

DRAFT



MEMORANDUM

Date: August 3, 1999

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: **Attached Report -- *Mountain Parks and the Sonoran Desert Conservation Concept Plan***

I. Background

The attached discussion paper entitled *Mountain Parks and the Sonoran Desert Conservation Concept Plan* describes the relation of the current and proposed system of mountain parks and preserves to the ongoing multi-species conservation planning process and the larger Sonoran Desert Conservation Plan. In the last two years, the listing of the pygmy-owl as an endangered species has created substantial federal compliance concerns for the region. Many people now understand that the establishment of a science-based preserve to reflect the region's commitment to effective multi-species conservation will lead to the issuance of a federal permit that will provide regulatory relief and greater economic certainty. Under this permit, business interests will be able to pursue land uses which impact habitat, so long as defined conservation standards are met. Before reserving open space became a condition of federal compliance, Pima County had a strong interest in the topic. In fact, the roots of Pima County's mountain park and natural preserve system can be found in the creation of Tucson Mountain Park, which was established by the Pima County Board of Supervisors on April 11, 1929. Since that time, two more mountain parks and a natural preserve have been added to the County's system, and the system's functions and goals have evolved over time to include:

- ▶ Protecting flood control capacity and recharge capability;
- ▶ Protecting viewsheds and signature scenic lands;
- ▶ Linking the open space network that surrounds the metropolitan area;
- ▶ Providing biological corridors that facilitate the natural movement of wildlife;
- ▶ Perpetuating a variety of plant and animal species through the preservation of habitat;
- ▶ Protecting cultural resources;
- ▶ Upholding the tourism basis of the local economy;
- ▶ Providing recreation, scientific research and environmental education opportunities;
- ▶ Enhancing the community's quality of life;
- ▶ Retaining local control of important natural resource areas; and
- ▶ Defining Tucson's urban form.

What we have learned from the federal listing of eighteen species in Pima County, the decline in many other wildlife populations, and the substantial loss of riparian habitat and other plant communities within the region, is that Pima County's incremental approach to conservation over the last 70 years has not been sufficient.

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Regardless of the amount of open space that exists across Pima County, we have not assembled an open space system that effectively preserves and conserves local species. The Science Technical Advisory Team for the Sonoran Desert Conservation Plan has identified nearly 75 plants and animals as species of concern. Our riparian environments have experienced an estimated loss of 85 to 95% of quality riparian habitat during the last century, while an estimated 85% of wildlife depends on riparian habitat for some part of its life cycle. There are reasons for the mismatch between past preservation efforts and the reality of our declining natural systems.

- ▶ First, parks in Pima County and across the country have often been created to set aside areas of great beauty, but plant and animal communities do not make location decisions based on aesthetics.
- ▶ Second, areas that have been set aside for wildlife protection purposes often are too small to support a viable population of the species. It was not until 1985 that scientists in the relatively new field of conservation biology could calculate how badly we have misjudged the area needs of wide ranging carnivores. Large animals are becoming extinct within the boundaries of the very parks that were created to protect them.
- ▶ And third, existing protected areas are disconnected. This fragmentation between even large public areas relegates the existing open space patches to the role of a zoo, when the natural functions of the system are replaced by human management and maintenance of the plant and animal communities.

The difficult inheritance of past conservation decision making is that as a rule, federal and local public parks were established without a full understanding of the relationship between open space and species conservation, and, as currently configured, they simply will not support suites of species. This applies to parks on a national scale, and it is true in Pima County too. Unlike many communities, however, Pima County still has the opportunity to assemble an effective preserve. We are fortunate to have a number of open space areas, often connected by riparian linkages. The County's parks and preserve system is flexible so that a future open space and preserve system involving federal, state, and private land can include County-owned land managed at the level of conservation that is necessary. This gives the community an opportunity to meet conservation compliance requirements at a regional level, in part through the County's parks and preserve system, while at the same time creating and implementing an adaptive management strategy which can adjust over time to actually improve implementation of the Sonoran Desert Conservation Plan as better scientific information becomes available. The attached report begins to suggest where connections exist and it provides a preliminary look at the resources within existing and proposed parks and preserves, based on current management and planning documents. The comprehensive biological assessment conducted as part of the Sonoran Desert Conservation Plan is expected to result in changes to proposed preserve boundaries and preserve management. This report simply frames planning possibilities by outlining the known potential of twelve park and preserve areas in Eastern Pima County.

II. Potential to Protect, Enhance and Create Mountain Parks and Preserves

Since the establishment of Tucson Mountain Park in 1929, Pima County's mountain parks and natural preserves have played an important and diverse role in the life of the community. This role will be expanded with the development of the Sonoran Desert Conservation Plan through the design and implementation of a comprehensive open space parks and preserve system that meets endangered species compliance standards for the region. Twelve potential parks and preserves are described below in order to facilitate discussion of the regional reserve network.

1. Tucson Mountain Park -- The 18,422.4-acre Tucson Mountain Park, formed from volcanic and fault block activity that began an estimated 70 million years ago, is presently Pima County's largest Natural Resource Park and is one of Tucson's most-visited natural areas. Pima County manages 2,514 acres owned by the Bureau of Reclamation adjacent to the western boundary of the park. Saguardo National Park adjoins the County park to the north, adding 24,034 acres to this area. The acquisition of approximately 3,615 acres of high resource land has been discussed to create corridors which will prevent this area from becoming a biological island surrounded by development.

The vegetation within the Tucson Mountains is classified as a subtropical desertland located within the Arizona Upland subdivision of the Sonoran Desert. A variety of plant communities and associations are represented within this category, with the most prevalent being the palo verde-saguaro association. Several uncommon species, including night-blooming cereus and Tumamoc globeberry, are known to occur. The park is home to large and healthy populations of saguaro, prickly pear, barrel, cholla and ocotillo cactus, mesquite, palo verde and ironwood trees, and a variety of other Sonoran desert vegetation.

Animal species found in the park include coyotes, javelina, cottontail and jackrabbits, and mule deer. Other noteworthy wildlife found in the park include bobcats, gray foxes, mountain lions, desert tortoises, gila monsters and a variety of bats and bird species. More than 230 vertebrate species are common to the area, as well as literally thousands of invertebrates. Sensitive species that may be found in the park include the Lesser long-nosed bat and the California leaf-nosed bat. The possibility that the cactus ferruginous pygmy-owl may use the park, and the suitability of its habitat for this listed endangered species, led to the inclusion of Tucson Mountain Park in Unit 2 of the U.S. Fish and Wildlife Service's recent critical habitat designation for the owl.

Cultural resources -- Tucson Mountain Park contains a variety of valuable cultural resources, including prehistoric archaeological sites, rock art sites, historic structures, old mines and trails, traditional O'odham saguaro fruit gathering sites and other traditional cultural places, and natural features of the land that together form a significant cultural and historic landscape.

Recreation potential -- The park includes 26 miles of trails open to hikers, equestrians and mountain bicyclists, an archery range, a rifle range, a campground and picnic areas, and is home to the Arizona-Sonora Desert Museum, the Sonoran Arthropod Research Institute, and Old Tucson Studios.

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2. Tortolita Mountain Park -- Tortolita Mountain Park was established in 1986, when the Pima County Board of Supervisors approved the expenditure of 1986 bond funds to acquire 3,055.75 acres of private property in the rugged backcountry of the Tortolita Mountains for park purposes. The first 2,426.75 acres was purchased in 1986, and another 629 acres was added in 1988. Several recent acquisitions have brought Pima County's current holdings in the Tortolitas to 3,445.75 acres. The Tortolita Mountains are one of the oldest geological features in the Tucson area, and include 4,651 foot tall Tortolitas Peak, the highest point in the range. On November 10, 1998, the Board approved County applications to the Arizona Preserve Initiative to expand Tortolita Mountain Park by 25,744 acres. The application includes the Tortolita alluvial fan and Ironwood Forest area, which would serve as a key area for the recovery of the pygmy-owl.

Vegetative communities located within the present boundary of the park include Sonoran Desertscrub, Paloverde-Cacti-Mixed Scrub Series, Interior Chaparral, Scrub Oak Series, Sonoran Riparian Deciduous Forest and Woodland, Mesquite Series; Sonoran Riparian Deciduous Forest and Woodland, Cottonwood-Willow Series, and Sonoran Riparian Scrubland, Mixed Scrub Series. The majority of the park is considered to be within the Sonoran Desertscrub biotic community. The alluvial fan area is home to a large and impressive ironwood forest, and some of the trees within the forest are believed to be hundreds of years old. The density and superlative quality of the ironwood forest make it prime potential habitat for the cactus ferruginous pygmy-owl, and led to its inclusion in the U.S. Fish and Wildlife Service's critical habitat designation for the owl. While Park's staff knows of no special status plant species identified within the current boundaries of the park, the lands do contain large, undisturbed, healthy stands of saguaro, barrel, ocotillo and cholla cactus, mesquite, palo verde and ironwood trees, as well as a wide variety of native grasses, bushes and other plants.

Animal species -- The Tortolita Mountains area supports a wide range of wildlife, and is capable of supporting certain special status wildlife species. The park's proposed expansion lands contain habitat considered suitable for the pygmy-owl. The Sonoran desert tortoise, a species of special concern, is commonly found within the kind of Paloverde-Cacti Mixed Scrub Series habitat found in and around the park, and may be present there. Other special status wildlife found on and around the subject lands include the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, and the California leaf-tongued bat. A wildlife survey conducted as a part of the master planning process for the park in 1996 identified a wide range of animal and bird species, including mountain lion, peccary, mule deer, and large numbers of birds and lizards. The Tortolita Mountains are also home to a small herd of wild horses--one of the few such herds remaining in southern Arizona.

Cultural resources -- The Tortolita Mountains area is rich in cultural resources. Evidence of occupation by Hohokam Indians can be found throughout the area. On the eastern side of the park, the most significant resource is the large and well-known "Indian Town" site, which is the park's first priority acquisition area. However, this area has not yet been systematically surveyed, and additional sites are expected to exist -- particularly along Honeybee Canyon and Sausalito Creek within the adopted park expansion boundary, and along Big Wash in the proposed Tortolita East Biological Corridor.

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3. Colossal Cave Mountain Park -- At 2,038 acres, Colossal Cave is Pima County's smallest existing mountain park, but it too has the potential to grow considerably to meet the region's conservation goals in the Rincon Valley area. While best known for the tourist attraction from which it draws its name, the park has outstanding scenic resources, and includes the 1870s Posta Quemada Ranch. As might be expected from a park that features a natural cave, the geology of Colossal Cave Mountain Park is extraordinary, and is undoubtedly its most significant characteristic. According to experts who have conducted studies on the site, the park's geology is uncommonly diverse, and represents a "mosaic" array of 20 different geologic units. Honoring a request received during the public comment period, the Sonoran Desert Conservation Concept Plan suggests, for planning purposes, that the park be expanded by 14,160 acres in addition to the 4,814 acres recommended by County staff.

Vegetation - Colossal Cave Mountain Park is also notable for its wide range of vegetative communities. This exceptional diversity can be attributed to its variety of rock and soil types (21 soil types occur within the park's planning area), as well as to the fact that the park is located in a transition area between the Chihuahuan and Sonoran deserts, and includes some of the characteristics of both regions. Six vegetative communities have been identified within the park's planning area, including the Creosote Bush, Palo Verde-Saguaro, Chihuahuan Desertscrub, Semidesert Grassland, Deciduous Riparian Forest, and Evergreen Woodland associations.

Animal species -- Special status wildlife species that are known to occur in the park include the desert tortoise, the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, the California leaf-nosed bat, the western red bat, and Townsend's big-eared bat. The species that inhabit the park range from predatory mammals such as ringtail cats and mountain lions to at least 11 species of bats. The park is especially diverse in bird and reptile species, at least partly owing to the lush riparian habitat in the Posta Quemada Wash and along the nearby Agua Verde Creek.

Cultural resources -- Colossal Cave and the area surrounding it, including the suggested expansion lands, have considerable archeological and historical significance. The lands, with natural springs and riparian corridors, have long attracted the interest of humans and were inhabited for an extended period. To date, 13 prehistoric sites have been identified in vicinity of the park and the adjacent Pistol Hill area.

Recreation potential -- Colossal Cave Mountain Park presently offers a wide range of passive recreation opportunities, including picnicking, birdwatching, hiking, horseback riding and camping.

4. Cienega Creek Natural Preserve --The 3,979-acre Cienega Creek Natural Preserve was Pima County's first Natural Preserve. The Preserve encompasses approximately 12 miles of the Cienega Creek, and roughly half of the protected stretch of the creek experiences perennial stream flow. Important purposes served by keeping this reach of the Cienega Creek in its existing undiminished state are the facilitation of natural aquifer recharge, and the assistance it offers in lessening the severity of flood events capable of impacting the developed area of

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the Tucson Basin. The utility of the Preserve's flood control capability alone makes it of exceptional value to the Tucson metro area. The lands within the preserve are in excellent natural condition, and few man-made improvements exist within its boundaries. The most significant of the existing improvements is the Vail Water Company diversion, where the perennial base flows of the river are diverted and carried off the preserve via a pipeline. For purposes of planning, the Sonoran Desert Conservation Concept Plan suggests the expansion of the preserve by 7,293 acres, and the protection of Mescal Arroyo which links to Cienega Creek, adding another 1,856 acres to the preserve.

Vegetation - The preserve, which is located within a transitional zone between the Sonoran and Chihuahuan Deserts and thus exhibits some of the features of each region, is home to nine plant associations. These associations include:¹

- Mixed Grass - Mixed Scrub Association (2%)
- Burroweed - Mesquite Association (5%)
- Creosote - Mariola Association (12%)
- Ocotillo - Mixed Scrub Association (1%)
- Creosote Association (9%)
- Creosote - Mixed Scrub Association (14%)
- Velvet Mesquite Association (20%)
- Velvet Mesquite - Mixed Deciduous Tree Association (4%)
- Velvet Mesquite - Mixed Scrub Association (21%)

Two special status plants are known to occur in the area, and the possibility exists that these plants may exist in the preserve and/or on the preserve's adjacent expansion lands identified in the Sonoran Desert Conservation Concept Plan: the Needle-Spined Pineapple Cactus and the Pima Pineapple Cactus. The Pima Pineapple Cactus is a listed endangered species.

Animal species -- Two principal types of wildlife habitat exist within the existing boundary of the preserve and on its surrounding expansion lands -- those associated with the preserve's riparian areas, and those associated with its upland areas. The more significant of the two are the habitats associated with the preserve's riparian areas, because of the high level of biological productivity and species diversity they foster. As a result of its quality, the preserve's wildlife habitat sustains a diverse and large population of mammals, birds, fish, reptiles, amphibians, and invertebrates. Two special status species are known to exist in the preserve: the Lowland leopard frog and the Mexican garter snake. Other special status or species of concern may also be present in the preserve: the Mexican long-tongued bat, the Gila chub, the Gila topminnow, the Lesser long-nosed bat, and the Sonoran desert tortoise.

Recreation potential -- The Cienega Creek Natural Preserve's lush vegetation and scenic values, clean running water, outstanding mountain vistas, and sense of solitude and natural quiet make it a very attractive place to visit. However, because resource protection is the principal

¹The remaining 12% of the Preserve not included in one of the plant communities listed above consists of abandoned ag fields (4%) and bedrock/sandy wash channel (8%).

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imperative in the preserve, recreational activities are limited to those that do not adversely impact its sensitive resources:

- Hiking, walking, backpacking, picnicking and related activities;
- Railroad train watching, photography and painting;
- Non-intrusive bird and wildlife observation, photography and painting;
- Wading in the creek's pools and stream;
- Scientific research and environmental education;
- Other low impact recreational or educational activities.

Access is limited to 50 people per day, and a permit is required to enter the preserve. Presently about 10 people per weekday visit the Cienega Preserve.

5. Catalina State Park Expansion -- The 5,511-acre Catalina State Park is situated in the western foothills of the Catalina Mountains adjacent to the Town of Oro Valley between the Coronado National Forest and the Oracle Highway. Catalina State Park's position and significance in the regional open space network led to its inclusion in both the 1997 Open Space Bond Program and the Sonoran Desert Conservation Concept Plan. The Bond Program identified about 1000 acres, and the Sonoran Desert Conservation Concept Plan identified approximately 2,500 acres of property north of the park for possible protection. The central purpose of the proposed expansion is to facilitate the establishment of a biological corridor that would link the Coronado National Forest, the Sutherland Basin, and Catalina State Park to the Tortolita East Biological Corridor and the Tortolita Mountains.

Vegetation -- Sections of two major wash corridors -- the Canada del Oro and the Sutherland washes--pass through the park, which protects the valuable riparian habitat within them. These washes and their tributaries support an extensive mesquite bosque. Other plant associations that occur within the park's riparian community include Arizona ash, cottonwood, sycamore, desert willow, oak, netleaf hackberry, Arizona walnut and Arizona cypress. Other major vegetation types found in the park include desert scrub, desert grassland, and foothill communities.

Animal species -- Species typically found throughout Catalina State Park and on the park's proposed northern expansion lands include javelina, coyote, jackrabbit, cottontail, bobcat, skunk, squirrels, mule deer, and bats, as well as a multiplicity of snakes, lizards and birds. The park provides habitat for migratory neotropical birds and also wintering peregrine falcon. Desert bighorn sheep have been sighted in the park and on surrounding lands in the past, although their numbers have declined to a bare few in recent years. The park's northern expansion lands contain habitat considered suitable for the endangered cactus ferruginous pygmy-owl. The Sonoran desert tortoise, a species of special concern, can be found within the habitat that exists in the area, and could conceivably be present on the expansion lands. Other special status wildlife that may exist on and around the subject expansion lands include the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, and the California leaf-tongued bat.

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Cultural resources -- The lands presently within the boundaries of Catalina State Park are home to a wide range of valuable cultural resources. Investigations conducted by the Arizona State Museum and others have found tools, flakes and projectile points that are believed to date back to 5000 B.C. These investigations also suggest that the area was occupied by Hohokam Indians from about 300 B.C. to around 1500 A.D. Some 38 archeological sites have been located and recorded in the park, the most significant of which is the Romero Ruin or "Pueblo Viejo." The Romero Ruin is a classic Hohokam habitation site and historic ranch compound that covers approximately 30 acres, and features a stone compound wall, several rooms of stone masonry construction, rock and trash mounds, rock alignments that are believed to have been irrigation troughs, and two depressions that may have been used as ball courts.

Recreation potential -- Catalina State Park offers approximately 12 miles of recreational trail opportunities for hikers, equestrians and mountain bicyclists.

6. Waterman-Roskrige Mountain Park -- Pima County's proposed Waterman-Roskrige Mountain Park occupies a large part of the western portion of the Avra Valley and is situated approximately 5 miles west of Tucson Mountain Park and the Tucson Mountain District of Saguaro National Park. At 56,031 acres in total size, Waterman-Roskrige Mountain Park, which is composed of a pair of connecting ranges -- the Waterman Mountains and the Roskrige Mountains -- will be one of the largest of Pima County's mountain parks, and more than twice the size of Tucson Mountain Park. The lands within the park boundary include 40,560 acres presently administered by the U.S. Bureau of Land Management, 12,460 acres of State Trust Lands, and 3,011 acres of private property. An attractive feature of the proposed park is the fact that it is bounded on the south and west by the Schuk Toak District of the Tohono O'odham Nation, which provides an opportunity to partner with the Nation in the interest of cultural and natural resource protection. The proposed park is anchored by two connecting low mountain ranges -- the Waterman Mountains, which are limestone-based, and the Roskrige Mountains, an area volcanic in nature. Limestone mountains are unusual in the Sonoran Desert, and this characteristic contributes to the range's plant diversity. The highest point in the park is Waterman Peak, which rises to 3,808 feet.

Vegetation -- The park's Sonoran desertscrub vegetation, which includes both upland and riparian habitat, is dense and generally in excellent natural condition. The park supports a wide variety of plant and animal life. The area's notable vegetative diversity includes two very important cactus species -- the Nichol's Turk's head cactus, and the Pima pineapple cactus. Both are listed endangered species, and comprise two of the six types of endangered cacti that can be found within the state of Arizona. The Pima Indian mallow, a plant species of special concern, can also be found within the park.

Animal species -- Typical wildlife species that can be found inside the proposed park include desert tortoise, mule deer, bobcats, javelina, coyote, desert cottontail, and gray fox. A small herd of bighorn sheep visits the range from the nearby Silverbell Mountains from time to time. Migratory neotropical birds, Harris's hawks and burrowing owls are among the abundant bird life in the park, which may also include the endangered cactus ferruginous pygmy-owl.

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Recreation potential -- The existing recreation pattern on the lands is sparse, owing to the distance of the site from metropolitan Tucson and the fact that the recreation opportunities in the area are little known. However, small numbers of hikers, equestrians, explorers and birdwatchers and mountain bicyclists presently use the area, as do off-highway vehicles, particularly ATVs.

7. Santa Rita Mountain Park -- The proposed 10,703-acre Santa Rita mountain park is situated in the picturesque foothills of the Santa Rita Mountains south of Sahuarita Road and west of Davidson Canyon. The extensive natural resources encompassed by the Santa Rita Mountain Park include Fagan Lake, a man-made pond just outside the Coronado National Forest.

Vegetation -- The dominant vegetative community within the park is Semi-desert grassland that includes a variety of grasses, including grama grasses at higher elevations. According to the U.S. Fish and Wildlife Service, the parklands formerly featured an oak savannah with large trees; however, the agency believes that this plant community has been diminished over time. Lehmann's lovegrass, an exotic grass species, has infiltrated the park and continues to propagate.

Animal species -- One of the most notable features of the Santa Rita Mountains is the tremendous diversity of wildlife that inhabits the range. In addition to the usual desert species that can be found in the area, such as mule deer, white-tailed deer, javelina, quail, cottontails and the like, the area is also home to the Mexican opossum, the coatimundi and mountain lions. A large variety of birds can also be found in the area, including hummingbirds, several kinds of hawks, Golden eagles, and the tropical kingbird. Reptiles are also plentiful, and include several kinds of rattlesnakes, frogs such as the lowland leopard frog, (a species of special concern) and the western barking frog, gila monsters, and the Sonoran desert tortoise. The area is noteworthy for its large population of bats, which features the Mexican long-tongued bat, the Pale Townsend's big-eared bat, the California leaf-nosed bat, the Ghost-faced bat, and the Western red bat. The Santa Ritas may also support a broad range of threatened and endangered species. Listed-endangered species known or believed to exist in the range and on surrounding lands include the American peregrine falcon, the cactus ferruginous pygmy owl, the jaguarundi, the Lesser long-nosed bat, the pima pineapple cactus, and the Gila topminnow. Listed-threatened species include the Mexican spotted owl.

Recreation potential -- The area is presently lightly used for recreational purposes, partially because of its distance from urban Tucson and partially because it is not well-known. The park does have several existing primitive roads and trails, some of which are listed on the Eastern Pima County Trail System Master Plan.

8. Davidson Canyon Natural Preserve -- Davidson Canyon is a broad, deep and impressive natural wash corridor approximately 12 miles long that contains high-quality riparian habitat and is extraordinarily picturesque. The canyon, situated a short distance east of the Sonoita Highway and south of Cienega Creek, connects the Cienega Creek Natural Preserve with the Nogales Ranger District of the Coronado National Forest. The proposed Davidson Canyon Natural Preserve, a 6,191-acre unit, and would encompass the roughly 11 miles or so of the

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canyon not presently protected by Pima County or any other land management agency. The preserve's significance as a corridor between protected natural areas is difficult to overstate; no other linkage proposed in the Sonoran Desert Conservation Concept Plan would connect as many existing or proposed units. The canyon's hydrologic characteristics are also important. Davidson Canyon collects drainage from the northeastern slopes of the Santa Rita Mountains and the northern and western faces of the Empire Mountains, and this runoff ultimately flows into Cienega Creek and through the Tucson Basin. Protecting the canyon in its natural form will maintain its important flood control capacity, as well as its natural recharge capabilities.

Vegetation -- The Davidson Canyon Natural Preserve encompasses both riparian and Sonoran Desert upland habitat, and its plant associations include the Velvet Mesquite-Mixed Scrub Association, Velvet Mesquite Association, Burroweed-Mesquite Association and the Creosote Association. The canyon's riparian habitat and spring-fed stream flows are its most significant and valuable features. Like the Cienega Creek corridor, the canyon's interior hosts an exceptional variety of plant and animal species, including velvet mesquite, whitethorn and catclaw acacia, cottonwood trees, seepwillow, saltbush, desert hackberry, graythorn, prickly pear, sacaton and deergrass. Upland plant species include the mesquite, palo verde, creosote, barrel cactus, ocotillo, yucca, and potentially the Pima Pineapple cactus, a listed endangered species.

Animal species -- Wildlife species likely to be found within Davidson Canyon include endangered leopard frogs, fish such as the long-finned dace and potentially the endangered Gila topminnow, waterbirds, Mexican garter snakes, coyote, gray fox, skunk, collared peccary, bobcat, mule deer, and several varieties of bats, including the Mexican long-tongued bat. The Canyon's scenic values are another of its outstanding natural resources.

Recreation potential -- Davidson Canyon presently experiences only a small amount of recreational use. The area provides scenic hiking and horseback riding opportunities, but is not easily accessible south of I-10 and is not well known.

9. Cerro Colorado Mountain Park -- Compared to the sprawling mountain ranges that house other county mountain parks, the Cerro Colorado Mountains, which cover an area of about 13 square miles, are relatively small. Despite its less-than-imposing stature, this compact range, named for its rocky red volcanic form, is among the most scenic and biologically diverse in southern Arizona. The craggy peaks of the Cerro Colorados, located less than 6 miles due south of the Sierrita Mountains and immediately north of the Arivaca Road, rise above the surrounding countryside to a height of 5,319 feet.

Vegetation -- Plant communities in the mountains and its surrounding area include grasslands at lower elevations, as well as additional grassland and the Madrean evergreen-oak community at higher elevations. The Pima pineapple cactus, a listed endangered plant species, exists in the area and may also occur within the boundaries of the park.

Animal Species -- The Cerro Colorados boast an impressive roster of wildlife species, including, as previously noted, mule deer, white-trail deer, javelinas, and coatimundis, as well as cliff-

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dwelling raptors such as the rarely-seen golden eagle. Special status wildlife species in the area include the spotted jaguar and the masked bob-white quail--both of which are listed endangered species--and the Northern gray hawk, Pale Townsend's big-eared bat and Sonoran desert tortoise, all species of special concern. The proposed park will also protect a key portion of the area's watershed. The Cerro Colorado's watershed features are of critical importance because they help sustain several nearby riparian areas, including riparian habitat in the nearby Buenos Aires Preserve. Wildlife authorities have noted that this habitat is especially important for migrating neotropical birds.

Recreation potential -- The Cerro Colorado Mountain Range and its surrounding area offers excellent recreation potential. Its remote location and unspoiled surroundings, located a considerable distance from any significant urbanization, are an ideal setting for a county mountain park, and will offer outstanding opportunities for solitude and natural quiet.

10. Buehman-Bingham Natural Preserve -- The proposed 7,489-acre Buehman-Bingham Natural Preserve would assure a permanent, viable link between the Catalina Mountains and the San Pedro River corridor and the protection of the sensitive plant and wildlife resources that presently exist in this area.

