch in diameter) are greenish-yellow, yellow or yellow-green and fleshy when ripe. HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mountainsides; canyons; canyon bottoms; cliffs; talus slopes; bluffs; rocky ridges; rocky ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly and sandy slopes; rocky alluvial fans; gravelly-loamy bajadas; plains; cobbly-silty, gravelly and silty flats; basins; valley floors; along roadsides; arroyos; along and in rocky, gravelly and sandy washes; sandy drainages; benches; lowlands, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; gravelly loam and silty loam ground; clay ground, and cobbly-silty and silty ground, occurring from sea level to 4,400 feet in elevation in the scrub 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. This is the spiniest of the cholla cacti in Arizona. Thomas Kearney and Robert Peebles in their book Arizona Flora had this to say about the Teddybear Cholla: "The combination of barbed spines and densely armed, easily detached joints has earned profound respect for this formidable cholla." Teddy-bear Chollas may live to be 60 or more years of age. The Teddybear Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). Pack Rats (*Neotoma* sp.) use the joints of this plant in the construction of their nests. The change in nomenclature in USDA NRCS has not been recognized in BONAP, species remains as *Opuntia bigelovii* (accessed 041806). *Cylindropuntia bigelovii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia bigelovii* Engelm., Pages 50, 52 & 54-55), 15 (recorded as *Opuntia bigelovii* Engelm., color photograph on Page 77 includes habitat and associated species), 18, 26 (genus, recorded as *Opuntia*), 27 (Page 5, color photographs including habitat: Plates 5 & 5A, Page 94), 28 (recorded as *Opuntia bigelovii*, color photograph), 43 (052110), 45 (color photograph), 46 (recorded as *Opuntia bigelovii* Engelm., Page 584), 48, 63 (052110 - color presentation including habitat), 77 (recorded as *Opuntia bigelovii* Engelm., color photograph #13), 85 (052110 - color presentation), 86 (color photograph), 91 (recorded as *Opuntia bigelovii* Engelm.), **102** (recorded as *Opuntia bigelovii*), 115 (color presentation), 119 (recorded as *Opuntia bigelovii* 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 (recorded as *Opuntia fulgida*, color photograph), 53 (recorded as *Opuntia fulgida* Engelm.), 63 (011810 - color presentation), 77 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **85** (011810 - color presentation), 91 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), **102** (recorded as *Opuntia fulgida* var. *fulgida*), 115 (color presentation of species), 119 (recorded as *Opuntia fulgida* Engelm.), 127, **WTK** (May 9, 2005)*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth x *Cylindropuntia leptocaulis* (A.P. de Candolle) F.M. Knuth: Cholla**

COMMON NAME: Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (20 to 40 inches in height, one plant was reported as being 20 inches in height and 6½ to 8¼ feet in width), the color of the spines has been described as being golden, the flowers pink, the fruits orange, flowering generally takes place between early February and August. HABITAT: Within the range of this species it has been reported from bajadas, occurring from 2,200 to 2,700 feet in elevation in the desertscrub ecological formation. *26 (genus, recorded as *Opuntia*), 48 (genus, recorded as *Opuntia*), **85** (100407)*

***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 (recorded as *Opuntia leptocaulis*, color photograph), 43 (011910), 45 (color photograph), 46 (recorded as *Opuntia leptocaulis* DC., Page ), 48 (genus, recorded as *Opuntia*), 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), 91 (recorded as *Opuntia leptocaulis* DC.), **102**, 115 (color presentation), 119 (recorded as *Opuntia leptocaulis* DC.), 127*

***Cylindropuntia leptocaulis* (A.P. de Candolle) F.M. Knuth x *Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth: Cholla**

COMMON NAME: Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (20 to 40 inches in height, one plant was reported as being 20 inches in height and 6½ to 8¼ feet in width), the color of the spines has been described as being golden, the flowers pink, the fruits orange, flowering generally takes place between early February and August. HABITAT: Within the range of this species it has been reported from bajadas, occurring from 2,200 to 2,700 feet in elevation in the desertscrub ecological formation. *26 (genus, recorded as *Opuntia*), 48 (genus, recorded as *Opuntia*), **102** (recorded as *Opuntia leptocaulis* Y *Opuntia fulgida*)*

***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, 58 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 63 (011910 - color presentation), 77 (recorded as *Opuntia spinosior* (Engelm.) Toumey), **85** (012010 - color presentation), 115 (color presentation), 119, 127, **WTK** (May 9, 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 (*Opuntia spinosior* (Engelm.) Toumey x *Opuntia versicolor* Engelm.), 85 (012010), **102** (recorded as *Cylindropuntia spinosior* Y *Cylindropuntia versicolor*)*

***Echinocactus horizonthalonius* C. Lemaire var. *nicholii* L.D. Benson: Nichol's Echinocactus**

COMMON NAMES: Arizona's Turk's-head, Bisnaga Manca Caballo, Bisnaga Meloncillo, Blue Barrel, Devil's Head, Eagle's Claw, Eagle's Claw Cactus, Horse Crippler, Manco Mula, Meloncillo, Nichol Echinocactus, Nichol Echinocactus, Nichol Turk's Head Cactus, Nichol Turk's-head Cactus, Nichol Turkshead, Nichol Woolly-headed Cactus, Nichol's Echinocactus, Nichol's Turk's-head Cactus, Nichol Turk's Head Cactus, Nichol Turk's-head Cactus, Nichol Turkshead, Nichol Woolly-headed Cactus, Turk's Head, Turk's-head. DESCRIPTION: Terrestrial perennial stem-succulent shrub (4 to 20 inches in height and 5 to 8 inches in diameter); the stems are blue-green, bluish-green or gray-green; the central spines may be black, gray or dark gray with red; the flowers (2 to 2¾ inches in diameter) are light pink, pink, pink (magenta), dark pink or bright purple; flowering generally takes place between May and June (flowering ending as late as September has been reported); the dry fruits (1 inch in length and ½ inch in diameter) are pink or red drying to brown and covered with white woolly hairs. HABITAT: Within the range of this species it has been reported from mountains; ridges; hills; slopes; gravelly bajadas; alluvial plains; flats; valley floors, and terraces growing in dry gravelly soils, occurring from 2,000 to 3,600 feet in elevation in the woodland and desertscrub ecological formations. NOTES: These very slow-growing plants may only be 2 inches in height after ten to thirty-two years with plants possibly living to be 85 to 95 years of age. This is a PERIPHERAL POPULATION. *Echinocactus horizonthalonius* var. *nicholii* is native to southwest-central and southern North America. *5, 6, **8**, 9, 12 (Page 175), 18 (genus), 27 (species, Page 116, color photograph: Plate 57, Page 105), 28 (species, color photograph of species), 43 (063010 - *Echinocactus horizonthalonius* var. *nicholii* L. Benson in L. Benson), 45 (color photograph), 46 (species, Page 573), 63 (063010), 85 (070110 - color presentation, unable to access species information), 91*

*Echinocactus wislizeni* (see *Ferocactus wislizeni*)

***Echinocereus engelmannii* (C.C. Parry ex G. Engelmann) C. Lemaire var. *acicularis* L. Benson: Engelmann's Hedgehog Cactus**

COMMON NAMES: Engelmann's Hedgehog Cactus, Needle-spine Hedgehog, Needle-spined Hedgehog Cactus, Strawberry Hedgehog Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect to ascending stems 6 to 15 inches in height and 1½ to 2½ inches in diameter in clusters of 5 to 25, or as many as 50 or more stems); the stems (6 to 8 inches in height and 1½ to 2½ inches in diameter, stems up to 24 inches in length were reported) are green; the long needle-like spines are pink or yellow; the flowers (2¼ to 2½ inches in diameter) are magenta or purple; flowering generally takes place between early March to early May (additional records: one for mid-June and one for mid-July); the ripe fruits (1½ inches in length) are purple or red. HABITAT: Within the range of this species it has been reported from mountains; sandy mountainsides; mesas; canyons; ledges; rocky ridges; rocky hills; rocky; gravelly and sandy hillsides; rocky slopes; gravelly-sandy and sandy bajadas; amongst rocks; on boulders and rocks; amongst rocks; sand dunes; plains; desert flats; basins; valley floors, and along and in sandy washes growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from 700 to 3,700 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Echinocereus 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 crop. The fruits may be eaten by birds and rodents. *Echinocereus engelmannii* var. *acicularis* is native to southwest-central and southern North America. *5, 6, 12 (Pages 138-139 & 140, color photograph), 18 (species), 27 (recorded as *Echinocereus engelmannii* Parry var. *acicularis* L. Benson, Page 86, color photograph: Plates 54 & 54A, Page 105 and Plate 102, Page 115), 28 (species, color photograph of species), 43 (070210 - *Echinocereus engelmannii* (Parry ex Engelm.) Rümpler in C.F. Först. var. *acicularis* L.D. Benson in L.D. Benson), 45 (species, color photograph of species), 46 (species, Page 571), 48 (genus), 63 (070210), **85** (070210 - color presentation, unable to

access species information), **102**, 119 (species, recorded as *Echinocereus engelmannii* (Parry) Rümpler), 127 (species)*

*Echinocereus engelmannii* var. *nicholii* (see *Echinocereus nicholii*)

***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 (possibly incorrectly applied). 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 (erect to ascending 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 (color photograph - recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*, Pages 132-135), 15 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), 16 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson), 27 (Page 81, color photograph: Plate 50, Page 104), 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), **102** (recorded as *Echinocereus fendleri* var. *robustus*), 115 (color presentation), 119 (species, recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 127*

*Echinocereus fasciculatus* var. *fasciculatus* (see *Echinocereus fasciculatus*)

*Echinocereus fendleri* var. *fasciculatus* (see *Echinocereus fasciculatus*)

*Echinocereus fendleri* var. *robustus* (see *Echinocereus fasciculatus*)

***Echinocereus nicholii* (L.D. Benson) B.D. Parfitt: Nichol's Hedgehog Cactus**

SYNONYMY: *Echinocereus engelmannii* (C.C. Parry ex G. Engelmann) C. Lemaire var. *nicholii* L. Benson. COMMON NAMES: Golden Hedgehog, Golden Hedgehog Cactus, Nichol Hedgehog, Nichol Hedgehog Cactus, Nichol's Hedgehog, Nichol's Hedgehog Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect to ascending stems 8 to 28 inches in height and 1½ to 3½ inches in diameter (one stem of approximately 5 feet in length was observed "running" along the ground) in clusters (clumps) of 10 to 30 stems); the stems are light green; the spines are golden-yellow, straw, pale translucent yellow, yellow or nearly white turning black or gray with age; the flowers (1½ to 2½ inches in diameter) are light lavender, lavender, pink or rose-pink; the anthers are yellow; flowering generally takes place between late March and mid-April (additional records: one for mid-June); the fleshy green fruits (1½ inches in length) turn bronze or red-brown with maturity and exposure to sun. HABITAT: Within the range of this species it has been reported from mountains; canyon rims; rocky canyons; ridges; along ridgetops and ridgelines; hills; rocky slopes; bajadas; rocky outcrops, and rocky, gravelly and sandy flats growing in dry rocky, gravelly and sandy ground, occurring from 900 to 3,500 feet elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Echinocereus nicholii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Echinocereus engelmannii* (Parry) Lemaire var. *nicholii* L. Benson, Page 139 & 140), 27 (recorded as *Echinocereus engelmannii* Parry var. *nicholii* L. Benson, Page 89, color photograph: Plate 55, Page 105), 43 (070210 - *Echinocereus engelmannii* var. *nicholii* L.D. Benson), 45 (color photograph), 46 (recorded as *Echinocereus engelmannii* (Parry) Rümpler var. *nicholii* L. Benson, Page 571), 48 (genus), 63 (070207 - color presentation), **85** (100707 - color presentation including habitat, unable to access species information), **102***

***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*), 91, **102**, 115 (color presentation), 119, 127, **WTK** (May 9, 2005)*

*Ferocactus wislizeni* var. *wislizeni* (see footnote 85 under *Ferocactus wislizeni*)

***Ferocactus wislizeni* (G. Engelmann) N.L. Britton & J.N. Rose x *Ferocactus cylindraceus* (G. Engelmann) C.R. Orcutt: Barrel Cactus**

COMMON NAME: Barrel Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree. HABITAT: Within the range of this species it has been reported as occurring in the desertscrub ecological formation. ***102** (recorded as *Ferocactus wislizeni* Y *Ferocactus cylindraceus*)*

*Mammillaria fasciculata* (see *Echinocereus fasciculatus* and/or *Mammillaria thornberi*)

***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), **102**, 115 (color presentation), 119 (recorded as *Neomammillaria microcarpa* (Engelm.) B. & R., *Neomammillaria milleri* B. & R.), 127*

*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 bigelovii* (see *Cylindropuntia bigelovii*)

***Opuntia chlorotica* G. Engelmann & J. Bigelow: Dollarjoint Pricklypear**

COMMON NAMES: Clockface Prickly-pear, Dollarjoint Pricklypear, Flapjack Prickly-pear, Nopal, Nopal Rastrera, Pancake Pear, Pancake-pear, Pancake Prickly Pear, Pancake Prickly-pear, Silver-dollar Cactus, Smooth Clock-face Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (2 to 10 feet in height with a definite trunk to 12 inches in height and 3 to 8 inches in width); the orbicular paddle-shaped stems (4 to 8 inches in diameter) are bluish-green, green or gray-green; the glochids and spines are golden, straw, light yellow or yellow turning brown, grayish or reddish-brown with age; the flowers (1½ to 2½ inches in diameter) are pale yellow, pale yellow-green, yellow-green, yellow-orange or yellow with a reddish flush; flowering generally takes place between early April and mid-July (additional records: one for late August and one for mid-September); the ripe barrel-shaped fruits (1½ to 2½ inches in length and ¾ to 1½ inches in diameter) are purple or red aging bluish or grayish tinged with purple or red. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; cliffs; rocky canyons; bases of cliffs; ledges; rocky ridges; ridgetops; foothills; rocky hills; hilltops; rocky hillsides; bouldery, bouldery-rocky-gravelly and rocky slopes; bajadas; rocky outcrops; amongst rocks; lava flow fields; sandy flats; valley floors; along rocky and gravelly roadsides; arroyos; draws; seeps; springs; creekbeds; along rivers; drainages; edges of washes; sandy floodplains, and riparian areas growing in dry bouldery, bouldery-rocky-gravelly, rocky,

gravelly, gravelly-sandy and sandy soils; clayey loam soils, and silty soils, occurring from 900 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 crop. *Opuntia chlorotica* is native to southwest-central and southern North America. *5, 6, 12 (Pages 103&105-106), 15, 26 (genus), 27 (Page 69, color photograph: Plate 35, Page 101), 43 (011710 - *Opuntia chlorotica* Engelm. & J.M. Bigelow), 45 (color photograph), 46 (Page 582), 48 (genus - *Opuntia*), 63 (062610 - color presentation), 77, **85** (062610 - color presentation including habitat, unable to access species information), 91, **102**, 119, 127*

*Opuntia discata* (see *Opuntia engelmannii* var. *engelmannii*)

***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; 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), 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."), **102**, 115 (color presentation of the species), 119 (recorded as *Opuntia discata* Griffiths), 127 (variety *engelmannii* and species), **WTK** (May 2005)*

*Opuntia fulgida* (see *Cylindropuntia fulgida* var. *fulgida*)

*Opuntia fulgida* var. *fulgida* (see *Cylindropuntia fulgida* var. *fulgida*)

*Opuntia fulgida* x *Opuntia leptocaulis* (see *Cylindropuntia fulgida* x *Cylindropuntia leptocaulis*)

*Opuntia gilvescens* (see *Opuntia phaeacantha*)

*Opuntia leptocaulis* (see *Cylindropuntia leptocaulis*)

*Opuntia leptocaulis x Opuntia fulgida* (see *Cylindropuntia leptocaulis* x *Cylindropuntia fulgida*)

***Opuntia macrocentra* G. Engelmann var. *macrocentra*: Purple Pricklypear**

SYNONYMY: *Opuntia violacea* G. Engelmann ex B.D. Jackson var. *macrocentra* (G. Engelmann) L.D. Benson; *Opuntia violacea* G. Engelmann ex B.D. Jackson var. *violacea*. COMMON NAMES: Black-spined Pricklypear, Duranzilla, Long-spined Pricklypear, Purple Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (forms clumps to 2 to 5 feet in height and about as tall as wide); the stems (4 to 8 inches in length and 3 to 5 inches in width) are light blue, blue-green tinged with red, dark purple or red; the spines are black to reddish-brown; the flowers (2 to 3½ inches in diameter) are yellow with a red throat; flowering generally takes place between May and June; the fleshy fruits (1 to 2½ inches in length and ¾ to 1 inch in diameter) are purple, purplish-red or red. HABITAT: Within the range of this species it has been reported from rocky hills; rocky hillsides; slopes; bajadas; sand hills; plains; sandy flats; valley floors, and along washes growing in dry rocky, gravelly and sandy ground, occurring from 2,000 to 5,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Opuntia macrocentra* var. *macrocentra* is native to southwest-central and southern North America. *5, 6, 12 (*Opuntia violacea* var. *macrocentra* and *Opuntia violacea* var. *violacea*, Pages 91-93, color photograph, Page 94), 18 (species), 26 (genus), 27 (recorded as *Opuntia violacea* Engelmann var.

*macrocentra* (Engelmann) L. Benson, Page 59 and *Opuntia violacea* Engelmann var. *violacea* L. Benson. Page 57, color photographs: Plates 33 & 33A, Page 100), 43 (062710), 45 (color photograph), 46 (Page 583), 48 (genus), 63 (062710 - color presentation), 85 (062710 - unable to access species information), 91, **102**, **WTK** (May 9, 2005)*

***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 - *Opuntia*), 63 (012310 - color presentation, *Opuntia microdasys* (Lehm.) N.E. Pfeiffer), 77, 85 (012310 - color presentation of dried material), **102**, 106 (102308)*

*Opuntia phaeacantha* var. *discata* (see *Opuntia engelmannii* var. *engelmannii*)

***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 - recorded as *Opuntia*), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 63 (012310 - color presentation), 77 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm., color photograph #14 labeled as *Opuntia phaeacantha*), 85 (012310 - color presentation), 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."), **102** (recorded as *Opuntia phaeacantha* var. *major*), 119, 127*

*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, **102**, 115 (color presentation)*

*Opuntia spinosior* (see *Cylindropuntia spinosior*)

*Opuntia spinosior* x *Opuntia versicolor* (see *Cylindropuntia spinosior* x *Cylindropuntia versicolor*)

*Opuntia violacea* var. *macrocentra* (see *Opuntia macrocentra* var. *macrocentra*)

*Opuntia violacea* var. *santa-rita* (see *Opuntia santa-rita*)

*Opuntia violacea* var. *violacea* (see *Opuntia macrocentra* var. *macrocentra*)

***Peniocereus greggii* (G. Engelmann) N.L. Britton & J.N. Rose var. *transmontanus* (G. Engelmann) C. Backeberg: Nightblooming Cereus**

SYNONYMY: *Cereus greggii* G. Engelmann var. *transmontanus* G. Engelmann. COMMON NAMES: Arizona Night-blooming Cereus, 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. DESCRIPTION: Terrestrial perennial root- and stem-succulent shrub (1 to 8 feet in height and ¼ to ½ inch in width), 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, 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; rocky hillsides; rocky and gravelly slopes; gravelly bajadas; sand dunes; gravelly-sandy plains; gravelly flats; valley floors; arroyos; along sandy washes; drainages; edges of washes, and bottomlands growing in dry desert pavement; rocky, gravelly and sandy ground, and gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, occurring from 800 to 3,500 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. var. *transmontanus* Engelm., Pages 112 & 118, color photograph Fig. 2.5), 15, 27 (species, recorded as *Cereus greggii* Engelmann, Pages 61, color photograph: Plates 36 &36A, Page), 28 (color photograph), 43 (012310), 45 (color photograph of species), 46 (species, Page 568), 48, 63 (012310), 85 (012310 - color presentation of dried material), 86, 115 (color presentation of the species), 119 (species), 127 (records found under *Peniocereus greggii* var. *greggii*), **HR***

Campanulaceae: The Bellflower Family

***Nemacladus glanduliferus* W.L. Jepson var. *orientalis* R. McVaugh: Glandular Threadplant**

SYNONYMY: *Nemacladus orientalis* (R. McVaugh) N.R. Morin. 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, 43 (070310), 46 (Page 827), 63 (070310), 85 (070310 - color presentation of dried material, unable to access species information), **102**, 115 (color presentation of the species)*

*Nemacladus orientalis* (see *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), **102**, 106 (102608), 127*

Caryophyllaceae: The Pink Family

***Cerastium texanum* N.L. Britton: Texas Chickweed**

COMMON NAMES: Mouse-ear Chickweed, Texas Chickweed, Texas Mouse-ear Chickweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 inches to 3 feet in height); the flowers are pale blue or white; flowering generally takes place between early March and late June (additional records: one for mid-February, two for mid-July, one for late July, two for early September and one for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; sandy canyon bottoms; crevices; mossy bedrock ledges; rocky hills; rocky hillsides; rocky slopes; bases of slopes; amongst rocks; mossy banks; roadsides; along gravelly and sandy bottoms of arroyos; seeps; sandy springs; along streams; streambeds; along creeks; gravelly and sandy washes; banks of arroyos and gullies; sandy edges of creeks and washes, and riparian areas growing in shallow water and wet, moist and damp rocky, gravelly and sandy ground often in partially shades areas, occurring from 500 to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cerastium texanum* is native to southwest-central and southern North America. *5, 6, 15, 43 (071810), 46 (Page 294), 63 (071810 - color presentation), 85 (080110 - color presentation), **102***

*Herniaria cinerea* (see *Herniaria hirsuta* subsp. *cinerea*)

***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 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 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 (*Herniaria cinerea* DC.), 43 (012610 - *Herniaria hirsuta* C. Linnaeus var. *cinerea* (DC.) Loret & Barrandon), 46 (*Herniaria cinerea* DC., Page 300), 63 (012610), 77 (*Herniaria cinerea* DC.), **85** (012610), **102***

***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), **102***

***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), 58, 63 (012610 - color presentation), 77, 85 (012710 - color presentation), 101 (note under *Silene alba*), **102**, 115 (color presentation)*

## Chenopodiaceae: The Goosefoot Family

*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 (color photograph of species, species), 28 (color photograph of species, species), 43 (012710), 46 (species, Page 259), 48 (species), 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."), **102** (recorded as *Atriplex canescens* subsp. *canescens*), 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 (color photograph of species, species), 28 (color photograph of species, species), 43 (012710 - *Atriplex canescens* (Pursh) Nutt. var. *linearis* Munz, *Atriplex canescens* (Pursh) Nutt. subsp. *linearis* H.M. Hall & Clem.), 46 (*Atriplex linearis* Wats.), 48 (species), 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."), **102** (recorded as *Atriplex canescens* subsp. *linearis*), 115 (color presentation of the species), 127 (species)*