Vegetation -- The Buehman Canyon corridor is rich in vegetation, and is home to large stands of a variety of trees, including cottonwood, ash, walnut, willow, mesquite, hackberry, oak, sycamore, and juniper.

Animal species -- Riparian species are particularly abundant, and include such high-value inhabitants as leopard frogs (a species of special concern) and a variety of fish, including the longfin dace, desert pupfish, and Gila topminnow. The pupfish and topminnow are both listed endangered species. Over 300 species of birds can be found in the area, two-thirds of which are neotropical migrants. Seldom-seen bird species identified in the area include the western yellow-billed cuckoo, the northern gray hawk, the zone-tailed hawk, and others, including the endangered Southwestern willow flycatcher, which was seen in the Bingham Cienega in 1991. Other wildlife known to frequent the area include coatimundi, black bear, whitetail and mule deer, javelina, bobcat, and ring-tailed cats. Part of the San Pedro corridor was within the critical habitat designation for the pygmy-owl.

Recreation potential -- Information regarding the existing recreation pattern in the vicinity of the proposed preserve is little known, but it is assumed that hikers and a handful of other recreationists presently use the area.

11. Silverbell Mountain Park -- In response to public comment the Silverbell Mountain Park was proposed as part of the Sonoran Desert Conservation Concept Plan. It covers 117,610 acres. The U.S. Bureau of Land Management administers a large quantity of land in the Silverbell Mountains region of Pima County northwest of the Tucson Basin -- in fact, more than 100 sections. These BLM and State Trust lands, located to the immediate north and west of the proposed Waterman-Roskrige Mountain Park, contain significant natural and cultural resources worthy of protection, including habitat for the desert big horn sheep and the desert

tortoise, and numerous prehistoric rock sites. The range also possesses considerable recreation potential. Like the Watermans and Roskruges, these lands share a substantial boundary with the Tohono O'odham Indian Reservation which provides an opportunity to partner with the Nation in the interest of resource protection.

12. Empire Mountain Park -- A Pima County Mountain Park encompassing the Empire Mountain range was first proposed more than 15 years ago. This park was identified for inclusion as a part of the Sonoran Desert Conservation Concept Plan during the public comment period and includes 11,720 acres. The Tucson Field Office of the U.S. Bureau of Land Management is already active in the Empire Mountains area and is committed to acquiring additional land in the range to complement its existing holdings for the purpose of natural resource conservation. The area is being analyzed and planned for as a part of the BLM's Sonoita Valley Planning Partnership (SVPP), which is producing a Resource Management Plan (RMP) for the Empire-Cienega Resource Conservation Area.

III. Conclusion

As we propose to define a parks and open space system which will take decades to implement, and should preserve in perpetuity both the beauty and long term sustainability of our resource base, it is interesting to travel back in time to see how the first proposals for open space were described. In 1937, the Governor of Arizona wrote to President Franklin Roosevelt to object to the withdrawal of land in Western Pima County, saying that it "would be disastrous to Arizona's present and future growth." The State Chairman of the Democratic Party, one day later, drafted a similar objection: "I am asking that Arizona's congressional delegation fight to the utmost this proposed withdrawal. Over 50% of our lands are already under Federal control. Therefore our remaining lands ... should be kept open for entry for Arizona's growth. Any compromise such as suggested to merely exclude only Gila Project irrigable lands would be fatal, unsatisfactory and detrimental to Arizona's present future and her principal gravity and pumping projects and vested property rights." Of course, more than one half century later, we can see that these dire predictions did not materialize.

In great contrast, Mr. C.B. Brown, the resident who persuaded the Board of Supervisors to create Tucson Mountain Park in 1929, had this to say about the value of open space. "Here are limitless views of desert vegetation, strange giant cacti forms, rock formations uprising sharply into forms and craggy peaks almost unreal to strangers, and ever fascinating in the changing flood of desert light. The scenic qualities, luxuriance and variety of desert flora, abundance of wild life and historical romance of the land are accepted material facts. More fascinating is the intangible charm and spell of this desert region where the haze of the distant mountain ranges meet the blue of the sky, and the desert impressive in its cloak of utter silence awaits the nature lover. Here the breeze from the canyon carries the voice of an unseen power to purify the soul and tune in on the Creator." There are many who agree with these sentiments expressed by the father of Tucson Mountain Park. And, it is perhaps safe to say that if the park had not been created 70 years ago, and a development project took its place, not many would be as inspired by the view that such a land use would offer us as an alternative today.

Enhanced Pima County Mountain Park and Natural Preserve System

- Major Roads And Streets
- Township And Range Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Existing Park Boundaries
- Trails
- Anza National Historic Trail
- Wildlife Corridor Links
- Sierrita Ranch Conservation Area
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Riparian Habitat/Wildlife Corridor Links
- Catalina State Park
- Existing Pima County
- Indian Nation
- National Forest Land
- National Parks And Monuments
- National Wildlife Refuge
- Tucson Water Land
- Santa Rita Ranch Conservation Area
- Bureau Of Reclamation "Wildlife Mitigation Corridor"

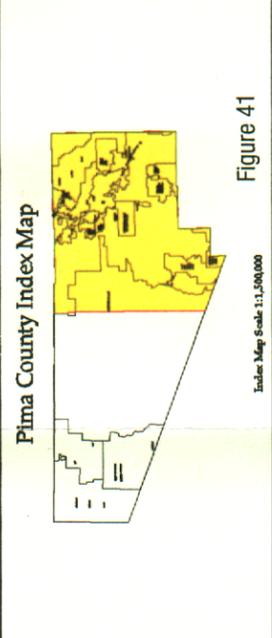


Figure 41

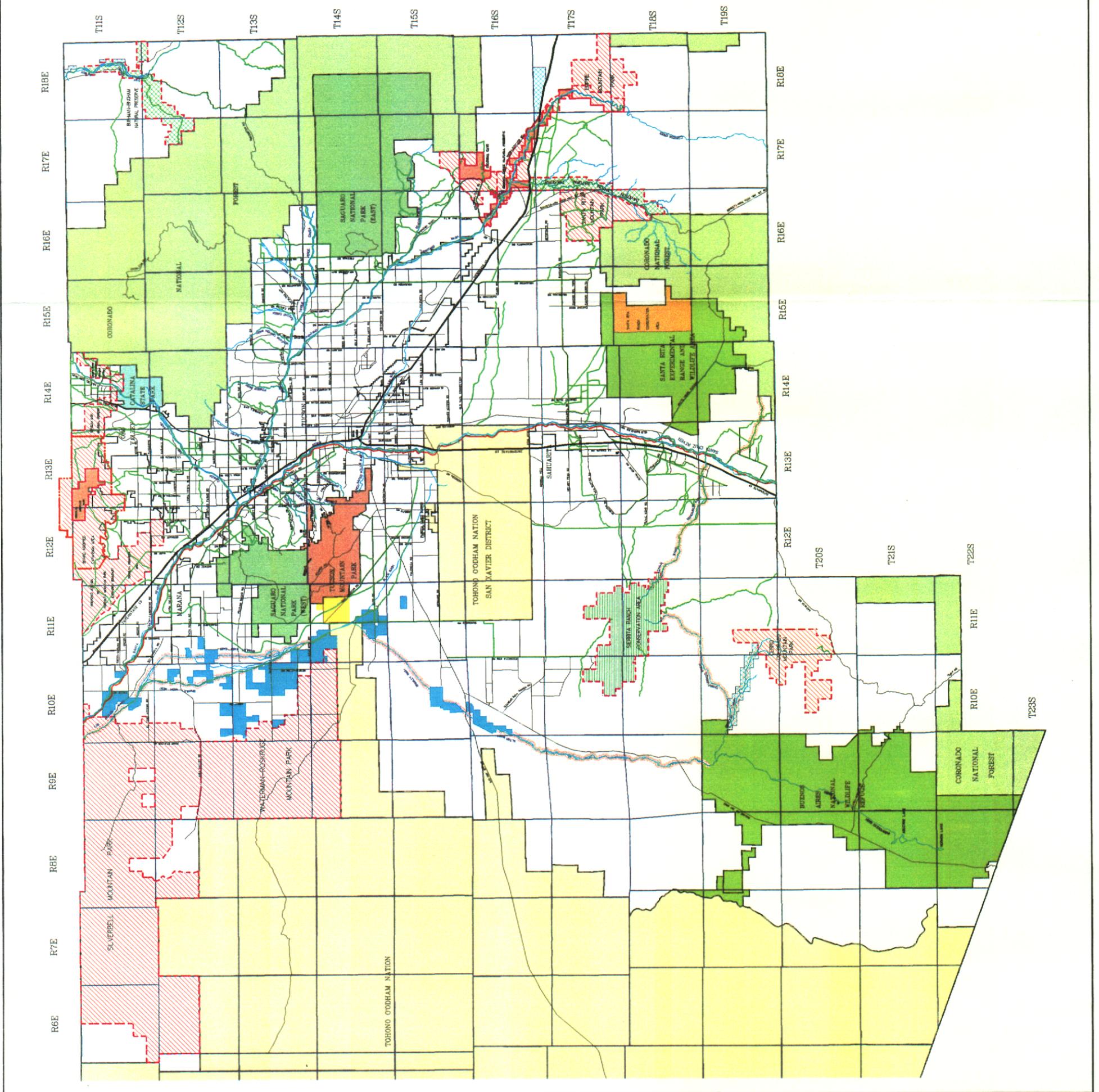
Scale 1: 150,000



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This project is subject to the Department of Transportation Technical Services Division's User Restriction Agreement.



Mountain Parks and the Sonoran Desert Conservation Concept Plan

A Discussion Paper about Protecting and Enhancing the
Pima County Mountain Park and Natural Preserve System

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I. Introduction - The Mountain Park Element of the Sonoran Desert Conservation Plan -- Since the establishment of Tucson Mountain Park in 1929, Pima County's mountain parks and natural preserves have played an important and diverse role in the life of the community. This role will be expanded with the development of the Sonoran Desert Conservation Plan through the design and implementation of a comprehensive open space parks and preserve system that meets endangered species compliance standards for the region.

1. The First Mountain Park and Management Policy -- Tucson Mountain Park was originally established to protect the stunning scenic values of the Sonoran Desert of the Tucson Mountains and provide outdoor recreation opportunities for the citizens of Pima County. In December of 1953, the Pima County Park Board adopted a set of policies intended to guide the management of Tucson Mountain Park. Five management principles for Pima County's mountain parks evolved: (1) to preserve and protect the biologic and other natural resources of the park; (2) to preserve and protect the cultural resources of the park; (3) to preserve and protect the visual resources of the park; (4) to provide opportunities for low-intensity public uses of the park for recreation, education, research and other appropriate activities; and (5) to extend of the existing open space network around the Tucson Basin.

2. The Mountain Parks System and Diverse Goals Develop -- As time has passed and the community has grown, Tucson Mountain Park has been joined by two additional mountain parks: Tortolita and Colossal Cave Mountain Parks. Pima County's mountain parks have occupied a middle ground within the spectrum of open space preserves in eastern Pima County. While the central purpose is the preservation of the sensitive natural, cultural and scenic resources located within them, the mountain parks are regional county parks, and also serve other needs. County mountain parks have not been as strictly preservation-oriented as Saguaro National Park, which offers a smaller range of recreational activities, specifically picnicking, hiking, backpacking, mountain biking, and equestrian trail use. As a regional county park, Tucson Mountain Park has accommodated a broader scope of public uses, and in addition to the activities allowed by Saguaro, also incorporates a campground and rifle and archery ranges, as well as two public attractions (Old Tucson and the Arizona-Sonora Desert Museum). On the other hand, Tucson Mountain Park is currently managed more strictly than some other federal lands (excluding designated wilderness areas), such as those administered by the United States Forest Service and the United States Bureau of Land Management. Unlike County mountain parks, these lands accommodate motorized recreational users in some areas and may be open to mining and other potentially resource-impacting activities.

3. Natural Preserves with a Higher Level of Protection are Added to the System -- Pima County also has started a natural preserve system. Historically, the principal purpose of a County natural preserve has been to provide a high degree of protection for the sensitive natural, and often cultural, resources contained within them. The Cienega Creek Natural Preserve was established to preserve a highly valuable riparian corridor along the Cienega Creek, as well as protect and enhance regional flood control capacity and facilitate natural aquifer recharge. County natural preserves are not parks, and only activities that will not degrade their inherent resource values are permitted within them. Public access to County natural preserves is typically limited. In the case of the Cienega Preserve, a maximum of 50 visitors are allowed inside the preserve each day, and a permit is required to gain entry.

4. The County's Flexibility is the Key to Future Accommodation of Federal Compliance Goals and Adaptive Management

-- With the listing of the cactus ferruginous pygmy-owl as endangered, the recent inclusion of Tucson Mountain Park within the critical habitat designation of the United States Fish and Wildlife Service, and the Board's acceptance of the Sonoran Desert Conservation Concept Plan, Pima County's mountain parks and natural preserves have become an even more important resource to the community.

There is flexibility in the County's system to manage at the level of conservation that is necessary. This gives the community an opportunity to meet conservation compliance requirements at a regional level, in part through the County's parks and preserve system, while at the same time creating and implementing an adaptive management strategy which can adjust over time to actually improve implementation of the Sonoran Desert Conservation Plan as better scientific information becomes available.

The enhancement of the Pima County Mountain Park and Natural Preserve System will facilitate the protection of a wide range of invaluable natural resources around the Eastern Pima County area, including sensitive Sonoran Desert and riparian wildlife habitat and wildlife movement corridors. It will also provide protection of habitat considered critical to the recovery of the cactus ferruginous pygmy-owl.

5. Other Benefits of an Enhanced Mountain Park and Natural Preserve System -- The enhancement of Pima County's Mountain Park and Natural Preserve System is a major feature of the Sonoran Desert Conservation Concept Plan because of its fundamental importance to the achievement of the region's conservation goals, and also because of the wide-ranging benefits the proposed expansion would confer upon the community. These benefits include:

(A) Development of a metropolitan open space network or "desert belt." The enhancement of existing Pima County mountain parks and natural preserves and the creation of the new units identified in the plan will assist with the further development of the long-sought metropolitan desert belt surrounding Tucson. The expanded and proposed new units could link with existing state and federal public lands, contributing to the goal of eventually establishing an unbroken ring of natural resource lands around the urban area. The development of the desert belt would provide reliable corridors for wildlife movement and help protect the genetic health of a wide range of species.

(B) Protection of viewsheds and "signature" scenic lands. Enhancing Pima County's existing mountain park and natural preserve units and creating new areas would help protect the Sonoran Desert character of our community and the features that make it a unique place to visit and live. For example, the proposed Santa Rita Mountain Park would preserve the scenic northern foothills of the Santa Rita Mountains and the picturesque Sonoita Highway corridor, and the proposed expansion of Colossal Cave Mountain Park would protect the southwestern slopes of the Rincon Mountains and its adjacent bajada. Further development of the system will allow Pima County to avoid the continuation of the considerable impairment of viewsheds and scenic vistas that has scarred the foothills of the Catalina and Tucson Mountains, and now imperils parts of the Tortolita Mountains.

(C) Protection of flood control capacity and natural recharge capability. Enhancing the Cienega Creek Natural Preserve and creating the Davidson Canyon and Buehman-Bingham Natural Preserves will contribute to the achievement of Pima County's regional flood control and recharge goals. The importance of both of riparian protection and water resource conservation imperatives are well documented in many other aspects of planning under the Sonoran Desert Conservation Plan.

(D) Enhancement of the community's livability and quality of life. Communities with significant quantities of natural open space are widely regarded as having a higher quality of life. The perception of higher quality of life makes communities more attractive to corporate entities, as well as individuals of all backgrounds seeking to reside in more livable areas.

(E) Enhancement/protection of the local economy. Pima County's economy relies to a considerable extent on tourism, and the creation of additional park and preserve units will help protect the reasons visitors come and return to Tucson. Eco-tourism is generally on the rise in Tucson and throughout the west. Expanded and new mountain park and natural preserve units, and the recreation and sightseeing opportunities they offer, will help solidify this growing segment of the tourism market. Economic development authorities presently use our area's superb natural resources to help market the community. Enhancing the system would give them more "product" to sell. Additional open space preservation will also protect the vistas and sites our local movie industry relies on.

(F) Local control of key natural resource areas. An enhanced Mountain Park and Natural Preserve System will provide Pima County with an added degree of self-determination. A good example is the proposed ASARCO Rosemont mine, the implementation of which is ultimately the decision of the U.S. Forest Service.

(G) Recreation opportunities. The implementation of the Mountain Park and Natural Preserve Element of the Sonoran Desert Conservation Plan will provide our growing community with additional passive, low-impact recreation opportunities such as hiking, horseback riding, bicycling, orienteering, trail running, birdwatching and more -- activities which are increasing in popularity and attract out-of-town visitors. Local guest ranches can attest to the attractiveness of Pima County's trails-based recreational opportunities. Guests go on dozens of hikes and rides every week into the natural areas surrounding Tucson.

(H) Scientific research and environmental education opportunities. The new and expanded park and preserve units will assure sufficient opportunities for scientific research and environmental education on the County's Sonoran Desert lands in the future, and provide additional opportunities for young and mature students alike to learn about and enjoy Tucson's natural environment.

(I) The preservation of cultural resources. The remaining natural open space that surrounds the Tucson metropolitan area contains significant diversity of cultural resources that form our cultural landscape. These resources include the earliest archaeological sites dating to the Paleo-Indian period from about 10,000 B.C., Archaic hunters and gatherers who exploited the rich natural resources of the region for several thousand years, and early agriculturalists who

began the intensive occupation of the Santa Cruz River floodplain about 1000 B.C. They were followed by Hohokam farmers who left us a rich legacy of their tenure of the region until A.D. 1400. These sites together with more recent historic Piman sites, Spanish Colonial, Mexican and Territorial sites represent the depth and rich diversity of our cultural and historic heritage. A preserve system would protect these non-renewable and irreplaceable resources in their original environmental and cultural contexts.

(J) Protection of existing Pima County mountain parks and natural preserves. The creation of new units will help protect the resource values of Pima County's existing mountain parks and preserves by facilitating the dispersion of public use and visitation, which would lessen cumulative resource impacts and reduce the likelihood of user conflicts.

(K) Access to other public lands. The expansion and creation of the county's mountain park and natural preserve units will help assure public access to adjoining public lands jurisdictions such as the Coronado National Forest, Saguaro National Park, and the Empire-Cienega Resource Conservation Area. A good example is the proposed Santa Rita Mountain Park, which could provide staging areas and an internal trail system that will link to the adjacent Coronado National Forest.

(L) Facilitating the development of Pima County's regional trail system. The proposed new mountain parks and natural preserves contain trails listed on the Eastern Pima County Trail System Master Plan. The development of these units and the expansion of existing units would help implement the Trails Master Plan and achieve the goal of developing a community-wide interconnected public trail system.

(M) Buffering of adjacent jurisdictions. The new park and preserve units proposed in the plan would help buffer the effects of urbanization on existing jurisdictions such as the Coronado National Forest and the Empire-Cienega Resource Conservation Area.

(N) Creation of a new community asset. An enhanced Pima County Mountain Park and Natural Preserve System would create a tangible new community asset. Creating new units and developing the Pima County's system would allow the creation of new points of civic pride and identification.

6. Purpose of this Discussion Paper -- Pima County's Mountain Parks and Natural Preserves have evolved over time to play a role in regional flood control, linking the open space network that surrounds the metropolitan area, providing biological corridors that facilitate the natural movement of wildlife, perpetuating a variety of plant and animal species through the preservation of habitat, protecting our precious cultural resources, upholding the tourism basis of the local economy, and defining Tucson's urban form. This discussion paper will describe these aspects of the existing mountain parks and natural preserve system and it will propose enhancements to the system in the context of the Sonoran Desert Conservation Concept Plan. While still preserving the unique scenic values that have become the Tucson area's signature, and providing unparalleled year-round recreation opportunities, the County's parks and preserves are now also valuable for their potential role in meeting current endangered species compliance requirements and future adaptive management goals.

II. History of the Pima County Mountain Park and Natural Preserve System

The roots of Pima County's Mountain Park and Natural Preserve System can be found in the creation of Tucson Mountain Park, which was established by the Pima County Board of Supervisors on April 11, 1929.

The Board created Tucson Mountain Park at the urging of C.B. Brown, a local resident who began advocating the establishment of the park in 1928. Mr. Brown came to Pima County in 1920 to serve as Pima County Agricultural Agent, and was taken with the extraordinary natural beauty of the Tucson Mountains. He sought to have a portion of the range "...set off from mining and homesteading encroachments."¹ Mr. Brown, for whom Brown Mountain in Tucson Mountain Park is named, later served as chairman of the Pima County Park Board and is regarded as the "Father of Tucson Mountain Park."

At its April 11, 1929 meeting, the three-member Pima County Board of Supervisors moved to request that the United States Department of the Interior set aside 30,000 acres of land in the Tucson Mountains for park purposes. The proposal gained the support of United States Senator Carl Hayden. Less than three weeks after Pima County's request, the United States Department of the Interior, in accordance with the Recreation Act of 1926, withdrew 28,988 acres in the Tucson Mountains from availability for mining and homesteading.²

This federal action realized the vision of C.B. Brown and the Pima County Board of Supervisors, and in addition to making Tucson Mountain Park possible, laid the groundwork for the creation of the Tucson Mountain District of Saguaro National Monument more than 30 years later. A period map that depicts the 1937 boundaries of Tucson Mountain Park can be found on the next page.

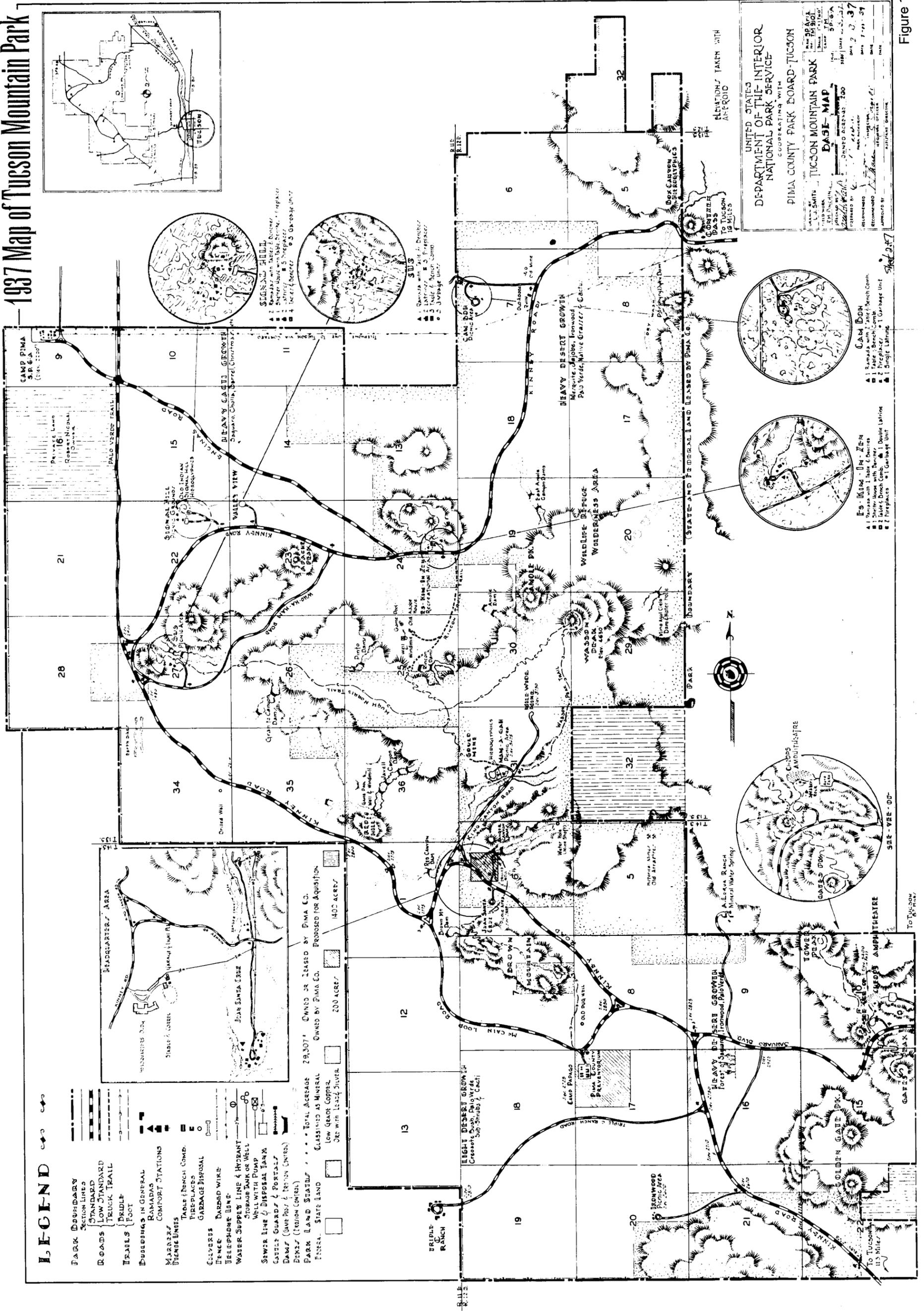
The development of Tucson Mountain Park began in the 1930s based on a Park Master Plan for some 46 square miles. Designed by the National Park Service to enhance the natural and cultural qualities of the park and to promote tourism, the Depression-era Civilian Conservation Corps (CCC) built roads, nearly 17 miles of trails, rustic rock structures for recreation areas and picnic grounds, and other improvements for water retention and erosion control. Also constructed were a group of adobe buildings known collectively as the "Tucson Mountain House," which was originally used as a desert retreat for various groups and later became the nucleus of the Arizona-Sonora Desert Museum.

In 1939, 20th Century Fox constructed Old Tucson in Tucson Mountain Park as a set for the filming of the movie *Arizona*. Old Tucson is sited on property owned by Pima County and leased to the operator of the park.

¹ *Honors Planned for C.B. Brown*, Arizona Daily Star, February 13, 1970.

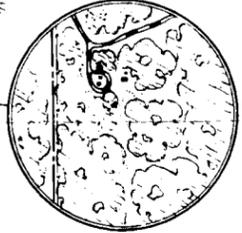
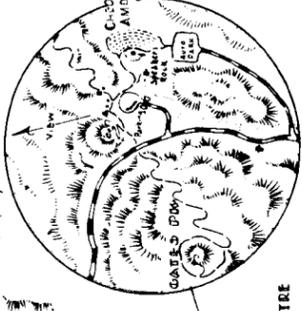
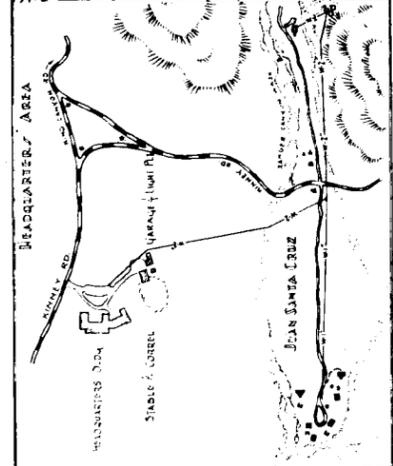
² *Tucson Mountain Park History*, Gilbert Ray, 1969.

1937 Map of Tucson Mountain Park



LEGEND

- PARK BOUNDARY**
- SECTION LINES**
- ROADS**
 - STANDARD
 - LOW STANDARD
 - TRUCK TRAIL
- TRAILS**
 - BRIDLE
 - FOOT
- BUILDINGS IN GENERAL**
- RAMADAS**
- COMFORT STATIONS**
- MARSHES**
- TRAMP LINES**
- TABLE BENCH COMB.**
- FIREPLACES**
- GARBAGE DISPOSAL**
- CLEVERES**
- BARBED WIRE**
- TELEPHONE LINE**
- WATER SUPPLY LINE & HYDRANT**
- STORAGE TANK OR WELL**
- WELL WITH PUMP**
- SEWER LINE & DISPOSAL TANK**
- GATE GUARD & PORTALS**
- DAM (GATE POST & SECTION CONTROL)**
- DENSE (SECTION CONTROL)**
- PARK LAND STATUS**
 - • • Total Acreage 29,507; Owned or Leased by Pima Co.
 - • • Classified as Mineral
 - • • Owned by Pima Co. Proposed for Acquisition
 - • • 1400 acres
 - • • 200 acres
 - • • Low Grade Copper
 - • • Ore with Lead Silver
- FENCE, STATE LAND**



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
COOPERATING WITH
PIMA COUNTY PARK BOARD-TUCSON

TUCSON MOUNTAIN PARK
BASE MAP

Scale: 1" = 1/2 Mile
Date: 1937
Author: J. C. Smith
Editor: J. C. Smith
Checked by: J. C. Smith
Approved by: J. C. Smith

Figure 1

In 1952, the Arizona-Sonora Desert Museum -- the idea of biologist William Carr -- was established in Tucson Mountain Park. Financial backing for the venture was provided by Arthur and Phoebe Pack. In the 47 years since its founding, the Museum has developed an international reputation for excellence and is visited by more than 500,000 people annually.

In August of 1959, the United States Department of the Interior, through Assistant Secretary Roger W. Ernst, issued Public Land Order 1963, which reopened 7,600 acres of federally-owned property within Tucson Mountain Park to mineral entry.

The order generated a furor in Pima County, and public protest was reportedly "...intense and widespread."³ The Department of the Interior conducted a hearing on the matter at the Pioneer Hotel in October, 1959, that was presided over by Assistant Secretary Ernst. As a result of the passionate appeals made by local conservationists, community leaders and citizens, the order opening the park to mineral entry was withdrawn in December, 1959.

In an effort to guard the park against the recurrence of such problems, Arizona Senator Barry Goldwater proposed legislation in February of 1961 proposing the transfer of ownership of the entirety of Tucson Mountain Park from the federal government to Pima County.

Senator Goldwater's bill, S 827, was ultimately withdrawn in deference to a proposal made by then-Secretary of the Interior Stewart Udall, who suggested transferring the northern part of Tucson Mountain Park to the National Park Service to create the Tucson Mountain District of Saguaro National Monument. Secretary Udall's proposal received the support of President Kennedy, who implemented it through Executive Order #3439 on November 15, 1961. The Antiquities Act of 1906 provided the executive authority used by President Kennedy to create the Tucson Mountain District of Saguaro.

While the creation of Tucson Mountain Park was a watershed in the history of local land conservation, Tucson Mountain Park was not the first large tract of land to be set aside for resource preservation and public benefit in the eastern Pima County area.

- ▶ The Nogales Ranger District of the Coronado National Forest was established in 1902, followed shortly thereafter by the University of Arizona's Santa Rita Experimental Range in 1903.
- ▶ The Santa Catalina Ranger District of the Coronado National Forest was created in 1908, and Tucson Mountain Park in 1929.
- ▶ The Rincon Mountain District (*East Unit*) of Saguaro National Park -- then Saguaro National Monument -- debuted in 1933, followed by the park's Tucson Mountain District in 1961.

³ *Tucson Mountain Park History*, Gilbert Ray, 1969.

The last two decades has seen the creation of a variety of new protected natural areas, including:

- ▶ Catalina State Park in 1981;
- ▶ Tortolita Mountain Park and the Cienega Creek Natural Preserve in 1986;
- ▶ Empire-Cienega Resource Conservation Area in 1988, the Bingham Cienega in 1989;
- ▶ United States Bureau of Reclamation's Tucson Mitigation Corridor in 1990; and
- ▶ Colossal Cave Mountain Park in 1992.

A map that depicts the locations of these natural resource areas around the Tucson Basin can be found on following page.

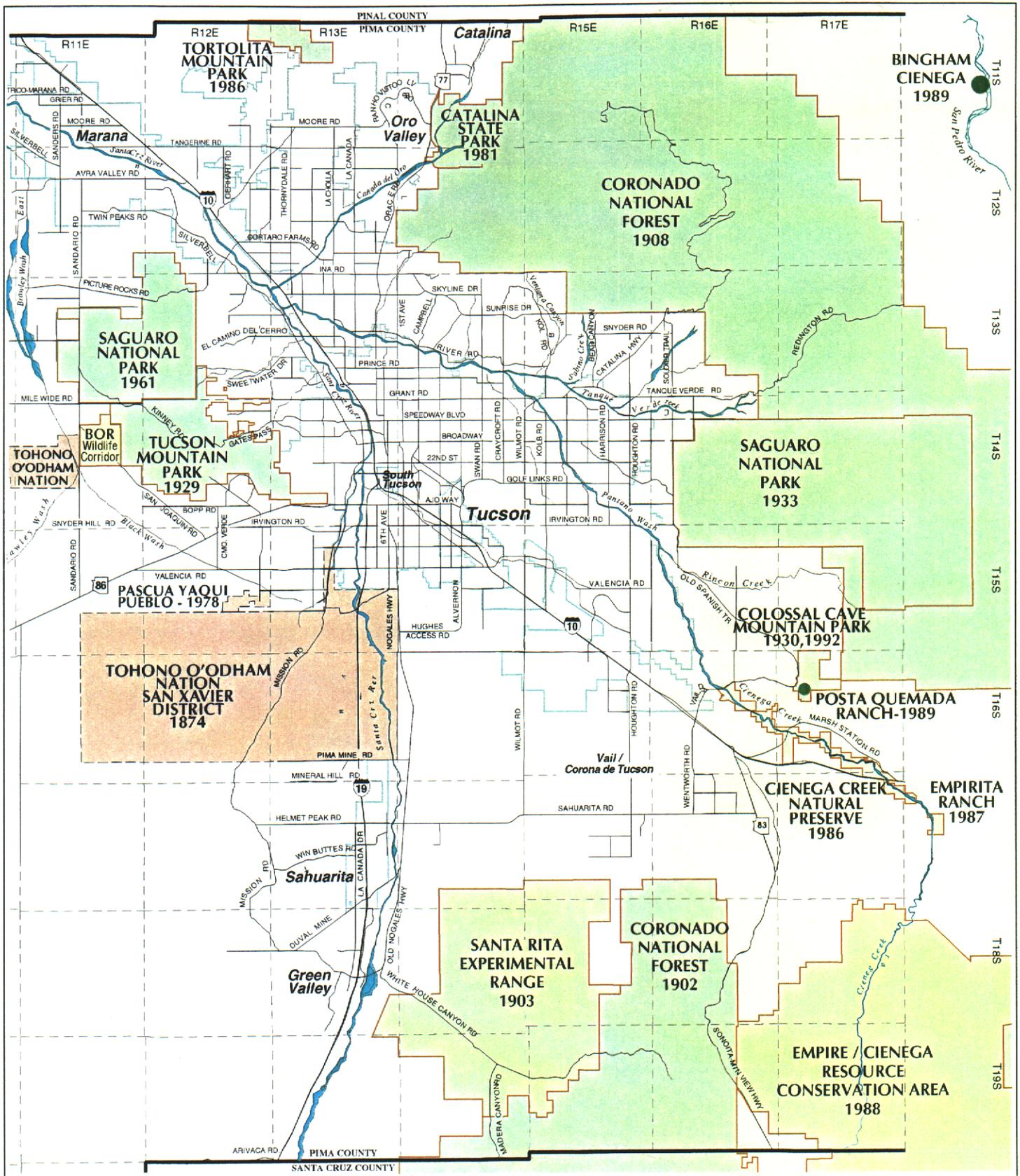
Tucson Mountain Park remained Pima County's first and only Natural Resource Park for 57 years. The rudiments of an actual *system* began to take shape when Tortolita Mountain Park was formally established by the Pima County Board of Supervisors in 1986. The Pima County Mountain Park and Natural Preserve System presently consists of the following four elements:

1. Tucson Mountain Park -- The 18,422.4-acre Tucson Mountain Park is presently Pima County's largest Natural Resource Park and is one of Tucson's most-visited natural areas. The park includes 26 miles of trails open to hikers, equestrians and mountain bicyclists, an archery range, a rifle range, a campground and picnic areas, and is home to the Arizona-Sonora Desert Museum, the Sonoran Arthropod Research Institute, and Old Tucson Studios.

2. Tortolita Mountain Park -- Pima County's second mountain park is presently 3,445.75 acres in size, but could eventually exceed Tucson Mountain Park in total acreage as the Sonoran Desert Conservation Plan is implemented. A master plan was prepared for the park and adopted by the Pima County Board of Supervisors in 1997, and the Pima County Parks and Recreation Department is closely monitoring development along the park's planning boundary to ensure that the goals set forth in the master plan are not compromised.

3. Colossal Cave Mountain Park -- At 2,038 acres, Colossal Cave is Pima County's smallest existing mountain park, but it too has the potential to grow considerably to meet the region's conservation goals in the Rincon Valley area. While best known for the tourist attraction from which it draws its name, the park boasts outstanding scenic resources, and thanks the County's 1989 addition of the circa-1870s Posta Quemada Ranch, is imbued with the true essence of the Old West.

4. Cienega Creek Natural Preserve --The 3,979-acre Cienega Creek Natural Preserve was Pima County's first Natural Preserve, and its groundbreaking creation in 1986 set the stage for the ambitious local-level natural resource conservation effort that is now underway. The preserve's importance can hardly be overstated, and the same can be said for the value of its all-too-rare Sonoran Desert riparian habitat.



Pima County Illustration 10/98

Reserved Public Lands in Eastern Pima County with Date of Establishment

- | | | | | | | | |
|--|--|---|----------------------|---|---|---|----------------|
|  | National Forests and Monuments, State and Regional Parks |  | Restricted Use Areas |  | Bureau of Reclamation Wildlife Corridor |  | Indian Nations |
|--|--|---|----------------------|---|---|---|----------------|

Figure 2

Existing Pima County Mountain Park and Natural Preserve System

- Major Roads And Streets
- Township And Range Lines
- Washes
- Administrative Boundaries
- Trails
- Anza National Historic Trail
- Present Master Plan Boundary
- Wildlife Corridor Links
- Catalina State Park
- Existing Pima County
- Indian Nation
- National Forest Land
- National Parks And Monuments
- National Wildlife Refuge
- Tucson Water Land
- Bureau Of Reclamation "Wildlife Mitigation Corridor"

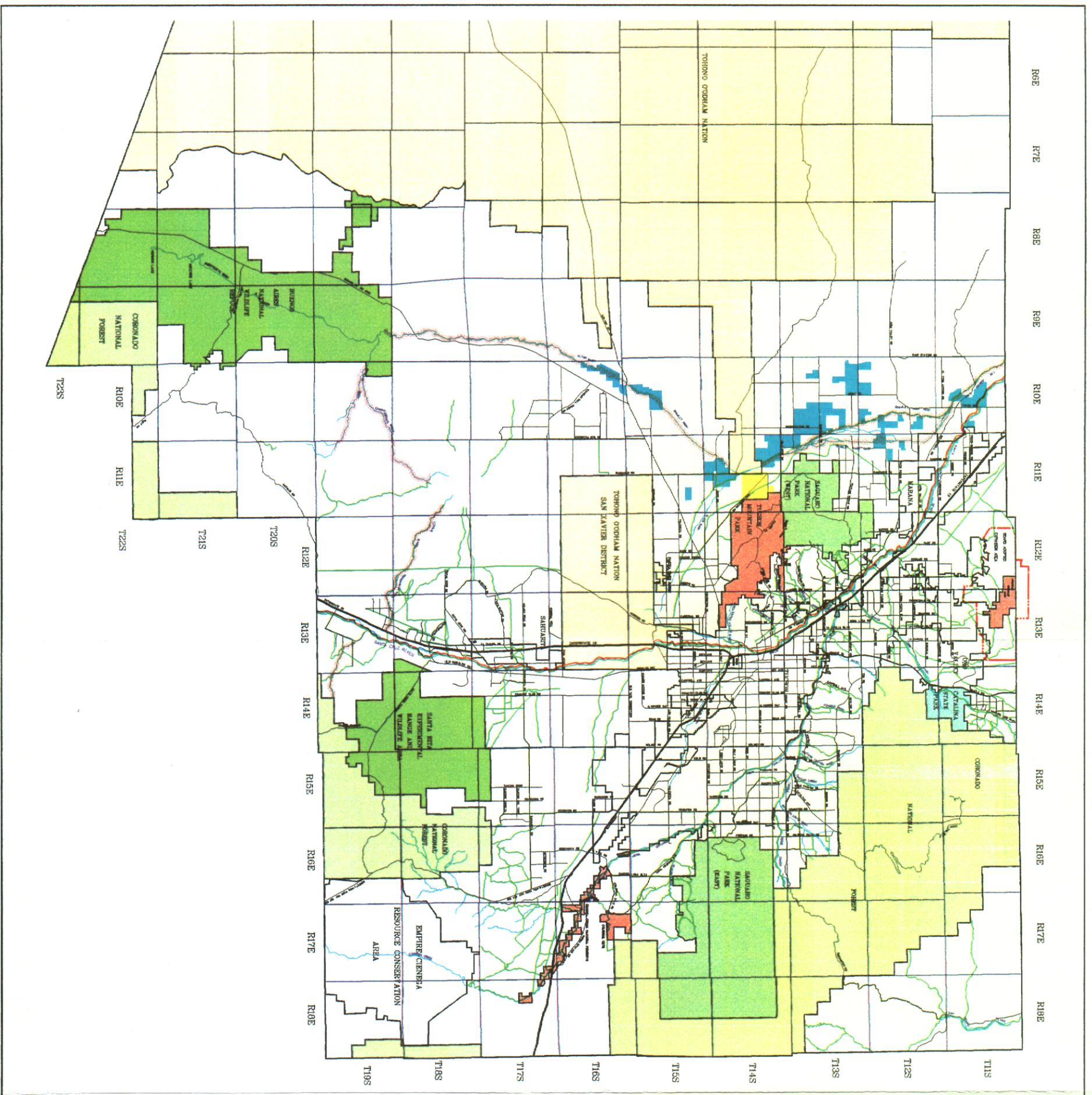
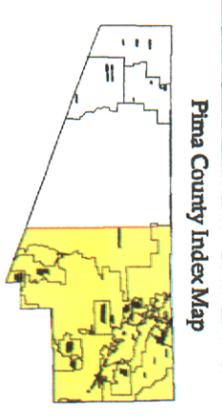


Figure 3



Index Map Scale: 1:1,200,000

The information depicted on this map is the result of a field and aerial photograph interpretation of the Pima County Master Plan. The information is provided for informational purposes only and is not intended to be used for any other purpose. The information is provided as a service to the public and is not intended to be used for any other purpose. The information is provided as a service to the public and is not intended to be used for any other purpose.

Scale 1:150,000



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III. The Potential to Protect and Enhance Existing Mountain Parks and Natural Preserves

The Sonoran Desert Conservation Concept Plan envisions the expansion of Pima County's three existing mountain parks and one natural preserve, and the creation of new mountain parks and natural preserves. The next sections provide background, context and rationales for these proposed expansions and creations based on current scientific and cultural-historic knowledge. The community members and Technical Advisory Teams working to develop the Conservation Plan will provide further analysis and assessment of the resource base, which will likely result in modifications of the mountain park boundaries of the Concept Plan.

1. Tucson Mountain Park

(A) Background -- Tucson Mountain Park celebrated its 70th anniversary on April 11, 1999, and is the undisputed jewel of the Pima County Mountain Park and Natural Preserve System. This 18,422.4-acre park is located on the western side of metropolitan Tucson, and is bounded on its northern side by the 24,034-acre Tucson Mountain District of Saguaro National Park.

In addition to the acreage within Tucson Mountain Park that Pima County owns in fee, the County also manages an additional 2,514 acres immediately adjacent to the western boundary of the park owned by the United States Bureau of Reclamation as a protected, access-restricted part of the park. This holding, called the BOR *Tucson Mitigation Corridor*, was established in 1990 to help mitigate the impact of the Central Arizona Project canal on the area's natural wildlife movement corridors between Tucson Mountain Park and natural open space located a short distance to the west, including Brawley Wash, the Schuk Toak District of the Tohono O'odham Nation, and the Roskruge and Waterman Mountains. The manner in which the corridor is managed is set forth in a formal agreement executed between the Bureau and Pima County.

Tucson Mountain Park is home to the Arizona-Sonoran Desert Museum, Old Tucson, and the Sonoran Arthropod Studies Institute, and features some of the most impressive natural Sonoran Desert beauty in the Tucson Basin. Its features include the recently-restored Gates Pass Scenic Gateway and the Gates Pass Overlook, shooting and archery ranges, camping and picnic areas, and a 26-mile shared-use recreational trail system open to hikers, equestrians and mountain bicyclists.

The park also contains some of the most significant wildlife habitat in the Tucson Mountains region, and was included in Unit 2 of the United States Fish and Wildlife Service's June, 1999 critical habitat designation for the cactus ferruginous pygmy-owl.

At the time of its creation in 1929, Tucson Mountain Park was a rural preserve. Today, the once-rural character of the lands surrounding the park is virtually a memory. The beauty of the Tucson Mountains, and the appeal of being located on the edge of a permanently-protected natural area, have attracted residential development of all kinds, as well as commercial development such as golf courses and the Starr Pass Resort. In addition, a new 160-room resort and conference center has been proposed for construction near the corner of Gates Pass Road and Camino de Oeste.

Tucson Mountain Park

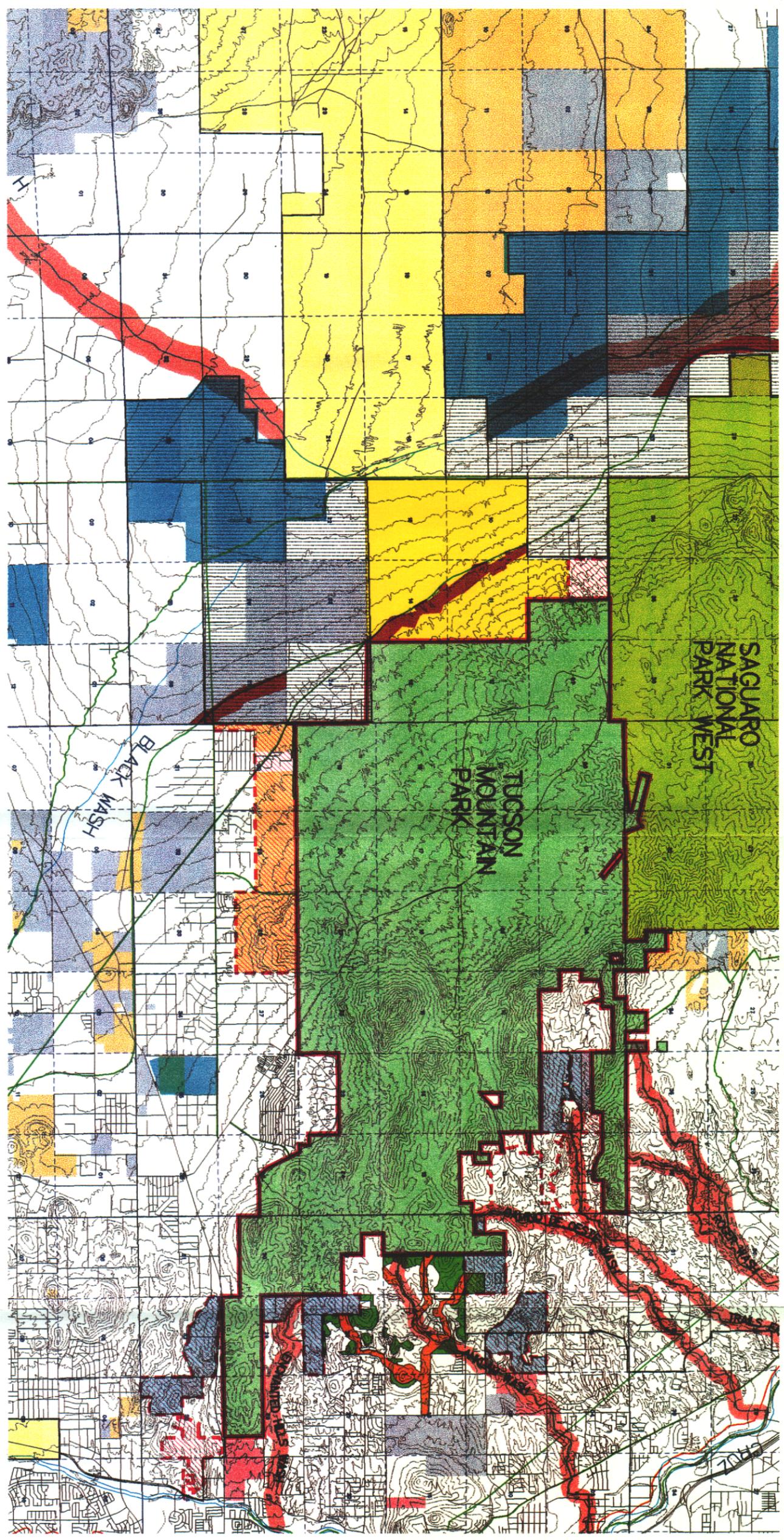


Figure 4

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
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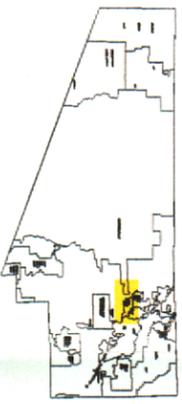
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|--|--------------------------|--|---|
| | Contour Lines | | Bureau Of Land Management (BLM) |
| | Street Centerlines | | Bureau Of Reclamation |
| | Township And Range Lines | | Existing Pima County |
| | Section Lines | | Saguaro National Park |
| | Washes | | Private Lands |
| | Trails | | State Trust Lands |
| | Existing Park Boundaries | | Bond Open Space Parcels |
| | Proposed Park Boundaries | | Starr Pass Master Plan Open Space |
| | | | Starr Pass Master Plan Wildlife Corridors |
| | | | BOR Wildlife Mitigation Corridor |
| | | | Tucson Water Land |
| | | | Biological Corridor/Links |
| | | | Proposed Mountains Parks |
| | | | Tucson Mountains West Biological Corridor |

TUCSON MOUNTAIN PARK:
 State: 100 Acres
 Federal: 1055 Acres
 Private: 2460 Acres

Scale 1:26,000



Pima County Index Map



Tucson Mountain Park

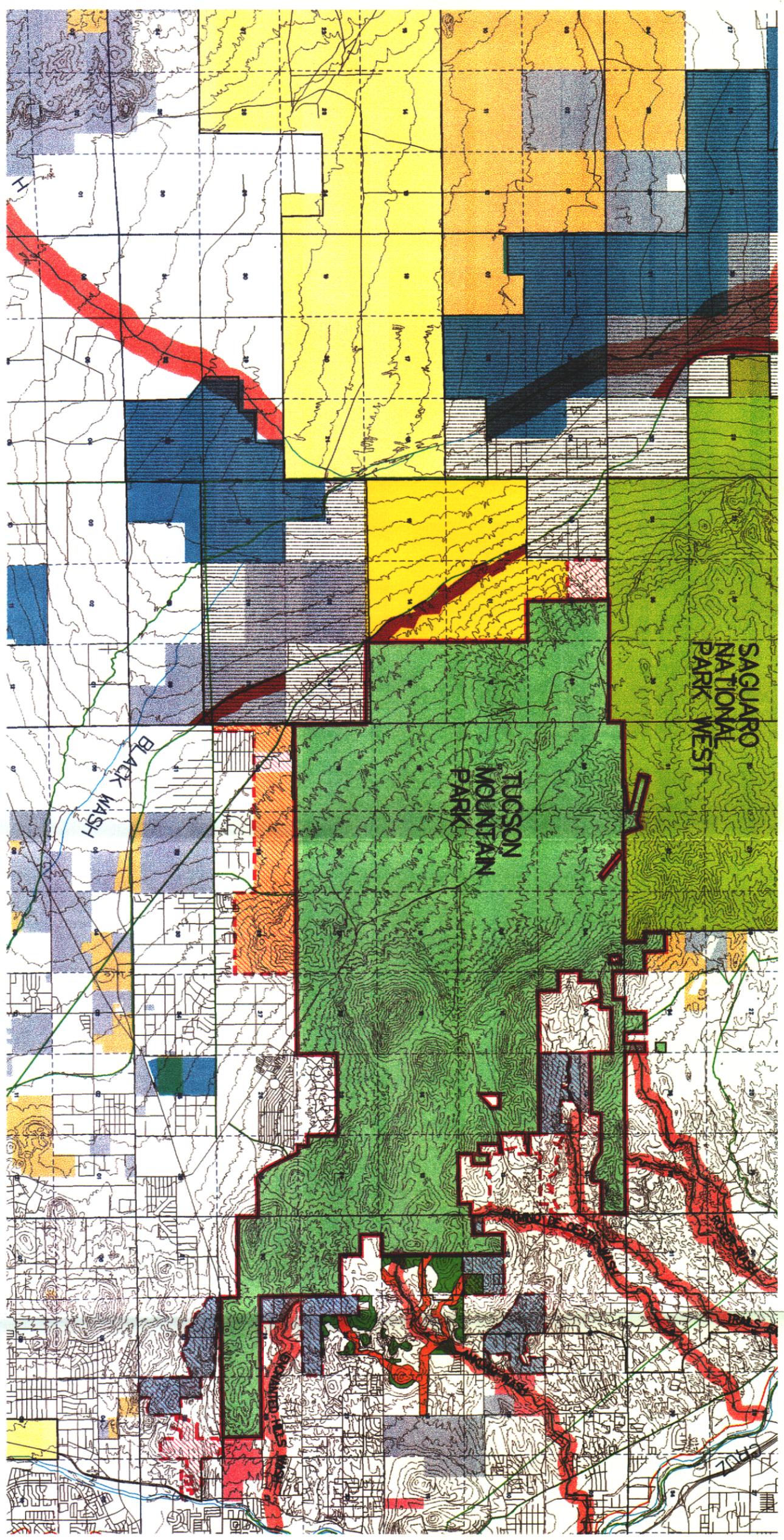


Figure 4

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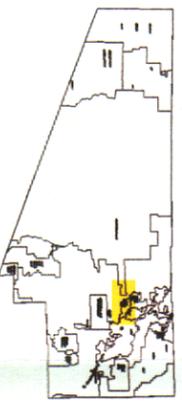
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| | Contour Lines | | Bureau Of Land Management (BLM) |
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| | | | Tucson Mountains West |
| | | | Biological Corridor |

TUCSON MOUNTAIN PARK:
 State: 100 Acres
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 Private: 2460 Acres

Scale 1:26,000



Pima County Index Map



Urbanization is in the process of surrounding the park, and this, coupled with a dramatic rise in the value of adjacent undeveloped land, has limited the expansion options for the park. The Sonoran Desert Conservation Concept Plan recognizes the fundamental importance of Tucson Mountain Park in the County's overall resource conservation strategy, and seeks to maintain its existing viability as a natural preserve and enhance its functionality wherever possible. Toward that end, the acquisition of approximately 3,615 acres of high-resource value adjacent open lands has been discussed in the interest of accomplishing the following specific goals:

- Preservation of significant wildlife habitat, particularly natural washes;
- Establishment of perpetually-protected biological linkages between the park and nearby tracts of natural open space, including Greasewood Park, Tumamoc Hill, and the Santa Cruz River corridor. These linkages will reduce the likelihood that Tucson Mountain Park will become an isolated "biological island" surrounded by development, facilitate natural wildlife movement, and help assure the health of the wildlife populations in the Tucson Mountains;
- Protection of noteworthy scenic resources on the periphery of the park, including landmark peaks, ridges and other "signature" features such as the Twin Hills along Anklam Road and Gates Pass Scenic Corridor;
- Assurance of adequate public access to the park, both to make this regional county park available to the citizens of Pima County, and also to disperse use throughout the park as much as possible in order to lessen cumulative user impacts on natural resources; and
- Preservation of cultural resources.