*Atriplex linearis* (see *Atriplex canescens* var. *linearis*)

*Chenopodium arizonicum* (see *Chenopodium neomexicanum* var. *neomexicanum*)

***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 (*Chenopodium arizonicum* Standl., Page 253), 63 (013010), 77, 85 (013010 - color presentation of dried material), **102***

***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), **102**, 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; cliffs; rocky and sandy canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; rocky-sandy rims of craters; rocky, sandy and sandy-loamy ridges; rocky-clayey foothills; hills; rocky, gravelly and sandy hillsides; sandy bases of escarpments; 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), 58 (recorded as *Salsola iberica* Sennen & Pau), 63 (013010 - color presentation), 68 (of *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), **102**, 115 (color presentation), 127*

Convolvulaceae: The Morning-glory Family

***Evolvulus alsinoides* (C. Linnaeus) C. Linnaeus (var. *angustifolius* J. Torrey is the variety reported as occurring in Arizona): Slender Dwarf Morning-glory**

SYNONYMY: (for *E.a*. var. var. *angustifolius*: *Evolvulus alsinoides* (C. Linnaeus) C. Linnaeus var. *acapulcensis* (C.L. von Willdenow) S.J. van Ooststroom). COMMON NAMES: Acapulco Evolvulus, Arizona Blue Eyes, Blue Eyes, Dio de Vibora, Slender Dwarf Morning-glory, Slender Dwarf Morningglory. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, ascending or erect stems 5 to

22 inches in height); the flowers are pale blue or white; flowering generally takes place between April and September. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and gravelly slopes; plains; along washes, and disturbed areas growing in dry rocky and gravelly ground, occurring from 2,200 to 5,000 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTE: *Evolvulus alsinoides* is native to south-central and southern North America; Central America and coastal islands, and northern, western, central and eastern South America. *5, 6, 15, 43 (071810 - *Evolvulus alsinoides* L., *Evolvulus alsinoides* L. var. *acapulcensis* Ooststr., *Evolvulus alsinoides* L. var. *angustifolius* Torr. in Emory), 46 (Page 672), 58, 63 (071810), 77 (color photograph #72 labeled *Evolvulus alsinoides*), 85 (color presentation), **102***

*Evolvulus alsinoides* var. *acapulcensis* (see *Evolvulus alsinoides* var. *angustifolius*)

***Ipomoea cristulata* H.G. Hallier: Trans-Pecos Morning-glory**

COMMON NAMES: Scarlet Creeper, Scarlet Morning Glory, Star Glory Morning-glory, Trans-Pecos Morning-glory, TransPecos Morningglory. DESCRIPTION: Terrestrial annual forb/herb or vine (climbing and/or twining stems 8 inches to 11½ feet in length); the entire, 3 to 5 parted or palmately-lobed leaves are green or dark green; the trumpet-shaped flowers (to ¾ inch in width) may be bright orange, orange-red, bright red, red, red-orange, reddish-orange or scarlet; flowering generally takes place between mid-August and late October (additional records: one for mid-November and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; canyon bottoms; chasms; foothills; rocky hills; rocky, rocky-gravelly-loamy and rocky-clayey hillsides; rocky, gravelly-loamy, sandy and clayey-loamy slopes; bajadas; amongst rocks; sandy lava flows; clayey-loamy flats; valley floors; along rocky roadsides; sandy arroyos; sandy draws; within gullies; along and in rocky and rocky-sandy streambeds; along creeks; along and in rocky and sandy creekbeds; sandy soils along rivers; along and in sandy washes; within drainages; sandy and silty banks of creeks, rivers and washes; edges of washes; margins of arroyos; sandy terraces; bottomlands; floodplains; mesquite bosques; along rocky, gravelly and sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, gravelly and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-clayey loam and clayey loam ground; rocky clay soils, and silty ground, occurring from 100 to 9,100 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. The flowers open about 10 AM. Hummingbirds may visit the flowers. *Ipomoea cristulata* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (071910 - no record), 46 (no record of species), 48 (genus), 63 (071910), 77, **85** (070309 - color presentation), 86 (color photograph), **102**, 115 (color presentation)*

*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 (*Ipomoea hirsutula* Jacq f. (*Ipomoea desertorum* House), Page 678), 48 (genus), 63 (013110 - color presentation), 68, 77, 85 (013110 - color presentation), 101 (color photograph), **102**, 115 (color presentation), 134*

*Ipomoea hirsutula* auct. non N.J. von Jacquin f. (see *Ipomoea hederacea*)

*Ipomoea nil* auct. non (C. Linnaeus) A.W. Roth (see *Ipomoea hederacea*)

Crassulaceae: The Stonecrop Family

***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 (*Crassula erecta* (Hook. & Arn.) Berger), 16 (*Tillaea erecta* Hook. & Arn.), 43 (013110), 46 (*Tillaea erecta* Hook. & Arn., Page 361), 58 (*Tillaea erecta* Hook. & Arn.), 63 (013110 - color presentation, *Crassula connata* var. *connata* is shown in the mapping as not being present in Arizona), 77 (*Tillaea erecta* H. & A.), 85 (020110 - information is restricted), **102** (recorded as *Crassula connata* / *Tillaea erecta*)*

*Crassula erecta* (see *Crassula connata* var. *connata*)

*Tillaea erecta* (see *Crassula connata* var. *connata*)

Crossosomataceae: The Crossosoma Family

***Crossosoma bigelovii* S. Watson: Ragged Rockflower**

COMMON NAMES: Bigelow Ragged Rock Flower, Bigelow Ragged Rock-flower, Crossosoma, Ragged Rockflower, Rhyolite Bush. DESCRIPTION: Terrestrial perennial shrub (20 inches to 8 feet in height); the leaves are bluish-green; the flowers (2 inches in diameter) are white sometimes tinged with

purple; flowering generally takes place between January and May (rarely in September). HABITAT: Within the range of this species it has been reported from canyons; mountains; rocky cliffs; crevices in cliff faces; rocky canyons; rocky hillsides; rocky slopes, and along washes growing in dry rocky ground, occurring from 200 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. The flowers are reportedly fragrant *Crossosoma bigelovii* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph), 43 (070510), 46 (Pages 371-372), 63 (070510 - color presentation), 77 (color photograph #25), 85 (070510 - color presentation), **102**, 115 (color presentation)*

Cucurbitaceae: The Cucumber Family

***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), 58, 63 (020110 - color presentation of seed), 68, 77, 85 (020110 - color presentation), **102**, 115 (color presentation), 127*

***Echinopepon wrightii* (A Gray) S Watson: Wild Balsam Apple**

COMMON NAMES: Wright Mockcucumber, Wild Balsam Apple, Wild Balsamapple. DESCRIPTION: Terrestrial annual forb/herb or vine (slender climbing or twining stems 32 inches to 14 feet in length); the flowers are cream, white, yellow, yellowish or yellowish-white; flowering generally takes place between early August and late October; the fruits (¾ inch in length) are dark green with spiny or stinging barbed prickles. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; canyons; canyon bottoms; bases of cliffs; ledges; foothills; hills; rocky hillsides; rocky and gravelly slopes; gravelly flats; along gravelly roadsides; within sandy arroyos; draws; along streams; along sandy streambeds; along creeks; riverbeds; along and in washes; banks of arroyos; benches; bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and gravelly loam ground often reported as growing on shrubs and trees, occurring from 100 to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The fruits and stems may be sticky. *Echinopepon wrightii* is native to southwest-central and southern North America. *5, 6, 15, 43 (071310),

46 (Page 823), 58, 63 (071310), 77, **85** (071410 - color presentation of dried material), **102**, 115 (color presentation)*

***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; valley floors; 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 growing in dry rocky, stony, gravelly and sandy ground and sandy-silty ground usually with the support of and/or in the shade of shrubs and trees, 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 (recorded in the 1909 Thornber Listing as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats.), 43 (020110), 46 (Pages 821-822), 63 (020110), 77, 85 (020110 - color presentation, detailed locality information is restricted), 91, **102***

Euphorbiaceae: The Spurge Family

***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), **102** (recorded as *Ditaxis lanceolata*)*

***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), **102** (recorded as *Ditaxis neomexicana*)*

*Bernardia incana* (see *Bernardia myricifolia*)

***Bernardia myricifolia* (Scheele) S. Watson: Mouse's Eye**

SYNONYMY: *Bernardia incana* C.V. Morton. COMMON NAMES: Hoary Myrtlecroton, Mouse's Eye, Mouse-eye, Western Myrtle Croton. DESCRIPTION: Terrestrial perennial deciduous shrub (3 to 7 feet in height); the leaves are green; flowering generally takes place between April and October. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; bases of cliffs; crevices; buttes; rocky slopes; bajadas; along drainages, and along edges of washes growing in dry rocky ground, occurring from 1,500 to 5,000 feet in elevation in the grassland and desertscrub ecological formations. NOTE: *Bernardia myricifolia* is native to southwest-central and southern North America. *5, 6, 13, 43 (070710 - *Bernardia myricifolia* Benth. ex Hook. f.), 46 (recorded as *Bernardia incana*, Page 506), 63 (070510), 77, 85 (070510 - color presentation, unable to access species information), **102** (recorded as *Bernardia incana*)*

***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; prostrate to erect and mat-forming 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), 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."), **102** (recorded as *Euphorbia abramsiana*)*

***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; boulderfields; 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."), **102** (recorded as *Euphorbia arizonica*)*

***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 and 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), 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."), **102** (recorded as *Euphorbia capitellata*)*

***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) and 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."), **102** (recorded as *Euphorbia florida*), 115 (color presentation)*

***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."), **102** (recorded as *Euphorbia gracillima*)*

***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), 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."), **102** (recorded as *Euphorbia hyssopifolia*), 115 (color presentation)*

***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."), **102** (recorded as *Euphorbia melanadenia*), 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 (recorded as *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."), **102** (recorded as *Euphorbia micromera*)*

***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; crevices in rocks; rocky ledges; ridge crests; cinder cones; rims of 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), 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.”), **102** (recorded as *Euphorbia pediculifera*)*

***Chamaesyce polycarpa* (G. Bentham) C.F. Millspaugh ex S.B. Parish: Smallseed Sandmat**

SYNONYMY: *Chamaesyce polycarpa* (G. Bentham) C.F. Millspaugh ex S.B. Parish var. *hirtella* P.E. Boissier, *Euphorbia polycarpa* G. Bentham, *Euphorbia polycarpa* G. Bentham var. *hirtella* P.E. Boissier, *Euphorbia polycarpa* G. Bentham var. *polycarpa*. COMMON NAMES: Desert Spurge, Golondrina, Koapa’im (Yaqui), Smallseed Sandmat, Small-seeded Sand Mat, Smallseed Spurge, Spurge. DESCRIPTION: Terrestrial annual or perennial forb/herb (mat-forming, mounded, sprawling prostrate to ascending stems to 2¼ inches in height); the stems may be green, pink, red, reddish or tan; the leaves are green, green tinged with red-purple or reddish; the flower-like cups have black-purple, maroon, dark maroon, pink, purple, red, dark red-purple, or reddish glands (green and yellow glands were also reported) with pink or white petaloid appendages; the anthers are purple; the pollen is yellow; flowering generally takes place between early January and late December. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; plateaus; canyons; rocky, rocky-sandy, gravelly and sandy canyon bottoms; talus slopes; bluffs; clayey-loamy ridges; ridgetops; foothills; rocky and gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, rocky-clayey, sandy, sandy-silty and clayey-loamy slopes; rocky and rocky-sandy alluvial fans; bajadas; rocky outcrops; rocky mounds; amongst rocks; sand dunes; blow-sand deposits; outwash fans; berms; clay lenses; gravelly and sandy plains; gravelly-sandy, sandy and clayey flats; rocky-sandy valley floors; coastal plains; coastal terraces; beach dunes; roadbeds; along gravelly and sandy roadsides; arroyos; gravelly-sandy bottoms of arroyos; around streams; rocky riverbeds; along and in rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and sandy-silty washes; along sandy drainages; silty depressions; swales; edges of ponds and lakes; along shores of lakes; mudflats; gravel and sand bars; benches, terraces; sandy bottomlands; sandy and clayey lowlands; margins of stock tanks; edges of canals; canal banks; canal walls; riparian areas; recently burned areas of scrub and grassland, and disturbed areas growing in shallow water; muddy, and wet, moist and dry desert pavement; bouldery, rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam and clayey loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from sea level to 5,200 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. *Euphorbia polycarpa* 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 (052310 - *Chamaesyce polycarpa* (Benth.) Millsp.), 46 (recorded as *Euphorbia polycarpa* Benth., Page 519), 63 (052310), 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** (052410 - color presentation of dried material, also recorded as *Euphorbia polycarpa* G. Bentham var. *typica* Wheeler), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **102** (recorded as *Euphorbia polycarpa*), 115 (color presentation), 127*

*Chamaesyce polycarpa* var. *hirtella* (see *Chamaesyce polycarpa*)

***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), 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."), **102** (recorded as *Euphorbia setiloba*)*

***Croton sonorae* J. Torrey: Sonoran Croton**

COMMON NAMES: Rama Blanca, Sonora Croton, Sonoran Croton, Vera Prieta DESCRIPTION: Terrestrial perennial (deciduous) shrub (2 to 7 feet in height, one plant was described as being 4 feet in height and 4 feet in width); the leaves are dark green, the older leaves may be orange, the flowers may be green, whitish or yellow-green (noted as male); the stigmas are white; flowering generally takes place between early July and late September (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; rocky peaks (cerros); rocky canyons; canyon bottoms; talus; rocky bases of cliffs; ridges; rocky foothills; rocky hills; rocky hillsides; bouldery and rocky slopes; rocky outcrops; cobbly plains; along roadsides; rocky arroyos; sandy bottoms of arroyos; gullies; seeps; along and in rocky washes; rocky drainages; rocky margins of arroyos; benches, and disturbed areas growing in dry bouldery, rocky, cobbly and sandy ground, occurring from sea level to 3,200 feet in elevation in the forest, woodland, scrub and desertscrub ecological formations. NOTE: *Croton sonorae* is native to southwest-central and southern North America. *5, 6, 13, 43 (052410), 46 (Page 504), 63 (052510), **85** (052510 - color presentation of dried material), **102***

*Ditaxis lanceolata* (see *Argythamnia lanceolata*)

*Ditaxis neomexicana* (see *Argythamnia neomexicana*)

*Euphorbia abramsiana* (see *Chamaesyce abramsiana*)

*Euphorbia arizonica* (see *Chamaesyce arizonica*)

*Euphorbia capitellata* (see *Chamaesyce capitellata*)

***Euphorbia eriantha* G. Bentham: Beetle Spurge**

COMMON NAMES: Beetle Spurge, Desert Poinsettia, Threaded Spurge, Woollyflower Euphorbia. DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 40 inches in height, one plant was observed and described as being 22 inches in height with a crown 12 to 18 inches in diameter, one plant was observed and described as being 23 inches in height with a crown averaging 22 inches in diameter); the stems are green; the leaves are bronze-green, green or green tinged with red; the glands are pale light green, greenish, orange-red or reddish with or without green or white petaloid appendages; flowering generally takes place between early February and mid-May and again between early August and early January (additional record: one for mid-June). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky mesas; rocky canyons; rocky canyon bottoms; crevices in rocks; buttes; ridges; rocky ridgelines; foothills; rocky-sandy hills; rocky hilltops; rocky, stony and sandy hillsides; bouldery, rocky, rocky-gravelly and gravelly-sandy slopes; rocky-gravelly alluvial fans; sandy bajadas; rocky outcrops; sand dunes; sandy plains; rocky-sandy, gravelly and sandy flats; cobbly basin floors; valley floors; coastal dunes; sandy coastal plains; along railroad right-of-ways; along rocky-loamy, gravelly and sandy roadsides; sandy arroyos; bottoms of arroyos; runnels; within rocky streambeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky drainages; banks of washes; edges of arroyos and washes; along (rocky) margins of arroyos and gullies; mudflats; strands; benches; sandy floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam ground, and sandy clay ground, occurring from near sea level to 5,400 feet in elevation in the woodland and desertscrub ecological formations. NOTES: This plant has a milky sap. *Euphorbia eriantha* 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)."), 28 (color photograph), 43 (070710), 46 (Page 515), 63 (070710), 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** (082710 - color presentation), 86 ("Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth."), **102***

*Euphorbia florida* (see *Chamaesyce florida*)

*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; within 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, 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."), **102***

*Euphorbia hyssopifolia* (see *Chamaesyce hyssopifolia*)

*Euphorbia melanadenia* (see *Chamaesyce melanadenia*)

*Euphorbia micromera* (see *Chamaesyce micromera*)

*Euphorbia pediculifera* (see *Chamaesyce pediculifera*)

*Euphorbia polycarpa* (see *Chamaesyce polycarpa*)

*Euphorbia polycarpa* var. *hirtella* (see *Chamaesyce polycarpa*)

*Euphorbia polycarpa* var. *polycarpa* (see *Chamaesyce polycarpa*)

*Euphorbia polycarpa* var. *typica* (see footnote 85 under *Chamaesyce polycarpa*)

*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; boulderfields; 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), 91, **102**, 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), **102**, 127*

Fabaceae (Leguminosae): The Pea Family

***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; canyons; canyon sides; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery hilltops; rocky and gravelly hillsides; escarpments; rocky, rocky-clayey-loamy and clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; sandy-loamy plains; gravelly flats; valley floors; 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; drainages; 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), 91, **102**, 115 (color presentation), 134*

*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 (color photograph of species, species), 16 (recorded as *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), **102** (recorded as *Acacia greggii* var. *arizonica*), 115 (color presentation of the species), 127 (species), **WTK** (May 9, 2005)*

***Astragalus didymocarpus* W.J. Hooker & G.A. Arnott var. *dispermus* (A. Gray) W.L. Jepson: Dwarf White Milkvetch**

COMMON NAMES: Desert Dwarf Locoweed, Dwarf Loco, Dwarf White Milkvetch, Hierba Loca, Locoweed, Rattleweed, Two-seeded Milkvetch. DESCRIPTION: Terrestrial annual forb/herb (prostrate or erect stems to 6 inches in height/length); the foliage is grayish; the flowers may be blue, bluish-lavender, lavender, lavender & reddish-purple, magenta, pink, purple, purplish, violet, white or whitish; flowering generally takes place between mid-February and mid-June. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; gravelly canyon bottoms; ridges; ridgetops; meadows; sandy hills; rocky, stony and clayey hillsides; rocky, rocky-clayey, gravelly-clayey and sandy slopes; bajadas; amongst rocks; sand dunes; blow-sand deposits; sandy plains; rocky, gravelly and sandy flats; valley floors; along railroad right-of-ways; roadsides; gulches; riverbeds; along and in sandy washes; swales; banks of washes; gravel bars; floodplains; riparian areas, and disturbed areas growing in dry rocky, stony, gravelly and sandy ground; clay loam ground, and rocky clay ground, occurring from 800 to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus didymocarpus* var. *dispermus* is native to southwest-central and southern North America. *5, 6, 43 (071410), 46 (Page 469), 63 (071410 - color presentation of seed), 77, 85 (071410 - color presentation of dried material), **102***

***Astragalus lentiginosus* D. Douglas ex W.J. Hooker var. *yuccanus* M.E. Jones: Yucca Milkvetch**

COMMON NAMES: Blue Loco, Crazyweed, Freckled Milkvetch, Hierba Loca, Loco, Locoweed, Mottled Locoweed, Poisonvetch, Rattleweed, Yucca Milkvetch. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (to 5 feet in length); the flowers are lilac, white, pale yellow or yellow; flowering, for the species, generally takes place between early March and late May (additional record: one for early February). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; hills; gravelly hillsides; bajadas; plains; creosote flats; roadside banks; along roadsides; along sandy washes; along drainages; sandy banks of rivers, and gravelly-loamy edges of washes growing in dry gravelly and sandy ground and gravelly loam ground, occurring from 800 to 4,600 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTE: PERIPHERAL POPULATION, this is the only sighting on record for eastern Pima County. *Astragalus lentiginosus* var. *yuccanus* is native to southwest-central North America. *5, 6, 43 (071910), 46 (Pages 465-467), 63 (071910), 85 (071910 - color presentation of dried material), **102***

***Astragalus nuttallianus* A.P. de Candolle var. *micranthiformis* R.C. Barneby: Turkeypeas**

COMMON NAMES: Locoweed, Nuttall Locoweed, Nuttall Milkvetch, Turkeypeas. DESCRIPTION: Terrestrial annual or perennial forb/herb (to 6 inches in height); the flowers are purple & white; flowering generally takes place between mid-April and early June. HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; bluffs; ledges; ridges; foothills; sand dunes; valley floors; along roadsides; along rivers; rocky washes; sandy benches; riparian areas, and disturbed areas growing in dry rocky, cobbly-sandy and sandy ground, occurring from 900 to 8,000 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTE: *Astragalus nuttallianus* var. *micranthiformis* is native to southwest-central North America. *5, 6, 43 (070809 - no record), 46 (species, Page 468), 63 (020810), 68 (species), 85 (020810), **102***

***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; boulderfields; 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), 91, **102**, 115 (color presentation), 127*

*Calliandra eriophylla* var. *eriophylla* (see *Calliandra eriophylla*)

*Cassia covesii* (see *Senna covesii*)

*Cercidium floridum* (see *Parkinsonia florida*)

*Cercidium floridum* subsp. *floridum* (see *Parkinsonia florida*)

*Cercidium microphyllum* (see *Parkinsonia microphylla*)

***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, **102**, 115 (color presentation), 127*

*Coursetia microphylla* (see *Coursetia glandulosa*)

*Dalea parryi* (see *Marina parryi*)

***Desmodium procumbens* (P. Miller) A.S. Hitchcock: Western Trailing Ticktrefoil**

COMMON NAMES: Beggar Ticks, Tick Clover, Western Trailing Ticktrefoil. DESCRIPTION: Terrestrial annual forb/herb (sprawling or twining with prostrate, decumbent or erect stems to 2 feet in height); the flowers may be pale blue, pale bluish-green, bluish-purple, cream-white, green & white, pale lavender, lavender, light pink, pink, pink-purple, pinkish-purple, purple, rose-pink, rose-violet, white, pale yellowish-cream or yellowish; based on few records located, flowering generally takes place between late August and late November (additional records: one for mid-March, one for mid-May, one for mid-June, one for mid-July, two for early August and one for late December). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky canyons; along gravelly-sandy canyon bottoms; bases of cliffs; ridges; rocky hills; rocky hilltops; rocky-gravelly-clayey hillsides; rocky, rocky-loamy and gravelly slopes; rocky outcrops; amongst boulders; llanos; cobbly plains; bouldery valley floors; along roadsides; within arroyos; bottoms of arroyos; ravines; along and in sandy washes; drainages; bases of waterfalls; depressions; sandy and silty banks of arroyos, creeks and rivers; sandy margins of watercourses; rocky shelves; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam ground; rocky-gravelly-clayey 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. NOTE: *Desmodium procumbens* is native to southwest-central and southern North America; Central America and coastal islands, and northern South America. *5, 6, 43 (080210), 46 (Page 475), 63 (080210), **85** (080210 - color presentation of dried material)*