The achievement of these goals will be aided by two important sources of funding: the 1997 Open Space Bond Program, and the Starr Pass Environmental Enhancement Fund. The 1997 Open Space Bond Program provided a total of \$6.65 million to facilitate the purchase of valuable open space adjacent to the park.

These funds include \$3 million to acquire parcels along Gates Pass Road, at the western end 36th Street, in the Twin Hills area, and adjacent to TUSD's Camp Cooper; \$1.8 million for parcels in the Painted Hills area between Anklam and Speedway, and \$1.75 million for parcels in the Robles Pass area south of the Ajo Highway. An additional \$500,000 was provided to acquire up to 125 acres at the northern end of the Tucson Mountains near Continental Ranch to protect valuable archeological resources -- including the *Los Morteros* site and scenic resources.

The other principal source of funding, the Starr Pass Environmental Enhancement Fund, was created to help mitigate the impacts of the Starr Pass resort on Tucson Mountain Park. The Fund, derived from a sales tax increment collected at the resort, is expected to provide a total of approximately \$18.6 million in revenues over a 20-year period to benefit Tucson Mountain Park. The Starr Pass funds will be used to acquire open space parcels adjacent to the park and facilitate the creation of biological corridors.

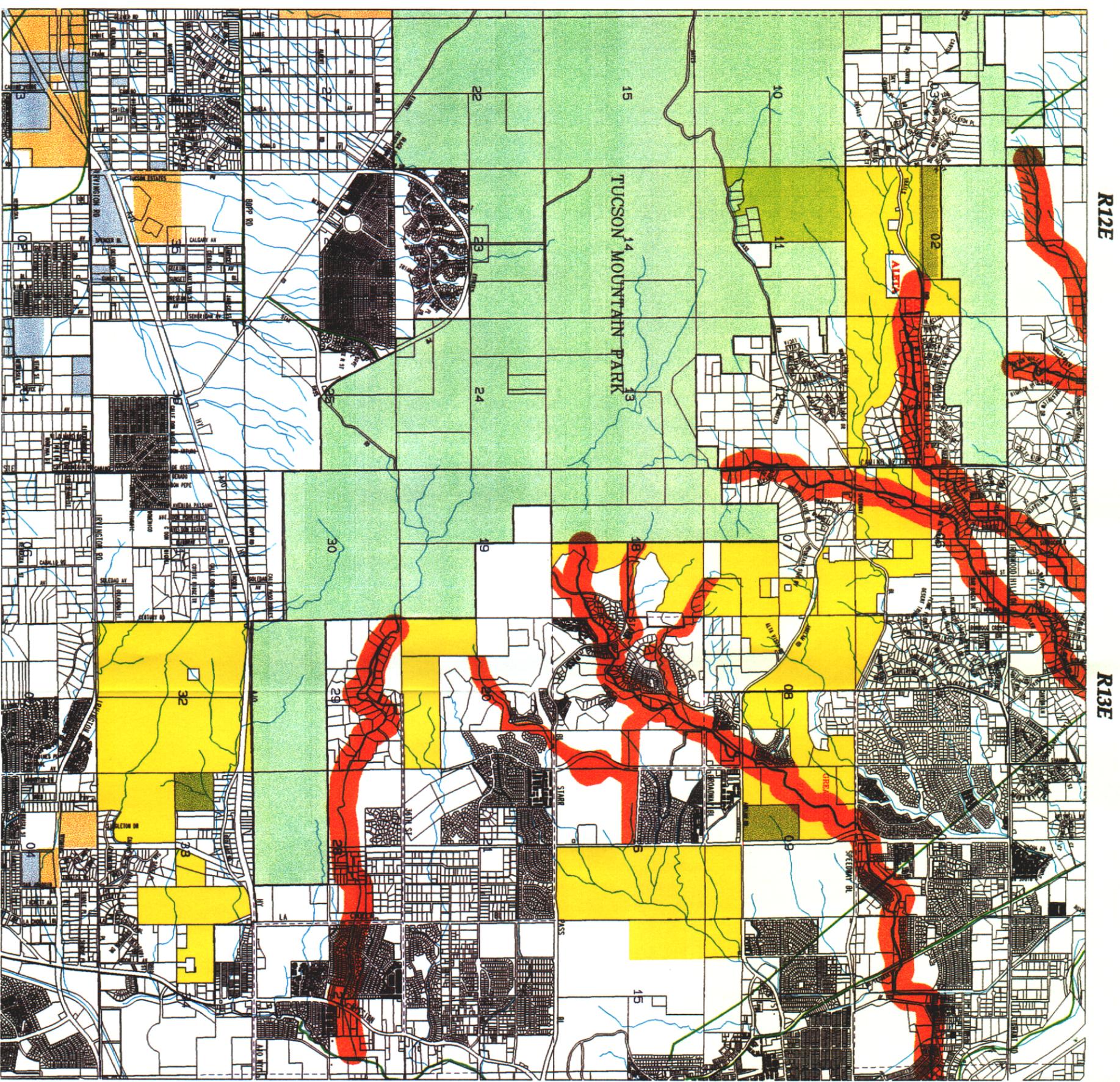
In addition, an Arizona Preserve Initiative (API) application is being prepared to facilitate the conservation reclassification and eventual acquisition of two parcels of State Trust Land adjacent to the park -- a 60 acre parcel immediately north of Trails End Road in Section 2 of T14S, R12E, and a 40 parcel just south of the Ajo Highway in Section 33 of T14S, R13E. The application is expected to be completed in August, 1999 and will be submitted to the State Land Department.

Tucson Mountains Biological Corridor. Another significant component of the Sonoran Desert Conservation Concept Plan's suggestion to protect and enhance Tucson Mountain Park is the creation of the Tucson Mountains Biological Corridor. The corridor is series of adjacent parcels of natural open space and desert washes intended to link Tucson Mountain Park with other significant protected open lands in the Tucson Mountains area -- including Greasewood Park, Tumamoc Hill, and, ultimately, the Santa Cruz River. The Biological Corridor has four major components: the connection from the Trails End Road vicinity to Greasewood Park; the linkage from the Starr Pass area to Tumamoc Hill; the link between Robles Pass and the Santa Cruz River, and the connection of the Roger, Trails End, Camino de Oeste, Anklam and Enchanted Hills washes, which flow out of Tucson Mountain Park, to the Santa Cruz River. The development of the corridor is presently underway, and is discussed in detail in the Linkages section of this report. A map depicting the Tucson Mountains Biological Corridor can be found on the next page.

(B) Existing Condition -- At the time of its creation in 1929, Tucson Mountain Park was truly a rural natural resource preserve. Tucson's population at that time was just over 30,000, and the "urban core" of the Old Pueblo was a considerable distance from the park. Seventy years later, Tucson is a very different place. The population of metropolitan area is nearly 800,000, and Tucson Mountain Park is now virtually surrounded by urbanization. Park visitation has increased significantly over the years, and an estimated 1.2 million vehicles pass through the park every year. An increasing number are commuter vehicles, while others, including large commercial transports such as tour buses, are on their way to attractions like the Arizona-Sonora Desert Museum, Old Tucson, or Saguaro National Park's Red Hills Visitor Center. Almost every conceivable type of residential development can be found in the immediate proximity of the park, from the million-dollar estates in the Trails End area to the manufactured homes in Tucson Estates. Commercial development also dots the periphery of the park, and includes the Starr Pass Golf Course and its planned resort, the strip malls lining Kinney Road, and the fast food and convenience stores along the Ajo Highway. In addition, a 160-room resort and conference center has been proposed for the corner of Gates Pass Road and Camino de Oeste just a few hundred feet from the park, and another golf course will eventually be constructed immediately adjacent to the park's southern boundary along Sarasota Road. It is clear that the pattern of increasing urbanization in the vicinity of the park will persist in the future. The east side of the Tucson Mountains remains a very popular area, and with a variety of projects in various stages of development, will undoubtedly continue to expand. Several new residential projects are under construction on the south side of the park along Kinney Road, and the large-scale Tucson Mountain Ranch project is expected to get under way in this area soon. In addition, the lands north and west of Tucson Mountain Park and Saguaro West are also poised to grow at a significant rate as the populations of the Avra Valley and town of Marana continue to swell.

Tucson Mountains Biological Corridor

-  Tucson Mountain Park
-  Biological Corridor Properties
-  Biological Corridor Links
-  State Trust Lands
-  Bureau Of Land Management (BLM)



714S

Figure 5

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[C] Park Concept -- The planning process for the Sonoran Desert Conservation Plan may lead to decisions to change or alter management goals of Tucson Mountain Park. To date, as the first unit in the Pima County's Mountain Park and Natural Preserve System, Tucson Mountain Park has served as the County's mountain park model. Its formula of resource protection and the provision of compatible and complementary recreation opportunities has functioned well. The park is a much-loved and well-used public institution, and its natural and cultural resources have withstood this popularity to date. The park's level of development -- particularly its Old Tucson component -- probably exceeds what was originally intended for the park. The current focus of park management is on preserving as much of the park's primitive and rural character as possible as well as its sensitive resources.

Despite its popularity, Tucson Mountain Park also has its limitations, and these shortcomings have informed the Mountain Park and Natural Preserve System planning process, and helped county staff refine the mountain park model that could be implemented in the system's expansion units.

The principal shortcoming of Tucson Mountain Park from a land manager's perspective is that the park is bisected by roads. The park's principal roads -- Kinney and Gates Pass -- carry a large volume of traffic, including commuter traffic moving from one population area to another, as well as visitors traveling to some of the most popular destinations in southern Arizona. And while the park may close at 10:00 p.m., the roads are open 24 hours, bringing the full complement of challenges attendant with any major roadway into the heart of the park. These difficulties include speeding, reckless driving, drunk driving, resource damage, littering, and traffic accidents.

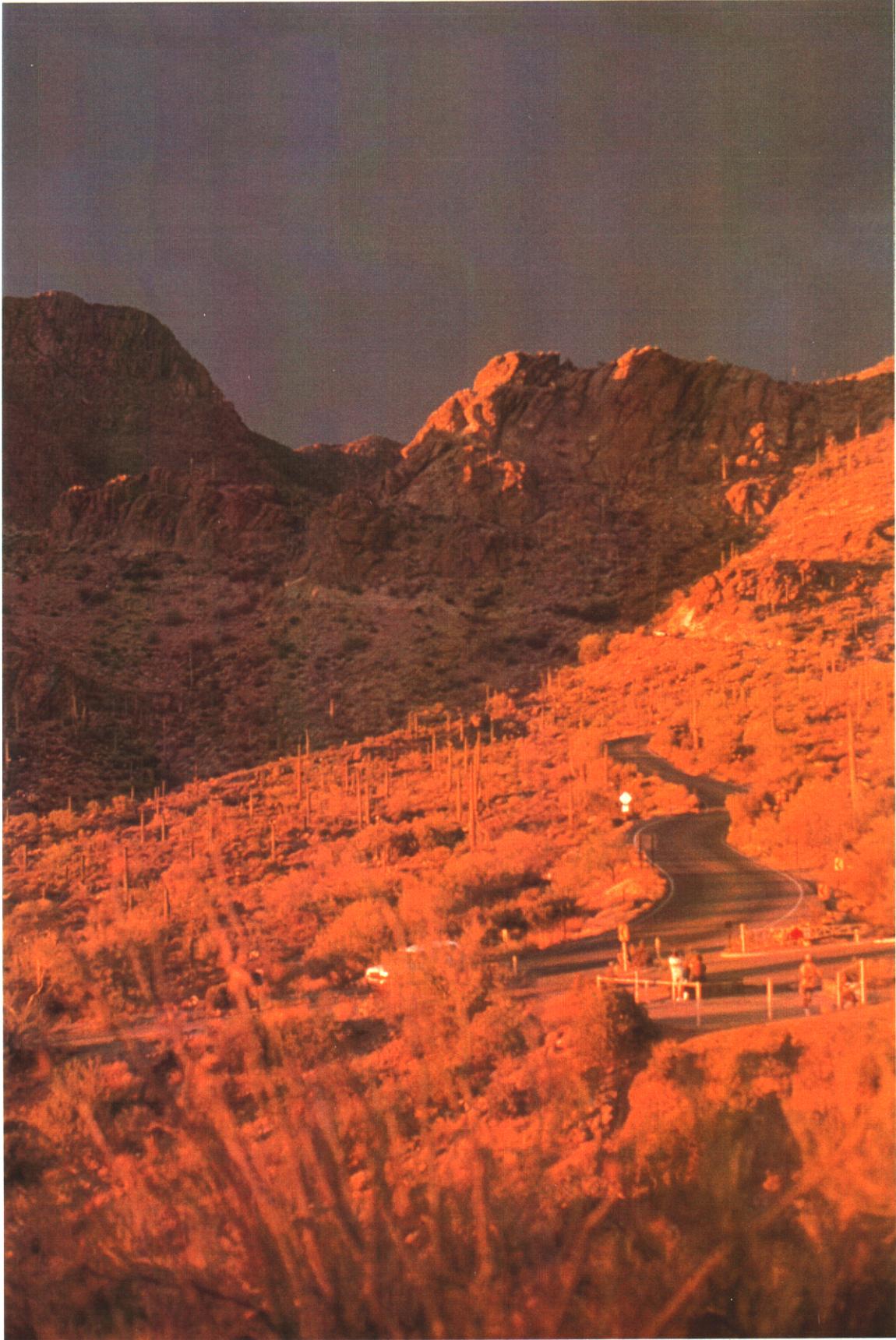
Road-killed wildlife is also a consequence of the park's interior road system. Having high-volume roadways crossing the park taxes the county's small ranger staff, and by necessity commits them to routine traffic enforcement instead of the resource protection and public contact activities that are the highest and best use of their time.

As a result of this experience, future county mountain parks might consider limiting vehicular access to the perimeter of the park and confine vehicles to existing county roadways wherever possible.

Trailheads, campgrounds, and other developed sites could be located on the outer edges of the new units, and maintenance and administrative vehicles could be the only motorized conveyances allowed beyond these developed sites. In addition to reducing the need for traffic enforcement, limited vehicular access pattern would also help protect the sensitive resources contained within the parks and improve the visitor experience by enhancing natural quiet and solitude.

The other major concern regarding Tucson Mountain Park is its present level of commercial development. Problems associated with the park's commercial uses include the generation of traffic and noise, wildlife impacts, increasing demands on the park's water resources, and higher maintenance costs.





Gates Pass, Tucson Mountain Park

(D) Natural Resources -- The exceptional variety of Tucson Mountain Park's natural resources is a consequence of its location in what is recognized as one of the most biologically diverse settings in southern Arizona. The Tucson Mountains formed from volcanic and fault block activity that began an estimated 70 million years ago. Natural erosion and deposition processes over the millennia generated an extremely heterogeneous landform that supports a diverse biological community.

The vegetation within the Tucson Mountains is classified as a subtropical desertland located within the Arizona Upland subdivision of the Sonoran Desert.⁴ A variety of plant communities and associations are represented within this category, with the most prevalent being the palo verde-saguaro association. No federally-listed threatened or endangered plant species have been positively identified to date within the Tucson Mountain Park, but several uncommon species, including night-blooming cereus and Tumamoc globeberry, are known to occur. The park is home to large and healthy populations of saguaro, prickly pear, barrel, cholla and ocotillo cactus, mesquite, palo verde and ironwood trees, and a variety of other Sonoran desert vegetation.

Tucson Mountain Park's exceptional desert vegetation provides habitat for a multiplicity of wildlife. More than 230 vertebrate species are common to the area, as well as literally thousands of invertebrates⁵

Typical animal species found in the park include coyotes, javelina, cottontail and jackrabbits, and mule deer. Other noteworthy wildlife found in the park include bobcats, gray foxes, mountain lions, desert tortoises, gila monsters and a variety of bats and bird species. Sensitive species that may be found in the park include the Lesser long-nosed bat and the California leaf-nosed bat. The possibility that the cactus ferruginous pygmy-owl may use the park, and the suitability of its habitat for this listed endangered species, led to the inclusion of Tucson Mountain Park in Unit 2 of the U.S. Fish and Wildlife Service's recent critical habitat designation for the owl.

The park's resources continue to remain in excellent natural condition. However, a variety of resource management concerns have arisen as a result of increased use of the park and urban encroachment that are capable of impacting the park's resources over time. These issues include:

- **Impacts of off-trail use.** The number of unapproved wildcat or "social" trails created in the park--first by hikers and now by other users--have slowly increased in recent years, and staff is taking steps to ensure that these trails do not impact the park's resources. An inventory of all existing park trails will occur as a part of the development of the park's trails plan, and trails identified as resource-damaging will be closed and revegetated.

⁴ Tucson Mountain Park Phase One Planning Study, McGann and Associates, 1998.

⁵ Environmental Assessment for Use and Management of the Saguaro National Park Expansion Areas, April 1999.

- Domestic pets. Domestic dogs and cats have the potential for disturbing wildlife and its habitat. Hikers that bring their dogs to the park and do not observe leash laws are a growing problem, and free-roaming pets can enter the park from nearby homes.
- Exotic Plants and Animals. Exotic plants and animals of varying kinds impact park resources. The County is pursuing measures to foster their removal. For instance, buffel grass and fountain grass are two exotic species that can now be found in a few scattered locations along park roads and washes, and an effort is being made to remove this species from Tucson Mountain Park using both park staff and volunteers.
- Human feeding of wildlife. While not presently a serious problem in the park, the potential for significant problems to develop from feeding wildlife exists for both for wildlife and humans.
- Road-killed wildlife. The large quantity of traffic passing through the park--some of it fast-moving--means that road kills are inevitable. Enforcement of the park's speed limits have helped mitigate this problem to a certain extent, but additional measures will need to be considered if the level of road kills continues to grow.

(E) Cultural Resources -- Tucson Mountain Park contains a variety of valuable cultural resources, including prehistoric archaeological sites, rock art sites, historic structures, old mines and trails, traditional O'odham saguaro fruit gathering sites and other traditional cultural places, and natural features of the land that together form a significant cultural and historic landscape. While very little of the park has been systematically surveyed for cultural resources, the Depression-era complex of facilities designed for Tucson Mountain Park has been determined eligible for listing on the National Register of Historic Places as significant historic landscape that embodies a singular design ethic and incorporates a diversity of prehistoric and historic resources into an aesthetic and harmonious whole. What is known about the nature of the cultural resources in the Tucson Mountains is that some of the earliest sites have been recorded in the range. Later Hohokam sites are also known in the area, and like their predecessors appeared to have used the mountains for resource gathering and hunting. Rock art sites are numerous, but few actual village sites are recorded. It is certain that the prehistoric sites in the Park are a part of the regional settlement and land use system of the Tucson Basin Hohokam. More survey and future research is necessary to better characterize what role the Tucson Mountains played in prehistoric settlement.

The Park also contains a number of historic sites and features reflecting O'odham use of the area, mining, quick-lime production, and the Depression-era Park facilities designed in 1937 to enhance the natural and cultural qualities of the park and to promote tourism as a form of economic recovery. These park improvements constructed by the Civilian Conservation Corps included roads, picnic grounds, recreational areas, campsites, and drainage and erosion control features, and the "Camp Papago" Pima County Preventorium for children with respiratory diseases, which later became the Gilbert Ray Campground. These historic Park structures are present today in both Tucson Mountain Park and Saguaro National Park.



Tucson Mountain Park

(F) Recreation Potential -- Tucson Mountain Park has been one of the Tucson area's most popular outdoor recreation destinations for many decades, and presently offers a variety of low-impact recreational opportunities.

The park's most popular recreational resource may be its 26 miles of shared-use recreational trails, which are open for use by hikers, equestrians and mountain bicyclists. While 26 miles of trail may seem like a large number, the adjacent Tucson Mountain District of Saguaro National Park, which is more strictly preservationist in orientation and just 5,000 acres larger, contains more than 50 miles of designated trails. Tucson Mountain Park's existing non-motorized shared-use pattern presently works well, and while an exact count has yet to be performed, bicyclists comprise park's largest trail user group.

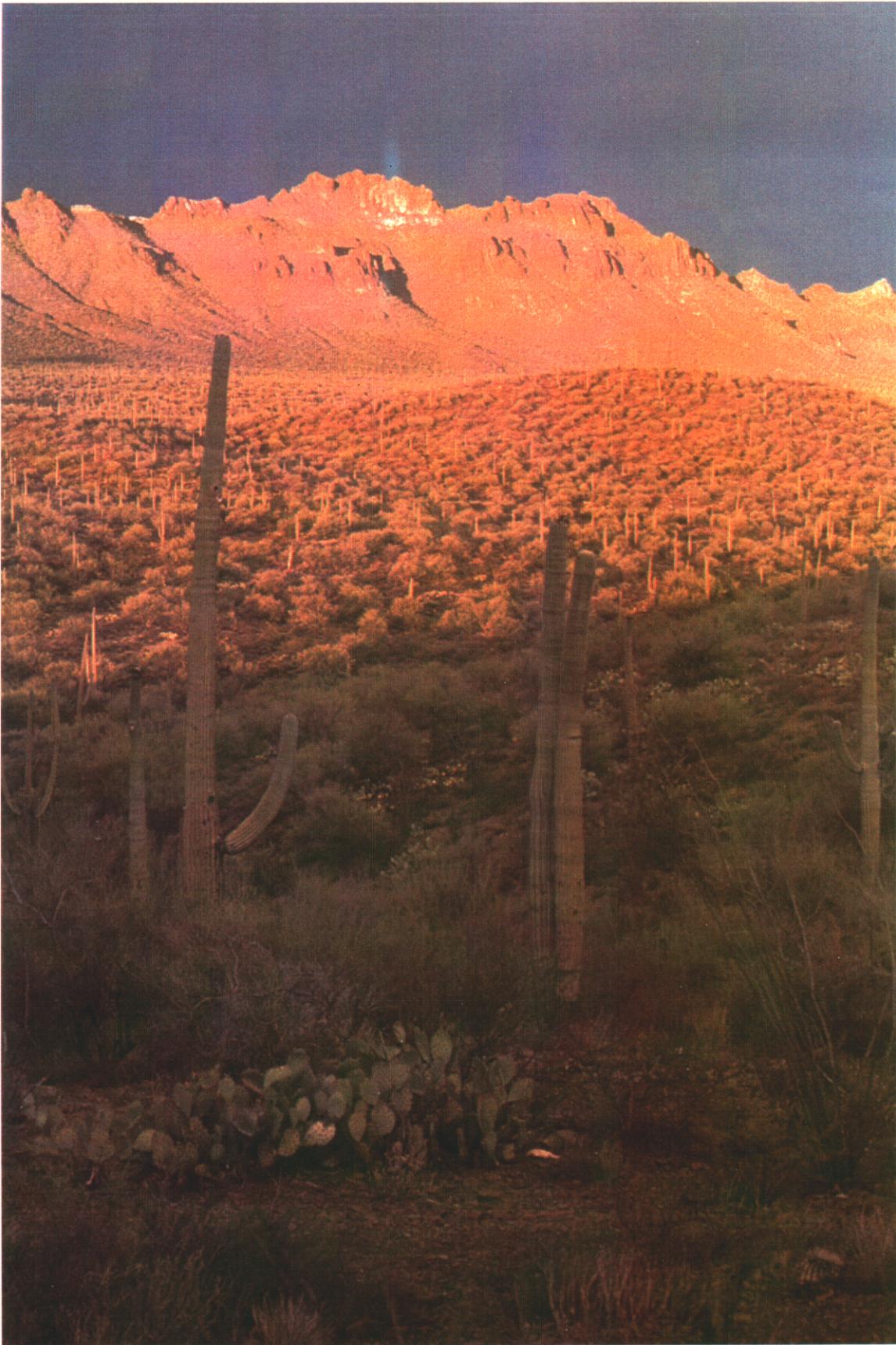
A comprehensive review of the park's trails-based recreation opportunities and trails-related policies will occur when the development of a new trails plan for the park begins in 1999. Every existing trail in the park will be inventoried, and a revised system will be recommended based on the outcome of the Sonoran Desert Conservation planning process. The recommendation could include the closure of redundant and/or resource-damaging wildcat or "social" trails, enhancements to the system that make sense (logical connections and improvements, etc.), uses that might occur on particular trails, and as well as a schedule of trail system-related capital improvements -- i.e. bond-funded trailhead development, new trail construction, trail maintenance, signage, interpretation, fencing, and more. The park's other current recreational amenities include an archery range, a rifle range, picnicking facilities, and a campground.

Public access to the park and its trails will be enhanced through funds earmarked for trailhead development in the 1997 Open Space Bond Program. The Open Space Bond will provide funding to construct formal trailhead parking facilities for the Starr Pass East access point near the Starr Pass Resort, at the western end of 36th Street, and adjacent to the City of Tucson's Kennedy Park. In addition to these facilities, two new trailhead parking areas will be built by developers as a part of projects they are pursuing along Kinney Road the vicinity of the Tucson Estates subdivision.

One of the trailheads will be constructed alongside Tucson Estates Parkway just outside of the main gate of Tucson Estates, and another will be built at the point where Sarasota Road meets the park boundary. The design of both facilities will be overseen by Parks Department staff, but will be funded in their entirety by private development entities.

Recreation-related decisionmaking for the park will occur within the context of protecting the habitat of the cactus ferruginous pygmy-owl and other species as prescribed by the final Sonoran Desert Conservation Plan.

As an interim measure, since the entirety of Tucson Mountain Park, as well as the BOR Tucson Mitigation Corridor, is included in Unit 2 of the U.S. Fish and Wildlife Service's critical habitat designation for the owl, care will be taken to ensure the habitat this species needs to thrive is not compromised in any way.



Tucson Mountain Park

(G) Linkages to Other Protected Natural Areas -- One of Pima County's biggest open space conservation challenges is keeping Tucson Mountain Park a viable natural area as urbanization continues to close in around it. Pima County has been aware of this need for some time, and began taking steps to address the issue prior to the development of the Sonoran Desert Conservation Concept Plan. The Plan provided the opportunity to take a comprehensive look at how the park could be connected to other natural open space preserves and corridors, and resulted in the development of the following possible linkages.

- (1) Northern Linkage. Tucson Mountain Park abuts the Tucson Mountain District of Saguaro National Park along its northern boundary, so it would appear that this part of the bio-linkage equation has been solved. However, a look at the larger context in which both units are located will reveal that the West Unit of Saguaro faces the same dilemma as Tucson Mountain Park. Saguaro West is also being surrounded by urbanization, and its natural biological linkages to other open space areas are similarly being impacted and compromised. The proper approach seems to be to view Tucson Mountain Park and Saguaro West as a single entity, which is appropriate, given that both units are seeking to protect large portions of the same mountain range, and were in fact a single unit from 1929 until 1961. However, achieving some sort of biological connection from the Tucson Mountains north and east to the Santa Cruz River and then the Tortolita Alluvial Fan and Ironwood Forest will be difficult, because the growing town of Marana, Interstate 10, and the Central Arizona Project canal all stand in the way. A solution would seem to require the protection of the remaining State Trust Land north of the park and the involvement of some private land presently (or formerly) under cultivation, which is likely to be extraordinarily difficult. Any biological corridor solution in this area will require the direct participation of the town of Marana.
- (2) Western Linkage. Connecting Tucson Mountain Park and Saguaro West to open space located west of both units will be considerably easier than securing a northern linkage. The western end of Tucson Mountain Park abuts the U.S. Bureau of Reclamation's 2,514-acre, 4-square mile Tucson Mitigation Corridor, which was established in part to help facilitate this connection. One half mile of private property separates the western edge of the Mitigation Corridor from a large block of property owned by Tucson Water, which in turn abuts the proposed eastern boundary of the proposed Waterman-Roskrige Mountain Park. Tucson Water's Avra Valley property has been earmarked for conservation purposes by the Tucson City Council, so the likelihood that this property will remain undeveloped is excellent. While the rudiments of a linkage between the Tucson Mountains and the Waterman and Roskrige Mountains--and thus the Tohono O'odham reservation--is already in place, certain aspects of the connection are problematic. The potential linkage between the Mitigation Corridor and the Tucson Water Property is only .5 mile in width, and at least two other sections of adjacent private property would need to be included in the linkage in some manner (through conservation easements, development rights acquisitions, etc.) to make the linkage truly viable. In addition, the high-speed Sandario Road corridor passes through the linkage, and presents a significant stumbling block for safe wildlife movement. Despite these challenges, the western linkage has a great deal of potential, and this promise led to its preliminary consideration as part of the Sonoran Desert Conservation Concept Plan.

- (3) Southern Linkage. Linking Tucson Mountain Park to open space south of its boundary also has promise and limitations. The potential comes from the possible acquisition of a section of property owned by the Rollings Family south of the Ajo Highway (Section 32 of T14S, R13E), as well as an adjoining parcel on its eastern boundary. Funding was provided in the 1997 Open Space Bond Program (Project #SD-3) to facilitate the acquisition of this property, and Pima County is presently negotiating to purchase it.

Also abutting the Rollings section is a 40-acre parcel of State Trust Land that is the subject of an Arizona Preserve Initiative application that has been approved for submission by the Board of Supervisors. These properties could conceivably be linked to several other vacant parcels located to the east to ultimately to form a connection with the Santa Cruz River Corridor. The limitations of this proposed linkage come from the broad and high-speed Ajo Highway, which forms a daunting wildlife barrier, Mission Road, which impacts the link to the Santa Cruz, and the existing level of development in the area, which surrounds the subject corridor lands.

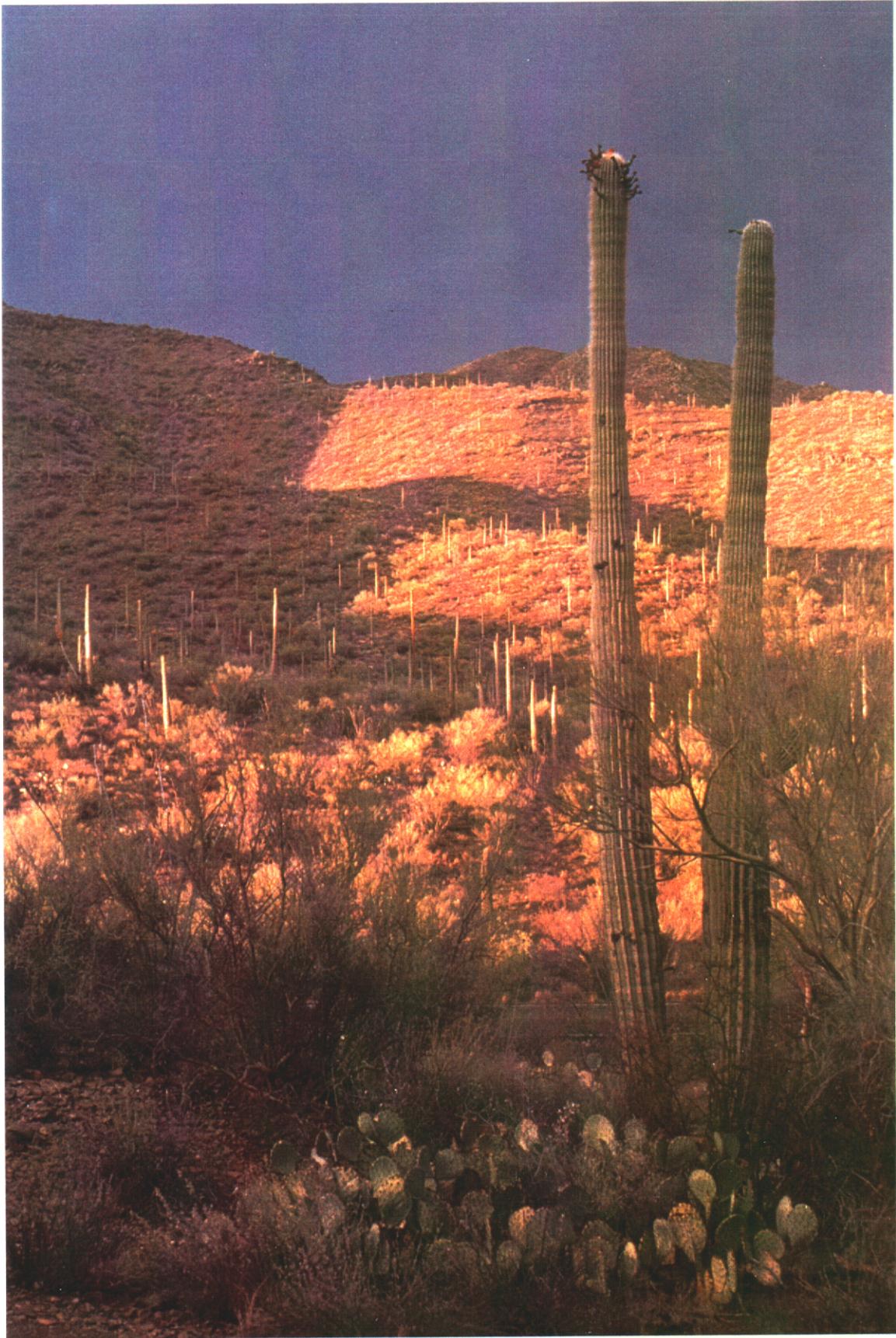
- (4) Eastern Linkage. Linking Tucson Mountain Park to protected open space areas located to the east and the Santa Cruz River corridor is another opportunity that holds considerable promise. Both the City of Tucson's Greasewood Park and the University of Arizona's Tumamoc Hill research station can be linked to Tucson Mountain Park through open land and wash corridor acquisition, and efforts are well under way to achieve this goal.

Four corridors emanating from the park that pass through the Starr Pass development and eventually connect with the Tumamoc Hill property were protected as a part of the development plan for the Starr Pass resort. The acquisition of these links will be paid for through the Starr Pass Environmental Enhancement Fund, which will derive its revenues from the sales tax increment collected at the Starr Pass Resort.

The effort to connect Tucson Mountain Park to Greasewood Park is also well underway, and has been facilitated by the purchase of six parcels to date using 1997 Open Space Bond Funds and the Starr Pass Fund. Several large and expensive parcels between the recently-purchased parcels and Greasewood Park, including the Painted Hills area, remain to be acquired, but success is within reach. Also included in the effort to secure biological links from the park eastward are five natural wash corridors that extend from the park to the Santa Cruz River.

These washes include both legs of the Roger Wash, the Trails End Wash, the Camino de Oeste Wash, the Anklam Wash, and the Enchanted Hills Wash. While these corridors have been impacted to varying degrees by urban development and will in some cases require a considerable degree of restoration, they offer the best hope for the future of assuring a biological connection between the park and the Santa Cruz.

All of these efforts are collectively known as the **Tucson Mountains Biological Corridor Project**, and importance of the project led to its inclusion in the Sonoran Desert Conservation Concept Plan.



Tucson Mountain Park

(H) Implementation -- The enhancement and protection of Tucson Mountain Park is presently underway, and involves a range of activities. These efforts include:

Acquisition of parcels for TMP identified in the 1997 Open Space Bond Program. The 215-acre Diocese of Tucson parcel located along Gates Pass Road was acquired in the spring of 1998, and negotiations are underway for several other Open Space Bond parcels, including the Rollings property south of the Ajo Highway. Funding to facilitate the acquisition of the University of Arizona's Tumamoc Hill holding was also included in the bond, and it is anticipated that this acquisition will occur sometime in 2001. Tumamoc Hill will be the subject of Pima County's first application for matching funds from the Growing Smarter program.

The establishment of the Tucson Mountains Biological Corridor. Six parcels have recently been acquired in the effort to establish the corridor, and several more are under negotiation. Recent acquisitions include several properties along Trail's End Road, including the 155-acre Saguaro Cliffs parcel; 38, 57 and 200-acre parcels around and near Camp Cooper owned by the same absentee landowner; the 10-acre Holdsclaw property at the corner of Gates Pass Road and Camino de Oeste, and the 20-acre parcel that will form the core of the county's Feliz Paseos park. Most of these recently-acquired parcels, with the exception of the Feliz Paseos property, will become a part of Tucson Mountain Park.

Development of an API application covering two State Trust Land parcels near the park. Conservation reclassification under the API program could be requested for a 60-acre parcel just north of Trails End Road and a 40-acre parcel abutting the Rollings property south of the Ajo Highway. The application is expected to be completed and submitted by August, 1999.

Exploration of the addition of BLM property to the park. Parks and Recreation Department planning staff is presently evaluating the possibility of adding more than 600-acres of BLM land located along the southern boundary of TMP to the park. These lands, which are within the park's SDCP expansion boundary, were identified for addition to TMP in the 1988 Phoenix District Resource Management Plan. The addition of this land to the park will depend on the disposition of the property's existing mining claims. If the claims can be dealt with satisfactorily, then the property will be acquired by Pima County at low cost through the federal Recreation and Public Purposes Act (R&PP) process.

(I) Applicable Planning Documents -- The following planning documents and agreements contain information pertaining to Tucson Mountain Park and/or the area surrounding the park:

- Tucson Mountain Park Phase I Planning Study (1998)
- City of Tucson Comprehensive Plan (1998)
- Saguaro National Park Tucson Mountain District Trails Plan (1997)
- Avra Valley Land Use Study for City of Tucson Property Holdings (1996)
- Pima County Comprehensive Plan (1992)
- Interim CAP Right-of-Way Land Use Policy (1993)
- Cooperative Agreement for the Management of the Tucson Mitigation Corridor (1990)
- Saguaro National Park Statement for Management (1995)
- Saguaro National Monument General Management Plan (1988)
- The Findings of the Pima County Open Space Committee - (1988)

2. Tortolita Mountain Park.

(A) Background -- Tortolita Mountain Park was established in 1986, when the Pima County Board of Supervisors approved the expenditure of 1986 bond funds to acquire 3,055.75 acres of private property in the rugged backcountry of the Tortolita Mountains for park purposes. The first 2,426.75 acres was purchased in 1986, and another 629 acres was added in 1988. Several recent acquisitions have brought Pima County's current holdings in the Tortolitas to 3,445.75 acres.

The Tortolita Mountains are located northwest of the Tucson metropolitan area between Interstate 10 and the Oracle Highway (State Highway 77). The towns of Marana, Tortolita and Oro Valley abut the expansion boundary of the park along its southern edge, and the unincorporated village of Catalina is located approximately three miles to the east. A considerable portion of the Tortolitas extend into southern Pinal County.

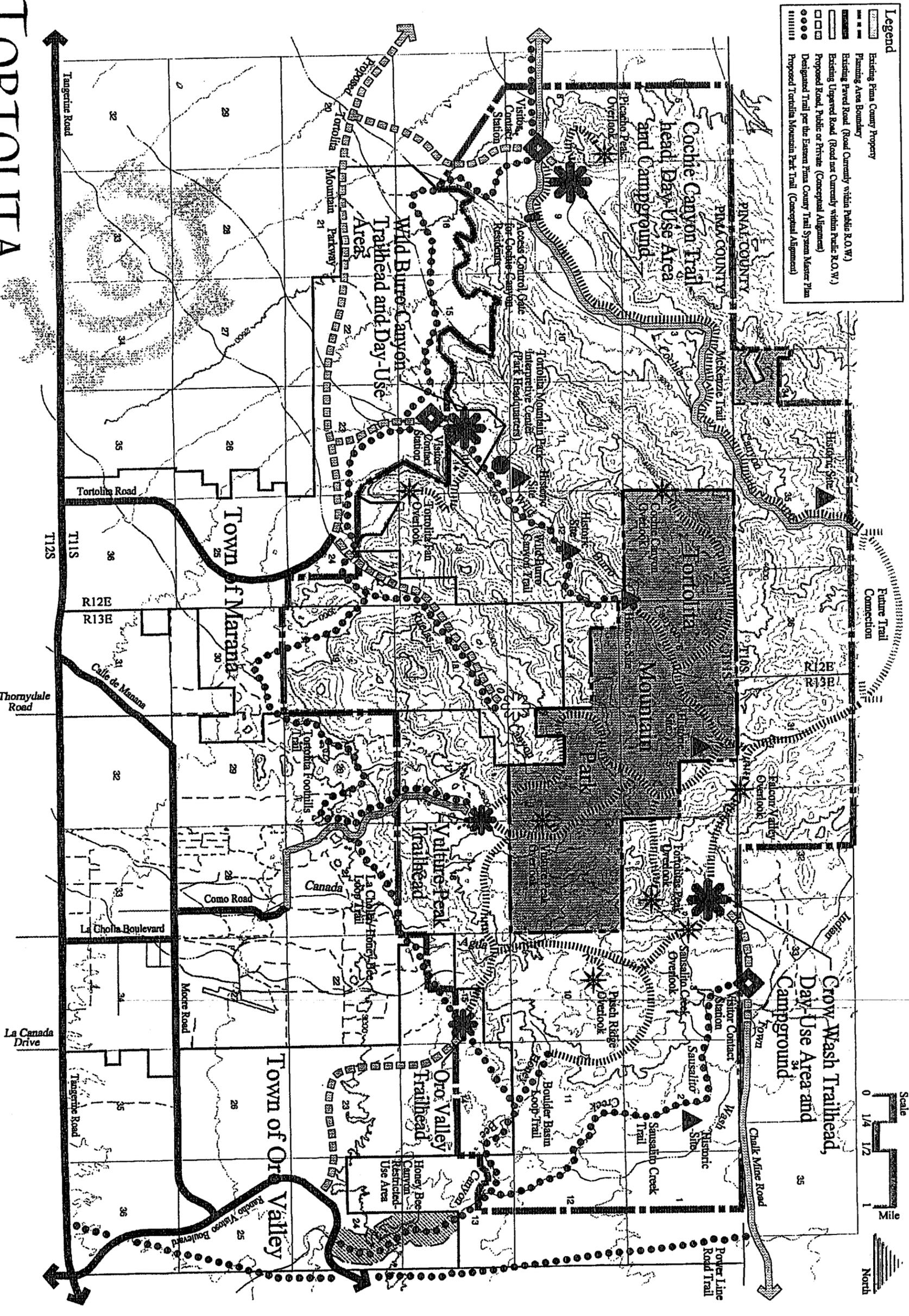
The Tortolita Mountains are one of the oldest geological features in the Tucson area, and include 4,651 foot tall Tortolitas Peak, the highest point in the range. The Tortolita Mountains contain a wide range of plant and wildlife species, including mountain lion, gray fox, mule deer, and a small herd of approximately 15 feral horses. The broad alluvial fan and plain located on the southwestern edge of these mountains is home to a large ancient forest of ironwood trees, and this rare vegetative feature is regarded as prime habitat for the cactus ferruginous pygmy-owl, a listed endangered species.

The Tortolita Mountains and the lands surrounding the range have been used for grazing since the early 1900s, and several ranches continue to operate in the vicinity of the park. These ranches are located on the west and east sides of the range, and in the southern Pinal County area. Urban growth and development in northern Pima and southern Pinal County are placing considerable pressure on these ranches, however, and affirmative open space conservation measures will need to be applied to assure their future viability.

Tortolita Mountain Park did not increase in size until 1996, when a 110-acre parcel just over the Pima County line in southern Pinal County was acquired. Also in 1996, Pima County hired McGann and Associates, a landscape architecture and planning firm, to assist the Pima County Parks and Recreation Department with the preparation of a Master Plan for Tortolita Mountain Park. Through the master planning process, an expansion boundary encompassing a total of 21,030 acres was identified.

Of the property located within the master plan's expansion area for the park, 57% is State Trust Land administered by the Arizona State Land Department, 21% is privately-owned property, 16% is presently owned by Pima County, and 6% is controlled by the U.S. Bureau of Land Management. The master planning process also included a survey of the park's natural and cultural resources, the identification of land conservation strategies, and the production of a development concept for the park. The Tortolita Mountain Park Master Plan was presented to the Pima County Board of Supervisors on April 15, 1997, and was adopted unanimously.

- Legend**
- Existing Pima County Property
 - Planning Area Boundary
 - Existing Paved Road (Road Currently within Public R.O.W.)
 - Existing Unpaved Road (Road not Currently within Public R.O.W.)
 - Proposed Road, Public or Private (Conceptual Alignment)
 - Designated Trail per the Eastern Pima County Trail System Master Plan
 - Proposed Tortolita Mountain Park Trail (Conceptual Alignment)



TORTOLITA MOUNTAIN PARK

PIMA COUNTY PARKS AND RECREATION DEPARTMENT

Draft Master Plan

Tortolita Mountain Park will eventually serve as the principal natural open space park for the rapidly growing northwest region of the Tucson Basin, including the City of Tucson, the towns of Oro Valley, Casas Adobes, Tortolita and Marana, and the village of Catalina. Saddlebrooke, a large retirement community in southern Pinal County, will also be served by the park, as will residents in nearby segments of unincorporated Pima County. Each of these communities is home to considerable numbers of outdoor enthusiasts--including hikers, equestrians, mountain bicyclists and birdwatchers--all of whom will be able to use the park for recreation purposes.

In 1996, while the planning process for Tortolita Mountain Park was underway, the State proposed the creation of the Arizona Preserve Initiative. The purpose of this program was to allow select high-resource value State Trust Lands located in the vicinity of existing municipalities to be reclassified for conservation purposes, and also provided a rudimentary mechanism through which conservation-reclassified State Trust Lands could be leased or ultimately acquired. The Arizona Preserve Initiative (API) process was recognized by the County as a valuable tool in the effort to expand Tortolita Mountain Park in accordance with the park's master plan, and the development of an API reclassification application encompassing the State Trust Lands located within the park's first and second-priority expansion zones was initiated in 1997.

On May 20, 1997, an 8-question special bond election was held in Pima County, and county voters approved a \$36.3 million Open Space and Historic Preservation Bond Program that provided a total of \$27.9 million for open space acquisition. Of the \$27.9 million, \$7,000,000 was earmarked for the Tortolita Mountains area; \$3 million for Tortolita Mountain Park, \$3 million for the adjacent Tortolita Ironwoods/Alluvial Fan area, and \$1 million for the segment of Honeybee Canyon within the planning boundary of Tortolita Mountain Park. Open Space Bond Program funds were used to acquire an 80-acre parcel in Section 17 of T11S, R13E for park access purposes in 1998, and the 200-acre Carpenter Ranch in Section 35 of T10S, R12E in May of 1999. The acquisition of a large quantity of State Trust Land will be the focus of future bond-funded land purchases. As noted, Pima County presently owns a total of 3,445.75 acres within the Board-adopted planning boundary of the park.

The potential footprint of the planned Tortolita Mountain Park began to change considerably in mid-1998 as a result of community discussions regarding the protection of critical habitat for the cactus ferruginous pygmy-owl and the planning process undertaken for the Sonoran Desert Conservation Plan. Additional valuable natural resource lands were identified around the park, and two important and sizable additions were proposed for the park's expansion boundary: the Tortolita East Biological Corridor, and the Tortolita Ironwoods/Alluvial Fan area.

The **Tortolita East Biological Corridor** is a 3,441-acre addition consisting almost entirely of State Trust Land that would adjoin the eastern expansion boundary of the park and link it with the proposed northern expansion area of Catalina State Park. The purpose of the Tortolita East Biological Corridor is to allow the creation of a perpetually-protected connection between the Catalina and Tortolita Mountains that would facilitate natural wildlife movement, and also protect segments of two significant wash corridors--Big Wash and Twenty-Seven Wash.

The **Tortolita Alluvial Fan/Ironwood Forest** addition is a 14,000-acre area of natural open space located west and south of the park and is bounded by the Central Arizona Project canal on the west, the Pima/Pinal county line on the north, and the Tangerine Road corridor to the south (two sections of land extend south of the Tangerine Road). Like the Tortolita East Biological Corridor, the Tortolita Alluvial Fan/Ironwood Forest addition is composed almost entirely of the State Trust Land. The property encompasses an extensive alluvial fan and plain that is excellent natural condition, as well as an extensive ancient forest of ironwood trees which contain valuable habitat for the pygmy-owl. The importance of these lands as potential pygmy-owl habitat was confirmed in December, 1998, when the U.S. Fish and Wildlife Service included a large portion of this area in the owl's proposed critical habitat designation. The purposes of this extensive addition to Tortolita Mountain Park are severalfold, and include the preservation of the rare Ironwood forest and its owl habitat; the protection the alluvial fan and its natural drainage pattern; the large quantity of cultural resources that exist in the area; the outstanding unspoiled western viewshed of the Tortolita Mountains that extends from the Pima-Pinal county line to the Dove Mountain development, and the area's strong recreation potential.

With the incorporation of these two proposed additions, the expansion boundary of Tortolita Mountain Park will encompass a total of 37,782 acres: 27,827 acres of State Trust Land, 2,204 acres of BLM land, 4,305 acres of private property, and 3,445.75 acres of existing county parklands. The extent of both of these additions to the current Board-adopted planning boundary of Tortolita Mountain Park is depicted on the Tortolita Mountain Park map on following page.

In response to the approval of the Sonoran Desert Conservation Plan concept document by the Pima County Board of Supervisors in October of 1999, county staff revised the draft Tortolita Mountain Park Arizona Preserve Initiative application to include the Tortolita East Biological Corridor, and began work on a new application for the Tortolita Alluvial Fan/Ironwood Forest lands.

The addition of the 3,441 acres of Trust Land in the new Tortolita East Biological Corridor to the 6,118-acres of Trust Lands within the park's First and Second Priority expansion areas brought the total amount of Trust Lands requested for reclassification in the original Tortolita Mountain Park API application to 9,559 acres (it should be noted that approximately 1,600 acres of the Trust Lands in the Tortolita Mountain Park portion of this API application are located within Pinal County, and the concurrence of the Pinal County Board of Supervisors is required before these Trust Lands can be reclassified by the Arizona State Land Department).

In addition to the original Tortolita Mountain Park API, a new API application was prepared for the west side of the park for that included approximately 2,200 acres of State Trust Lands within the park's existing Planning Boundary that were identified in the 1997 Open Space Bond Program (Project #SD-6), as well as the 14,000 acres of Trust Lands in the Alluvial Fan/Ironwood Forest expansion areas identified in the Sonoran Desert Conservation Concept Plan, for a total of 16,185 acres. Submission of these and three other API applications were approved by the Pima County Board of Supervisors on November 10, 1998. Both Tortolita API applications were submitted in 1999.

Tortolita Mountain Park

DRAFT

R11E

R12E

R13E

R14E

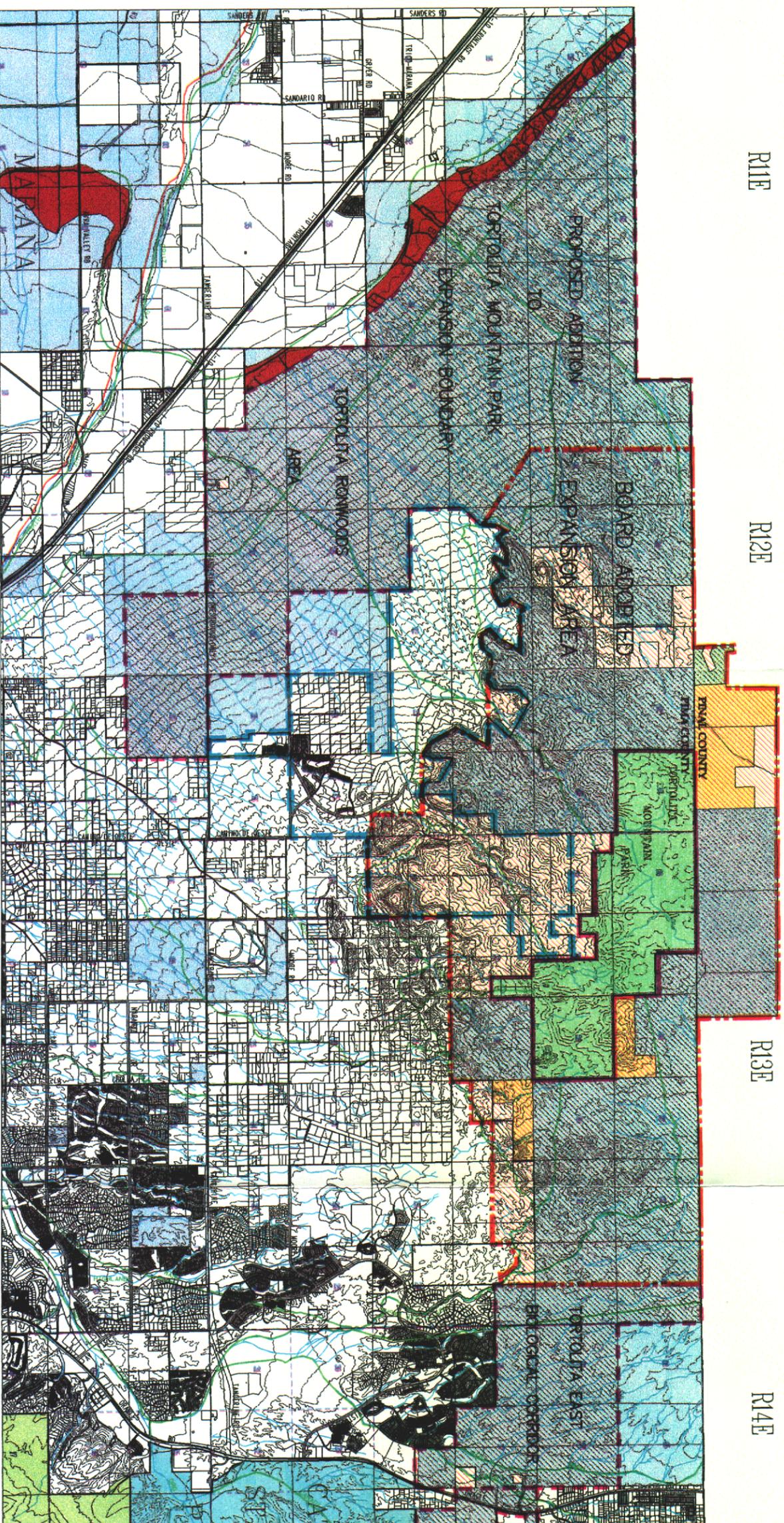


FIGURE 13B

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES
 Pima County Technical Services
 201 North Stone Avenue - 9th Floor
 Tucson, Arizona 85701-5207
 Phone: 520-799-3429
 Fax: 520-799-3429
 http://www.pima.gov/transportation

- | | | | | | |
|--|---------------------------|--|---------------------------------|--|----------------------|
| | Dove Mountain Property | | Existing Park Boundaries | | National Forest Land |
| | Contour Lines | | Proposed Park Boundaries | | Private Lands |
| | Parcel Base And Streets | | Present Master Plan Boundary | | State Trust Lands |
| | Township And Range Lines | | Proposed Mountain Parks | | |
| | Section Lines | | Bureau Of Land Management (BLM) | | |
| | Washes | | Bureau Of Reclamation | | |
| | Trails | | Catalina State Park | | |
| | Administrative Boundaries | | Existing Pima County | | |

TORTOLITA MOUNTAIN PARK:
 State: 27,827 Acres
 Federal: 2,204 Acres
 Private: 4,615 Acres

Scale 1: 27,000



Pima County Index Map



Plotted: 4/20/99

(B) Existing Condition -- Until just a few years ago, the Tortolita Mountains enjoyed a relatively rural setting, with the most significant developed areas being the nearby village of Catalina and the growing Rancho Vistoso community in the northern reaches of the Town of Oro Valley. As noted, much of the land within and around the Tortolitas has been used for grazing since the early 1900s, and several ranches continue to operate on the lands abutting the park, including the Martin Ranch, located on the eastern side of the range.