***Desmodium procumbens* (P. Miller) A.S. Hitchcock var. *exiguum* (A. Gray) B.G. Schubert: Western Trailing Ticktrefoil**

COMMON NAMES: Beggar Ticks, Tick Clover, Western Trailing Ticktrefoil. DESCRIPTION: Terrestrial annual forb/herb (decumbent or erect stems to 2 feet (the species) in height); the flowers may be pale bluish-green, lavender, lavender, pink, pink-purple, purple, white or pale yellowish-cream; based on few records located, flowering generally takes place between late August and mid-October (flowering records: two for late August, five for early September, three for mid-September, two for early October and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; bases of cliffs; ridges; rocky-loamy and gravelly slopes; cobbly plains; bouldery valleys; within arroyos; ravines; drainages; banks of arroyos, and disturbed areas growing in dry bouldery, cobbly and gravelly ground and rocky loam ground, occurring from sea level to 6,600 feet in elevation in the

forest, woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Desmodium procumbens* var. *exiguum* is native to southwest-central and southern North America, Central America and northwestern South America. *5, 6, 15, 43 (071910 - *Desmodium procumbens* var. *exiguum* (A. Gray) B.G. Schub.), 46 (Page 475), 63 (071910), 77, 85 (071910), **102***

***Galactia wrightii* A. Gray: Wright's Milkpea**

COMMON NAMES: Cliff Bean, Wright Milkpea, Wright's Milkpea. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, scrambling or twining stems to 2 feet in height); the flowers are greenish-yellow, lavender-purple, pink, pale purple, purple, red-purple, yellow-orange and yellow-purple; flowering generally takes place between July and September. HABITAT: Within the range of this species it has been reported from mountains; cliffsides; rocky canyons; along canyon bottoms; along ridges; rocky ridgetops; rocky hilltops; hillsides; rocky slopes; rocky outcrops; gravelly roadsides; along streams; rocky streambeds; along rocky washes; along and in drainages; banks of creeks, and riparian areas growing in moist and dry rocky, rocky-sandy and gravelly ground, occurring from 700 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galactia wrightii* is native to southwest-central and southern North America. *5, 6, 15, 43 (071910), 46 (Page 480), 58, 63 (071910), 77, 85 (color presentation of dried material), **102***

***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 (*Hoffmanseggia densiflora* Benth., Pages 408-409), 63 (021010), 68, 77, 85 (021010 - color presentation), 86 (color photograph), 101 (color photograph), **102**, 115 (color presentation), 127*

*Hoffmanseggia densiflora* (see footnote 46 under *Hoffmannseggia glauca*)

*Hoffmannseggia densiflora* (see *Hoffmannseggia glauca*)

*Hosackia brachycarpa* (see *Lotus humistratus*)

*Hosackia humilis* (see *Lotus salsuginosus* var. *brevivexillus*)

*Hosackia tomentella* (see *Lotus strigosus* var. *tomentellus*)

***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), **102**, 115 (color presentation), 127*

***Lotus salsuginosus* E.L. Greene var. *brevivexillus* A.M. Ottley: Coastal Bird's-foot Trefoil**

SYNONYMY: *Hosackia humilis* (E.L. Greene) L. Abrams. COMMON NAMES: Coastal Bird's-foot Trefoil, Coastal Lotus, Deer Vetch, Deer-vetch, Humble Trefoil, Maresfat. DESCRIPTION: Terrestrial annual forb/herb (2 to 8 inches in height); the flowers are yellow or white with red tips; flowering generally takes place between early February and mid-May (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; bouldery bases of mountains; mesas; canyons; rocky and sandy-loamy canyon bottoms; talus; bases of cliffs; buttes; foothills; gravelly hills; rocky hillsides; bouldery, rocky, rocky-sandy, gravelly, gravelly-loamy and

sandy slopes; bajadas; gravelly banks; plains; flats; coastal terraces; gravelly roadsides; along and in rocky and sandy arroyos; along gravelly-loamy ravines; along creeks; sandy creekbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; banks of rivers; gravel bars; sandy terraces; loamy bottomlands; floodplains, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground, and silty ground, occurring from sea level to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Lotus salsuginosus* var. *brevivexillus* is native to southwest-central and southern North America. *5, 6, 43 (071410), 46 (Page 427), 48 (genus), 58, 63 (071410), 77, **85** (071410 - color presentation of dried material), **102***

***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 (color photograph, *Lotus tomentellus*), 43 (021010), 46 (*Lotus tomentellus* Greene, Page 427), 48 (gen.), 63 (021010), 77, 85 (021110 - color presentation of dried material), **102**, 115 (color presentation), 127 (species)*

*Lotus tomentellus* (see *Lotus strigosus* var. *tomentellus*)

***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; in arroyos; in 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), **102**, 115 (color presentation) *

***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), **102**, 115 (color presentation)*

***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)*

***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 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), 91, **102**, 115 (color presentation), 127, **WTK** (May 9, 2005)*

***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.), 58, 63 (021310 - color presentation), 77 (recorded as *Cercidium floridum* Benth.), 85 (021410 - color presentation), 86 (recorded as *Cercidium floridum*, color photograph), 91 (recorded as *Cercidium floridum* Benth.), **102** (recorded as *Cercidium floridum*), 115 (color presentation), 127*

***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*), 91 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnston), **102** (recorded as *Cercidium microphyllum*), 115 (color presentation), 127, 134, **WTK** (May 9, 2005)*

***Phaseolus acutifolius* A. Gray var. *latifolius* G.F. Freeman: Tepary Bean**

COMMON NAMES: Ban Baw (species, Tohono O'odham), Frijol, Tepary, Tepary Bean, Texas Bean, Wild Tepary Bean. DESCRIPTION: Terrestrial annual forb/herb or vine (6 inches to 10 feet in height/length); the flowers are pink, purple, rose-violet or violet; based on few flowering records, flowering generally takes place between mid-August and early October. HABITAT: Within the range of this species it has been reported from mountains; canyons; canyon bottoms; hilltops; rocky slopes; gravelly flats; roadsides; along streams; within drainages; swales; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in moist rocky, gravelly and sandy ground, occurring from 500 to (5,700) 6,000 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; the species, *Phaseolus acutifolius*, was also noted as having been used as a drug or medication and as a ceremonial item. *Phaseolus acutifolius* var. *latifolius* is native to southwest-central and southern North America. *5, 6, 43 (071910 - *Phaseolus acutifolius* var. *latifolius* G.F. Freeman), 46 (Page 483, "All of the native beans (*Phaseolus* spp.) improve the soil, make a good ground cover, and provide excellent forage for livestock."), 48 (genus), 63 (071910), 77, 85 (071910 - color presentation), **102**, 127, 134*

***Phaseolus filiformis* G. Bentham: Slimjim Bean**

SYNONYMY: *Phaseolus wrightii* A. Gray. COMMON NAMES: Desert Bean, Slimjim Bean, Wright Bean, Wright's Limabean. DESCRIPTION: Terrestrial annual or perennial forb/herb or vine (slender sprawling, trailing or twining stems 2 to 7 feet in height/length); the leaves are gray-green; the flowers are bluish, magenta, pink, pink-purple, purple, reddish, rose, rose-purple or violet; flowering generally takes place between early February and mid-May and between early August and early January (additional records: two for early June and one for late June; flowering taking place throughout the year has also been reported), the fruits are green pods. HABITAT: Within the range of this species it has been reported from bouldery mountains; cliffs; rocky canyons; rocky canyon bottoms; rocky and gravelly talus slopes; bases of cliffs; sandy pockets of soil in boulders; crevices; foothills; rocky hills; rocky hillsides; rocky and rocky-gravelly-clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders, rocks and pebbles; lava flows; sand dunes; sandy flats; sandy coastal hills; coastal terraces; along stony, gravelly-sandy-loamy and sandy roadsides; arroyos; bottoms of arroyos; rocky draws; springs; sandy streambeds; along and in rocky-silty and gravelly washes; waterholes; shore lines; strands; edges of tanks; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, rocky, rocky-sandy, stony, gravelly, pebbly, pebbly-sandy and sandy ground; rocky-gravelly-clayey loam and gravelly-sandy loam ground; rocky clay ground and rocky silty ground sometimes in the shade of trees, occurring from sea level 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. *Phaseolus filiformis* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Phaseolus wrightii*, color photograph), 43 (071410), 46 (recorded as *Phaseolus wrightii* Gray - "All of the native beans (*Phaseolus* spp.) improve the soil, make a good ground cover, and provide excellent forage for livestock.", Page 484), 48 (genus), 63 (071410 - color presentation), 77, **85** (071410 - color presentation), **102***

*Phaseolus wrightii* (see *Phaseolus filiformis*)

*Prosopis juliflora* var. *velutina* (see *Prosopis velutina*)

***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; 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.), 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, **102**, 115 (color presentation), 127, 134, ADS (Arizona Daily Star, Sunday, July 26, 2009, Tucson & Region, B1: Mesquite Pods are of Consuming Interest), **WTK** (May 9, 2005)*

***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), **102**, 115 (color presentation)*

*Vachellia constricta* (see *Acacia constricta*)

*Vicia exigua* (see *Vicia 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 (*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), **102***

Fagaceae: The Beech Family

***Quercus turbinella* E.L. Greene: Sonoran Scrub Oak**

SYNONYMY: *Quercus turbinella* E.L. Greene subsp. *turbinella*. COMMON NAMES: California Scrub Oak, Desert Scrub Oak, Scrub Oak, Scrub Live Oak, Shrub Live Oak, Sonoran Scrub Oak, Toa (for genus, Tohono O'odham), Turbinella ("like a little top" refers to the shape of the acorns) Oak, Tucker Oak. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (10 inches to 8 feet or rarely a small tree to 15 to 25 feet (several reports for 33 feet and two reports of a tree reaching 50 to 60 feet) in height with an open and widely spreading rounded crown, one plant was observed and described as being 40 inches in height and 5 feet in width, one plant was observed and described as being 10 feet in height and 16½ feet in width); the scaly bark is light gray, gray or dark gray; the young twigs are reddish-brown and may be densely woolly and the older twigs are gray; the leaves are a glaucous (whitish bloom) blue-green, gray-green or dark green above and yellow-green below; the flowers are yellow; the stigmas are green; flowering generally takes place between late March and mid-October (additional record: one for mid-February); the acorns (5/8 to 1 inch in length and ¼ to ½ inch in width) are brownish. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky chutes; rocky rims of canyons; cliffs; along rocky canyons; pockets of soil in canyonsides; along rocky, rocky-loamy and loamy canyon bottoms; talus slopes; rocky bases of cliffs; sand-filled crevices; pockets of soil on canyon walls; rocky knolls; gravelly tops of knolls; bedrock and bouldery ledges; ridges; cinder cones; foothills; hills; gravelly-sandy hilltops; bouldery bases of hills; rocky, gravelly and silty hillsides; bouldery, rocky, rocky-shaley, rocky-sandy, rocky-loamy, rocky-clayey, rocky-clayey-loamy, gravelly, sandy, loamy, clayey and clayey-loamy slopes; rocky-sandy and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; prairies; plains; shaley flats; rocky valley floors; along rocky, gravelly-sandy and sandy roadsides; within bouldery-rocky-loamy arroyos; rocky draws; along rocky and silty ravines; rocky bottoms of ravines; springs; along streams; along and in rocky, rocky-gravelly and gravelly streambeds; along bouldery creeks; along and in creekbeds; along and in rocky, rocky-cobbly and sandy washes; along and in drainages; within drainage ways; depressions; along rocky-sandy banks of arroyos, streams and creeks; edges of arroyos and marshes; gravelly terraces, and gravelly-sandy riparian areas growing in dry bouldery, rocky, rocky-shaley, rocky-stony, rocky-cobbly, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-rocky-loam, bouldery-sandy-clayey loam, rocky loam, rocky-clayey loam, gravelly loam, clayey loam and loam ground; rocky clay, gravelly-sandy-silty, silty clay and clay ground, and silty ground, occurring from 1,500 to 9,000 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 and may be useful in controlling erosion. The Sonoran Scrub Oak often forms thickets. This plant was reported to have been utilized by native peoples of North America; it was noted that the acorn was used for food and the wood was used in the making of hoes and axe handles. The leaves are browsed by wildlife and the acorns are used for food by birds and other wild animals. *Quercus turbinella* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 28 (color photograph), 43 (071910), 46 (Page 218), 48, 52 (color photograph), 53, 58, 63 (071910 - color presentation), 68 (genus), 77, **85** (080510 - color presentation including habitat), **102** (recorded as *Quercus turbinella* subsp. *turbinella*), 127, 134*

*Quercus turbinella* subsp. *turbinella* (see *Quercus turbinella*)

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), 91, **102**, 106 (021810 - color presentation), 107, 115 (color presentation), 127, **WTK** (May 9, 2005)*

*Fouquieria splendens* subsp. *splendens* (see *Fouquieria splendens*)

Fumariaceae: The Fumitory Family

***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), **102***

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), 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), 101 (color photograph), **102**, 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), **102**, 115 (color presentation)*

Hydrophyllaceae: The Waterleaf Family

***Eucrypta chrysanthemifolia* (G. Bentham) E.L. Greene var. *bipinnatifida* (J. Torrey) L. Constance: Spotted Hideseed**

COMMON NAMES: Common Eucrypta, Spotted Hideseed, Torrey Eucrypta. DESCRIPTION: Terrestrial annual forb/herb (sprawling or trailing stems 4 inches to 1 foot in height/length); the flowers are light blue, blue, pale lavender, mauve, pale purple, white or white-blue; flowering generally takes place between mid-January and mid-May. HABITAT: Within the range of this species it has been reported from mountains; mesas; rock cliffs; rocky canyons; canyon bottoms; talus; shaded bases of cliffs; crevices in rocks; ridgetops; rocky hills; stony-sandy-silty hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly and gravelly slopes; sandy bajadas; amongst boulders and rocks; sand dunes; sandy loamy and clayey plains; gravelly flats; sandy valley floors; along rocky-gravelly roadsides; arroyos; ravines; in seeps; springs; around seeping streams; along creeks; along creekbeds; along rivers; along and in rocky-sandy, gravelly-sandy, gravelly-sandy-silty and sandy washes; edges of washes; benches, and riparian areas often growing in the shade of rocks or shrubs or trees in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; sandy loam ground, and stony-sandy silty and gravelly-sandy silty ground, occurring from 200 to 4,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eucrypta chrysanthemifolia* var. *bipinnatifida* is native to southwest-central and southern (Baja California) North America. *5, 6, 15, 43 (072209), 46 (Page 698), 63 (022110), 85 (022110), **102***

***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 growing 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 often n the shade of boulders, rocks, shrubs and trees, 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), **102**, 115 (color presentation)*

*Nama demissa* (see footnote 43 under *Nama demissum*)

***Nama demissum* A. Gray: Purplemat**

SYNONYMY: (*Nama demissa* A. Gray). COMMON NAMES: Leafy Nama, Morada, Purple Mat, Purplemat, Purple Nama. DESCRIPTION: Terrestrial annual forb/herb (½ to 3 inches in height, stems may trail to 8 inches in length); the stems may be purple; the leaves are green; the bell-shaped flowers are blue-violet, magenta (fading bluish), magenta with a yellow throat, pink, pink-lavender, dark pink, purple, purple-red, purplish, purplish-red, red-purple, red-violet, rose, rose-purple or violet; flowering generally takes place between early January and mid-June (additional record: one for early October). HABITAT: Within the range of this species it has been reported from mountains; canyons; sandy canyon bottoms; gravelly talus slopes; bouldery and sandy hills; rocky-gravelly hilltops; rocky hillsides; rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; sandy hillocks; sand dunes; deposits of wind-blown sand; gravelly and sandy banks; desert plains; rocky-sandy, gravelly, sandy and silty flats; gravelly valley floors; road beds; along sandy roadsides; along streams; along creeks; creekbeds; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; marshes; lakebeds; gravelly and gravelly-sandy terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas; recently burned areas of pinyon woodland, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and sandy loam ground, and sandy clay and clay ground, occurring from 100 to 6,800 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Nama demissum* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (072010 - *Nama demissa* A. Gray), 46 (recorded as *Nama demissum* Gray var. *deserti* Brand, Page 706), 63 (072010 - color presentation), 77, **85** (080510 - color presentation), 86 (color photograph)*

***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; canyons; sandy canyon bottoms; talus slopes; knolls; sandy foothills; sandy hills; rocky-sandy hilltops; escarpments; 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), **102**, 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*)

*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 may be 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 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 in shaded areas, 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), **102***

*Phacelia ambigua* (see *Phacelia crenulata* var. *ambigua*)

*Phacelia ambigua* var. *ambigua* (see footnote 85 under *Phacelia crenulata* var. *ambigua*)

*Phacelia caerulea* (see *Phacelia coerulea*)

***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), **102***

***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), **102**, 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), 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 cryptantha* E.L. Greene: Hiddenflower Phacelia**

COMMON NAMES: Hiddenflower Phacelia, Hidden-lower Scorpion-weed, Limestone Phacelia, Smallflower Phacelia. DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 20 inches in height); the flowers may be light blue, light blue-lavender, pale blue-purple, blue, blue-lavender, bluish, bluish-purple-lavender, light lavender, lavender, lavender-white, white, white-lavender or yellow; flowering generally takes place between mid-March and mid-June (additional records: one for mid-February and two for early July). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky canyons; rocky and sandy canyon bottoms; bouldery and rocky talus slopes; rocky bases of cliffs; amongst crevices in rocks; rocky hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; around rocky outcrops; amongst boulders and rocks; against and around

boulders and rocks; plains; flats; roadsides; springs; along streams; along creekbeds; along and in gravelly-sandy and sandy washes; gravelly-sandy benches; gravelly-sandy riparian areas; recently burned areas of chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 100 to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Phacelia cryptantha* is native to southwest-central and southern North America. *5, 6, 15, 43 (072010), 46 (Page 703), 63 (080610), 85 (080610 - color presentation), **102***

***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), **102**, 115 (color presentation), 127*

*Phacelia distans* var. *australis* (see *Phacelia distans*)

***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 growing in moist, damp and dry bouldery, bouldery-shaley, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky loam ground sometimes beneath shrubs and trees and shaded sheltered areas, 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), **102**, 115 (color presentation of the species)*

Krameriaceae: The Ratany Family

***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), **102**, 115 (color presentation), 127*

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 nana* (J. Torrey) J.I. Briquet subsp. *macrocalyx* W.S. Stewart: Dwarf False Pennyroyal**

COMMON NAMES: Dwarf False Pennyroyal, False Pennyroyal, Low Hedeoma, Mock-pennyroyal, Oregano, Penny Royal. DESCRIPTION: Terrestrial annual or perennial forb/herb (6 to 16 inches in height, one plant was reported to be 9 inches in height and 12 inches in width); the leaves are gray-green or purple; the flowers are blue, lavender, lavender-purple, pink or purple; flowering generally takes place between late February and mid-October. HABITAT: Within the range of this species it has been reported from mountains; canyons; gravelly canyon bottoms; buttes; foothills; hills; rocky hillsides; bouldery slopes; bouldery and rocky; rocky outcrops; amongst rocks; flats; valley floors; arroyos; springs; along creeks; in rocky-sandy and sandy washes; in bouldery drainages, and riparian areas growing in dry bouldery, rocky, rocky-sandy, stony, gravelly, pebbly and sandy ground, occurring from 1,800 to 7,300 feet in elevation in the forest, woodland, scrub, desertscrub and wetland ecological formations. NOTES: The species, *Hedeoma nana*, 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. *Hedeoma nana* subsp. *macrocalyx* is native to southwestern and southern North America. *5, 6, 43 (022710), 46 (*Hedeoma nanum* (Torr.) Briq. subsp. *macrocalylx* Stewart, Page 745), 63 (022710), 85 (022710 - color presentation of dried material), 127 (species)*

*Hedeoma nanum* (see footnote 46 under *Hedeoma nana*)

*Hedeoma nanum* subsp. *macrocalyx* (see footnote 46 under *Hedeoma nana* subsp. *macrocalyx*)

***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), 91, **102**, 115 (color presentation), 127*

***Monardella arizonica* C.C. Epling: Arizona Monardella**

COMMON NAMES: Arizona Monardella, Arizona Mountainbalm, Bee Balm. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending stems 6 to 32 inches in height and about the same in width, one plant was described as being 26 inches in height and width); the flowers are cream-lavender, pale lavender, pink, pink-purple, white-lavender or white with a purple line on the petals; the anthers are pale purple or purple; flowering generally takes place between early April and early January (flowering records: one for early January, two for early April, three for late April, three for mid-May, one for late June, one for mid-July, two for mid-August, one for mid-September, four for late September, one for late

October, one for early November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; along canyons; along canyon walls; rocky canyon bottoms; within crevices in bedrock, boulders and rocks; bases of cliffs; rocky ledges; rocky slopes; rocky outcrops; amongst rocks; springs; riverbeds; along washes; within drainages, and riparian areas growing in bouldery and rocky ground, occurring from 2,000 to 5,800 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. The herbage is very aromatic and has an odor reminiscent of sweet turpentine. *Monardella arizonica* is native to southwest-central North America, this plant is endemic to Arizona. *5, 6, 18 (genus), 43 (070710), 46 (Page 747), 63 (070710), **85** (070710 - color presentation of dried material, unable to access species information), **102***

***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, **8**, 15, 16, 18 (genus), 28 (color photograph), 43 (022710), 46 (Page 741), 48 (genus), 63 (022710 - color presentation), 77, 85 (022710 - color presentation), 86 (color photograph), **102**, 115 (color presentation), 127*

***Stachys coccinea* C.G. de Ortega: Scarlet Hedgenettle**

COMMON NAMES: Betony, Hedge Nettle, Mirto (Hispanic), Red Mint, Scarlet Hedgenettle, Scarlet Sage, Texas Betony. DESCRIPTION: Terrestrial perennial forb/herb (prostrate or erect stems 12

to over 40 inches in height/length, plants 12 to 18 inches in height and width were observed and reported, one plant was reported to be 1½ feet in height and 2½ feet in width); the leaves are grayish-green; the tubular flowers (¾ to 1¼ inch in length) may be orange, orange-red, pink, pinkish-white, purple, light red, red, deep red, red-orange, rose, salmon with whitish markings, scarlet, deep scarlet, scarlet-red or tomato-red; flowering generally takes place between early March and late November (additional records: one for early January, one for late January, one for early February, one for mid-February, two for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky cliffs; rock walls; along bouldery-rocky and rocky canyons; rocky and humusy canyon walls; rocky canyon bottoms; rocky spurs; talus slopes; bases of cliffs; shaded crevices in rocks; rocky bluffs; rocky ledges; rocky ridges; meadows; rolling foothills; rocky and gravelly hills; rocky hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly, stony, gravelly, gravelly-sandy, loamy, clayey and silty-loamy slopes; rocky outcrops; amongst boulders and rocks; bases of boulders and slabs of rock; along banks; gravelly plains; clayey flats; gravelly valley floors; along roadsides; arroyos; bottoms of arroyos; within bouldery and rocky ravines; seeps; springs; along bouldery streams; in bouldery-sandy, rocky and gravelly streambeds; along bouldery creeks; along and in rocky and rocky-sandy creekbeds; riverbeds; along and in bouldery-sandy, rocky, rocky-sandy and gravelly washes; within drainages; bases of waterfalls; gravelly bedrock plunge pools; boggy areas; banks of arroyos and creeks; along rocky margins of streambeds; silty-loamy terraces; floodplains; dense thickets; ditches; sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, rocky-clayey loam, gravelly-sandy-clayey loam, silty loam and loam ground; clay ground, and humusy ground often reported in moist shaded areas, occurring from 200 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. *Stachys coccinea* is native to southwest-central and southern North America and Central America. *5, 6, 15, 18, 28 (color photograph), 30, 43 (080610), 46 (Page 740), 48, 58, 63 (080610 - color presentation), **85** (080710 - color presentation), 86 (color photograph), **102**, 115 (color presentation)*

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*), **102**, 115 (color presentation), 127*

*Linum perenne* subsp. *lewisii* (see *Linum lewisii* var. *lewisii*)

## Loasaceae: The Blazingstar Family

***Mentzelia affinis* E.L. Greene: Yellowcomet**

COMMON NAMES: Blazing Star, Pega Pega, Stickleaf, Triangle-seed, Yellowcomet. DESCRIPTION: Terrestrial annual forb/herb (to 20 inches in height); the flowers are pale yellow or yellow; flowering generally takes place between January and June. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; bases of cliffs; hills; bases of hills; rocky slopes; amongst rocks; flats; along sandy roadsides; along and in gravelly-sandy and sandy washes; banks of washes, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 900 to 4,500 feet in elevation in the 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. *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 (color presentation of dried material), **102**, 127*

***Mentzelia involucrata* S. Watson: Whitebract Blazingstar**

COMMON NAMES: Bracted Blazing Star, Desert Blazing Star, Sand Blazing Star, Blazing Star, Whitebract Blazingstar, Whitebract Stickleaf. DESCRIPTION: Terrestrial annual forb/herb (1 to 14 inches in height); the flowers are cream, cream-yellow, white, light yellow, yellow or yellow with orange veins; flowering generally takes place between mid-January and mid-May (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; canyons; gravelly talus slopes; crevices in rocks; ridges; ridgetops; rocky hills; rocky and gravelly hillsides; rocky slopes; bajadas; rocky outcrops; amongst boulders; lava fields; plains; flats; roadsides; along rivers; sandy washes; rocky and gravelly banks of washes; beaches, and terraces growing in dry desert pavement and bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from (sea level?) 700 to 3,000 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 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 game.