Since the early part of the 1990s, however, the area south and east of the Tortolitas has experienced tremendous growth, and development pressure is also increasing in southern Pinal County. The 7,600 acre Rancho Vistoso master-planned community is located immediately south of the park's eastern expansion area and biological corridor lands within the town of Oro Valley, and is developing its holdings. Vistoso's developers recently purchased a 350-acre parcel of adjacent private property in an effort to enlarge the project. In addition, the 5,600-acre Dove Mountain (formerly RedHawk) master-planned community, located immediately south and east of the proposed Tortolita Alluvial Fan/Ironwood Forest area within the town of Marana, is actively being developed, and a large retirement community has been suggested for southern Pinal county west of the existing SaddleBrooke master-planned community.

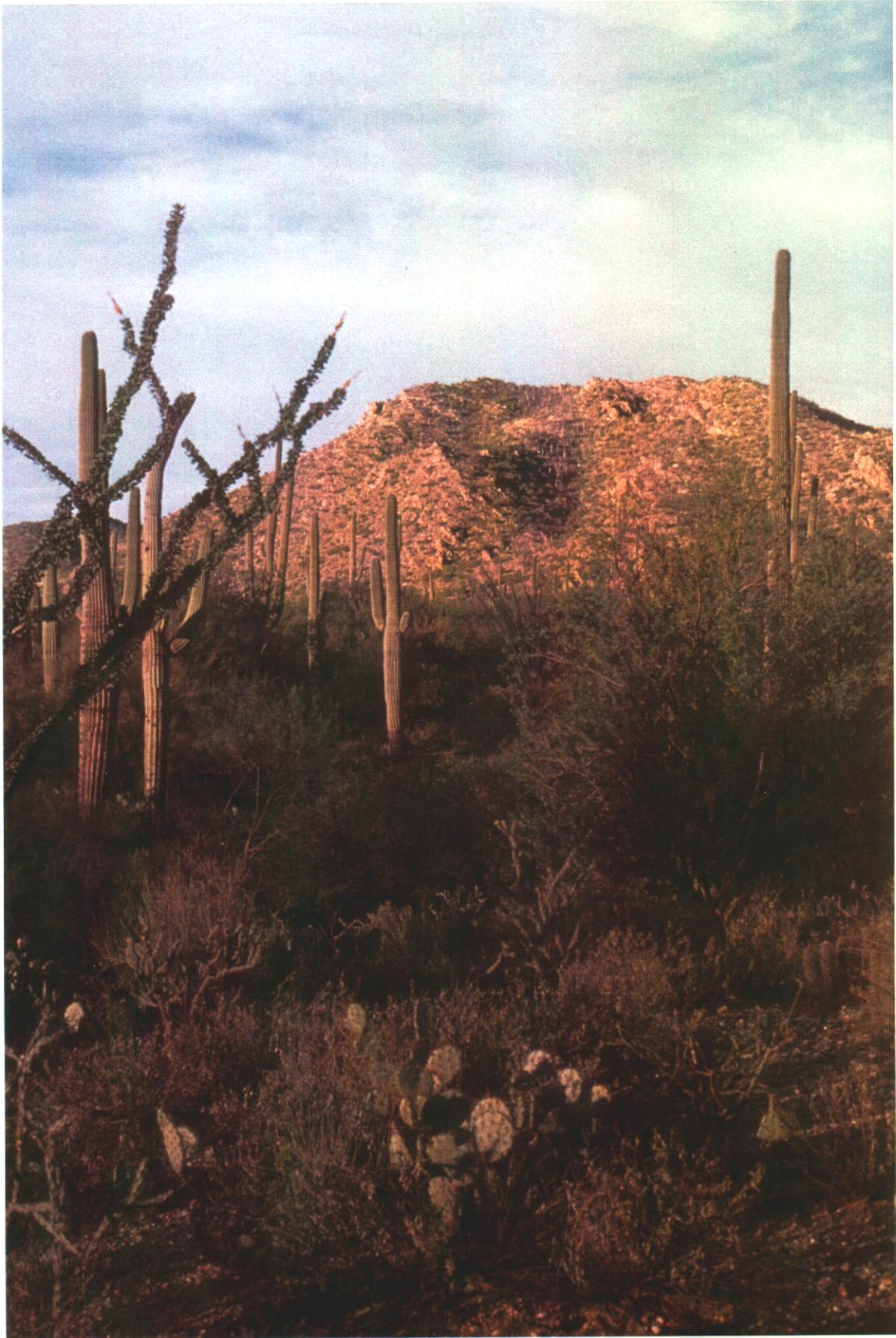
A considerable portion of the lands north and west of the Tortolita range in southern Pinal County are in private ownership, and some of these lands are being divided into smaller parcels by land speculators. These increasing development pressures are reducing the open lands that surround the range, as well as encroaching on the area's remaining ranching operations.

It is clear that the Tortolita Mountains and area that surrounds them are facing the same kind of rural-to-urban transition that the Tucson Mountains experienced, only at a much faster rate. This accelerating development pattern argues for timely action in order to preserve open space for mountain park and biological corridor purposes, and traditional land uses.

(C) Park Concept -- While the Sonoran Desert Conservation Planning process may lead to decisions which change or alter land management practices, Tortolita Mountain Park has been managed as a primitive county mountain park on the order of Tucson Mountain Park, only with a smaller amount of formal development. Tortolita Mountain Park has an advantage over Tucson Mountain Park in that it will probably not be bisected by roads, and motorized vehicles (other than park maintenance vehicles) will not have access to the interior of the park. The park's developed features will likely be located on the periphery of the Tortolita mountain range, and the interior of the park limited to recreational trails, unobtrusive directional and interpretive signage, and an occasional primitive rest/picnic area.

Five sites around the perimeter of the park were identified in the Tortolita Mountain Park Master Plan for facility development. These sites include:

- Crow Wash Trailhead, Day Use Area and Campground
- Oro Valley Trailhead
- Vulture Peak Trailhead
- Wild Burro Wash Trailhead and Day Use Area
- Cochie Canyon Trailhead, Day Use Area and Campground



Tortolita Mountain Park

The Oro Valley and Vulture Peak Trailheads would entail the development of small trailhead parking facilities only, which typically offer parking spaces for cars and horse rigs, interpretive signage, and a 911 emergency telephone. The Crow Wash and Cochie Canyon facilities, located on the eastern and western ends of the park, could serve as the park's "gateway" access points and are likely to include trailhead parking areas, restrooms, a visitor contact station, picnic areas, a campground, a water source, and a park maintenance facility.

The fifth site could be located near the near Wild Burro Canyon adjacent to the Dove Mountain development, and would offer a trailhead parking area, restrooms, a picnic area, a visitor contact station, a small park maintenance facility, an interpretive loop trail, and possibly an interpretive center for the park. Additional developed sites may be added if the park is expanded as suggested by the Sonoran Desert Conservation Concept Plan.

Tortolita Mountain Park could also feature an internal recreational trail system intended to serve hikers, equestrians, and bicyclists. While a concept trail system was conceived as a part of the park's master planning process, the ultimate configuration of the trail system, and decisions about which trails would be open to which users, will be made as the system is formally planned and implemented.

The two large additions to the park identified in the Sonoran Desert Conservation Concept Plan -- the **Tortolita East Biological Corridor** and the **Tortolita Alluvial Fan/Ironwood Forest** area -- could be maintained in natural condition in order to preserve their efficacy as wildlife habitat and movement corridors. These areas may accommodate segments of the park's trail system, but are unlikely to include any other developed features.

(D) Natural Resources -- The Tortolita Mountains are notable for the diversity and outstanding quality of the natural resources that exist there. The range's plant, wildlife and scenic resources are exceptional and worthy of protection. Particularly notable is the diversity of vegetative communities that occur over what is considered to be a relatively small geographical area. Vegetative communities located within the present boundary of the park include Sonoran Desertscrub, Paloverde-Cacti-Mixed Scrub Series; Interior Chaparral, Scrub Oak Series, Sonoran Riparian Deciduous Forest and Woodland, Mesquite Series; Sonoran Riparian Deciduous Forest and Woodland, Cottonwood-Willow Series, and Sonoran Riparian Scrubland, Mixed Scrub Series. The majority of the park is considered to be within the Sonoran Desertscrub biotic community.

Also notable is the composition of the plant community found on the Tortolita Alluvial Fan and plain, which has been proposed for addition to the park in the Sonoran Desert Conservation Plan. The alluvial fan area is home to a large and impressive ironwood forest, and some of the trees within the forest are believed to be hundreds of years old. The density and superlative quality of the ironwood forest make it prime potential habitat for the cactus ferruginous pygmy-owl, and led to its inclusion in the U.S. Fish and Wildlife Service's critical habitat designation for the owl. While Park's staff knows of no special status plant species identified within the current boundaries of the park, the lands do contain large, undisturbed, healthy stands of saguaro, barrel, ocotillo and cholla cactus, mesquite, palo verde and--as noted--ironwood trees, as well as a wide variety of native grasses, bushes and other plants.



Tortolita Mountain Park

The Tortolita Mountains area supports a wide range of wildlife, and is capable of supporting certain special status wildlife species. As noted, the park's expansion lands contain habitat considered suitable for the pygmy-owl. The Sonoran desert tortoise, a species of special concern, is commonly found within the kind of Paloverde-Cacti Mixed Scrub Series habitat found in and around the park, and may be present there.

Other special status wildlife found on and around the subject lands include the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, and the California leaf-tongued bat. A wildlife survey conducted as a part of the master planning process for the park in 1996 identified a wide range of animal and bird species, including mountain lion, peccary, mule deer, and large numbers of birds and lizards. The Tortolita Mountains are also home to a small herd of wild horses--one of the few such herds remaining in southern Arizona.

A review of the Tortolita's natural resources would not be complete without mention of its outstanding scenic values. The Tucson Basin is surrounded by breathtaking mountain ranges, but the Tortolita's landforms offer a special, unique blend of large quantities of rock in unusual formations, as evidenced by the prominent peaks and ridges that comprise the major canyons of the range.

The 4,651 foot tall Tortolitas Peak is a community landmark, and its craggy slopes are visible from a substantial portion of the Tucson Basin. The riparian corridors in and around the Tortolitas--Honey Bee Canyon, Sausalito Creek, Big Wash, Twenty-Seven Wash, and Wild Burro Wash--possess exceptional scenic values, as do the range's saguaro cactus, which are some of the largest and most impressive in southern Arizona. Crestate saguaros seem in particular abundance.

These outstanding scenic resources combine to form several of the last undiminished mountain viewsheds in the eastern Pima County area. From the Pima-Pinal county line to the Dove Mountain development, the Tortolita Mountains and its adjacent alluvial fan and plain remain unimpacted, and provide a breathtaking backdrop for the Interstate 10 corridor, which was designated as one of Tucson's five major "scenic gateways" in the Pima County Comprehensive Plan.

The eastern side of the range also remains unaltered north of Rancho Vistoso, and provides an excellent viewshed for the Oracle Highway corridor, another of Tucson's five scenic gateways. The Sonoran Desert Conservation Plan will play a critical role in the protection of these irreplaceable scenic resources for generations to come.

(E) Cultural Resources -- The Tortolita Mountains area is rich in cultural resources. Evidence of occupation by Hohokam Indians can be found throughout the area. On the eastern side of the park, the most significant resource is the large and well-known "Indian Town" site, which is the park's first priority acquisition area. However, this area has not yet been systematically surveyed, and additional sites are expected to exist -- particularly along Honeybee Canyon and Sausalito Creek within the adopted park expansion boundary, and along Big Wash in the proposed Tortolita East Biological Corridor.

The Pima County Parks and Recreation Department plans to conduct a comprehensive cultural resources survey, as required by the Arizona State Land Department and to ensure appropriate protections for these resources in future planning and management decisions.

Cultural resources also abound on the western side of the range. Literally dozens of significant sites have been found in the vicinity associated with the adjacent Marana Platform Mound Community, one of the most significant archeological sites in the northwest quadrant of the Tucson Basin.

A comprehensive study of the area conducted in 1993 entitled The Northern Tucson Basin Survey documented the sites. The study, which was conducted by Dr. Paul Fish, Dr. Suzanne K. Fish, and John H. Madsen, contains considerable additional detailed information on the area's cultural resources and is available for review at the University of Arizona, as well as the office of Pima County Cultural Resources.

According to local archeologists, many questions about the native culture of this important area have yet to be answered, and securing this knowledge will require that the area be kept intact and protected through in-place preservation.

Settlement of the Tortolita Mountains began roughly at the turn of the century, with a small number of homesteaders that raised sheep, goats and cattle. Remnants of these early ranches and homesteads dot the Tortolita Mountains, and include the historic Carpenter Ranch cabin built at Cochie Spring in 1935, and holding pens with walls constructed of rock near the top of Wild Burro Canyon.

The Sonoran Desert Conservation Concept Plan places a high degree of importance on the preservation of Pima County's cultural heritage, and every effort will be made to ensure that the valuable archeological and historic resources contained within the boundaries of Tortolita Mountain Park and its proposed large-scale expansion area are protected to the maximum extent feasible.

(F) Recreation Potential -- Pima County's existing Tortolita Mountain Park holdings presently experience little visitation because legal public access to the park has not yet been secured. The park is surrounded by large quantities of State Trust Land and private property, and getting to the park requires the crossing of Trust-owned or private land. Entering either type of land without permission constitutes trespassing.

Permission to legally cross or recreate on State Trust Lands can be secured by individuals who obtain a recreation permit from the Arizona State Land Department, although few people do so because the existence of the permit program is not widely known. The \$15 State Lands recreation permits are good for one year, and anyone possessing a permit can access Tortolita Mountain Park legally. Legal access issues could be resolved permanently if Pima County acquires the Trust Lands included in its Arizona Preserve Initiative conservation reclassification applications, and once public road access to the recently-acquired 80-acre Leef parcel has been perfected.



Tortolita Mountain Park

Despite the lack of broadly available public access, the Tortolita Mountains area is presently used for recreational purposes by small numbers of hikers, equestrians, mountain bicyclists, birders, geology and archeology buffs, and off-highway vehicle (OHV) enthusiasts (the OHV users generally confine their activities to the Trust Lands east and north of the park). The range is very well suited for recreational trail use, and a network of dirt roads and informal trails presently exists both within in the range and on surrounding lands. Several regional trails listed on the Eastern Pima County Trails System Master Plan connect with and provide access from metro Tucson to the park. These trails include:

- Trail #32 - Cottonwood Wash
- Trail #33 - Honey Bee Canyon
- Trail #34 - Sausalito Wash
- Trail #36 - Wild Burro Canyon
- Trail #37 - Chalk Mine Road/Edwin Road
- Trail #156 - Big Wash
- Trail #167 - Tortolita Foothills Trail
- Trail #168 - Twenty-Seven Wash
- Trail #176 - Tortolita Road
- Trail #179 - Tortolita Power Transmission Line
- Trail #180 - WAPA power line

An important regional trail, CAP Trail (Trail #3), connects with the Wild Burro Wash Trail near Tangerine Road, and when complete will provide an important alternate modes linkage between Tucson Mountain Park and Tortolita Mountain Park, as well as a remote trailhead staging area for Tortolita Mountain Park. The development concept for the park approved in 1997 as a part of the Tortolita Mountain Park Master Plan also calls for the development of an enhanced trail system within the expansion boundary of the park that will serve hikers, equestrians and mountain bicyclists. In addition, five trailhead staging areas will be dispersed around the boundary of the park. Information about these trailhead sites was provided in the Park Concept section on page 27. The 1997 Open Space Bond Program included \$150,000 to facilitate the development of the first phase of the park's trail system, but funding for trailhead development will need to be secured from another source at some future date.

The recreation pattern for the areas added to the park as a part of the Sonoran Desert Conservation Plan -- the Tortolita East Biological Corridor and the Tortolita Alluvial Fan/Ironwood Forest -- will correspond with the plan's intention that these areas serve primarily as biological corridors and habitat areas. Consistent with this intention, recreation in these areas is likely be confined to a small number of carefully-planned and executed recreational trails open to non-motorized shared-use. Three trails listed on the Eastern Pima County Trail System Master Plan pass through the Tortolita East Biological Corridor: the WAPA Power Line Trail (Trail #180), the Big Wash Trail (Trail #156), and the Twenty-Seven Wash Trail (Trail #168). Several Master Plan-listed trails also cross the Alluvial Fan/Ironwood Forest property, and include the Tortolita Foothills Trail (Trail #167), the Cottonwood Wash Trail (Trail #32), the Wild Burro Wash Trail (Trail #36), and the Tortolita Power Line Trail (Trail #179). The CAP Trail (Trail #3) is located along the western edge of the proposed alluvial fan addition.

(G) Linkages to Other Protected Natural Areas -- The Sonoran Desert Conservation Concept Plan places a major emphasis on the establishment of biological corridors that will link the open space preserves that ring the Tucson Basin, and considerable attention has been paid to how the Tortolita Mountains and Tortolita Mountain Park can be connected to other protected natural areas. On the eastern side of the range, County staff has delineated the **Tortolita East Biological Corridor**, a 3,441-acre swath of open land intended to link Tortolita Mountain Park with Catalina State Park's northern expansion area and the Santa Catalina Ranger District of the Coronado National Forest.

The Tortolita East Biological Corridor is located north of the 7,600-acre Rancho Vistoso development in the town of Oro Valley, and is composed almost entirely of State Trust Land. Trust Lands within the Tortolita East Biological Corridor were added to the Arizona Preserve Initiative application that was prepared to secure the conservation reclassification of the first and second priority expansion areas of Tortolita Mountain Park. The goal of this action is to assure the protection of these lands at the same time the lands within the park's planning boundary are earmarked for conservation. While the Tortolita East Biological Corridor could be more effective if it also included Sections 5 and 6 of T11S, R14E, the corridor will undoubtedly serve as an invaluable link in the regional open space network.

The western side of the Tortolita Mountains are more problematic. Connecting the western end of the range to the Santa Cruz River corridor and the Tucson Mountains is a highly-desired goal, but three major impediments stand in the way: the Central Arizona Project canal, Interstate 10, and the growing town of Marana. In some places, less than two miles separate the undeveloped State Trust Lands west of I-10 with the Trust Lands east of the Interstate within the Tortolita Alluvial Fan/Ironwood Forest addition to Tortolita Mountain Park.

Achieving a connection between the Tortolita and Tucson mountains is a theoretical possibility, but would entail the conservation of a significant quantity of private as well as State Trust Lands, and would surely prove to be one of Pima County's greatest conservation challenges.

While the possibility of linking the Tortolitas to natural open space south of the range has been rendered a virtual impossibility by urban development, the large quantity of undeveloped, open State Trust Land and BLM land in southern Pinal county mean that links between the Tortolitas and ranges such as the Suizo Mountains, Durham Hills, Picacho Mountains, and Tortilla Mountains and the wide range of wash corridors interspersed between these mountains is still possible.

(H) Implementation -- Implementation of Tortolita Mountain Park first began in 1986, when the Pima County Board of Supervisors approved the use of 1986 bond funds to acquire the park's first acreage. Between 1986 and 1989, a total of \$8,258,000 in bond funding was used to acquire a total of 3,055.75 acres.

In 1986-87, 2,426.75 acres were purchased from Don and Glenda Martin, who had previously ranched the property and continue to maintain a ranch on the eastern side of the range.



Tortolita Mountain Park

In 1988-89, 629 acres were purchased from Oda and Pearl Pace and William Poteet. No additional property for the park was acquired until 1996, when a 110-acre parcel owned by David Dybvig was purchased in Section 34 of T10S, R12E. The Dybvig property is located within the park's expansion boundary in southern Pinal County, and was the first parcel of land acquired for the park outside of Pima County.

In 1996, Pima County retained the landscape architecture and planning firm McGann and Associates to assist the county with the preparation of a master plan for Tortolita Mountain Park. The plan took 14 months to produce, and was adopted by the Pima County Board of Supervisors on April 15, 1997 (Resolution #1997-73).

The plan was also adopted by the Town of Oro Valley on November 18, 1999 (R98-50). The park's master plan established a formal expansion boundary, and prioritized the lands to be acquired. The master plan also identified acquisition strategies and potential funding sources for the park's expansion lands.

The 1997 Open Space Bond Program, which was approved by the voters by a margin of almost 70-30, provided \$27.9 million in funding for open space acquisitions in Pima County. Of the \$27.9 million, \$7 million in funding was made available for the Tortolita Mountain Park area: \$3 million for the Tortolita Mountains, \$3 million for the Tortolita Ironwood Forest/Alluvial Fan area, and \$1 million for the segment of Honeybee Canyon located within the park's planning boundary. In March, 1998, an 80 acre parcel located in Section 17 of T11S, R13E was acquired from the Leef family to assure access into the park from its southern boundary. The Leef property, acquired using \$280,000 in 1997 Open Space Bond funds, will facilitate the implementation of the park's Vulture Peak Trailhead.

In May of 1999, the 200-acre Carpenter Ranch was purchased for \$400,000. Like the Dybvig property, the Carpenter Ranch is located in the northern extreme of the park's expansion boundary in southern Pinal county, and is the second property outside Pima County acquired for addition to the park in accordance with the Board-approved master plan.

Also in the late Spring of 1999, Pima County submitted two Arizona Preserve Initiative applications to the State Land Department requesting that a total of 25,744 acres of property in the Tortolita Mountains area be reclassified to conservation status.

County staff is presently finalizing a Cooperative Management Agreement (CMA) with the U.S. Bureau of Land Management that will allow the 1,400 acres of property controlled by the BLM within Tortolita Mountain Park's expansion boundary to be managed by Pima County as a part of the park.

The BLM property was designated in the 1988 Phoenix District RMP as a Cooperative Recreation Management Area (CRMA), and will remain under federal ownership until such time as the RMP is amended to make the property available to purchase by Pima County under the Recreation and Public Purposes Act. The 1988 Phoenix District RMP also states that the BLM would "work to acquire" an additional 2,790 acres of State Trust Land in the Tortolitas for public recreation purposes, and Pima County could pursue this opportunity with BLM staff.

Finally, Pima County might consider engaging Pinal County in a joint venture to identify a planning boundary for the large segment of the Tortolita mountains in southern Pinal County. The goal would be to have Pinal County join with Pima County as a partner in the protection of these valuable natural resource lands, which includes habitat suitable for the cactus ferruginous pygmy-owl, and have a concept planning boundary for the park formally adopted by Pinal County. The southern Pinal segment of the Tortolitas includes land owned by the BLM and the State Land Department, as well as a considerable number of private landowners. Protecting the BLM property and bringing it into the park would be a simple and inexpensive matter; the biggest challenge would be protecting the significant quantity of private holdings that exist in the area. Pinal County has been receptive to partnership opportunities in the past, and is presently working with Pima County and the National Park Service's Rivers, Trails and Conservation Assistance Program to develop the Pima-Pinal Regional Trails Plan.

(l) Applicable Planning Documents -- The following planning documents contain information pertaining to Tortolita Mountain Park, the Tortolita Mountains, and/or the area surrounding the park:

- Pima-Pinal Regional Trails Plan (est. completion: 2000)
- Marana Park System, Open Space and Trails Master Plan (due fall, 1999)
- Town of Oro Valley Parks, Open Space and Trails Master Plan (1999)
- Tortolita Mountain Park Master Plan (1997)
- Marana General Plan (1997)
- Eastern Pima County Trail System Master Plan (1996)
- Focus 2020 - Town of Oro Valley General Plan (1996)
- RedHawk (Dove Mountain) Specific Plan (1996)
- Town of Oro Valley Honeybee Canyon Management Plan (1995)
- Pima County Comprehensive Plan (1992)
- Catalina State Park Management Plan (1991)
- The Findings of the Pima County Open Space Committee - A Report to the Pima County Board of Supervisors (1988)
- Rancho Vistoso Planned Area Development

3. Cienega Creek Natural Preserve

(A) Background -- The Cienega Creek Natural Preserve is a 3,979-acre protected natural area located along a lush and very scenic stretch of the Cienega Creek at the far southeastern corner of the Tucson basin. The preserve begins at Colossal Cave Road and follows the Cienega Creek in a southeasterly direction to its terminus near the headquarters of the Empirita Ranch, a short distance south of Interstate 10. The Preserve encompasses approximately 12 miles of the Cienega Creek, and roughly half of the protected stretch of the creek experiences perennial stream flow. The segment of the Cienega Creek encompassed by the Preserve is noteworthy and highly valued because of its excellent natural condition, the consistent presence of water, and because it represents one of the very few remaining desert riparian areas in southern Arizona. A segment of the creek within the preserve has been designated as a "*Unique Water of Arizona*" because of the significance and quality of the water that flows there. The preserve also includes northernmost mile of Davidson Canyon, a major natural wash corridor approximately 12 miles in length that drains the northeastern foothills of the Santa Rita Mountains, as well as the western portion of the Empire Mountains, and ultimately flows into Cienega Creek. Davidson Canyon is also an important biological corridor that links the Cienega Creek with public lands to the south.