*Mentzelia involucrata* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (color photograph), 43 (070910), 46 (Page 565), 48 (genus), 63 (070910 - color presentation), **85** (070910 - color presentation of dried material, unable to access species information), 86 (color photograph), **102**, 127*

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), **102**, 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 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), **102**, 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), 63 (030410 - color presentation), 77 (recorded as *Abutilon incanum* (Link.) Sweet ssp. *pringlei* (Hochr.) Felger & Lowe), 85 (030410 - color presentation), 91, **102**, 115 (color presentation), 127, **HR***

*Abutilon incanum* subsp. *incanum* (see *Abutilon incanum*)

*Abutilon incanum* subsp. *pringlei* (see *Abutilon incanum*)

***Abutilon malacum* S. Watson: Yellow Indian Mallow**

COMMON NAMES: Indian Mallow, Yellow Abutilon, Yellow Indian Mallow. DESCRIPTION: Terrestrial perennial subshrub or shrub (12 to 40 inches in height); the leaves are grayish or gray-green; the flowers are golden, light orange, orange, orange-yellow, dull tan-apricot, yellow or yellow-orange; flowering generally takes place between mid-January and early December ( flowering records: one for mid-January, two for late February, two for early March, one for late March, four for early April, four for mid-April, one for late April, two for early May, two for mid-May, two for early June, one for mid-June, one for early July, five for mid-August, three for late August, three for early September, eight for mid-September, seven for late September, one for early October, three for mid-October, one for late October, two for late November and two for early December. HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; cliffs; rocky canyons; hilltops; bouldery rocky hillsides; bouldery and rocky slopes; bajadas; amongst rocks; bases of boulders; gravelly-loamy roadsides; along arroyos; along bottoms of arroyos; rocky ravines; springs; along rocky and sandy washes; along drainages, and floodplains growing in dry bouldery, rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,700 to 4,900 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTE: *Abutilon malacum* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (072010), 63 (072010), 77, **85** (080710 - color presentation), **102***

***Abutilon mollicomum* (C.L. von Wildenow) R. Sweet: Sonoran Indian Mallow**

SYNONYMY: *Abutilon sonorae* A. Gray. COMMON NAMES: Indian Mallow, Pintapan Cimarron, Sonoran Indian Mallow. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (16 inches to 10 feet in height); the leaves are gray-green to yellow-green; the flowers are orange, dark orange, pale orange-yellow, orange-yellow, yellow, yellow with a red-orange fringe or yellow-orange; flowering generally takes place between early August and late October (additional records: one for early March, two for late April, one for mid-June, two for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; canyons; canyonsides; along canyon bottoms; crevices in boulders; rocky hills; hillsides; bouldery and rocky slopes; rocky outcrops; bases of rocky outcrops; amongst boulders and rocks; shaded bases of rocks; flats; valley floors; along railroad right-of-ways; along roadsides; arroyos; streambeds; along washes; along waterways; benches, and riparian areas growing in dry bouldery, rocky and sandy ground, occurring from 100 to 5,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Abutilon mollicomum* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (072010), 46 (recorded as *Abutilon sonorae* Gray, Page 539), 58, 63 (072010 - color presentation of seed), 85 (080710 - color presentation), **102***

***Abutilon parishii* S. Watson: Parish's Indian Mallow**

COMMON NAMES: Indian Mallow, Parish Indian Mallow,Parish's Abutilon, Parish's Indian Mallow, Pima Indian Mallow, Tucson Indian Mallow. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (40 inches to 6 feet in height), the flowers have been described as being yellow-orange; flowering generally takes place between April and August. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon walls; canyon bottoms; talus slopes; bases of cliffs; ledges; rocky hillsides; rocky slopes; bajadas; amongst boulders and rocks; drainage ways, and shores of lakes growing in dry bouldery and rocky ground, occurring from 400 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. *Abutilon parishii* is native to southwest-central and southern North America. *5, 6, **8**, 9, 18 (genus), 43 (062610), 46 (Page 539 incorrectly shown as being a

synonym of *Abutilon palmeri* Gray, Supplement, Page 1060), 63 (062610), 77 (color photograph #84), 85 (062610 - color presentation of dried material, unable to access species information), **102***

***Abutilon parvulum* A. Gray: Dwarf Indian Mallow**

COMMON NAMES: Indian Mallow, Dwarf Indian Mallow, Small Leaf Indian Mallow, Small-leaved Abutilon. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (trailing stems 6 to 24 inches in length, one plant was described as being 12 inches in height and 20 inches in width; sometimes prostrate); the leaves are gray-green; the flowers may be golden, orange, orange-peach, orange-red, orange-salmon, orange-yellow, orange-yellow-brown, pink, salmon, golden yellow or yellow-orange, flowering generally takes place between early April and late October (additional records: one for mid-March and one for mid-November; however, it was note that flowering may take place throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon walls; crevices in rocks; ledges; ridges; foothills; hills; gravelly hillsides; rocky slopes; bajadas; rocky outcrops; amongst boulders, rocks and gravels; plains; gravelly flats; roadsides; gulches; creeks; along rocky and gravelly washes; gravelly terraces; bottomlands; floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground and gravelly loam and sandy loam ground, occurring from 1,500 to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Abutilon parvulum* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (072010), 46 (Page 539), 58, 63 (072010), 77, 85 (color presentation), **102***

*Abutilon pringlei* (see *Abutilon incanum*)

*Abutilon sonorae* (see *Abutilon mollicomum*)

*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), **102**, 115 (color presentation)*

***Hibiscus biseptus* S. Watson: Arizona Rosemallow**

COMMON NAMES: Arizona Rosemallow, Malvita, Sonoran Rose Mallow. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (erect stems 18 to 40 inches in height, one plant was described as being 18 inches in height and 14 inches in diameter); the leaves may turn red-green before falling; the flowers are cream-yellow, lavender, white with red centers; light yellow, yellow with a purplish or violet basal spot or yellowish-white with a purple center; flowering generally takes place between early August and mid-October (additional records: one for early April, one for early May, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky canyons; canyon bottoms; bases of cliffs; crevices in rocks; ledges; rocky hills; hilltops; hillsides; rocky and gravelly slopes; rocky bajadas; amongst boulders; sandy-silty plains; flats; along roadsides; within gravelly-sandy arroyos; bottoms of arroyos; along washes; at waterholes; edges of ponds; floodplains, and riparian areas growing in wet and dry bouldery, rocky, gravelly and gravelly-sandy ground; gravelly-sandy loam ground, and sandy silty ground, occurring from sea level 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. *Hibiscus biseptus* is native to southwest-central and southern North America. *5, 6, 13, 15, 43 (072010), 46 (Page 553), 48 (genus), 58, 63 (072010), 77 (color photograph #38), **85** (080810 - color presentation of dried material), **102***

***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 dry 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), **102**, 115 (color presentation), **WTK** (May 9, 2005)*

***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), **102**, 115 (color presentation)*

*Hibiscus denudatus* var. *involucellatus* (see *Hibiscus denudatus*)

***Horsfordia newberryi* (S. Watson) A. Gray: Newberry's Velvetmallow**

COMMON NAMES: Newberry Velvetmallow, Newberry's Velvetmallow, Orange Velvet Mallow, Orange Velvet-mallow, Yellow Felt Plant, Yellow Feltplant. DESCRIPTION: Terrestrial perennial subshrub or shrub (40 inches to 10 feet in height); the flowers are yellow; flowering generally takes place between March and October; however, flowering taking place throughout the year has also been reported. HABITAT: Within the range of this species it has been reported from mountains; canyons; ridges; rocky hillsides; rocky slopes; alluvial fans; bajadas; basins, and along washes growing in dry rocky ground, occurring from 1,000 to 3,500 feet in elevation in the desertscrub ecological formation. NOTES: The plants are covered with dense yellowish hairs. *Horsfordia newberryi* is native to southwest-central and southern North America. *5, 6, 13, 43 (070710 - *Horsfordia newberryi* A. Gray), 46 (Page 540), 63 (070710), 77, 85 (070710 - color presentation of dried material), 91, **102**, **HR***

***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), 58, 63 (061910 - color presentation), 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), 101 (note), **102**, 106 (030510 - color presentation), 115 (color presentation), 127*

***Malvastrum bicuspidatum* (S. Watson) J.N. Rose: Shrubby False Mallow**

COMMON NAMES: Malva Peluda, Mexican Shrub Mallow, Shrubby False Mallow, Tachi. DESCRIPTION: Terrestrial perennial subshrub (20 inches to 7 feet in height); the flowers are orange, orange-yellow or yellow; flowering generally takes place between early March and mid-October (additional records: one for early 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 canyons; canyon bottoms; bases of cliffs; rocky hillsides; rocky slopes; amongst rocks; bases of rocks; clayey coastal plains; rocky-loamy flats; arroyos; rocky benches, and disturbed areas growing in dry rocky ground; rocky loam ground, and clay ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Malvastrum bicuspidatum* is native to southwest-central and southern North America. *5, 6, **8**, 13, 43 (072110), 46 (Page 548), 63 (072110), 77, **85** (072110 - color presentation of dried material), **102***

***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; valleys; 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 (*Sida procumbens* Sw.), 16 (*Sida procumbens* Sw.), 28 (*Sida filicaulis*, *Sida procumbens*), 43 (072409 - no record of *Sida abutifolia*), 46 (*Sida procumbens* Sw., Page 550), 58 (*Sida procumbens* Sw.), 63 (030610), 77, 85 (030610 - color presentation), **102**, 115 (color presentation)*

*Sida diffusa* (see *Sida abutifolia*)

*Sida filicaulis* (see *Sida abutifolia*)

*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), **102**, 115 (color presentation), 127*

***Sphaeralcea ambigua* A. Gray x *Sphaeralcea emoryi* J. Torrey ex A. Gray: Globemallow**

COMMON NAME: Globemallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub. HABITAT: Within the range of this species it has been reported as occurring in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea ambigua* x *Sphaeralcea emoryi* is native to southwest-central North America. *85, **102***

***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; rocky hills; rocky hillsides; rocky and rocky-sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava and sandy inside rims of craters; 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), **102***

*Sphaeralcea coulteri* var. *coulteri* (see footnote 85 under *Sphaeralcea coulteri*)

***Sphaeralcea hastulata* J. Torrey ex A. Gray: Spear Globemallow**

SYNONYMY: *Sphaeralcea subhastata* J.M. Coulter. COMMON NAMES: Globe Mallow, Mal de Ojo, Spear Globemallow, Spreading Globemallow, Wrinkled Globe Mallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (prostrate, ascending or erect stems 8 inches to 2 feet inches in height with a dome-shaped crown); the leaves are gray-green; the flowers may be grenadine, lavender-pink, orange, orange-pink (salmon), orange-red, peach-orange, light pink, pink-orange, red or red-orange; the anthers are purple, purplish or yellow; the stigmas are lavender, purple or red; flowering generally takes place between mid-March and mid-November (additional record: two for early December). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains;

mesas; canyons; canyon bottoms; sandy crevices; ledges; rocky and rocky-sandy ridges; foothills; gravelly-clayey hilltops; rocky hillsides; clayey gravelly slopes; bajadas; sandy lava flows; lava beds; sandy plains; clayey flats; basin bottoms; sandy valley floors; along railroad right-of-ways; along gravelly roadsides; bottoms of arroyos; ravines; gravelly washes; along rocky drainages; depressions; sandy-clayey swales; banks of rivers and washes; bottomlands; waste places, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground; gravelly-clayey loam, sandy loam and loam ground, and gravelly clay, sandy clay and clay ground occurring from 400 to 8,400 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTE: *Sphaeralcea hastulata* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (072110 - *Sphaeralcea hastulata* A. Gray), 46 (recorded as *Sphaeralcea subhastata* Coult., Page 545), 48 (genus), 63 (072110), 68 (genus), 77, 85 (080810 - color presentation of dried material), **102***

***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; floodplains; sandy lowlands; 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), 63 (030810 - color presentation), 68, 77 (color photograph #40), 85 (030810 - color presentation), **102**, 115 (color presentation)*

*Sphaeralcea subhastata* (see *Sphaeralcea hastulata*)

Molluginaceae: The Carpetweed Family
(the genus Mollugo was formerly placed in the Aizoaceae)

***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: *Mollugo verticillata* is considered by some authors to be 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), **102***

Nyctaginaceae: The Four-o'clock Family

***Allionia incarnata* C. Linnaeus var. *incarnata*: Trailing Windmills**

COMMON NAMES: Allionia, Trailing Allionia, Trailing Four O'Clock, Trailing Four-o'clock, Trailing Windmills, Windmills. DESCRIPTION: Terrestrial perennial forb/herb (prostrate with trailing stems 4 to 14 inches in height and 4 inches to 10 feet in length); the leaves are gray-green; the flowers are pink, purple, red-violet or white; flowering generally takes place between mid-February and early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; hills; rocky slopes; bajadas; sandy plains; flats; roadsides; along riverbeds; along sandy washes; roadsides; waste places, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground and clay ground, occurring from sea level to 5,600 feet in elevation in the desertscrub ecological formation. 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. *incarnata* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 28 (species, color photograph of the species), 43 (031010), 46 (species, Page 274), 63 (031010), 68 (species), 85 (031010), 86 (species, color photograph of the species), **102**, 115 (color presentation of the species), 127 (species)*

***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), **102**, 115 (color presentation of the species), 127 (species)*

***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), **102***

***Boerhavia diffusa* C. Linnaeus: Red Spiderling**

COMMON NAMES: Agarra-pinto (Portuguese), Amarra-pinto (Portuguese), Celidônia (Portuguese), Hierba de Cabro (Spanish), Huang Xi Xin (transcribed Chinese), Ipecacuanha de Cayenne (French), Mochi, Punarnava (India), Pega-pinto (Portuguese), Red Spiderling, Scarlet Spiderling, Spreading Hogweed. DESCRIPTION: Terrestrial annual or perennial forb/herb (sprawling decumbent, ascending or erect stems 12 to 40 inches in height/length); the flowers are dark purple, purplish-red, reddish-pink or almost white; flowering generally takes place between mid-winter to early fall (flowering throughout the year was also noted). HABITAT: Within the range of this species it has been reported from mesas; basins; roadsides; streambeds; along rivers; sandy banks of washes, and disturbed areas growing in sandy ground, occurring from sea level to 5,900 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formation. NOTE: EXOTIC Invasive Plant. *Boerhavia diffusa* is native to southeast-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; eastern and southern Asia, Africa, and islands in the southwestern Pacific Ocean; however, the exact native range is obscure. *5, 6, 43 (072210), 46 (no record of species), 63 (072210), 85 (072210), **102***

***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; in 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), 58, 63 (031110 - color presentation), 77 (color photograph #87), 85 (031110 - also recorded as *Boerhavia erecta* subsp. *erecta* L., color presentation), **102**, 127*

*Boerhavia erecta* subsp. *erecta* (see footnote 85 under *Boerhavia erecta*)

*Boerhavia erecta* var. *intermediia* (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)*

***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), 58, 63 (031110 - color presentation), 77 (recorded as *Commicarpus scandens* (L.) Standl., color photograph #43 labeled *Commicarpus scandens*), 85 (031210 - color presentation), 115 (color presentation), **102***

***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: *Boerhaavia*; recorded as *Boerhaavia spicata* Choisy, Page 276 and *Boerhaavia torreyana* (Wats.) Stand., Page 276), 58, 63 (031210 - color presentation), 77, 85 (031210 - color presentation of dried material), **102***

*Boerhavia torreyana* (see *Boerhavia spicata*)

*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), **102***

*Commicarpus scandens* (see *Boerhavia scandens*)

*Mirabilis bigelovii* (see *Mirabilis laevis* var. *villosa*)

*Mirabilis bigelovii* var. *bigelovii* (see *Mirabilis laevis* var. *villosa*)

***Mirabilis laevis* (G. Bentham) M.C. Curran var. *villosa* (A. Kellogg) R.W. Spellenberg: Wishbone-bush**

SYNONYMY: *Mirabilis bigelovii* A. Gray, *Mirabilis bigelovii* A. Gray var. *bigelovii* A. Gray. COMMON NAMES: Bigelow Four O'clock, Desert Wishbone Bush, Desert, Wishbone Bush, Wishbone-bush, Wishbonebush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (clumping or sprawling decumbent to erect stems 6 to 32 inches in height); the kidney-shaped leaves are dark green, the flowers are cream-white, lavender, magenta, pale pink, pink, white or whitish-cream; flowering generally takes place between late January and mid-May (additional records: one for early June, one for late June, one for mid-August, one for late August, one for early September, one for mid-September, one for late September, one for early October, two for mid-October, seven for late October, two for mid-November, three for late November and two for early December; flowering has been reported as occurring throughout the year with the heaviest show of flowers in the spring). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; along rocky canyons; canyon bottoms; scree; bases of cliffs; crevices in rocks; buttes; rocky ridges; rocky ridgetops; meadows; rocky hills; hilltops; bouldery-rocky, rocky and gravelly hillsides; rocky slopes; gravelly bases of slopes; bajadas; bouldery outcrops; amongst boulders and rocks; plains; flats; gravelly-sandy valley floors; along roadsides; along arroyos; draws; springs; rocky-sandy streambeds; along and in gravelly-sandy and sandy washes; drainages; rocky drainage ways; shores of lakes; riparian areas and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy soils and rocky loam and gravelly loam soils, occurring from below sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The herbage is reportedly very sticky. *Mirabilis laevis* var. *villosa* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (recorded as *Mirabilis bigelovii*, color photograph), 43 (071010), 46 (recorded as *Mirabilis bigelovii* Gray, Page 272), 63 (071010 - color presentation), 77 recorded as *Mirabilis bigelovii*, (color photograph #44), 85 (071010 - color presentation, unable to access species information), **102**, 115 (color presentation of the species)*

***Pisonia capitata* (S. Watson) P.C. Standley: Mexican Devil's-claws**

COMMON NAMES: Garambullo, Mexican Devil's-claws, Pisonia, Vainoro. DESCRIPTION: Terrestrial perennial shrub or tree (sprawling branches 8 to 23 feet in height); the bark on the trunk is

gray; the bark on older branches is purple-brown; the bark of the younger branches is brownish; the foliage is dark green to burgundy; the staminate flowers are deep red; the pistillate flowers are greenish or yellow often with a reddish blush; based on few records located, flowering generally takes place between mid-December and early April (additional record: one for mid-May); the fruits are red. HABITAT: Within the range of this species it has been reported from clefts in cliffs; riparian canyons; roadsides; stony arroyos; riverbeds; along washes; edges of washes; along margins of arroyos and washes; riparian areas, and disturbed areas growing in damp and dry rocky, stony and sandy ground, occurring from sea level to 3,700 feet in elevation in the forest, scrub and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers may be fragrant. This plant may on occasion have the growth pattern of a liana. PERIPHERAL PLANT(S). *Pisonia capitata* is native to southwest-central and southern North America. *5, 6, 43 (072210), 46 (no record of species), 63 (072210), **85** (072210), **102***

Oleaceae: The Olive Family

*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 (recored as *Forestera phillyreoides* (Benth.) Torr.), 58, 63 (031210), 77, 85 (031210 - color presentation of dried material), **102***

***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), **102**, 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 (*Oenothera leptocarpa* Greene, Page 599), 48 (genus, *Oenothera* spp.), 58, 63 (031310 - color presentation), 77 (color photograph #46), 85 (031310 - color presentation of dried material), **102**, 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 chamaenerioides* Gray, Page 600), 48 (genus, *Oenothera* spp.), 63 (031310), 77, 85 (031310 - color presentation of dried material), **102***

***Camissonia claviformis* (also spelled *clavaeformis*, J. Torrey & J.C. Frémont) P.H. Raven subsp. *aurantiaca* (P.A. Munz) P.H. Raven: Browneyes**