The preserve was established by the Pima County Board of Supervisors, sitting as the Board of Directors of the Pima County Flood Control District, in 1986 for "...the benefit and protection of the County, its resources, residents and visitors." To accomplish this overarching goal as expressed by the Board, three management objectives were established for the preserve by the staff of the Pima County Flood Control District:

1. To preserve and protect the perennial stream flow in Cienega Creek;
2. To preserve and protect the natural riparian community along the stream corridor;
3. To provide opportunities for public use of the preserve for recreation, education, and other appropriate activities." (Cienega Creek Management Plan, page 2-1).

Two other important purposes served by keeping this reach of the Cienega Creek in its existing undiminished state are the facilitation of natural aquifer recharge, and the assistance it offers in lessening the severity of flood events capable of impacting the developed area of the Tucson Basin. The utility of the Preserve's flood control capability alone makes it of exceptional value to the Tucson metro area. Few man-made improvements exist on the lands within the preserve. The most significant of the existing improvements is the Vail Water Company diversion, where the perennial base flows of the river are diverted and carried off the preserve via a pipeline. Transportation corridors include the eastbound track of the Southern Pacific railroad, which follows the creek through the preserve; Interstate 10, which crosses the unit near its southern end; and Marsh Station Road, which crosses the preserve's northern reach at the "Three Bridges" site. The Empirita Ranch is located in the southernmost segment of the unit and includes several residences, barns and corrals. No future improvements are planned for the preserve, although a segment of the 780-mile, cross-state Arizona Trail is expected to be sited nearby.

Because the existing Cienega Creek Natural Preserve has several gaps in its length, funding was included in the 1997 Open Space Bond Program to help link the county's existing Cienega Creek holdings and establish a continuous unit. \$1.4 million was earmarked in the program to facilitate the acquisition of the parcels needed to connect the preserve, and, if funding was sufficient, to enhance it further. In addition, \$1.2 million was included in the Open Space Bond to acquire the section of the Agua Verde Creek between Colossal Cave Mountain Park and the Cienega Creek Preserve.

The Sonoran Desert Conservation Concept Plan recognizes the fundamental role of preserves like Cienega Creek in the achievement of Pima County's conservation goals, and proposes that the unit be expanded by approximately 7,293 acres of adjacent lands to enhance its ability to fulfill its resource protection and flood control mission. The proposed expansion would bring the total amount of land within the preserve to 11,272 acres. A map that shows the county's existing holdings within the preserve and the proposed expansion area is on the following page.

The proposed expansion of the Cienega Creek Natural Preserve has several distinct purposes. First, the expansion would assure perennial stream flows continue through the preserve, that the gaps that presently exist within the preserve are filled, and that the creek is encompassed by a corridor wide enough to assure its protection (the creek is located very close to the existing preserve boundary in several locations).

Second, the expansion would facilitate the linkage of the preserve to other nearby open space areas. The preserve would be connected to Pima County's proposed Davidson Canyon Natural Preserve, the BLM's Empire-Cienega Resource Conservation Area, and the county's Colossal Cave Mountain Park. These important linkages would help build a permanent connection between the Nogales Ranger District and Santa Catalina Ranger District of the Coronado National Forest and the federally-designated wilderness areas within them.

Finally, the enhancement would shield additional riparian habitat, further protecting what has become a very rare resource in the desert southwest, and also protect significant upland habitat adjacent to the preserve.

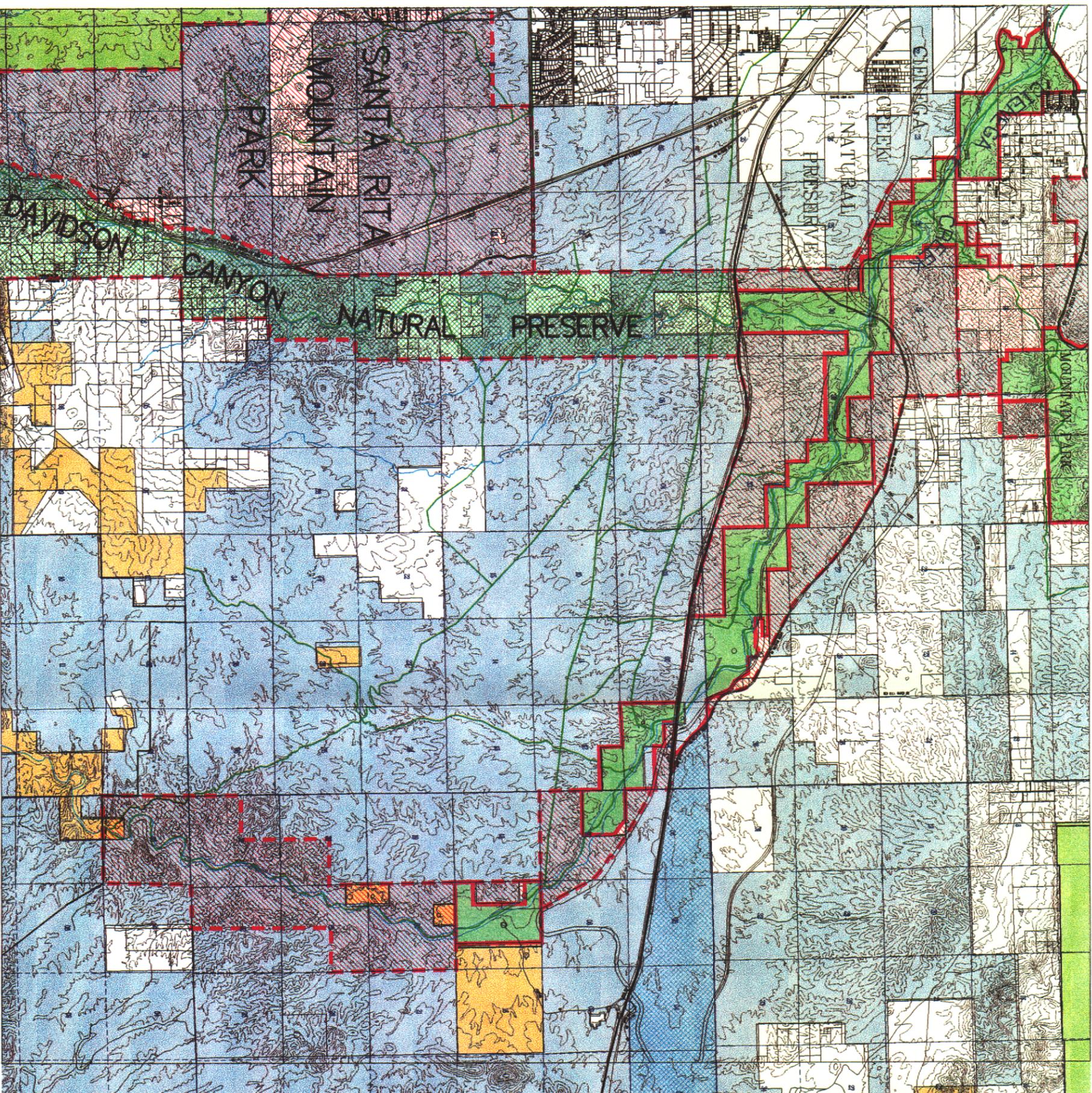
An adjunct to the expansion of the Preserve is the protection of the **Mescal Arroyo**, which links with the Cienega Creek. The Mescal Arroyo is located east of the preserve and immediately north of Interstate 10. The Sonoran Desert Conservation Concept Plan conservation of 1,856 acres of State Trust Land surrounding the Arroyo to ensure its protection and provide a perpetual connection to Cienega Creek. A map that depicts the Mescal Arroyo and its relationship to the Cienega Creek follows the map of the preserve.

The majority of the Cienega Creek Natural Preserve and its proposed expansion area is located within the recently-proposed Las Cienegas National Conservation Area. The purpose of the Las Cienegas NCA is to help conserve the Cienega Creek watershed, and its creation would play a major role in the protection of the region's sensitive and valuable natural resources. The NCA would also facilitate the conservation of the large quantity of range lands south of I-10, protecting scenic values and providing a variety of recreation opportunities.

R16E

R17E

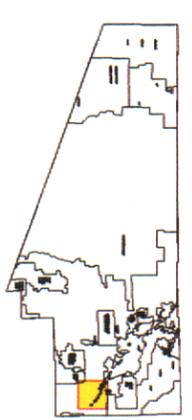
R18E



Cienega Creek Natural Preserve

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Riparian Habitat/Wildlife Corridor Links
- Bureau Of Land Management (BLM)
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

CIENEGA CREEK NATURAL PRESERVE:
 State: 6,767 Acres
 Federal: 160 Acres
 Private: 366 Acres



Index Map Scale: 1:15,000

Figure 17

The information depicted on this display is the result of digital analysis performed on a variety of sources. The accuracy of the information presented is limited to the quality of the original data and the accuracy of the computer processing of the information depicted herein.

This project is a project of the Department of Transportation.

Scale 1: 24,000

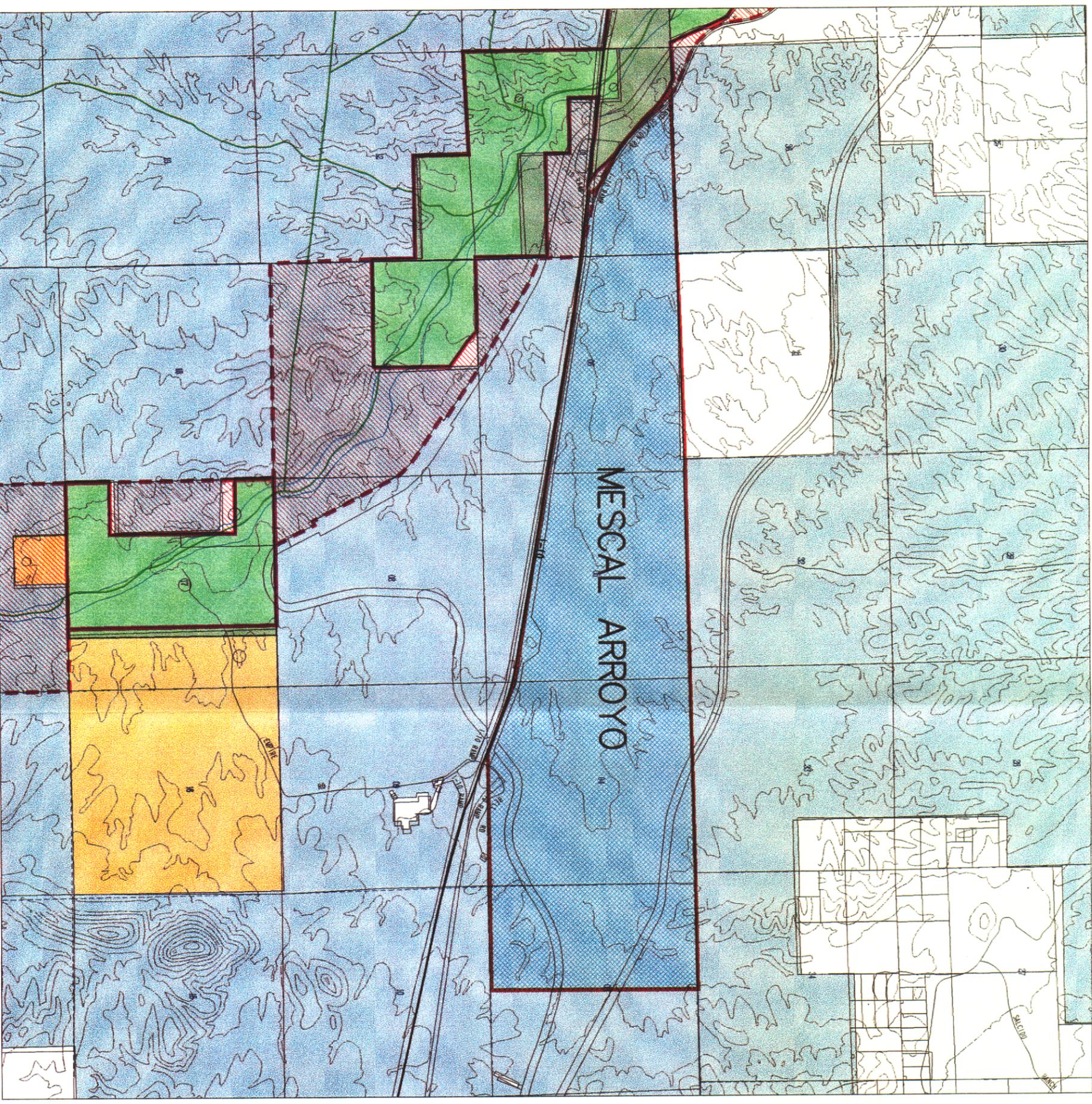


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R17E

R18E



Mescal Arroyo

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Mountain Parks
- Mescal Arroyo
- Bureau Of Land Management (BLM)
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

MESCAL ARROYO:
 State: 1,795 Acres
 Federal: 0 Acres
 Private: 61 Acres

Pima County Index Map

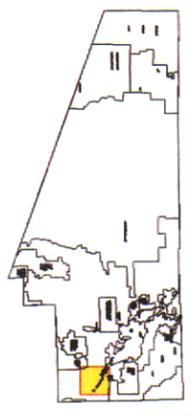


Figure 18

Index Map Scale: 1:1,000,000

The information depicted on this display is the result of a data gathering project by the Pima County Government. The data was collected by the Pima County Government and is the property of the Pima County Government. The Pima County Government is not responsible for any errors or omissions in the data. The Pima County Government is not responsible for any errors or omissions in the data. The Pima County Government is not responsible for any errors or omissions in the data.

Scale 1: 10,000

TECHNICAL SERVICES

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(B) Existing Condition -- Like the nearby Colossal Cave Mountain Park, the Cienega Creek Natural Preserve was until recently a rural preserve, with only the small community of Vail and a few scattered homes in its vicinity. The rural character of the Vail area began to change in the latter half of the 1990s, with the construction of manufactured home developments along Colossal Cave Road, and more recently, the implementation of the 1,700-acre Vail Valley Ranch subdivision, which will be located immediately north of Colossal Cave Road east of the Pantano Wash and include a golf course and single-family homes.

Other significantly-sized developments are in the planning stages, and a considerable change in the nature of the area is expected over the next 10 years as pending projects are constructed and new projects are approved. Of particular significance to the preserve is a manufactured home development recently approved for the area south of Colossal Cave Road along the western side of the unit. This development will entail the construction of a large number of dwelling units, all of which will use septic tanks for waste disposal. Concern has been expressed by county staff that leakage from existing and proposed septic systems could eventually impact the preserve. Also of concern is the level of groundwater pumping in the area, which also has the potential for seriously compromising the natural values of the preserve. It is clear that protecting the Cienega Creek Natural Preserve and its sensitive and irreplaceable natural resources will require a high degree of vigilance and managerial oversight as these projects are implemented and the surrounding area continues to grow. With development continuing and land values rising in the region, the acquisition of the Cienega Creek-area parcels identified in the 1997 Open Space Bond Program in a timely manner becomes increasingly important, as does the creation of the biological corridors between the preserve and other nearby open space units identified in the Sonoran Desert Concept Plan.

The Empirita Ranch management zone of the Cienega Creek Natural Preserve lies south of Interstate Highway 10. Significant vegetation resources of this area include sacaton grassland and Chihuahuan desert scrub. There is no perennial flow. The natural and physical resources are currently managed for the District through a five year caretaker agreement with the Parsons Company. Access is permitted through the Parks and Recreation Department.

(C) Preserve Concept -- The Cienega Creek Natural Preserve was created to protect and preserve a highly valuable segment of the Cienega Creek riparian corridor and its inherent natural values, and resource protection is the preserve's first priority. Consistent with this purpose, the preserve is maintained in as close to its natural state as is possible, and only activities that do not degrade its natural, scenic and cultural resources are accommodated. The total amount of public access to the unit is limited to ensure that its resources are adequately protected. Pima County presently allows a maximum of 50 people per day into the preserve, and permits are required to gain access. Day-use permits are available at no cost from the Pima County Parks and Recreation Department. Activities presently allowed within the Cienega Creek Natural Preserve include hiking, walking, backpacking and picnicking and similar activities. Horseback riding and mountain biking were also identified for accommodation within the preserve, but only on designated trails outside the creek corridor. Activities expressly prohibited within the preserve include fuelwood harvesting, and the destruction, disturbance, of archaeological and historical sites, the collection of artifacts, and the harvesting or removal of plants, seeds, or plant parts, except as authorized by the County.



Cienega Creek Natural Preserve

(D) Natural Resources -- The Cienega Creek Natural Preserve is noted for the outstanding quality and variety of the natural resources contained within it. The riparian nature of the preserve area is notable because of the exceptional biodiversity it offers, and also because it has become extremely scarce in southern Arizona. Another significant characteristic is the wide variety of plant associations that can be found within the preserve area. The preserve is located within a transitional zone between the Sonoran and Chihuahuan Deserts and thus exhibits some of the features of each region, is home to nine plant associations. These associations include:

- Mixed Grass - Mixed Scrub Association (2%)
 - Burroweed - Mesquite Association (5%)
 - Creosote - Mariola Association (12%)
 - Ocotillo - Mixed Scrub Association (1%)
 - Creosote Association (9%)
 - Creosote - Mixed Scrub Association (14%)
 - Velvet Mesquite Association (20%)
 - Velvet Mesquite - Mixed Deciduous Tree Association (4%)
 - Velvet Mesquite - Mixed Scrub Association (21%)
- (The remaining 12% of the Preserve not included in one of the plant communities listed above consists of abandoned ag. fields (4%) and bedrock/sandy wash channel (8%).*

The visual and biological characteristics of these wide-ranging plant communities are distinctly different, and their presence within a small geographical area is very rare and unique (Cienega Creek Management Plan, 1994). Park's staff knows of no special status plant species that have been identified within the preserve. However, two special status plants are known to occur in the area, and the possibility exists that these plants may exist in the preserve and/or on the preserve's adjacent expansion lands identified in the Sonoran Desert Conservation Concept Plan. These two species are the Needle-Spined Pineapple Cactus and the Pima Pineapple Cactus. The Pima Pineapple Cactus is a listed endangered species. Two principal types of wildlife habitat exist within the existing boundary of the preserve and on its surrounding expansion lands--those associated with the preserve's riparian areas, and those associated with its upland areas. The more significant of the two are the habitats associated with the preserve's riparian areas, because of the high level of biological productivity and species diversity they foster. The preserve's riparian habitats have local, state and national significance. The Cienega's riparian area was designated Class 1 habitat in Pima County in 1986, when it was identified as "...some of the best and most valuable habitat in the Tucson metropolitan area." Under the Arizona Game and Fish Department's habitat classification system, the habitats are designated as Resource Category I because they were determined to be "...of highest value to Arizona wildlife species and are unique and/or irreplaceable on a statewide or eco-regional basis." In addition, per the U.S. Fish and Wildlife Service's classification system, the habitat falls into its Category 2 for being "...relatively scarce on a national basis or in the eco-regional section." As a result of its quality, the preserve's wildlife habitat sustains a diverse and large population of mammals, birds, fish, reptiles, amphibians, and invertebrates. Two special status species are known to exist in the preserve: the Lowland leopard frog and the Mexican garter snake. Other special status species may also be present in the preserve: the Mexican long-tongued bat, the Gila chub, the Gila topminnow, the Lesser long-nosed bat, and the Sonoran desert tortoise.



Cienega Creek Natural Preserve

(E) Cultural Resources -- The lands in and around the Cienega Creek Natural Preserve have been the focus of considerable human activity for an estimated 10,000 years, and as a result are very significant from a cultural resource perspective. While no Paleo-Indian archeological sites are known to exist in the Preserve, Mammoth remains and scattered artifacts found in the area suggest that sites from this period may ultimately be found there. A number of Hohokam villages and agricultural fields, including several large examples, are located within the preserve and cover a time period from the Archaic era to approximately the 1400s. Little is known about the time period from 1400 to 1800, but the frequency of use of the area began to increase considerably when a Butterfield stagecoach line and its "Cienega Station" were developed along the creek in the late 1850s. Several ranches were established in the area in the years that followed, and the first Southern Pacific Railroad line was completed in 1880. The community of Pantano was established in the 1880s to serve as a stop on the rail line, and continued to exist until the early 1950s. The remnants of the Pantano Townsite are located within the boundaries of the existing preserve.

(F) Recreation Potential -- The Cienega Creek Natural Preserve's lush vegetation and scenic values, clean running water, outstanding mountain vistas, and sense of solitude and natural quiet make it a very attractive place to visit. However, because resource protection is the principal imperative in the preserve, recreational activities are limited to those that do not adversely impact its sensitive resources. Considerable attention was applied to this matter during the development of the preserve's management plan in 1994, and the following recreational activities were determined to be compatible with the mission of the unit:

- Hiking, walking, backpacking, picnicking and related activities;
- Railroad train watching, photography and painting;
- Non-intrusive bird and wildlife observation, photography and painting;
- Wading in the creek's pools and stream;
- Scientific research and environmental education;
- Other non-consumptive recreational or educational activities.

Horseback riding and mountain biking are restricted to designated trails outside the creek corridor (which have yet to be developed), and hunting, fishing and related activities in the preserve are subject to the rules and regulations published annually by the Arizona Game and Fish Department. Motorized vehicles, livestock grazing, camping and other overnight activities, campfires, fuelwood harvesting, and the destruction, disturbance, harvesting or removal of plants, seeds and plant parts are strictly forbidden.

Access is limited to 50 people per day, and a permit is required to enter the preserve. Permits are available at no cost from the Pima County Parks and Recreation Department. Presently about 10 people per weekday visit the Cienega Preserve. Visitation numbers are higher on weekends, particularly cooler weekends and holidays in the fall, winter and spring, when the maximum number of 50 visitors per day is often reached.

Several trails listed on the Eastern Pima County Trail System Master Plan link with the preserve, including:

- Trail #58-Lower Agua Verde Creek
- Trail #63-Total Wreck Wash and Trail
- Trail #74-Davidson Canyon
- Trail #251-Gas-Power West
- Trail #252-Gas-Power Middle
- Trail #253- Gas-Power East
- Trail #278-Gas Pipeline Trail

In addition to the trails listed above, a segment of the Arizona Trail will be sited along or through a portion of the preserve. The exact route of the Arizona Trail has yet to be determined; field work to identify an appropriate alignment is now underway. Consistent with its statewide use pattern, the portion of the Arizona Trail passing through Pima County will support a non-motorized shared-use pattern -- i.e. hikers, equestrians, and mountain bicyclists. The expansion lands slated for addition to the park under the Sonoran Desert Conservation Concept Plan will help protect these Master Plan-listed recreational trail corridors and assist with the siting of the Arizona Trail.

(G) Linkages to Other Protected Natural Areas -- The implementation of the Sonoran Desert Conservation Plan could facilitate the linkage of the Cienega Creek Natural Preserve to several other public land jurisdictions in region. Linkages would allow the creation of protected biological corridors that will help assure the viability of the natural resources contained within the Preserve and the protected open space that surrounds it. These linkages include:

- ▶ (1) Davidson Canyon and Santa Rita Mountain Park. The Cienega Creek Natural Preserve already includes the northernmost mile of Davidson Canyon, and the expansion of the preserve would add land to both sides of the existing holding. This expansion would connect with the proposed Davidson Canyon Natural Preserve and provide a broader (one mile wide) link between the Cienega and the Davidson Preserve. The 10-mile long Davidson Canyon Preserve connects with the county's proposed Santa Rita Mountain Park and the Nogales Ranger District of the Coronado National Forest at its southern end, thus linking the Santa Rita Mountains with the Cienega Creek Natural Preserve.
- ▶ (2) Colossal Cave Mountain Park. The Sonoran Desert Conservation Concept Plan also proposes to expand the preserve northward to establish a linkage with Colossal Cave Mountain Park. This linkage is a natural because both units are owned by Pima County, and efforts are currently underway to establish part of this linkage by acquiring the Agua Verde Creek Corridor (Open Space Bond Project #RW-12). The proposed link between the park and the preserve would create a protected corridor 1.5 miles in width, which would allow wildlife to move between the southern foothills of the Rincon Mountains and the creek. If Colossal Cave Mountain Park is connected with the Coronado National Forest between the mountain park and the forest, then a protected corridor could be established between the forest and the Cienega Creek Natural Preserve. Then, if the Davidson Canyon Natural Preserve and its connections are established, an effective linkage between the Santa Rita and the Rincon Mountains -- and the two districts of the forest -- will have been created.

- ▶ (3) Empire-Cienega Resource Conservation Area. Linking the southern end of the Cienega Creek Preserve to the top of the BLM's 45,000-acre Empire-Cienega Resource Conservation Area (RCA) may be the most eagerly anticipated of these three proposed connections, because many in the community have hoped to achieve this goal virtually since the Empire-Cienega RCA was created in 1988. This link entails the acquisition of approximately 4 additional miles of the Cienega Creek corridor south of Interstate 10 from the Arizona State Land Department, and would facilitate the establishment of a continuous body of protected open space from northern Santa Cruz County to the Rincon Mountains. The project, which is located within the proposed Las Cienegas National Conservation Area, would secure a much-desired permanent connection between the wildlife populations on the RCA and within the preserve.

(H) Implementation -- Implementation of Cienega Creek Natural Preserve began in 1986 when the unit was formally established by the Pima County Board of Supervisors. In 1993, the landscape architecture and planning firm of McGann and Associates was hired by Pima County to develop a Management Plan for the preserve. The plan was completed in 1994, and will be updated as part of the Sonoran Desert Conservation Plan.

The importance of the preserve in the County's regional open space network led to the inclusion of funding in the 1997 Open Space Bond Program to fill existing gaps in the unit and facilitate its expansion. The Open Space Bond earmarked a total of \$1.4 million for Preserve, which is scheduled to become available after FY2003/04. Also included in the Open Space Bond Program was \$1.2 million to acquire the Agua Verde Creek corridor between Colossal Cave Mountain Park and the Preserve.

Negotiations to purchase some of the Agua Verde Creek property included in the bond program have been underway since 1998, and are nearing fruition.

(I) Applicable Planning Documents -- The following planning documents contain information pertaining to the Cienega Creek Natural Preserve and/or the area surrounding the park:

- Colossal Cave Master Plan Background Report (1998)
- 1997 Open Space Bond Program
- Eastern Pima County Trail System Master Plan (1996)
- Cienega Creek Management Plan (1994)
- Pima County Comprehensive Plan (1992)
- The Findings of the Pima County Open Space Committee - A Report to the Pima County Board of Supervisors (1988)



John Dell

Cienega Creek Natural Preserve

4. Colossal Cave Mountain Park

(A) Background -- The 2,037.8-acre Colossal Cave Mountain Park was formally established in 1992, and is the most recent of the three mountain parks in the Pima County Mountain Park and Natural Preserve System. The park, located at the picturesque southwestern corner of the Rincon Mountains approximately 1.5 miles north of the Cienega Creek Natural Preserve, is best known for the tourist attraction from which it draws its name.

However, this underappreciated natural preserve has considerably more than just its cave to offer. The park's scenic values are exceptional, and its variety of features include 2.5 miles of trails open to hikers and equestrians, picnic and camp sites, a public stable, and a lush segment of the Posta Quemada Wash. The park will also host a future segment of the Arizona Trail.

Pima County has had a presence at Colossal Cave since 1944, when it leased 495 acres that included the cave from the Arizona State Land Department for the purpose of establishing a public park. The local appreciation of Colossal Cave, however, date back to the late 1870s, when local residents of the Old Pueblo began making treks from town to explore the "Arizona Catacombs." In 1922, Tucsonan Frank Schmidt filed two mining claims on the cave property. Mr. Schmidt began leading tours into the then-unimproved Cave in 1923, and this fascinating natural feature has been one of Pima County's leading attractions ever since.