SYNONYMY: *Oenothera claviformis* (also spelled *clavaeformis*) J. Torrey & J.C. Frémont var. *aurantiaca* (P.A. Munz) P.A. Munz. COMMON NAMES: Brown-eyed Primrose, Browneyes, Clavatefruit Suncup, Clavate-fruited Primrose. DESCRIPTION: Terrestrial annual forb/herb (to 18 inches in height); the flowers are pink or white; flowering generally takes place between early February and mid-May (additional records: one for mid-January, one for mid-June and one for early December). HABITAT: Within the range of this species it has been reported from mountains; canyons; rocky and sandy hills; rocky and sandy slopes; alluvial fans; bajadas; sand hills; sandy plains; rocky, gravelly, sandy and silty flats; sandy roadsides; along rivers; along and in stony-sandy, gravelly, gravelly-sandy and sandy washes; rocky-sandy banks rivers; sandy edges of river, riverbeds and washes, and disturbed areas growing in dry rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 100 to 4,500 feet in elevation in the desertscrub ecological formation. NOTE: *Camissonia claviformis* subsp. *aurantiaca* is native to southwest-central North America. *5, 6, 43 (031410 - *Oenothera claviformis* Torr. & Frém. var. *aurantiaca* Munz), 46 (note alternate spelling: recorded as *Oenothera clavaeformis* Torr. & Frém. var. *aurantiaca* (Wats.) Munz, Pages 601-602), 48 (genus, recorded as *Oenothera* spp.), 63 (031410), 85 (031410 - color presentation of dried material), **102***

*Eulobus californicus* (see *Camissonia californica*)

*Oenothera chamaenerioides* (see *Camissonia chamaenerioides*)

*Oenothera claviformis* var. *aurantiaca* (see *Camissonia claviformis* subsp. *aurantiaca*)

***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, *Oenothera* spp.), 58, 63 (031510 - color presentation), 77, **85** (031510 - color presentation), **102**, 115 (color presentation), 127*

*Oenothera leptocarpa* (see *Camissonia californica*)

## Orobanchaceae: The Broom-rape Family

*Orobanche cooperi* (A. Gray) A.A. Heller subsp. *cooperi*: Desert Broomrape

SYNONYMY: *Orobanche ludoviciana* T. Nuttall var. *cooperi* (A. Gray) G. Beck. COMMON NAMES: Broom Rape, Broom-rape, Broomrape, Burro Weed Strangler, Cancer-root, Cooper's Broomrape, Desert Broomrape, Flor de Tierra, Louisiana Broomrape. DESCRIPTION: Terrestrial annual forb/herb (root parasite 4 to 16 inches in height); flowering records: one for mid-March and one for mid-April. HABITAT: Within the range of this species it has been reported from amongst bluffs; rocky and gravelly-sandy slopes; bajadas; flats; along gravelly roadbeds; along sandy roadsides; in cobbly and sandy washes; rocky-sandy shores of reservoirs, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 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. 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 *Ambrosia dumosa* and Tobacco. *Orobanche cooperi* subsp. *cooperi* is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of the species), 43 (031510 - *Orobanche ludoviciana* var. *cooperi* Beck), 46 (*Orobanche ludoviciana* Nutt. var. *cooperi* (Gray) G. Beck, Page 797), 63 (031510), 77 (color photograph #88 labeled *Orobanche ludoviciana*), 85 (031510 - color presentation), **102**, 115 (color presentation of the species), 127*

*Orobanche ludoviciana* var. *cooperi* (see *Orobanche cooperi* subsp. *cooperi*)

Papaveraceae: The Poppy Family

*Argemone mexicana* var. *ochroleuca* (see *Argemone ochroleuca*)

***Argemone ochroleuca* R. Sweet: Pale Mexican Pricklypoppy**

SYNONYMY: *Argemone mexicana* C. Linnaeus var. *ochroleuca* (R. Sweet) J. Lindley. COMMON NAMES: Cardo, Chicalote (Spanish), Mexican-poppy, Pale Mexican-poppy, Pale Mexican Pricklypoppy, Prickle Poppy, White-flower Mexican Poppy, Witblom-bloudissel (Afrikaans), Yellow Pricklepoppy, Yellow Prickly Poppy. DESCRIPTION: Terrestrial annual or perennial forb/herb (12 to 40 inches in height); the flowers are canary yellow, cream, pale lemon-yellow, lemon-yellow, light yellow, pale yellow-cream or rarely dark yellow; the anthers are yellow; based on few flowering records, flowering generally takes place between mid-March and late July (additional records: one for mid-January, one for mid-February and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; slopes; bajadas; embankments; plains; sandy flats; coastal plains; railroad right-of-ways; roadsides; arroyos; bottoms of arroyos; riverbeds; washes; loamy banks of river; benches; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry gravelly, gravelly-sandy and sandy ground and loam ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, desertscrub and wetland ecological formations. NOTES: EXOTIC Invasive Plant. This plant has an orange or yellow sap. *Argemone mexicana* var. *ochroleuca* is native to southern North America. *5, 6, 18 (genus), 43 (072210 - *Argemone mexicana* var. *ochroleuca* (Sweet) Lind.), 46 (no record of species), 48 (genus), 63 (072210 - ), 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** (080810), **102***

***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), 115 (color presentation), 127 (species), **102***

*Eschscholzia mexicana* (see *Eschscholzia californica* subsp. *mexicana*)

Pedaliaceae (Martyniaceae): The Sesame Family

*Martynia althaeifolia* (see *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; canyons; canyonsides; canyon bottoms; buttes; stony and sandy foothills; hillsides; escarpments; 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 floodplains; sandy low spots; 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 recorded as *Proboscidea altheaefolia*, Page 796), 58, 63 (031710 - color presentation), 77, 85 (031710 - color presentation), 86 (color photograph), **102**, 115 (color presentation), 127*

*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, **8**, 16, 28 (color photograph), 43 (031710 - *Proboscidea parviflora* Wooton & Standl.), 46 (Page 795), 58, 63 (031710 - color presentation), 77, 85 (031710 - color presentation), **102**, 115 (color presentation), 127*

## Plantaginaceae: The Plantain Family

*Plantago fastigiata* (see *Plantago ovata*)

*Plantago insularis* (see *Plantago ovata*)

*Plantago insularis* var. *fastigiata* (see *Plantago ovata*)

***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; drainages; gravelly drainage ways; 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 (*Plantago insularis* Eastw.), 43 (072509), 46 (*Plantago insularis* Eastw., Page 805), 48 (genus), 63 (031810 - color presentation), 77 (*Plantago fastigiata* Morris), 85 (031810 - includes records for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston, color presentation of dried material), **102** (recorded as *Plantago fastigiata*), 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), 58, 63 (031810 - color presentation), 77 (color photograph #89), 85 (031810 - color presentation), 101 (color photograph), **102**, 115 (color presentation), 127*

*Plantago patagonica* var. *gnaphalioides* (see *Plantago patagonica*)

*Plantago purshii* (see *Plantago patagonica*)

Plumbaginaceae: The Leadwort Family

***Plumbago scandens* C. Linnaeus: Doctorbush**

COMMON NAMES: Climbing Plumbago, Devil's-herb, Doctorbush, Firicua (Hispanic), Flor de Pegajoso (Hispanic), Hierba de Alacran, Hierba del Cáncer (Hispanic), Jiricua (Hispanic), Pegajoso (Hispanic), Peñethi (Hispanic), Peñeti (Hispanic), Pitillo, Plumbago, Rochinúe (Tarahumara), Toothwort. DESCRIPTION: Terrestrial perennial evergreen subshrub, shrub or vine (sprawling semi-erect stems 1 to 10 feet in length); the foliage is green; the flowers are white or white tinged with blue; flowering generally takes place between early April and late October (additional records: one for early January, two for mid-January, one for late January, three for mid-March, one for mid-November, two for mid-

December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky cliffs; along rocky canyons; canyon walls; along rocky canyon bottoms; bases of cliffs; shaded gaps in bluffs; ridges; ridgetops; hillsides; rocky and clayey slopes; amongst rocks; bases of boulders; cut-banks; sandy flats; along roadsides; arroyos; bottoms of arroyos; rocky gulches; seeps; springs; along streams; along rocky streambeds; along creeks; sandy riverbeds; along and in sandy washes; within rocky drainages; banks of creeks; edges of arroyos; margins of rivers; benches; floodplains; riparian areas growing in moist and dry bouldery, rocky, gravelly and sandy ground; rocky loam ground, and clay ground often in shaded areas, occurring from sea level to 4,400 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, displays red foliage during the fall and winter months. Contact with the leaves or roots may cause dermatitis. *Plumbago scandens* is native to south-central and southern North America; Central America and coastal islands, and northern western and eastern South America. *5, 6, 13, 15, 18, 30, 43 (071410), 46 (Page 639), 58, 63 (071410 - color presentation), 77 (color photograph #48), **85** (071410 - color presentation of dried material), **102**, 115 (color presentation)*

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), 58, 63 (031810 - color presentation), 77 (color photograph #49), 85 (031810 - color presentation), **102**, 115 (color presentation)*

*Gilia bigelovii* (see *Linanthus bigelovii*)

***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 (*Gilia ophthalmoides* Brand ssp. *australis* A. & V. Grant), 63 (031810), 77, 85 (031910 - color presentation of dried material), **102***

*Gilia multiflora* (see *Ipomopsis multiflora*)

*Gilia ophthalmoides* subsp. *australis* (see *Gilia flavocincta* subsp. *australis*)

***Gilia sinuata* D. Douglas ex G. Bentham x *Gilia scopulorum* M.E. Jones: Gilia**

COMMON NAMES: Gilia. DESCRIPTION: Terrestrial annual forb/herb. HABITAT: Within the range of this species it has been reported as occurring in the desertscrub ecological formation. NOTE: *Gilia sinuata* x *Gilia scopulorum* is native to southwest-central North America. ***102***

***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), **102***

***Ipomopsis multiflora* (T. Nuttall) V.E. Grant: Manyflowered Ipomopsis**

SYNONYMY: *Gilia multiflora* T. Nuttall. COMMON NAMES: Bluestar Flower, Gilia, Many-flower Gilia, Gily Flower, Many Flowered Skyrocket, Many-flower Gilia, Many-flowered Gilia, Many-flowered Skyrocket, Manyflowered Gilia, Manyflowered Ipomopsis. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 28 inches in height, one plant was described as being 8 inches in height and 12 inches in width, plants were described that were 8 inches in height and 18 inches in width); many-stemmed; the leaves are gray-green or dark green; the flowers may be light blue-violet, blue, blue-purple, blue-violet, pale lavender, light lavender-blue, lavender-blue, lavender, pink, light purple, purple, purple-blue, pale violet, pale violet & purple, violet, violet-blue or white & Lavender; flowering generally takes place between late May and early November. HABITAT: Within the range of this species it has been reported from mountains; sandy-silty mesas; gravelly-loamy plateaus; bouldery and rocky canyons; rocky canyon walls; rocky and stony-sandy canyon bottoms, talus; rocky-clayey ridges; ridgetops; loamy-clayey openings in woodlands; rocky meadows; rocky foothills; gravelly-sandy hills; rocky and sandy hillsides; rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-clayey, sandy-loamy, sandy-clayey-loamy and silty slopes; rocky outcrops; amongst boulders and rocks; sandy and clay dunes; sandy prairies; sandy-loamy plains; rocky, sandy and sandy-clayey-loamy flats; along rocky, rocky-sandy, rocky-gravelly-loamy, cindery, gravelly, gravelly-loamy and sandy-loamy roadsides; along rocky arroyos; gulches; ravines; seeps; along streams; along streambeds; along sandy creekbeds; along rivers; along gravelly, sandy sandy-silty and loamy-clayey washes; along rocky and sandy drainages; rocky drainage ways; lakebeds; edges of creeks and washes; sandy margins of washes; sandy benches; terraces; ditches; riparian areas and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; rocky clay, gravelly clay, sandy clay, loamy clay and clay ground, and sandy silty and silty ground, occurring from 3,200 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, and/or spice, and/or fiber, and/or dye crop; it was noted as having been used as a drug or medication. This plant may be browsed by deer. *Ipomopsis multiflora* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph), 43 (072609), 46 (recorded as *Gilia multiflora* Nutt., Page 692), 48 (genus - recorded as *Gilia*), 63 (072210 - color presentation), **85** (072210 - color presentation), **102**, 127, 129*

***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 gravelly cinder cones; rocky foothills; rocky hills; rocky hillsides; along cinder cones; 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; 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), **102***

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), **102***

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; boulderfields; 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), **102***

***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), **102***

***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 (gen.), 58, 63 (032210 - color presentation), 77 (color photograph #50), **85** (032210 - color presentation), **102***

*Eriogonum abertianum* var. *abertianum* (see *Eriogonum abertianum*)

*Eriogonum abertianum* var. *cyclosepalum* (see *Eriogonum abertianum*)

*Eriogonum abertianum* var. *villosum* (see *Eriogonum abertianum*)

*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), 63 (032310 - color presentation of seed), 68, 77, 85 (032310 - color presentation), **102***

*Eriogonum deflexum* var. *turbinatum* (see *Eriogonum deflexum* var. *deflexum*)

*Eriogonum densum* (see footnote 46 under *Eriogonum palmerianum*)

***Eriogonum fasciculatum* G. Bentham var. *polifolium* (G. Bentham) J. Torrey & A. Gray: Eastern Mojave Buckwheat**

SYNONYMY: *Eriogonum polifolium* G. Bentham. COMMON NAMES: Bladderstem, Buckwheat, California Buckwheat, California Wild Buckwheat, Desert Trumpet, Eastern Mojave Buckwheat, Flat-top, Flat-top Buckwheat, Flat-top Buckwheat-brush, Flat-topped Buckwheat, Flat-topped Buckwheat Brush, Flat-topped Buckwheatbrush, Indian Pipe-weed, Maderista, Mohave Desert California Buckwheat. DESCRIPTION: Terrestrial perennial subshrub or shrub (compact to spreading decumbent stems 4 to 40 inches in height with crowns 8 inches to 10 feet in width, one plant was reported to be 1 foot in height and 2 feet in width, one plant was reported to be 16 inches in height and 2 feet in width, plants were observed and described as being 18 inches in height and 2 feet in width, plants were observed and described as being 20 inches in height and 18 inches in width, plants were observed and described as being 20 inches in height and 3 feet in width); the bark is gray; ; the stems are greenish-coral; the leaves are gray, grayish or gray-green; the flowers may be cream, cream-pink, cream-white-pink, pale pink, pink, pinkish, pinkish-white, reddish-pink, white, white with pink veins, white-pink, white-pinkish, white-rose or whitish; flowering generally takes place between late November and mid-August (additional records: one for mid-September, one for late September, one for early October, three for mid-October, two for late October and one for early November, flowering taking place year-round has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountaintops; mountainsides; rocky mesas; rims of canyons; rocky cliffs; rocky canyons; canyon bottoms; scree; talus slopes; bases of cliffs; crevices in bedrock; buttes; ledges; rocky ridges; rocky ridgetops; foothills; bouldery and rocky hills; rocky hillsides; bases of hillsides; bouldery, bouldery-rocky-gravelly, rocky, rocky-sandy, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy slopes; rocky-gravelly alluvial fans; stony-gravelly-sandy bajadas; bouldery and rocky outcrops; amongst rocks; boulderfields; lava flows; sandy lava beds; sand dunes; gravelly, gravelly-sandy and sandy flats; valley floors; clayey roadsides; rocky arroyos; gullies; along creeks; creekbeds; along and in rocky, gravelly-sandy and sandy washes; along drainage ways; gravelly depressions; gravelly-sandy banks of streams and rivers; edges of washes; gravelly and gravelly-sandy benches; gravelly terraces; floodplains; shores of reservoirs; riparian areas; recently burned areas of coastal sage scrub, and disturbed areas growing in dry bouldery, bouldery-rocky-gravelly, bouldery-gravelly-sandy, rocky; rocky-gravelly, rocky-sandy, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground and clay ground, occurring from 100 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 drug or medication; the leaves were used to line acorn granaries prevent the stored acorns from getting wet, and the wood was used to pierce ears. *Eriogonum fasciculatum* var. *polifolium* is native to southwest-central and southern North America. *5, 6, 13, 18 (genus & species), 28 (color photograph), 43 (072210), 46 (Page 242), 48 (genus), 63 (072210 - color presentation), **85** (072310 - color presentation of dried material), **102**, 115 (color presentation of the species), 127*

***Eriogonum inflatum* J. Torrey & J.C. Frémont: Desert Trumpet**

COMMON NAMES: Bladder Stem, Bladderstem, Bottle-stopper, Cigarette Plant, Desert Trumpet, Indian Pipe-weed, Indian Pipeweed, Indianpipe Weed, Native American Pipeweed. DESCRIPTION: Terrestrial annual or perennial forb/herb (stems 8 inches to 5 feet in height); this plant has a basal rosette of gray-green, green or red leaves; the flowering stems and branches are grayish, gray-

green, green, purple-red or yellowish-green; the flowers are greenish-yellow, orange-yellow, pink or yellow; flowering generally takes place between early March and late November (additional records: one for mid-January, one for early February and one for mid-February, flowering has also been reported as occurring year round). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mesas; plateaus; rocky canyons; talus slopes; rocky buttes; rocky ledges; rocky ridges; ridgelines; crater walls; foothills; rocky hills; gravelly crests of hills; rocky and gravelly hillsides; bouldery, rocky, gravelly and sandy slopes; gravelly and gravelly-sandy bajadas; gypsum outcrops; rocky coves; sand dunes; plains; flats; rocky valley floors; along gravelly roadsides; along rocky and gravelly arroyos; along rivers; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; rocky banks of rivers; gravelly terraces; sandy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground, and rocky clay ground, occurring from sea level to 6,600 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 tools (used as pipes and drinking tubes) and as a drug or medication. The Desert Trumpet is a food plant for the larva and adult forms of the Desert Metalmark Butterfly (*Apodemia palmerii* subsp. *deserti*). *Eriogonum inflatum* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (color photograph), 43 (070810 - *Eriogonum inflatum* Torr.), 46 (Pages 237-238), 48 (genus), 63 (070810 - color presentation), 77 (plants observed had yellow flowers and stems that were not inflated), **85** (070810 - color presentation, unable to access species information), 86 (color photograph), **102**, 106 (070810 - *Apodemia palmerii*), 127*

***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), **102***

***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; within 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 included as *Eriogonum densum* Greene, Page 236), 48 (genus), 63 (052410), 77, 85 (052410 - color presentation of dried material), **102***

*Eriogonum polifolium* (see *Eriogonum fasciculatum* var. *polifolium*)

***Eriogonum thomasii* J. Torrey: Thomas' Buckwheat**

COMMON NAMES: Thomas Buckwheat, Thomas' Buckwheat, Thomas Wild Buckwheat, Thomas's Wild Buckwheat, Wild Buckwheat. DESCRIPTION: Terrestrial annual forb/herb (spreading stems 2 to 16 inches in height); the stems are grayish, greenish or reddish; the flowers are cream, cream-yellow or yellow becoming rose or white; flowering generally takes place between late January and mid-May (additional records: two for early January, one for early June, one for late June and one for mid-October; flowering has also been reported as occurring year round). HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; rocky and sandy mesas; rocky plateaus; rocky canyons; sides of canyons; canyon bottoms; rocky talus slopes; bases of cliffs; buttes; rocky ridges on rocky talus; foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, gravelly and sandy slopes; gravelly-sandy bajadas; amongst rocks; lava fields; sand dunes; gravelly, sandy, sandy-silty and silty flats; rocky roadsides; arroyos; rocky bottoms of arroyos; along and in gravelly-sandy and sandy washes; gravelly drainage ways; sandy banks; shores of lakes; gravelly-sandy floodplains, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam and cobbly-gravelly loam ground, and sandy silty and silty ground, occurring from below sea level to 4,600 feet in elevation in the woodland and desertscrub ecological formations. NOTE: *Eriogonum thomasii* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (071010), 46 (Page 237), 48 (genus), 63 (071010), **85** (071010 - color presentation of dried material, unable to access species information), **102***

***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), **102***

*Eriogonum trichopodum* (see note under *Eriogonum trichopes*)

*Eriogonum wrightii* subsp. *glomerulum* (see *Eriogonum wrightii* var. *wrightii*)

***Eriogonum wrightii* J. Torrey ex G. Bentham var. *wrightii*: Bastardsage**

SYNONYMY: *Eriogonum wrightii* J. Torrey ex G. Bentham subsp. *glomerulum* S. Stokes. COMMON NAMES: Bastardsage, Buckwheat Brush, Wild Buckwheat, Wright Buckwheat, Wright Buckwheat Brush, Wright's Bastard-sage. DESCRIPTION: Terrestrial perennial subshrub (4 to 30 inches in height with a crown 4 inches to 6 feet in width); the leaves are gray-green; the flowers are cream-white, pale lavender, pink, pinkish, tan-cream or white; flowering generally takes place between late June and late December (additional records: one for mid-January, one for mid-February, one for late March and one for early June). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky rims of canyons; rocky canyons; along canyon bottoms; bases of cliffs; crevices in boulders and rocks; rocky knolls; ledges; rocky ridges; hills, rocky hillsides; bedrock, rocky, rocky-gravelly, gravelly and gravelly-loamy slopes; alluvial fans; amongst boulders; sandy lava flows; rocky banks; embankments; sandy prairies; sandy flats; glens; valley floors; along sandy-loamy roadsides; within sandy ravines; along creekbeds; , and within rocky washes growing in dry rocky, rocky-gravelly, gravelly and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground, and clay ground, occurring from 900 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. The species, *Eriogonum wrightii*, 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 beverage crop; it was also noted as having been used as a drug or medication. *Eriogonum wrightii* var. *wrightii* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 43 (072310 - *Eriogonum wrightii* subsp. *glomerulum* S. Stokes), 46 (Page 241, about the species: "... according to Nichol, the most important deer-browse plant in the state."), 48 (genus), 63 (072310), 77, **85** (072310 - color presentation of dried material), **102**, 127 (species)*

***Pterostegia drymarioides* F.E. von Fischer & C.A. Meyer: Woodland Pterostegia**

COMMON NAMES: Spreading Buckwheat, Woodland Pterostegia, Woodland Threadstem. DESCRIPTION: Terrestrial annual forb/herb (clambering creeping or sprawling prostrate, ascending or

erect vine-like stems to 2 inches in height and ¼ to 2 feet in length, plants ½ inch to 4 feet in diameter); the stems may be red in the sun and green in the shade; the tiny flowers are cream, green, greenish-white, pink, pinkish, white, whitish or yellow; flowering generally takes place between early February and mid-June (additional records: two for late January, one for mid-July, one for early August and one for late August, flowering ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; rocky and sandy cliffs; rock walls; rocky and stony canyons; canyon bottoms; bases of cliffs; crevices in boulders and rocks; bluffs; sandy bases of bluffs; rocky knobs; rocky ledges; clayey-loamy ridges; rocky ridgetops; meadows; foothills; bouldery and rocky hills; clayey hilltops; bouldery, rocky and cobbly-loamy hillsides; bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly-sandy, cobbly-sandy-loamy, stony and loamy slopes; bases of slopes; bouldery-rocky-sandy-loamy alluvial fans; gravelly bajadas; rock outcrops; amongst boulders and rocks; around boulders and rocks; bases of boulders; recesses beneath boulders and rocks; volcanic dikes and plugs; on banks; sandy plains; gravelly flats; basins; along gravelly-sandy roadsides; bedrock arroyos; rocky gulches; gullies; along rocky ravines; around seeping streams; along streams; gravelly streambeds; along creeks; creekbeds; along rivers; along and in rocky, rocky-sandy and sandy washes; along bouldery-cobbly drainage ways; dried clayey vernal pools; along sandy banks of washes; edges of salt marshes; sandy benches, sandy terraces; loamy bottomland; floodplains; bouldery riparian areas; recently burned areas of woodland and chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-cobbly, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-rocky-sandy loam, cobbly-sandy loam, cobbly loam, clayey loam and loam ground, and clay ground often in the shade beneath shrubs, rocks and boulders, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pterostegia drymarioides* is native to southwest-central and southern North America. *5, 6, 15, 43 (072310), 46 (Page 228), 63 (072310), **85** (072310 - color presentation of dried material), **102***

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), 101 (color photograph), **102**, 115 (color presentation), 127*

*Calandrinia ciliata* var. *menziesii* (see *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; rocky-sandy and sandy valley floors; coastal dunes; 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 (*Calyptridium monandrum* Nutt.), 16 (*Calyptridium monandrum* Nutt.), 43 (032510), 46 (*Calyptridium monandrum* Nutt., Page 289), 58 (*Calyptridium monandrum* Nutt.), 63 (032510), 77 (*Calyptridium monandrum* Nutt.), 85 (032510 - color presentation of dried material), **102**, 127*

*Portulaca mundula* (see *Portulaca pilosa*)

***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), 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), 101 (color photograph), **102**, 115 (color presentation), 127*

***Portulaca pilosa* C. Linnaeus: Kiss Me Quick**

SYNONYMY: *Portulaca mundula* I.M Johnston. COMMON NAMES: Chisme, Kiss Me Quick, Shaggy Portulaca. DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading prostrate, ascending, sub-erect or erect stems 1¼ to 10 inches in height/length); the stems may be tinged purple-red; the leaves are yellow-green; the flowers are magenta, dark pink, pink-purple, pinkish, purple, red, red-purple, reddish-pink, dark reddish, violet or yellow; flowering generally takes place between early August and early November (additional records: two for late May, one for mid-July and one for late December, flowering beginning as early as April has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky ledges; ridges; ridgetops; sandy foothills; bouldery hillsides; rocky, sandy-loamy and loamy slopes; rocky outcrops; sand dunes; plains; sandy-loamy and loamy flats; valley bottoms; coastal dunes; railroad right-of-ways; roadsides; arroyos; draws; gravelly-sandy washes; sandy drainages; banks of rivers; sandy-silty beaches; sandy benches; sandy-silty terraces; sandy floodplains; sandy mesquite woodlands; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and

loam ground; sandy clay and 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. NOTE: *Portulaca pilosa* is native to south-central and southern North America; Central America and coastal islands, and South America. *5, 6, 43 (072310), 46 (recorded as *Portulaca mundula* Johnst., Page 291, Arizona specimens may have been reported as *P. parvula*), 63(072310 - color presentation), 85 (072310 - color presentation), **102***

*Portulaca retusa* (see *Portulaca oleracea*)

***Portulaca umbraticola* K.S. Kunth: Wingpod Purslane**

COMMON NAMES: Crownpod Purslane, Purslane, Wing-pod Purslane, Wingpod Purslane. DESCRIPTION: Terrestrial annual forb/ herb (prostrate to sub-erect stems 2 inches to 1 foot in height/length); the stems may be green or reddish; the succulent leaves are green; the flowers (to 2 inches in diameter) may be orange, yellow (the petals may be tipped with copper, orange, red or red-orange), red or yellow-orange; flowering generally takes place between early August and mid-October (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; talus slopes; crevices in rocks; rocky buttes; rocky ridgetops; meadows; foothills; hills; hillsides; rocky, rocky-sandy, rocky-loamy, stony and gravelly slopes; rocky outcrops; amongst boulders; cobbly plains; gravelly flats; valleys; roadsides; gravelly and sandy bottoms of arroyos; draws; along streams; streambeds along creeks; along rivers; along and in rocky, gravelly and sandy washes; drainages; tinajas; in sandy soils around marshes; sandy edges of washes; margins of cienegas; sandy lowlands; floodplains; mesquite bosques; sandy riparian areas, and disturbed areas in bouldery, rocky, rocky-gravelly, cobbly, gravelly and sandy soils and rocky loam soils, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Portulaca umbraticola* is native to south-central and southern North America; Central America, and South America. *5, 6, 43 (072709), 46 (*P.u.* subsp. *coronata* recorded as *Portulaca coronata* Small and Supplement Page 1049), 63 (072709 - color presentation), 85 (072809 - color presentation of dried material), **102**, 115 (color presentation), 128*

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), **102**, 127*

*Androsace occidentalis* var. *arizonica* (see *Androsace occidentalis*)

Ranunculaceae: The Buttercup Family

***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), **102**, 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), **102**, 115 (color presentation)*

***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 inches to 4 feet 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), **102**, 115 (color presentation), 127*

***Myosurus cupulatus* S. Watson: Arizona Mousetail**

COMMON NAME: Arizona Mousetail. DESCRIPTION: Terrestrial annual forb/herb (1¼ to 6¼ inches in height); the foliage is yellow-green; the flowers may be greenish, pale lavender, lavender, dark lavender, white or whitish-green; the anthers are pale blue, flowering generally takes place between late February and early May (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; cliffs, canyons; along canyon bottoms; bases of cliffs; crevices in rocks; rocky ledges; rocky ridgetops; foothills; rocky hills; rocky and rocky-sandy hillsides; rocky, rocky-gravelly-loamy, rocky loamy and gravelly slopes; bedrock outcrops; amongst rocks; areas beneath boulders; bases of rocks; rocky basins; along rocky and sandy roadsides; bedrock arroyos; along draws; gulches; rocky ravines; seeps; springs; along streams; rocky and sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky-gravelly and sandy washes; drainages; shallow depressions; in oak leaf litter on rocky banks of ravines; bottomlands; floodplains; edges of stock tanks; riparian areas, and disturbed areas growing in soggy and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam and gravelly loam ground; rocky clay ground, and humusy ground often in shaded areas, occurring from 1,100 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. *Myosurus cupulatus* is native to southwest-central and southern North America. *5, 6, 15, 43 (071510), 46 (Page 313), 63 (071510), 77, 85 (071510 - color presentation of dried material), 102, 127*

Rhamnaceae: The Buckthorn Family

***Condalia globosa* I.M. Johnston var. *pubescens* I.M. Johnston: Bitter Snakewood**

COMMON NAMES: Bitter Condalia, Bitter Snakewood, Crucerilla. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (2 to 20 feet in height with a trunk diameter of up to 2 feet, one plant was reported to be 5 feet in height with a crown 5 feet in width, one plant one plant was reported to be 7 feet in height with a crown 6 feet in width, one plant one plant was reported to be 13 feet in height with a crown 13 feet in width, one plant one plant was reported to be 15 feet in height with a crown 15 feet in width and a trunk 2 feet in diameter); the leaves are gray-brown, green or yellow-green; the cup-shaped flowers (sepals, no petals) yellow or yellow-green; flowering may take place throughout the year (flowering records: one for mid-March, one for mid-April, one for early June, one for late August, one for late September, two for early October, one for late October, two for early December and one for late December); the fruits are black, dark blue or purple-black. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; talus slopes; foothills; rocky hills; rocky slopes; rock outcrops; bajadas; sandy plains; along gravelly and sandy arroyos; arroyo bottoms; ravines; along and in rocky and sandy washes; along sandy banks of washes; floodplains, and riparian areas growing in dry desert pavement; rocky, gravelly and sandy ground, and gravelly loam ground, occurring from 200 to 5,100 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 branches are spine-tipped. The flowers are reportedly sweet scented. The species, *Condalia globosa*, 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. *Condalia globosa* var. *pubescens* is native to southwest-central and southern North America. *5, 6, 13 (species), 28 (color photograph), 43 (071010),

46 (Page 529), 52 (species, color photograph of species), 53, 63 (071010), **85** (071010 - color presentation of dried material, unable to access species information), 91, 127 (species)*

*Condalia lycioides* var. *canescens* (see *Ziziphus obtusifolia* var. *canescens*)

*Condalia spathulata* (see footnote 46 under *Condalia warnockii* var. *kearneyana*)

***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), 91, **102***

***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, **8**, 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, 8, 13 (color photograph), 15, 16, 28 (species, color photograph of species), 43 (042210), 46 (recorded as *Condalia lycioides* (Gray) Weberb. var. *canescens* (Gray) Trel., Page 530), 58, 63 (042210), 77, 85 (042310 - color presentation of dried material), 91, **102**, 127*

Rosaceae: The Rose Family

***Vauquelinia californica* (J. Torrey) C.S. Sargent: Arizona Rosewood**

COMMON NAMES: Arizona Rosewood, California Rosewood, Torrey Vauquelinia. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (5 to 30 feet in height, one plant was observed and recorded to be 18 feet in height and 16½ feet in width); the bark is gray, grayish or reddish-brown; branches are silver-gray; the twigs are reddish-brown; the long narrow leaves are bright green or yellow-green above and aluminum-colored or white below; the small flowers (3/8 inch in diameter) are white and born in clusters (2 to 3 inches in diameter); flowering generally takes place between mid-May and mid-October (additional records: one for late January, one for late February, one for mid-March, one for late March, two for late April, one for early November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; cliffs; rocky canyons; canyon bottoms; crevices in rocks; buttes; ridges; ridgetops; hills; hillsides; bouldery and rocky and clayey slopes; amongst bouldery and rocks; basins; along roadsides; within creekbeds; along washes; along rocky drainages; banks of streams, and rocky riparian areas growing in dry bouldery and rocky ground and clay ground, occurring from 500 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. *Vauquelinia californica* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 26 (color photograph), 28 (color photograph), 43 (082310), 46 (Page 375), 48, 52 (color photograph), 53, 63 (082310 - color presentation), 77, **85** (082408 - color presentation including habitat), 91, 115 (color presentation)*

***Vauquelinia californica* (J. Torrey) C.S. Sargent subsp. *sonorensis* W.J. Hess & J.S. Henrickson: Sonora Rosewood**

COMMON NAMES: Arizona Rosewood, Arizona-rosewood, Arizona Sororan Rosewood, Sonora Rosewood, Sonoran Mountain Rosewood, Sonoran Rosewood. DESCRIPTION: Terrestrial perennial evergreen shrub or small tree (5 to 17 feet in height); the bark is grayish or reddish-brown; the

long narrow leaves are green or yellow-green above and aluminum-colored or white below; the small flowers (3/8 inch in diameter) are white and born in clusters (2 to 3 inches in diameter); flowering generally takes place between May and July (flowering records: one for mid-March and one for late May). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; canyons; along canyon bottoms; along bases of cliffs; rocky slopes; amongst boulders; flats; along washes; drainages, and riparian areas growing in dry bouldery rocky ground, occurring from 500 to 5,,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. *Vauquelinia californica* subsp. *sonorensis* is native to southwest-central and southern North America. 5, 6, **8**, 9, 13 (species), 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species), 43 (072410), 46 (species, Page 375), 48 (species), 52 (species), 53 (species), 63 (072410), 85 (072410), 91, **102**, 115 (color presentation of the species)*

Rubiaceae: The Madder Family

***Galium aparine* C. Linnaeus: Stickywilly**

COMMON NAMES: Amor-de-hortelã (Portuguese), Bedstraw, Catchweed Bedstraw, Cleavers, Cleaverwort, Common Bedstraw, Erva-pegavosa (Portuguese), Goose-grass, Goosegrass, Goosegrass Bedstraw, Pega-pega (Portuguese), Reclining Bedstraw, Scarthgrass, Sticky-willy, Stickywilly, White Hedge. DESCRIPTION: Terrestrial annual forb/herb or vine (sprawling stems 1 to 80 inches in length); the flowers are cream, greenish, white, light yellow or yellow; flowering generally takes place between early February and early September (additional records: one for mid-November and one for late November). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mesas; plateaus; along cliffs; rocky, rocky-silty and stony canyons; rocky and cobbly canyon bottoms; chasms; talus slopes; bases of cliffs; crevices in rocks; bluffs; rocky ledges; along ridges; sandy-clayey clearings in forests; gravelly-loamy and sandy meadows; sandy-loamy foothills; rocky hills; hilltops; rocky and clayey hillsides; along rocky, rocky-gravelly, rocky-loamy-clayey, cobbly-loamy, sandy, sandy-loamy, loamy, clayey and humusy slopes; rocky-sandy-loamy alluvial fans; rocky outcrops; amongst boulders and rocks; bases of boulders; alcoves; scrabbled areas; steppes; sandy prairies; flats; basins; valley floors; along roadsides; arroyos; sandy draws; gulches; ravines; seeps; springs; along and in streams; gravelly streambeds; along gravelly and sandy creeks; along and in rocky and gravelly-sandy creekbeds; along and in cobbly and gravelly washes; drainages; in rocky and cobbly drainage ways; along rocky, rocky-gravelly and sandy banks of ravines, streams, creeks and washes; edges of seeps; beaches; sandy benches; floodplains; along fencerows; ditches; gravelly-sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-gravelly, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly loam, gravelly loam, sandy loam and loam ground; rocky-loamy clay, rocky clay, sandy clay and clay ground; rocky-sandy silty and rocky silty ground, and humusy ground often reported as growing in shaded areas, 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 as a drug or medication and for use in personal hygiene. The origin of *Galium aparine* is unknown, but it is believed to be native to Europe. *5, 6, 15, 18 (genus), 28 (color photograph), 43 (042310), 46 (Page 811), 58, 65 (042310 - color presentation), 77, 85 (042310 - color presentation of dried material), 101 (color photograph), **102**, 115 (color presentation), 127*

***Galium microphyllum* A. Gray: Bracted Bedstraw**

COMMON NAMES: Bedstraw, Bracted Bedstraw. DESCRIPTION: Terrestrial perennial forb/herb (prostrate, decumbent, ascending or erect stems 4 to 16 inches in height/length, plants were observed and described as being 4 inches in height and 8 inches in width); the foliage is pale gray-green; the flowers are pale cream-yellow, green, greenish, greenish-white, greenish-yellow, purplish, white, off-

white, yellow, yellow-green, pale yellowish or yellowish-brown; flowering generally takes place between early March and late October (additional records: one for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; plateaus; rock cliffs; rock walls; rocky canyons; along canyon walls; along bedrock, cobbly, gravelly and sandy canyon bottoms; rocky bases of cliffs; crevices in rocks; pockets of soil in rocks; rocky bluffs; rocky ledges; under ledges; rocky ridges; rocky ridgelines; rocky hills; rocky hillsides; escarpments; rocky, rocky-gravelly-sandy, gravelly, gravelly-loamy and sandy-clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; dells; along sandy roadsides; rocky arroyos; rocky-sandy bottoms of arroyos; draws; along rocky ravines; seeps; beside springs; along streams, along and in sandy streambeds; along creeks; along and in rocky creekbeds; along and in rocky, gravelly and sandy washes; within sandy pools; cienegas; banks of creeks and washes; edges of streams and washes; sandy margins of watercourses; bouldery-sandy terraces; floodplains, and bouldery riparian areas growing in moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly and sandy ground; gravelly loam and sandy-clayey loam ground, and humusy ground, occurring from 700 to 8,100 feet in elevation in the forest, woodland, scrub, grassland and wetland ecological formations. NOTE: *Galium microphyllum* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (072410), 46 (Page 810), 58, 63 (072410), 85 (072410 - color presentation of dried material), **102***

***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; creeks; creekbeds; along rivers; along gravelly riverbeds; along and in bedrock, rocky-sandy and sandy washes; along and in rocky drainages; rocky banks of 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), **102***

***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)*

***Galium stellatum* A. Kellogg subsp. *eremicum* (M.L. Hilend & J.T. Howell) F. Ehrendorfer: Starry Bedstraw**

SYNONYMY: *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 described as being 3 feet in height and 4 feet in width); the bark is gray; the stems are reddish; the leaves are dark green; the flowers are cream, gray-yellow, greenish, white, yellow-green or yellowish; flowering generally takes place between mid-February and mid-June (additional records: one for mid-August, one for early September, one for mid-September 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; pockets of soil; talus slopes; crevices in boulders and rocks; 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-sandy 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* subsp. *eremicum* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (species, color photograph of species), 43 (042310 - *Galium stellatum* subsp. *eremicum* (Hilend & J.T. Howell) Ehrend., *Galium stellatum* var. *eremicum* Hilend & J.T. Howell), 46 (Page 811), 63 (042310), 77, 85 (042310), **102***

*Galium stellatum* var. *eremicum* (see *Galium stellatum* subsp. *eremicum*)

Scrophulariaceae: The Figwort Family

*Antirrhinum cyathiferum* (see *Pseudorontium cyathiferum*)

*Antirrhinum nuttallianum* (see *Sairocarpus nuttallianus*)

***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), **102**, 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), 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), **102**, 115 (color presentation)*

*Maurandya antirrhiniflora* (see *Maurandella antirrhiniflora*)

***Mimulus floribundus* J. Lindley: Manyflowered Monkeyflower**

COMMON NAMES: Clammy Monkey Floriferous Monkeyflower, Flower, Manyflowered Monkeyflower, Monkey-flower, Purplestem Monkeyflower. DESCRIPTION: Terrestrial annual forb/herb (erect stems 8 to 12 inches in height); the leaves are gray-green; the flowers are light yellow (sometimes with maroon, red or red-brown markings in throat) or yellow; flowering generally takes place between early April and late September (additional records: one for early January, one for mid-February and one for mid-March). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky canyons; along bouldery-sandy, rocky-sandy, gravelly and sandy canyon bottoms; pockets of soil in boulders; clayey openings in sagebrush scrub; meadows; foothills; rocky hills; hillsides; sandy slopes; alluvial fans; rocky outcrops; amongst rocks; valley floors; along roadsides; along arroyos; draws; gulches; bottoms of gullies; around and in seeps; springs; along rivulets; along streamlets; along and in sandy streams; along and in rocky, rocky-sandy and sandy streambeds; along and in creeks; along sandy creekbeds; along rivers; within sandy riverbeds; rocky-sandy bases of waterfalls; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; dried mud-holes; within ephemeral pools; along lakes; freshwater marshes; along banks of streams and rivers; along rocky and sandy edges of streams, washes, dried pools and ponds; sandy margins of streams and creeks; sand bars; sandy benches;

within ditches; rocky-sandy-silty riparian areas; recently burned areas of woodland, scrub and wetlands, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; loam ground; clay ground, and rocky-sandy silty ground, occurring from sea level to 9,800 feet in elevation in the forest, woodland, scrub, grassland and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the foliage is slimy. *Mimulus floribundus* is native to west-central and southern North America. *5, 6, 15, 43 (072410), 46 (Page 782), 48 (genus), 58, 63 (072410 - color presentation), 85 (042410 - color presentation of dried material), **102***

***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), **102**, 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*), **102**, 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; in 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), 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), **102**, 115 (color presentation)*

***Pseudorontium cyathiferum* (G. Bentham) W.H. Rothmaler: Dog's-mouth**

SYNONYMY: *Antirrhinum cyathiferum* Benth.. COMMON NAMES: Desert Snapdragon, Dog's-mouth, Frog Snapdragon. DESCRIPTION: Terrestrial annual forb/herb; the flowers may be blue, lavender, purple, purple & white, purple (with white stripes and a yellow throat) or violet; based on few records, flowering generally takes place between early September and late April (flowering records: two for early February, one for mid-February, two for early March, two for mid-March, three for late March, four for early April, two for late April, one for early September, one for late September, two for mid-October, two for late October, three for mid-November, one for late November, one for mid-December and two for late December, flowering in January had also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky canyon bottoms; stony talus slopes; bases of cliffs; small pockets of soil; rocky ledges; tops of cinder cones; rocky hills; hilltops; rocky hillsides; rocky and gravelly-sandy-silty slopes; bajadas; amongst rocks; bases of lava flows; sandy soil on stabilized dunes; sandy plains; sandy flats; dunes; amongst sea-worn beach boulders and rocks; along and in gravelly and sandy arroyos; bottoms of arroyos; along rocky, rocky-sandy, gravelly and sandy washes; outer margins of playa sediments; mudflats; cobbly and pebbly beaches; strands; floodplains, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-cobbly, rocky-sandy, stony, cobbly, gravelly, pebbly and sandy ground and gravelly-sandy silty ground, occurring from sea level to 2,600 feet in elevation in the desertscrub ecological formation. NOTE: *Pseudorontium cyathiferum* is native to southwest-central and southern North America. *5, 6, 43 (072510), 46 (recorded as *Antirrhinum cyathiferum* G. Bentham, Page 766), 63 (072510), **85** (072510 - color presentation of dried material), **102***

***Sairocarpus nuttallianus* (G. Bentham ex A.L. de Candolle) D.A. Sutton: Violet Snapdragon**

SYNONYMY: *Antirrhinum nuttallianum* G. Bentham ex A.L. de Candolle. COMMON NAMES: Nuttall Snapdragon, Violet Snapdragon, Violet Toad's-mouth. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 12 to 40 inches in height); the foliage is dark green, the lower leaves may be reddish; the flowers (3/8 inch in length and width) may be blue, blue-violet, blue & white, dark blue, dark blue (with a golden center), bluish, dark indigo-blue, lavender, light purple, purple, purple (with a white center), purple-lavender, dark purple-blue, purplish, purplish-blue, violet, violet & blue-purple, violet (with cream-colored markings) or dark violet; flowering generally takes place between mid-February and late June (additional records: two for late July, one for early August, two for mid-September, one for mid-October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; rocky cliffs; rocky and stony canyons; along sandy and silty canyon bottoms; talus slopes; bases of cliffs; sandy crevices in boulders and rocks; sandy

pockets of soil; bluffs; ledges; ridges; rocky ridgetops; bouldery-rocky and rocky hills; bouldery-rocky, rocky and loamy hillsides; bouldery, bouldery-sandy, rocky and rocky-clayey slopes; pediments; around rocky outcrops; amongst boulders and rocks; bases of boulders; sand dunes; bouldery-rocky; flats; ocean bluffs; bases of ocean bluffs; coastal slopes; coastal flats; sandy roadsides; along stony arroyos; within rocky gullies; ravines; streambeds; along creeks; along cobbly and sandy creekbeds; within rocky and sandy washes; sandy drainages; sandy banks of arroyos and rivers; along sandy edges of streambeds and washes; margins of lakes; gravelly-sandy riparian areas; recently burned areas of chaparral and coastal sage scrub, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly-sandy and sandy ground; sandy loam and loam ground; loamy clay and rocky-clay and clay ground, and silty ground often found in shaded areas, occurring from sea level to 4,600 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. *Sairocarpus nuttallianus* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Antirrhinum nuttallianum*, color photograph), 43 (072510 - *Sairocarpus nuttallianus* (A.DC.) D.A. Sutton), 46 (recorded as *Antirrhinum nuttallianum* Benth., Page 766), 63 (072510 - color presentation), 77, **85** (072510 - color presentation), **102***

***Veronica peregrina* C. Linnaeus subsp. *xalapensis* (K.S. Kunth) F.W. Pennell: Hairy Purslane Speedwell**

SYNONYMY: *Veronica peregrina* C. Linnaeus var. *xalapensis* (K.S. Kunth) F.W. Pennell. COMMON NAMES: Hairy Purslane Speedwell, Jalapa Speedwell, Necklace Speedwell, Necklace Weed, Neckweed, Purselane Speedwell, Veronica-de-xalapa (Portuguese). DESCRIPTION: Aquatic or terrestrial annual forb/herb (4 to 12 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; the heart-shaped fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; bouldery and rocky canyons; bedrock and bouldery canyon bottoms; bluffs; ridges; clayey and silty meadows; bouldery hills; bouldery and rocky hillsides; bouldery slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bouldery outcrops; amongst rocks; plains; loamy flats; sandy hollows; valley floors; muddy valley bottoms; coastal plains; along roadsides; within bedrock arroyos; 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 gravelly and sandy washes; rocky-sandy and rocky-silty drainages; in drainage ways; waterholes; around clayey and clayey-loamy pools; silty-clayey poolbeds; in rocks around ponds; pondbeds; in lakes; lakebeds; playas; boggy areas; silty marshes; loamy-clayey depressions; within clayey "tobosa" swales; along muddy, sandy, sandy-silty and loamy banks of creeks, rivers and lakes; along muddy edges of streams, rivers, washes, pools, ponds and lakes; along clayey margins of streams, pools, ponds and lakes; mucky shores of lakes; gravelly-silty-loamy mudflats; sand bars; benches; terraces; silty-clayey floodplains; below dikes; in silty-clayey stock tanks; sandy edges of stock tanks (charcos); reservoir banks; along ditches; silty trenches; rocky, cobbly, gravelly-sandy, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky and muddy, and wet, soggy, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-sandy, 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* subsp. *xalapensis* is native to southwest-central and southern North America; Central America and coastal Islands in the Caribbean Sea, and eastern, western and southern South America. *5, 6, 15, 18 (genus), 43 (042810 - *Veronica peregrina* var. *xalapensis* Kunth), 46 (Page 785), 58, 63 (042810 - color presentation), 77, 85 (042910 - color presentation of dried material), 101 (color photograph of species), **102***

*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, 58, 63 (042910 - color presentation), 77, 85 (042910 - color presentation), **102**, 115 (color presentation), 127, 134, **WTK** (May 9, 2005)*

***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.), **102**, 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), 115 (color presentation), 127, **HR***

***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), 58, 63 (043010 - color presentation), 77, **85** (041030 - color presentation), **102**, 127, **WTK** (May 9, 2005)*

***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; boulderfields; 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), 115 (color presentation), **WTK** (May 9, 2005)*

***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 *Lycium berlandieri*), 85 (043010 - color presentation of dried material), **102**, 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), **102***

***Lycium fremontii* A. Gray: Frémont's Desert-thor**n

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, 63 (043010), 77, **85** (043010 - color presentation, also recorded as *Lycium fremontii* A. Gray var. *fremontii*), **102**, 127*

*Lycium fremontii* var. *fremontii* (see footnote 85 under *Lycium fremontii*)

***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 tends to be weedy; however, consideration could be given to using some plants in your project because the flowers are used by hummingbirds when other nectar-rich sources are not available. 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. *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), **102**, 115 (color presentation of the species), 127*

*Nicotiana trigonophylla* (see *Nicotiana obtusifolia* var. *obtusifolia*)

***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), 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), **102**, 127*

***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; within 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), **102***

*Physalis wrightii* (see *Physalis acutifolia*)

***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), **102** (recorded as *Solanum nigrescens* (*S. douglasii*), Nightshade, Chichiquelite), 127*

*Solanum nigrum* var. *douglasii* (see *Solanum douglasii*)

## Sterculiaceae: The Cacao Family

***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 species), 63 (050610), 77 (color photograph #99), 85 (050610 - color presentation), **102***

***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)*

*Waltheria americana (see Waltheria indica*)

***Waltheria indica* C. Linnaeus: Uhaloa**

SYNONYMY: *Waltheria americana* C. Linnaeus, *Waltheria indica* C. Linnaeus var. *americana* (C. Linnaeus) R. Brown ex E.Y. Hosaka. COMMON NAMES: Basora-prieta (Spanish), Boater Bush, Buff Coat, Escobillo Blanco (Spanish), Florida Waltheria, Guimauve (Spanish), Hierba del Soldado (Hispanic), Leather Coat, Malvavisco (Spanish), Mauve-gris (Spanish), Monkey-bush, Sleepy-morning, Tapacola (Hispanic), Tapaculo (Hispanic), Tapanalgas (Hispanic), Uhaloa, Velvet-leaf. DESCRIPTION: Terrestrial perennial forb/herb, subshrub or shrub (prostrate, ascending or erect stems 6 inches to 6½ feet in height); the flowers are lemon-yellow, orange, pink, white, pale yellow or yellow; 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; mountaintops; mountainsides; rocky mesas; rocky canyons; sandy canyon bottoms; crevices in rocks; ledges; foothills; hills; hilltops; rocky hillsides; rocky slopes; alluvial fans; rocky outcrops; rocky and rocky-loamy flats; sandy river basins; valley floors; along roadsides; along sandy arroyos; gravelly-sandy bottoms of arroyos; along and in rocky and gravelly streambeds; riverbeds; washes; waterholes; sandy benches; coves; waste places, and disturbed areas growing in dry rocky, gravelly and sandy ground and rocky loam ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Waltheria indica* is native to south-central and southern North America; Central America and coastal islands, and South America. *5, 6, 13 (recorded as *Waltheria americana* L., Page 105), 15 (recoded as *Waltheria indica* L. var. *americana* (L.) R. Br.), 30, 43 (072510 - no record of *Waltheria indica* var. *americana*), 46 (recorded as *Waltheria americana* L., Page 555), 58 (recorded as *Waltheria americana* L.), 63 (072510 - color presentation of seed), **85** (072510 - color presentation of dried material), **102***

*Waltheria indica* var. *americana (see Waltheria indica*)

Ulmaceae: The Elm Family

***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; within 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), 91 (recorded as *Celtis pallida* Torr.), **102** (recorded as *Celtis pallida*), 115 (color presentation), **WTK** (May 9, 2005)*

*Celtis pallida* (see *Celtis ehrenbergiana*)

*Celtis pallida* var. *pallida* (see footnote 85 under *Celtis ehrenbergiana*)

*Celtis tala* var. *pallida* (see *Celtis ehrenbergiana*)

Urticaceae: The Nettle Family

***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 species), 58, 63 (050910), **85** (050910), **102***

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; within 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 (*Lippia wrightii* A. Gray), 15, 16, 18, 43 (050910 - *Aloysia wrightii* A. Heller), 46 (Page 729), 58, 63 (050910 - color presentation), 77, 85 (050910 - color presentation), 91, **102**, 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 (*Verbena gooddingii* Briq., Pages 726-727 and *Verbena gooddingii* Briq. var. *nepetifolia* Tidestrøm, Pages 726-727), 48 (genus), 63 (051410), 77 (color photograph #53, *Verbena gooddingii* Briq.), 85 (051410 - color presentation), **102**, 115 (color presentation)*

*Lippia wrightii* (see *Aloysia wrightii*)

*Verbena gooddingii* (see *Glandularia gooddingii*)

*Verbena gooddingii* var. *nepetifolia* (see *Glandularia gooddingii*)

***Verbena neomexicana* (A. Gray) J.K. Small: Hillside Vervain**

COMMON NAMES: Hillside Vervain, New Mexico Verbena, New Mexico Vervain, Verbena. DESCRIPTION: Terrestrial perennial forb/herb (12 to 30 inches in height); the flowers may be light blue, blue, blue-violet, lavender, purple, purple-lavender, violet, violet-blue or white; flowering generally takes place between mid-March and early November (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; rocky and gravelly canyon bottoms; rocky knolls; rocky ridgetops; foothills; hillsides; rocky, gravelly, gravelly-loamy and clayey-loamy slopes; rocky outcrops; amongst boulders; along tony roadsides; along arroyos; gulches; gullies; along streams; in streambeds; along creeks; rocky creekbeds; riverbeds; along and in rocky and gravelly-sandy washes; within drainages; travertine dikes; bouldery-cobbly-sandy banks of creeks, rivers and washes; travertine dikes; edges of charcos (stock tanks); riparian areas; waste places, and disturbed areas growing in damp and dry bouldery, bouldery-cobbly-sandy, rocky, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam and clayey loam ground, occurring from 100 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Verbena neomexicana* is native to southwest-central and southern North America. *5, 6, 28 (color

photograph), 43 (072510), 46 (Page 728), 48 (genus), 58, 63 (072510 - color presentation), 77, **85** (072510 - color presentation of dried material), **102***

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 Desert Ironwood 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: When removing the Mesquite Mistletoe from the trees and shrubs on your property consider leaving some of the plants for wildlife, Verdins nest in the stems and the Phainopepla (*Phainopepla nitens*) feeds on the berries. 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. *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), 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, **102**, 115 (color presentation), 127, **WTK** (May 9, 2005)

*Phoradendron californicum* var. *distans* (see *Phoradendron californicum*)

Zygophyllaceae: The Creosote-bush Family

***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 (sprawling prostrate, decumbent, ascending stems 2 to 8 inches in height and 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), 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*), **102**, 127, **HR***

*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 (spreading prostrate, decumbent and/or 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, 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), **102**, 115 (color presentation), **HR***

***Kallstroemia parviflora* J.B. Norton: Warty Caltrop**

COMMON NAMES: Warty Caltrop. DESCRIPTION: Terrestrial prostrate and spreading annual forb/herb (sprawling and spreading prostrate and/or decumbent stems 10 to 40 inches in length); the stems may be reddish-brown; the leaves are green; the flowers (¼ to ½ inch in diameter) may be apricot, light orange, orange, orange-yellow, pink, salmon, salmon-orange, pale yellow, pale yellow-orange, yellow, yellow-orange or yellowish-white; flowering generally takes place between late June and late October. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; talus slopes; meadows; foothills; hills; hilltops; rocky hillsides; rocky, rocky-gravelly and sandy slopes; silty bajadas; rocky and shaley outcrops; amongst rocks; lava flows; plains; gravelly flats; gravelly and sandy valley floors; along gravelly, gravelly-sandy and sandy roadsides; along clayey-loamy arroyos; along within draws; sandy bottoms of draws; within gulches; within ravines; along streams; along rivers; riverbeds; along and in cobbly, gravelly-sandy and sandy washes; along drainages; depressions; sandy shores of creeks; sand bars; sandy benches; gravelly-sandy terraces; bottomlands; floodplains; sandy mesquite bosques; clayey-loamy riparian areas, and disturbed areas growing in damp and dry in rocky, rocky-gravelly, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; sandy clay ground, and silty ground, occurring from 1,000 to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Kallstroemia parviflora* is native to south-central and southern North America. *5, 6, 15, 43 (073109), 46 (Page 492), 63 (073109), 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."), 77, 85 (072510 - color presentation), 86 (note under *Kallstroemia grandiflora*), **102***

*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 (recorded as *Larrea tridentata*, color photograph), 28, (recorded as *Larrea tridentata*, 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), 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, recorded as *Larrea tridentata*, color photograph of species), 28 (species, recorded as *Larrea tridentata*, color photograph of species), 43 (051710 - *Larrea tridentata* Coville, *Larrea divaricata* Cav. subsp. *tridentata* (Sessé & Moc. ex DC.) Felger), 46 (species, recorded as *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, 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), **102**, 107, 115 (color presentation), 127, **WTK** (May 9, 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), 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) 101 (color photograph), **102**, 115 (color presentation), 127*

## LISTING OF ANIMALS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S NATIVE ANIMALS FROM COLLECTION AND FROM BEING DISTURBED OR KILLED

Kingdom Animalia: The Animal Kingdom
Subkingdom Metazoa: The Multicellular Animals
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, 87, 106 (052506), **PCM** (August 5, 2008)*

***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, 87, 106 (052506), **PCM** (August 5, 2008)*

***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, 87, 106 (052506), **PCM** (August 5, 2008)*

### 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, 87, **PCM** (August 5, 2008)*

CLASS AVES: The BIRDS

The major portion of the species of birds reporded in this listing came from the Township Bird Listing: T11S/R08E Bird List, Created by Cindy Coping in collaboration with the Pima Natural Resource Conservation District

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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008*

***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 (subspp. *calurus*, *fuertesi* and *harlani* - 071706), 20, 55, 69, 73, 84, 93, 106 (071706), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

Caprimulgidae: The Nighthawk, Nightjar and Allies Family

**Nighthawk**, Common/Lesser?

*__TBL__ (September 23, 2008)*

***Phalaenoptilus nuttalli* (J.J. Audubon): Common Poorwill**

COMMON NAMES: Aguador (Hispanic), Common Poorwill, Kohlo'Ogam (Tohono O'odham), Nuttall's Poor-will, Poor-will. HABITS: Feeds on nocturnal insects. No nest, the eggs are laid on bare ground, gravel or rock. 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, 84, 93, **TBL** (August 23, 2008)*

Cardinalidae: The Bunting, Cardinal and Grosbeak Family

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Passerina amoena* (T. Say): Lazuli Bunting**

COMMON NAMES: Jaspeado (Hispanic), Lazuli Bunting. HABITS: Feeds on small fruits, insects and seeds. Nests are loose cups made of grasses and leaves located in low bushes. HABITAT: Within the range of this species it has been reported from the scrub, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Pheucticus melanocephalus* (W. Swainson): Black-headed Grosbeak**

COMMON NAMES: Black-headed Grosbeak, Rocky Mountain Grosbeak, Tigrillo (Hispanic). HABITS: Feeds on small fruits, insects and seeds. Nests are frail saucers made of plant stems and twigs located in bushes and tree forks. 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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

*Pyrrhuloxia sinuata* (see *Cardinalis sinuatus*)

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 (071706 - subspp. *septentrionalis* and *teter*), 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008), **WTK** (May 2005)*

***Coragyps atratus* (J.M. Bechstein): Black Vulture**

COMMON NAMES: American Black Vulture, Black Vulture. HABITS: Feed on carrion, new born calves and lambs and young herons and ducks. No nest, eggs are laid in caves, crevices in rock, on the ground in thickets and in tree hollows. HABITAT: Within the range of this species it has been reported from the desertscrub ecological formation. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **PCM** (October 29, 2008)*

Columbidae: The Dove and Pigeon Family

***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 (071806

- subspp. *asiatica*, *grandis* (Saunders), *mearnsi* (R. Ridgway) and *monticola* (Saunders)), 20, 55, 69, 73, 84, 93, 106 (071806), **TBL** (August 23, 2008)*

***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 (071806 - subspp. *carolinensis* (C. Linnaeus) and *marginella* (S.W. Woodhouse)), 20, 55, 69, 73, 84, 93, 106 (071806), **TBL** (August 23, 2008)*

*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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Corvus cryptoleucus* Couch: Chihuahuan Raven**

COMMON NAMES: American White-necked Raven, Chihuahuan Raven, Cuervo Chihuahuense (Hispanic), White-necked Raven. HABITS: Feeds on carrion and insects, including grasshoppers. Nests are bowls and platforms made of sticks lined with fur located in mesquite trees 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, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

Cuculidae: The Ani, Cuckoo and Roadrunner Family

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

Emberizidae: The Junco, Longspur, Sparrow and Towhee Family

***Amphispiza bilineata* (J. Cassin): Black-throated Sparrow**

COMMON NAMES: Ba' I-Chukulim (Tohono O'odham), Black-throated Sparrow, Desert Sparrow, Gorrion Garganta Negra (Hispanic), Zacatonaro Garganta Negra (Hispanic). HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are loose cups made of grasses located in cacti and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland,

desertscrub and wetland ecological formations. *14 (071806 - subspp. *deserticola* (R. Ridgway) and *opuntia* (Burleigh & Lowery)), 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

*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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (071806), **TBL** (August 23, 2008)*

***Spizella pallida* (W. Swainson): Clay-colored Sparrow**

COMMON NAME: Clay-colored Sparrow. HABITS: Feeds on insects and seeds. Nests are bulky cups made of grasses and lined with hair located on the ground or near the ground in bushes, forbs, grasses or shrubs. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (071806), 20, 55, 69, 73, 84, 93, 106 (071806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008 - gamb. & leuc.)*

Falconidae: The Caracara and Falcon Family

*Caracara cheriway* (see *Caracara plancus* subsp. *audubonii*)

***Caracara plancus* (J.F. Miller) subsp. *audubonii* (J. Cassin): Crested Caracara**

SYNONYMY: *Caracara cheriway* (Jacquin). COMMON NAMES: Audubon's Caracara, Caracara, Common Caracara, Crested Caracara, Mexican Buzzard, "Mexican Eagle", Northern Caracara. HABITS: Feeds on carrion and small vertebrates. Nests are bowls made of reeds and sticks located on the ground and in saguaro cacti, trees and yuccas. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *8, 14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **PCM** (August 23, 2008, observed in flight at high altitude)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

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, 84, 93, 106 (071906), **TBL** (August 23, 2008)*

***Carduelis pinus* (A. Wilson): Pine Siskin**

SYNONYMY: *Spinus pinus* (A. Wilson). COMMON NAMES: Pine Finch, Pine Siskin, Pinonero Rayado (Hispanic). HABITS: Feeds on insects and seeds. Nests are neat cups made of grasses and twigs located on horizontal branches of trees usually conifers. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Pine Siskin is a predator of the Douglas-fir Tussock Moth and Western Spruce Budworm. *14 (071906 - subsp. *pinus*), 20, 55, 69, 73, 84, 93, 106 (071906), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (082208), **TBL** (August 23, 2008)*

**Finch, House/Cassin's**
*__TBL__ (August 23, 2008)*

*Spinus lawrencei* (see *Carduelis lawrencei*)

*Spinus pinus* (see *Carduelis pinus*)

*Spinus psaltria* (see *Carduelis psaltria*)

Icteridae: The Blackbird, Oriole and Allies Family

***Agelaius phoeniceus* (C. Linnaeus): Red-winged Blackbird**
COMMON NAMES: Red-wing, Red-winged Blackbird, S-Wegi Shashani (Tohono O'odham), Tordo de Alas Rojas (Hispanic). HABITS: Feeds on small aquatic animals, small fruit, insects and seeds. Nests are a woven grass cup attached to bushes, grasses, marsh reeds and tules. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Euphagus cyanocephalus* (J.G. Wagler): Brewer's Blackbird**
COMMON NAMES: Brewer's Blackbird, Tordo Brewer (Hispanic). HABITS: Feeds on fruits, insects, seeds, small aquatic life. Nests are bulky grass-lined cups made up of grasses and twigs, plastered with mud located on the ground or in low shrubs or trees. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Icterus bullockii* (W. Swainson): Bullock's Oriole**
COMMON NAMES: Bullock's Oriole, Calandria Nortina (Hispanic), Northern Oriole. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds. Nests are woven basket hanging from the end of branches. 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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Icterus parisorum* C.L. Bonaparte: Scott's Oriole**
COMMON NAMES: Calandria Matraquera (Hispanic), Scott's Oriole. HABITS: Feeds on fruits, insects and nectar. Nests are hanging pouches made of grasses and leaves located in dried yucca fronds 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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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 formation. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

***Sturnella neglecta* J.J. Audubon: Western Meadowlark**

COMMON NAMES: Alondra Llanera (Hispanic), Western Meadowlark. HABITS: Feeds on small aquatic animals, small fruit, insects and seeds. Nests are partially domed saucers made of grasses located in grassy tussocks. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14, 20, 55, 69, 73, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

*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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

## 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, 84, 93, 106 (0514-2606), **TBL** (August 23, 2008)*

## 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, 84, 93, 106 (072206), **TBL** (August 23, 2008)*

***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), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (072006), **TBL** (August 23, 2008 - *T.c. oberholseri* & *T.c. palmeri*)*

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, 84, 93, 106 (071906), **TBL** (August 23, 2008), **WTK** (May 2005)*

*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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***Dendroica nigrescens* (J.K. Townsend): Black-throated Gray Warbler**

COMMON NAMES: Black-throated Gray Warbler, Verdin Gris Garganta Negra (Hispanic). HABITS: Feeds on insects and spiders. Nests are neat, tightly-woven plant fiber cups 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. *14, 20, 55, 69, 73, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***Dendroica occidentalis* (J.K. Townsend): Hermit Warbler**

COMMON NAMES: Hermit Warbler, Verdin Ermitano (Hispanic). HABITS: Feeds on insects and spiders. Nests are cupped shaped and made up of bark, pine needles and rootlets located in trees. HABITAT: Within the range of this species it has been reported from the forest, desertscrub and wetland ecological formations. *14, 55, 69, 73, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***Dendroica townsendi* (J.K. Townsend): Townsend's Warbler**

COMMON NAMES: Townsend's Warbler, Verdin Townsend (Hispanic). HABITS: Feeds on insects and spiders; nests are shallow and cup-shaped located in trees. 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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (072006), **TBL** (August 23, 2008)*

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, 84, 93, 106 (091006), **TBL** (August 23, 2008)*

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, 84, 93, 106 (072006), **TBL** (August 23, 2008)*

*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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

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, 84, 93, 106 (072006), **TBL** (August 23, 2008)*

Regulidae: The Kinglet Family

***Regulus calendula* (C. Linnaeus): Ruby-crowned Kinglet**

COMMON NAMES: Reyezuelo Copete Rubio (Hispanic), Ruby-crowned Kinglet, Reyzuelo (Hispanic). HABITS: Feeds on arachnids, berries, fruits, insects, tree sap and seeds. Nests are spherical and made of lichens and moss located under the tips of branches in conifer 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 Ruby-crowned Kinglet is a predator of the Douglas-fir Tussock Moth (*Orgyia pseudotsugata*) and Western Spruce Budworm (*Choristoneura occidentalis*). *14, 20, 55, 69, 73, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

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, 84, 93, 106 (072206), **TBL** (August 23, 2008)*

Strigidae: The Typical Owl Family

***Asio otus* (C. Linnaeus): Long-eared Owl**

COMMON NAMES: Long-eared Owl, Tecolote Orejon (Hispanic). HABITS: Feeds on rodents and other small mammals. Nests are made up of sticks, bark, grasses, hair, feathers and down (often using old nests of crows, hawks, magpies and ravens) 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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***Bubo virginianus* (J.F. Gmelin): Great Horned Owl**

COMMON NAMES: Buho (Hispanic), "Cat Owl", Great Horned Owl, Horned Owl, Tecolote Cornudo (Hispanic), Tecolote Cuernudo (Hispanic). HABITS: Feeds on frogs, small birds, crayfish, decapods, fishes, insects, lizards and small mammals. Eggs are laid in the deserted nests of other birds and sometimes lining the nest with feathers located on the ground or in crevices, potholes, trees and on bluffs and 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 (072106 - subspp. *occidentalis* (Stone) and *pallescens* (Stone)), 20, 55, 69, 73, 84, 93, 106 (072106), **TBL** (August 23, 2008)*

***Micrathene whitneyi* (W. Cooper): Elf Owl**

COMMON NAMES: Elf Owl, Kuhkwul (Tohono O'odham), Tecolote Enano (Hispanic), Tecolotito (Hispanic). HABITS: Feeds on insects. Nests in old woodpecker holes in saguaros and 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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***Otus kennicottii* (D.G. Elliot): Western Screech-owl**

COMMON NAMES: Kennicott's Screech Owl, Tecolote Chillon (Hispanic), Western Screech-owl. HABITS: Feeds on birds, crustaceans, decapods, earthworms, fishes, frogs, insects, lizards, small mammals, scorpions, spiders and toads. Nests are located in cavities in cacti, snags and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (072106 - subspp. *aikeni* (Brewster) and *cinerascens* (R. Ridgway)), 84, 106 (072106), **TBL** (August 23, 2008)*

Sylviidae: The Gnatcatcher and Old World Warbler Family

***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, 84, 93, 106 (072106), **TBL** (August 23, 2008)*

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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

**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, 84, 93, 106 (0527-2806), **102**, **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **102**, **TBL** (August 23, 2008)*

**Hummingbirds, Allens/Rufous? & hybrids**

* **TBL** (August 23, 2008)*

***Selasphorus platycercus* (W. Swainson): Broad-tailed Hummingbird**

COMMON NAMES: Broad-tailed Hummingbird, Chuparosa Cola Ancha (Hispanic). HABITS: Feeds on small insects and nectar. Nests are tiny cups made up of lichen and plant down 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. *10, 14, 55, 69, 73, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

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 (subsp. *couesi* (Sharpe) - 072106), 20, 55, 69, 73, 84, 93, 106 (072106), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (090606), **TBL** (August 23, 2008)*

Turdidiae: The Bluebird, Solitaire and Thrush Family

***Sialia mexicana* W. Swainson: Western Bluebird**

COMMON NAMES: Chestunt-backed Bluebird, Mexican Bluebird, Ventura Azul (Hispanic), Western Bluebird. HABITS: Feeds on berries, fruits, grubs, insects, seeds, snails, spiders, and worms. Nests are made of grass in holes in tress stubs 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, 55, 69, 73, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

Tyrannidae: The Tyrant Flycatcher Family

***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, 84, 93, **TBL** (August 23, 2008)*

***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, 84, 106 (0527-2806), **TBL** (August 23, 2008)*

***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 (subspp. *flammeus* (Van Rossem) and *mexicanus* (P.L. Sclater) - 072206), 20, 55, 69, 73, 84, 93, 106 (072206), **TBL** (August 23, 2008)*

***Sayornis nigricans* (W. Swainson): Black Phoebe**

COMMON NAMES: Black Phoebe, Gihsupi (Tohono O'odham), Papamoscas Negro (Hispanic). HABITS: Feeds on arachnids, insects and fishes. Nests are thick cups made of bark, feathers, plant fibers, forbs, grasses, hair, moss, mud and rootlets lined with soft material including feathers and hair located in caves, on ledges, in the exposed roots of trees close to water and plastered to cliff faces. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. *14 (subsp. *semiatra* (N.A. Vigors) - 082106), 55, 69, 73, 84, 93, 106 (091106), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

***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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

## Tytonidae: The Barn Owl Family

***Tyto alba* (J.A. Scopoli): Barn Owl**

COMMON NAMES: Barn Owl; Common Barn Owl, Lechuza (Hispanic). HABITS: Feeds on frogs, insects and small mammals. Nests are on litter of disgorged fur pellets or bare surface located in hollow trees or other cavities. 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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

## Vireonidae: The Vireo Family

***Vireo gilvus* (L.J. Vieillot): Warbling Vireo**

COMMON NAMES: Vireo Gorgojaedor (Hispanic), Warbling Vireo. HABITS: Feeds on insects. Nests are tiny basket-like cups hanging from forked branches 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, 84, 93, 106 (0527-2806), **TBL** (August 23, 2008)*

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. *mexicana* C.H. Merriam: Chihuahuan Pronghorn**

COMMON NAMES: "Antelope", Chihuahuan Pronghorn, Chihuahuan Pronghorn Antelope, Prong-horn, Pronghorn, Pronghorn Antelope, Prong-horned Antelope. HABITS: The species feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXTIRPATED from southeastern Arizona, several reintroductions have taken place. *8 (Historically throughout south-eastern and south-central Arizona.), 14 (113006 - historically occurred in grass-shrub valleys and grasslands of southeastern and south-central Arizona), 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), 106 (052806 - species), **118** (recorded as *Antilocapra americana mexicana* Merriam - Distribution: Southeastern 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), **PCM** (September 25, 2008)*

***Antilocapra americana* subsp. *mexicana* C.H. Merriam: Chihuahuan Pronghorn**

COMMON NAMES: "Antelope", Chihuahuan Pronghorn, Chihuahuan Pronghorn Antelope, Prong-horn, Pronghorn, Pronghorn Antelope, Prong-horned Antelope. HABITS: The species feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXTIRPATED from southeastern Arizona, several reintroductions have taken place. *8 (Historically throughout south-eastern and south-central Arizona.), 14 (113006 - historically occurred in grass-shrub valleys and grasslands of southeastern and south-central Arizona), 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), 106 (052806 - species), **118** (recorded as *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona. Figure 111, Page 255)*

Canidae: The Dog and Allies Family

***Canis latrans* T. Say: Coyote**

COMMON NAME: Coyote, Prairie Wolf. 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), **PCM** (September 25, 2008)*

***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, species record), 73 (species), 100 (color photograph of species, species record), 106 (052906 - species), **118** (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217)*

**Foxes**

***PCM** (September 25, 2008 - one or two unidentified species)*

***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 (species, 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 (species, color photograph of species), 73 (species), 100 (species, 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), (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*)

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), **PCM** (September 25, 2008)*

***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 (species, color photograph of species), 106 (052906 - species), **118** (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254)*

***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), **PCM** (September 25, 2008)*

*Felis onca* subsp. *arizonensis* (see *Panthera onca* subsp. *arizonensis*)

*Felis pardalis* subsp *sonoriensis* (see *Leopardus pardalis* subsp *sonoriensis*)

*Felis rufus* (see *Lynx rufus*)

*Felis rufus* subsp. *baileyi* (see *Lynx rufus* subsp. *baileyi*)

***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 (species, color photograph of species), 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), **PCM** (September 25, 2008)*

***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 (species, color photograph of species), 106 (052906 - spies), **118** (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247)*

*Felis rufus* subsp. *baileyi* (see *Lynx rufus* subsp. *baileyi*)

***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 (species, color photograph of species), 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*)

Geomyidae: The Pocket Gopher Family

***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* 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* 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* 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 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, *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* 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* 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, 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)*

**Kangaroo Rats**

***PCM** (September 25, 2008)*

**Mice**

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***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 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 baileyi* subsp. *baileyi* (see *Chaetodipus baileyi* subsp. *baileyi*)

*Perognathus hispidus* subsp. *conditi* (see *Chaetodipus hispidus* subsp. *conditi*)

*Perognathus intermedius* subsp. *intermedius* (see *Chaetodipus intermedius* subsp. *intermedius*)

***Perognathus longimembris* subsp. *pimensis* Huey: Little Pocket Mouse**

COMMON NAME: Little Pocket Mouse. HABITS: Feeds on greens and seeds. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (082308), 55 (recorded as *Perognathus longimembris* (Coues). Little Pocket Mouse. Known from scattered localities in the western part of the state (500 - 4,500 feet).), 65 (genus), 73 (species), 85 (052906), 100 (species, color photograph of species), 106 (082308), **118** (recorded as *Perognathus longimembris pimensis* Huey - Distribution: Southcentral part of the state. Figure 49, Page 127)*

*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), **PCM** (September 25, 2008)*

***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, 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), **PCM** (September 25, 2008), **WTK** (May 9, 2005)*

***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)*
*Lepus californicus* subsp. *eremicus* J.A. Allen: Black-tailed Jack Rabbit

***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)*

***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* 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: *Conepatus mesoleucus*), 100 (species record (*Conepatus mesoleucus*), color photograph of species), 106 (072306 - genus), **118** (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241)*

*Conepatus mesoleucus* subsp. *venaticus* (see *Conepatus leuconotus* subsp. *venaticus*)

***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 (species, color photograph of species), 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 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (053006 - genus), **118** (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239)*

**Skunks**

***PCM** (September 25, 2008)*

***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 (recorded as *Spilogale gracilis*), 100 (recorded as *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* 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) (subsp *mexicana* (Saussure) is the only subspecies reported as occurring in Arizona): 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* 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 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (053006 - genus), **118** (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim. Figure 76, Page 193)*

**Mice**

* **PCM** (September 25, 2008)*

***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)*

**Pack Rats**

*__PCM__ (September 25, 2008)*

***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 (species, color photograph of 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 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 (species, color photograph of 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* subsp. *merriami* Mearns: Merriam's Mouse** (Known from mesquite bosque situations)

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)*

***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)*

Mustelidae: The Weasel and Allies Family

***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), **PCM** (September 25, 2008)*

Phyllostomidae: The Leaf-nosed Bat Family

***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 (species: 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 (recorded as *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), **PCM** (September 25, 2008)*

***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 (species, color photograph of species), 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)*

**Chipmonks**

* **PCM** (September 25, 2008)*

*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), **PCM** (September 25, 2008)*

***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*)

*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 (recorded as *Pecari angulatus*), 73 (recorded as *Dicotyles tajacu*), 100 (recorded as *Tayassu tajacu*, color photograph), 106 (051107 - *Tayassu tajacu*), 118 (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), **PCM** (September 25, 2008)*

***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

***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)*

*Euarctos americanus* subsp. *amblyceps* (see *Ursus americanus* subsp. *amblyceps*)

***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*)

***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. *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 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)*

***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. *stephensi*: 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), 106 (genus - 053106), **118** (recorded as *Myotis californicus stephensi* Dalquest - Distribution: Northern and western part of the state. 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 velifer velifer* (see footnote 8 under *Myotis velifer* subsp. *brevis*)

***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) (subsp. *pallescens* is the subspspecies reported as occurring in Arizona): Pale Townsend's Big-eared Bat**

SYNONYMY: (for *P.t.* subsp. *pallescens*: *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 REPTILIA: The REPTILES

### Colubridae: The Colubrid Family

***Chilomeniscus cinctus* E.D. Cope: Banded Sand Snake**

COMMON NAMES: Banded Burrowing Snake, Banded Sand Snake, Variable Sand Snake. HABITS: Feeds on centipedes and insects. Takes shelter during the day by burrowing or swimming into sand. HABITAT: Within the range of this species it has been reported from the scrub, desertscrub and wetland ecological formations. NOTES: Arizona's native rear-fanged species of Colubrid Snakes are not considered to be dangerous to man. *14 (072306), 37, 54, 55, 73, 87, 106 (072306 - family with a listing of genera), **PCM** (August 5, 2008)*

***Masticophis flagellum* (Shaw): Coachwhip**

SYNONYMY: *Masticophis flagellum* subsp. *cingulum*: Sonora Coachwhip; *Masticophis flagellum* subsp. *lineatulus*: Whipsnake; *Masticophis flagellum* subsp. *piceus* (Cope): Red Coachwhip, Red Racer (red phase), and Western Black Racer (black phase); *Masticophis flagellum* subsp. *ruddocki*: San Joaquin Whipsnake; *Masticophis flagellum* subsp. *testaceus* (Say): Western Coachwhip. COMMON NAMES: Black Racer, Coachwhip, Lined Coachwhip, Red Coachwhip, Red Racer, San Joaquin Whipsnake, Sonoran Coachwhip, Western Black Racer, Western Coachwhip, Whipsnake. HABITS: Feeds on birds and eggs, carrion, crickets, grasshoppers, lizards and lizard eggs, mice, young rabbits, rats, snakes and turtles. Takes shelter in rodent burrows, under rocks and in woodrat nests. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland and desertscrub ecological formations. *14, 37 (subsp. *piceus*), 55, 73, 87, 106 (060206 - genus), **PCM** (August 5, 2008)*

*Masticophis flagellum* subsp. *cingulum* (see *Masticophis flagellum*)

*Masticophis flagellum* subsp. *lineatulus* (see *Masticophis flagellum*)

*Masticophis flagellum* subsp. *piceus* (see *Masticophis flagellum*)

*Masticophis flagellum* subsp. *ruddocki* (see *Masticophis flagellum*)

*Masticophis flagellum* subsp. *testaceus* (see *Masticophis flagellum*)

***Pituophis cantifer* (H.M. de Blainville): Gopher Snake**

SYNONYMY: *Pituophis melanoleucus* (F.M. Daudin). COMMON NAMES: Bull Snake, Gopher Snake, Pine Snake, Sonoran Gopher Snake. HABITS: Feeds on small birds and bird eggs, lizards and small mammals. Takes shelter in underground burrows and under logs and rocks. 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, 87, 106 (060206 - genus), **PCM** (August 5, 2008)*

*Pituophis melanoleucus* (see *Pituophis cantifer*)

***Rhinocheilus lecontei* (S.F. Baird & C.F. Girard): Texas Longnose Snake**

COMMON NAMES: Long Nosed Snake, Long-nosed Snake, Texas Longnose Snake, Western Longnose Snake. HABITS: Feeds on insects, lizards and lizard eggs, rodents and small snakes. Takes shelter in burrows, by burrowing into sand or soil, under rocks and in rock crevices. 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, 87, 106 (060206 - genus), **PCM** (August 5, 2008)*

***Trimorphodon biscutatus* (A.M. Dumeril, G. Bibron & A.H. Dumeril): Lyre Snake**

SYNONYMY: *Trimorphodon lyrophanes* (Cope). COMMON NAMES: Lyre Snake, Sonora Lyre Snake, Sonoran Lyre Snake, Southwestern Lyre Snake, Texas Lyre Snake, Western Lyre Snake, Western Lyresnake. HABITS: Feeds on bats, lizards and rodents. Takes shelter in underground burrows, rock crevices 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: A mildly venomous snake. Arizona's native rear-fanged species of Colubrid Snakes are not considered to be dangerous to man. *14, 37, 54, 55, 73, 87, 106 (060206), **PCM** (August 5, 2008)*

*Trimorphodon lyrophanes* (see *Trimorphodon biscutatus*)

## 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, 87, 106 (060306 - genus), **PCM** (August 5, 2008)*

## Helodermatidae: The Beaded Lizard Family

It has been suggested that, if bitten by a Gila Monster, you should remove the lizard as soon as

possible, irrigate the wound with plenty of water, immobilize the affected limb at heart level, call 911 or 1-800-222-1222 for additional information and/or consider transport to a medical facility, any teeth left in the wound must be removed by a medical professional, ensure that tetanus immunization is up to date, and watch patient for signs and symptoms of infection. *97*
http://www.pharmacy.arizona.edu/outreach/poison

If bitten contact the Arizona Poison and Drug Information Center: 1-800-222-1222.

***Heloderma suspectum* (E.D. Cope): Gila Monster**

COMMON NAMES: Gila Monster. HABITS: Feeds on bird eggs, invertebrates, lizards, small mammals, snakes and reptile eggs. Takes shelter in burrows and crevices. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: A venomous lizard. *14, 37, 54, 55, 73, 87, 106 (060306), **PCM** (August 5, 2008)*

Iguanidae: The Iguana and AlliesFamily

***Sauromalus ater* (A.H. Durmeril): Chuckwalla**

SYNONYMY: *Sauromalus obesus* (S.F. Baird). COMMON NAMES: Arizona Chuckwalla, Chuckwalla, Common Chuckwalla, Glen Canyon Chuckwalla, Western Chuckwalla. HABITS: Feeds on brittlebush, flowers and leaves of annual and perennial herbs, and insects. Takes shelter crevices in massive rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *8, 14, 37, 55, 73, 87, **102**, 106 (060306)*

*Sauromalus obesus* (see *Sauromalus ater*)

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, 87, 106 (072306 - genus with a listing of species), **PCM** (August 5, 2008)*

***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, 87, 106 (060306 - genus), **PCM** (August 5, 2008)*

***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, 87, 106 (060306), **PCM** (August 5, 2008)*

Teiidae: The Whiptail and Allies Family

***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, 87, 106 (060306 - genus), **PCM** (August 5, 2008)*

*Cnemidophorus sonorae* (see *Aspidoscelis sonorae*)

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), **PCM** (August 5, 2008)*

Viperidae: The Pit Viper Family

It has been suggested that if bitten by a rattlesnake you should call 911. Remain calm, remove all jewelry (including watches), immobilize extremity, keep at level below the heart, decrease total body activity, and transport to medical facility. Do not apply ice to the bitten area, do not use an incision of any kind, do not use a tourniquet, do not administer drugs or alcohol, and do not use electric shock treatment (Tucson Herpetological Society. 1995. Living with Rattlesnakes. Tucson, Arizona, 8751-1531. BISON-M).
http://www.pharmacy.arizona.edu/outreach/poison

If bitten contact the Arizona Poison and Drug Information Center: 1-800-222-1222.

***Crotalus atrox* (S.F. Baird & C.F. Girard): Western Diamondback Rattlesnake**

COMMON NAME: Buzzworms, Western Diamondback Rattlesnake. HABITS: Feeds on birds, bird's eggs and young birds, frogs, gophers, lizards, mice, prairie dogs, rabbits, rats, squirrels and toads. Takes shelter in underground burrows, crevices in arroyo walls, rocky outcrops, thickets and woodrat nests. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A venomous and dangerous snake. *14, 37, 54, 55, 73, 87, 106 (060306), ADS (1 bite already reported; here are tips for safety, Tuesday, March 9, 2010, Section A, Page 1&4), **PCM** (August 5, 2008)*

ACKNOWLEDGEMENTS

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## FOOTNOTES and REFERENCES
## for the Species Distribution Listings compiled for Arizona

(1) General Mapping:

Arizona Atlas & Gazetteer. 2002. DeLorme.
www.delorme.com

National Geographic Arizona Seamless USGS Topographic Maps. Maps created with TOPO! R C 2002 National Geographic.

Eloy, Arizona - 15 Minute Series Topographic 1963

Vaca Hills, Arizona - 15 Minute Series Topographic 1959

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(2) Physiographic Province Mapping:

Walker, Henry P. and Don Bufkin. 1979. Historical Atlas of Arizona, University of Oklahoma Press, Norman, Page 4A and Map.

(3) Soils Mapping:

Arizona General Soil Map, July 1975, United States Department of Agriculture, Soil Conservation Service and the University of Arizona Agricultural Experiment Station, compiled by J.E. Jay, Y.H. Havens, D.M. Hendricks, D.F. Post and C.W. Guernsey.

Richardson, M.L. and M.L. Miller. March 1974. United States Department of Agriculture - Soil Conservation Service in cooperation with the Pima County Natural Resource Conservation District, Report and Interpretations for the General Soil Map of Pima County, Arizona and General Soil Map Pima County Arizona. Arizona General Soil Map, July 1975, United States Department of Agriculture - Soil

Conservation Service and the University of Arizona Agricultural Experiment Station, compiled by J.E. Jay, Y.H. Havens, D.M. Hendricks, D.F. Post and C.W. Guernsey.

(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.

Brown, David E. 1982. Biotic Communities of the American Southwest – United States and Mexico, Desert Plants, Volume 4, Numbers 1-4, Published by the University of Arizona for the Boyce Thompson Southwestern Arboretum, Tucson, Arizona.

Brown, David E. and Charles H. Lowe. Revised June 1983. Biotic Communities of the Southwest, August 1980, General Technical Report RM-78, United Stated Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station.

Brown, David E., Charles H. Lowe and Charles P. Pase. June 1980. A Digitized Systematic Classification for Ecosystems with an Illustrated Summary of the Natural Vegetation of North America, United States Department of Agriculture, Forest Service, General Technical Report RM-73

(5) Nomenclature:

for Plants:

Generally follows that presented by The Biota of North America Program of the North Carolina Botanical Garden (BONAP) with A Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico and the Virgin Islands, Full Index 1998.
http://www.bonap.org/
http://www.csdl.tamu.edu/FLORA/b98/check98.htm

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http://www.ipni.org [accessed 2004, 2005, 2006]

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Section on Arizona Habitats, The University of Arizona Press, Tucson, Arizona and E. Lendell Cockrum. 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution, The University of Arizona Press, Tucson, Arizona.

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for Invertebrate Animals:

Arizona Game and Fish Department. Unpublished Abstracts Compiled and Edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ.
http://www.gf.state.az.us/w_c/edits/species_concern.shtml

Biota Information System of New Mexico (BISON-M), New Mexico Game and Fish, New Mexico Natural Heritage Program
http://nmnhp.unm.edu/bisonm/bisonquery.php

(6) Growth Habits of Plants:

Generally coincides with that presented by the National Plants Database. USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA

Common names identified in the USDA NRCS database have been printed in bold lettering: A few of the plants were not provided with a common name in the USDA NRCS database and additional resources were used, including:

Arizona Game and Fish Department. Unpublished Abstracts Compiled and Edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. *8*

Sunset Western Garden Book Kathleen N. Brenzel, 2001, Sunset Publishing Corporation, Menlo Park, California. *18*

(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
http://www.aridzonetrees.com/index.htm

(8) Arizona Game and Fish Department. Unpublished abstracts compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ.
http://www.gf.state.az.us/w_c/edits/species_concern.shtml

Amphibians: 2002. *Bufo microscaphus*, Arizona Toad; 2005. *Bufo retiformis*, Sonoran Green Toad; 2001. *Eleutherodactylus augusti* subsp. *cactorum*, Western Barking Frog; 2003. *Gastrophryne olivacea*, Great Plains Narrow-mouthed Toad; 2002. *Hyla arenicolor*, Canyon Treefrog; 2003. *Pternohyla fodiens*, Lowland Burrowing Treefrog; 2001. *Rana chiricahuensis*, Chiricahua Leopard Frog, and 2001. *Rana yavapaiensis*, Lowland Leopard Frog.

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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