From 1934 to 1938, the CCC constructed the park's headquarters buildings and built walkways and handrails inside the cave. In 1956, Pima County leased the entirety of the park to Joe Maierhauser, who operated it continuously until 1992. The creation of Colossal Cave Mountain Park began in 1989, when Pima County acquired 470 acres of property, including the La Posta Quemada Ranch headquarters, from an Ohio investment consortium for \$2,500,000.

An additional 116.4 acres were purchased in 1989 from Green Fields School. In late 1991, Pima County purchased the original 495 acres of lease lands from the State Land Department along with an additional 718.61 acres of Trust Land, which set the stage for the creation of the mountain park in 1992.

According to the Colossal Cave Mountain Park Master Plan Background Report, Pima County had three principal reasons for establishing the mountain park: "First, that the Park establish a contiguous link to the Coronado National Forest and Saguaro National Park. Second, that the park provide recreational opportunities and natural resource experiences to the population of the Tucson Basin. And third, that the Park preserve the ecological, historical, archeological and recreational value of the land from the pressures of regional growth and development in the area." (Colossal Cave Mountain Park Master Plan Background Report).

Since 1992, Colossal Cave Mountain Park has been administered by the Pima County Parklands Foundation under the supervision of the Pima County Parks and Recreation Department. Joe Maierhauser, who has been active at the cave since 1956, manages the mountain park for the Parklands Foundation.

The Sonoran Desert Conservation Concept Plan recognizes the outstanding natural resource values that exist within this park and its important role in the regional open space network, and has proposed that the existing 2,038 acre park be expanded by approximately 4,814 acres. The expansion of the park is intended to accomplish four principal goals:

1. Protecting key segments of the southern and southwestern slopes of the Rincon Mountains, including the adjacent Pistol Hill, and the presently unimpacted viewshed they comprise;
2. Establishing a linkage between the park and the Coronado National Forest in accordance with the original intent of the creation of the mountain park, which will entail the acquisition of several key parcels of private property;
3. Establishment of a linkage between the mountain park and the county's Cienega Creek Natural Preserve, which will create an important biological corridor between the preserve and the Santa Catalina District of the Coronado National Forest, and provide an crucial link in the regional open space network.
4. Protecting significant upland and riparian Sonoran Desert habitat, including additional segments of the Agua Verde Creek and Posta Quemada Wash.

Of the 4,814 acres in the proposed expansion area for the park, 3,319 acres is State Trust Land, 1,477 acres is private property, and 18 acres is federally-owned. If Pima County is able to acquire expansion lands as proposed, the park would encompass a total of 6,852 acres.

In addition to the expansion of Colossal Cave Mountain Park proposed in the Sonoran Desert Conservation Concept Plan, a complementary proposal has been made by the Rincon Institute that would entail the further expansion of Colossal Cave Mountain Park north and west into the Rincon Valley and east along the southern boundary of the Coronado National Forest.

The Institute's proposal suggests the addition of approximately 14,160 acres to the expansion area suggested by the Sonoran Desert Conservation Concept Plan. It would include a large parcel of Arizona State Trust Land located between the southern boundary of the Rincon Mountain District Expansion Area of Saguaro National Park and Colossal Cave Mountain Park, as well as Trust Lands east of the park and south of the forest encompassing a key segment of the Agua Verde Creek.

The benefits to be derived from the Institute's proposed expansion include the protection of large tracts of scenic, unspoiled desert with excellent quality habitat, the facilitation of a direct link between Colossal Cave Mountain Park and Saguaro National Park, and the protection of two important segments of the Rincon Creek and Agua Verde Creek. The enhanced expansion area would also provide a protected corridor for the Rincon Valley segment of the 780-mile, cross-state Arizona Trail, which passes through both Saguaro National Park and Colossal Cave Mountain Park.

Colossal Cave Mountain Park

- Empire National Conservation Area (NCA)
- Proposed Park Boundaries
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Trails
- Proposed Mountain Parks
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

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Figure 22

The information depicted on this drawing is the result of a field analysis performed on a variety of sources. The accuracy of the information presented is limited to the best of our ability. The Pima County Department of Planning and Administration does not warrant the accuracy of the information depicted herein.

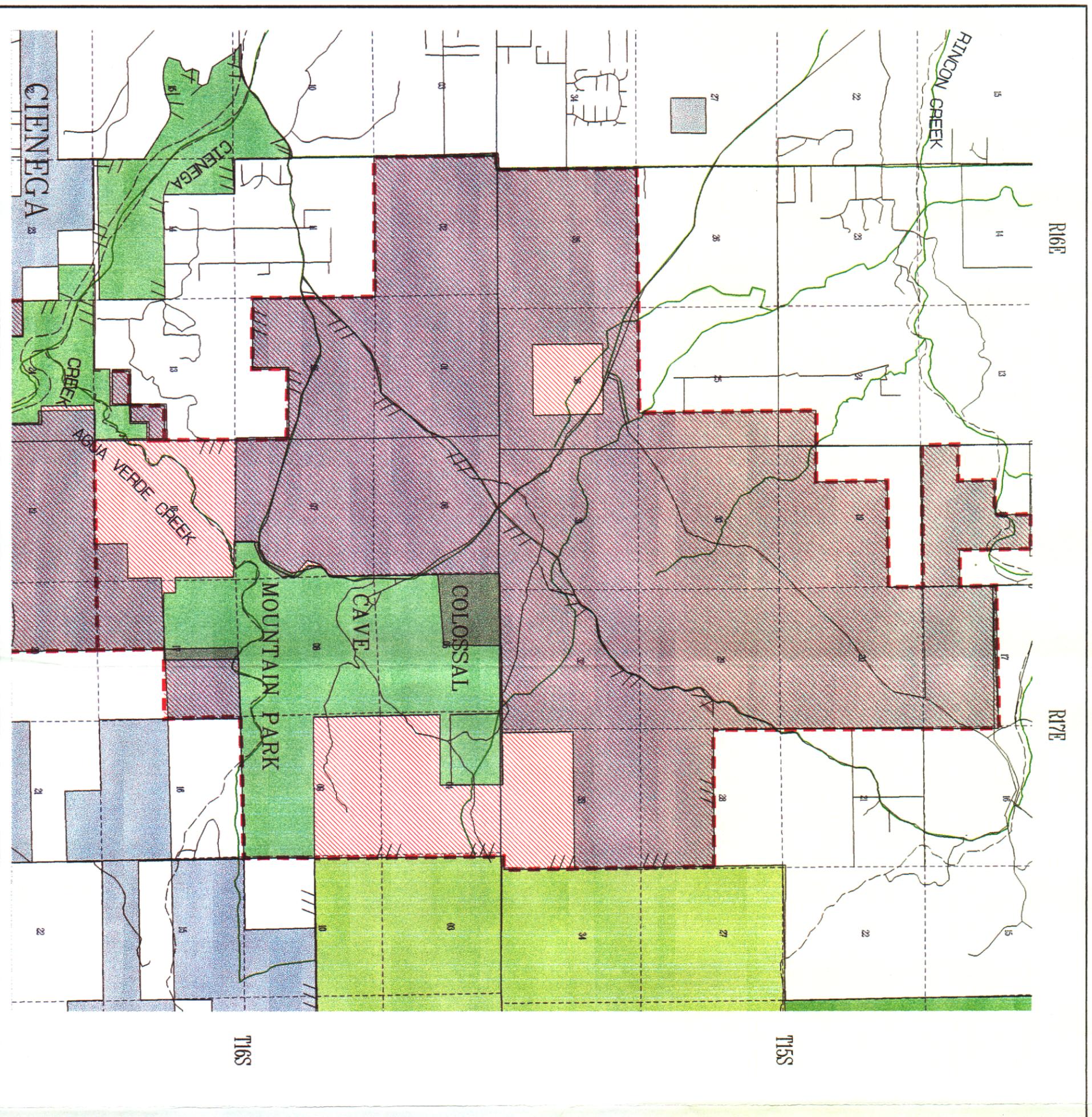
This report is submitted to the Department of Transportation.

Scale 1: 14,000



TECHNICAL SERVICES

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In 1997, work began on master plan for Colossal Cave Mountain Park. A working group was formed, and completed a comprehensive Master Plan Background Report in March of 1998. The information included in the Background Report will help guide the development and management of the park for many years to come.

Colossal Cave Mountain Park and its proposed expansion areas are located within the proposed Las Cienegas National Conservation Area, the concept for which grew out of ideas first proposed in the late 1980s. The current proposal is much more extensive than previous iterations of the concept, and Pima County is hopeful that this designation will bring funding that can be used to expand Colossal Cave Mountain Park and the Cienega Creek Natural Preserve, as well as the principal focus of the NCA project, the BLM's Empire-Cienega Resource Conservation Area.

(B) Existing Conditions -- The character of Colossal Cave Mountain Park's setting remains essentially rural, but the surrounding area is poised for significant change. While the park is not beginning to feel the effects of encroachment like the northern reach of the Cienega Creek Natural Preserve, development is occurring just a few short miles to the west down Colossal Cave Road, and a new access road and several homesites have been bladed on the northern boundary of the park on a parcel of private property included within the park's proposed expansion boundary. Add to these factors the approved and pending subdivision and specific plans that will completely change the character of the Rincon Valley--Rocking K Ranch, Coyote Creek, Mountain Creek Ranch, Antler Crest, Vail Valley Ranch and others--and it is clear that the park and the sleepy area that surrounds it will soon be entering a major transition period.

The mounting development pressure in the region argues for an effective and balanced land conservation strategy.

(C) Park Concept -- The concept for Colossal Cave Mountain Park essentially mirrors that of Tucson Mountain Park, but on a much smaller scale. The proposed expansion of the land component of the park would protect and preserve a large quantity of natural open space, while the original core of the park will more closely resemble the parts of Tucson Mountain Park that are home to the Arizona-Sonora Desert Museum and Old Tucson. Colossal Cave's rough equivalents to those features are Colossal Cave and the Posta Quemada Ranch.

An expansion of the Colossal Cave compound is not anticipated, but its Depression-era CCC-constructed buildings will be restored using funds from the historic preservation component of the 1997 Open Space Bond Program. However, additional development *is* slated for the Posta Quemada Ranch compound, which will receive a new parking area, and several small park structures, including living quarters for park staff, a tack room, a woodworking shop, and more. Like Tucson Mountain Park, Colossal Cave Mountain Park offers low-intensity recreational trail opportunities for hikers, equestrians and bicyclists, as well as picnicking and camping sites. A segment of the Arizona Trail that serves all three user groups will pass through the park on its way to the Mexican border.



Colossal Cave Mountain Park

(D) Natural Resources -- As might be expected from a park that features a natural cave, the geology of Colossal Cave Mountain Park is extraordinary, and is undoubtedly its most significant characteristic. According to experts who have conducted studies on the site, the park's geology is uncommonly diverse, and represents a "mosaic" array of 20 different geologic units. The park is regarded as one of the few sites in the region where "...visitors can view, in close proximity to one another, rock units representing the entire span of geologic time in southern Arizona, as well as evidence of the physical changes that accompanied geologic events." The proposed expansion of the park will help protect additional outstanding unimpacted examples of this geologic diversity, further contributing to the significance of the park. (Colossal Cave Mountain Park Master Plan Background Report).

Colossal Cave Mountain Park is also notable for its wide range of vegetative communities. This exceptional diversity can be attributed to its variety of rock and soil types (21 soil types occur within the park's planning area), as well as to the fact that the park is located in a transition area between the Chihuahuan and Sonoran deserts, and includes some of the characteristics of both regions. The park's higher than average rainfall also contributes to this diversity.

Six vegetative communities have been identified within the park's planning area, including the Creosote Bush, Palo Verde-Saguaro, Chihuahuan Desertscrub, Semidesert Grassland, Deciduous Riparian Forest, and Evergreen Woodland associations. These plant communities are generally in very good natural condition, although several exotic species can be found within the park. Park staff is aware of the existence of the exotics and the measures necessary for their control.

Special status wildlife species that are known to occur in the park include the desert tortoise, the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, the California leaf-nosed bat, the western red bat, and Townsend's big-eared bat. No special status plant species have been identified in the park. A considerable number of crestate saguaros can be found in the park, however; nine have been located to date.

The uncommon diversity of the park's plant communities in turn fosters considerable wildlife diversity. For instance, the small, hearty woodland riparian area on the La Posta Quemada Ranch provides habitat for a wildlife community unto itself, and the Chihuahuan and Sonoran habitats support species of their own.

Three general habitat types can be found within the park:

- (1) habitat associated with cave features;
- (2) upland habitat, and
- (3) riparian habitat.

The latter two are also found on the proposed expansion lands within the planning boundary. The species that inhabit the park range from predatory mammals such as ringtail cats and mountain lions to at least 11 species of bats. The park is especially diverse in bird and reptile species, at least partly owing to the lush riparian habitat in the Posta Quemada Wash and along the nearby Agua Verde Creek.



Colossal Cave Mountain Park

(E) Cultural Resources -- Colossal Cave and the area surrounding it, including the suggested expansion lands, have considerable archeological and historical significance. The lands, with natural springs and riparian corridors, have long attracted the interest of humans and were inhabited for an extended period. To date, 13 prehistoric sites have been identified in vicinity of the park and the adjacent Pistol Hill area. The area in and around the park has also been a literal hotbed of human activity since the mid-1800s. In 1857, the first stagecoach line passed through the area, and by the 1870s, the Southern Pacific Railroad was operating a stagecoach stop on what is today a part of the Posta Quemada Ranch. In 1879, rancher Solomon Lick discovered what is now Colossal Cave while searching for stray cows, and initiated local interest in this unique feature that continues today.

In 1923, the first tours of the unimproved cave began, led by Frank Schmidt. In 1934, the CCC established a camp at the park on the adjoining Posta Quemada Ranch, and started work on a variety of park features. By the time the CCC camp closed in 1938, CCC workers had constructed pathways, handrails and lighting inside Colossal Cave, adobe camp structures on the Posta Quemada Ranch, roads, campgrounds, ramadas, and stone walls in the park, as well as the park's headquarters buildings. These outstanding features of the Depression Era and the overwhelming historical value of the park led to its inclusion in the National Register of Historic Places in 1992. Including the 13 prehistoric archeological sites in and around the park, a total of 27 cultural resources sites have been recognized by the Arizona State Museum.

(F) Recreation Potential -- Colossal Cave Mountain Park presently offers a wide range of passive recreation opportunities, including picnicking, birdwatching, hiking, horseback riding and camping. The park's 2.5-mile internal trail system is presently open to hikers and equestrians, although this trail use pattern will broaden to include mountain bicyclists when the park's segment of the shared-use Arizona Trail has been implemented. Eight trails listed on the Eastern Pima County Trail System Master Plan pass through the park, its SDCP expansion area, or the vicinity of both. These trails include:

- Trail #55 - Cienega Creek
- Trail #58 - Agua Verde Creek
- Trail #61 - Posta Quemada Canyon
- Trail #64 - Colossal Cave Road
- Trail #67 - Old Spanish Trail
- Trail #68 - Pistol Hill Road
- Trail #72 - X-9 Ranch Road
- Trail #246 - Coyote Wash

In addition to the Master Plan-listed trails, the park will also host a segment of the 780-mile, cross-state Arizona Trail, which is not presently listed on the Trails Master Plan because its ultimate route is still being determined. Field work to identify an alignment for the Arizona Trail through the park began in the spring of 1999, and a route should be fully identified by September, 1999. Two trailhead staging areas will provide access to the Arizona Trail in the vicinity of the park as well as the park's internal trail system. One of the trailheads will be located in the vicinity of the Posta Quemada Ranch, and the other will be located north of the park along Pistol Hill Road.

(G) Linkages to Other Protected Natural Areas -- Two principal linkages to other protected natural areas have been identified through the park's master planning process and the development of the Sonoran Desert Conservation Concept Plan -- the linkage east to the Coronado National Forest, and the linkage south to the Cienega Creek Natural Preserve.

Connecting Colossal Cave Mountain Park to the Santa Catalina Ranger District of the Coronado National Forest has been an imperative of the managers of the park and Pima County staff for many years.

Securing this linkage will require conservation across several parcels of private property, and while the will to acquire the land has always been present, the money to do so has not. The 1997 Open Space Bond Program did not include funding to facilitate the purchase of these parcels; however, efforts to identify other sources of funding are underway, and will be tapped if an opportunity arises.

Just as important as the linkage to the forest is the park's linkage to the Cienega Creek Natural Preserve. As noted elsewhere in this staff report, this link is part of a series of connections that could create an unbroken chain joining the Santa Catalina Ranger District of the Coronado National Forest and Colossal Cave Mountain Park with the Cienega Creek Natural Preserve, the Davidson Canyon Natural Preserve, the proposed Santa Rita Mountain Park, and the Nogales Ranger District of the Coronado National Forest.

If the Cienega Creek Natural Preserve is expanded to the south as proposed, the park would also be linked to the BLM's Empire-Cienega Resource Conservation Area. Achieving these linkages would be a major success that would benefit each natural area and the regional open space network considerably.

Another significant linkage that has been proposed as an adjunct to the planning process for the Sonoran Desert Conservation Plan is the connection proposed by the Rincon Institute between Saguaro National Park's Rincon Mountain District Expansion Area and Colossal Cave Mountain Park. As noted, this proposal entails the addition of a large quantity of State Trust Land in the Rincon Valley to the park, as well as the acquisition of a segment of the Agua Verde Creek, and would facilitate the creation of an important biological corridor that, like the other linkages noted in this section, would benefit all of the open space preserves in the area.

(H) Applicable Planning Documents -- The following planning documents contain information pertaining to Colossal Cave Mountain Park and/or the area surrounding the park:

- Colossal Cave Mountain Park Master Plan Background Report (1998)
- Rincon Valley Subregional Trails Plan (1998)
- Eastern Pima County Trail System Master Plan (1996)
- Cienega Creek Natural Preserve Management Plan (1994)
- Pima County Comprehensive Plan (1992)
- The Findings of the Pima County Open Space Committee - A Report to the Pima County Board of Supervisors (1988)
- Coronado National Forest Land and Resource Management Plan (1986)

5. Catalina State Park Expansion

(A) **Background** -- The 5,511-acre Catalina State Park is situated in the western foothills of the Catalina Mountains adjacent to the Town of Oro Valley between the Coronado National Forest and the Oracle Highway. The park was formally established on May 1, 1974 through the approval of House Bill 2280 by the Arizona Legislature, and is one of the Tucson Basin's most popular natural resource areas.

The park contains a wide variety of natural and cultural resources worthy of protection, including a large mesquite bosque and an important riparian ecosystem within the Canada del Oro Wash, which flows through the park. The lands encompassed by the boundaries of the park also insulate and protect the Pusch Ridge Wilderness, which is located immediately east of the park in the Santa Catalina Ranger District of the Coronado National Forest. Catalina State Park offers approximately 12 miles of recreational trail opportunities for hikers, equestrians and mountain bicyclists, and is a special favorite of horseback riders.

The Arizona State Parks Board owns a 19-acre parcel located at the entrance to the park along the Oracle Highway. The remaining lands within the park are controlled by the U.S. Forest Service, and are technically a part of the Forest's Santa Catalina Ranger District. The property inside the park's boundaries is managed as a state park unit by Arizona State Parks, under a long-term "Special Use Agreement" with the Forest Service. The current Special Use Agreement was executed in 1990, and will expire at the end of 2010. However, the expectation among all parties to the agreement is that the park is essentially a permanent fixture, and that the Special Use Agreement will be renewed at the appropriate time.

Catalina State Park is not a component of the Pima County Mountain Park and Natural Preserve System, but its key position and significance in the regional open space network led to its inclusion in both the 1997 Open Space Bond Program and the Sonoran Desert Conservation Concept Plan. The 1997 Open Space Bond Program designated \$1 million of the program's \$27.9 million in open space acquisition funding to facilitate the northward expansion of the park. A total of 1,000 acres of State Trust Land located in sections 14 and 22 of T11S, R14E was identified for potential acquisition in the Truth in Bonding Ordinance (Pima County Ordinance 1997-35). The rationales for the acquisition of the property included helping protect the park's scenic values and wildlife habitat, facilitating the expansion the park's recreational trail system, and helping the area retain some of its rural character, which unfortunately is quickly eroding.

The Sonoran Desert Conservation Concept Plan took the expansion of Catalina State Park to the next level, and identified approximately 2,500 acres of property north of the park for possible protection. The central purpose of the proposed expansion is to facilitate the establishment of a biological corridor that would link the Coronado National Forest, the Sutherland Basin, and Catalina State Park to the Tortolita East Biological Corridor and the Tortolita Mountains. The proposed biological corridor would allow the natural movement patterns of the wildlife in the area to continue, which would help protect the genetic health of these species by keeping them from being isolated in a fragmented habitat area.

The corridor would provide a long-sought and critical connection in Eastern Pima County's regional open space network, and provide a range of other valuable benefits, including the protection of scenic resources and riparian and upland wildlife habitat, the provision of additional trails-based recreational opportunities, and the protection of natural wash corridors, which would enhance local flood control and natural aquifer recharge. As noted, the majority of the property identified in the SDCP's Catalina State Park expansion area--more than 2,400 acres--is State Trust Land, and the V-shaped arrangement of these Trust Lands is a near-ideal configuration for establishing the desired linkages. A 240 acre piece of private property located at the bottom of the 'v' compromises the layout of the corridor. It is anticipated that landowner cooperation for the pockets of private lands within the expansion area would make conservation purposes possible.

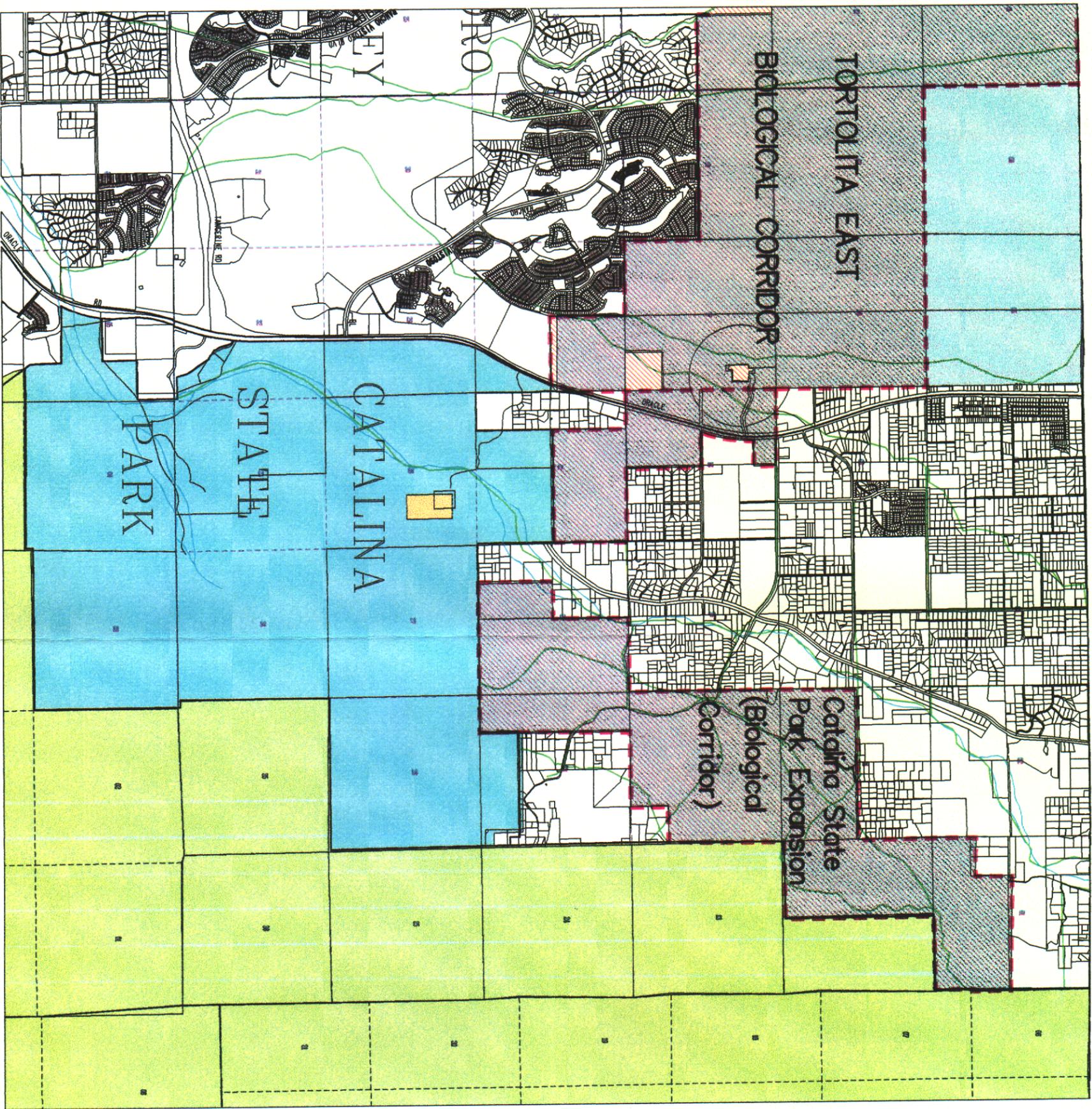
Because of the rapid pace of growth in the area and ever-increasing development pressure, Pima County moved to protect the undeveloped State Trust Lands in the expansion area north of the park through the preparation and submission of an Arizona Preserve Initiative application. The API application sought to have all of the Trust Lands north of the park--a total of 2,320 acres--reclassified for conservation purposes, which would protect it for up to 8 years while acquisition funding was being assembled. The preparation of the API application was approved by the Board of Supervisors on November 10, 1998, and was submitted to the State Land Department in April of 1999. The application was returned to Pima County in July of 1999 due to the fact that the town of Oro Valley, the jurisdiction upon which the API reclassification boundary for the area north of Catalina State Park is based, did not have a population of more than 10,000 at the time of the last decennial census as required in the API organic legislation. This reduced the reach of the API from three miles beyond the town boundary to one mile, despite the fact that Oro Valley is considerably larger than 10,000 and has been for many years, and rendered the expansion lands ineligible for reclassification. The three mile API boundary will not be applicable to the town of Oro Valley until the results of the next decennial census, which will be conducted in the year 2000, are posted. The State Land Department encouraged Pima County to resubmit the application at that time, which will probably be sometime in the year 2001. In the meantime, the lands will remain unprotected and available for sale to the development community.

The \$1 million in funding provided for the expansion of Catalina State Park (Project #SD-7) in the 1997 Open Space Bond Program will ultimately be used as the foundation for the acquisition of the Trust Lands in the suggested expansion area. Like the funds designated for the expansion of Tortolita Mountain Park, the Catalina State Park bond funds will be used to leverage matching grants from other sources to extend their purchasing power. Pima County plans to apply for a 50-50 matching grant from the state's recently-created "Growing Smarter" program, which will double the available funding from \$1 million to \$2 million. In 1998, Parks and Recreation Department planning staff approached Arizona State Parks about the possibility of having the agency match the county's bond funds with monies it receives annually for land acquisition from the Arizona Heritage Fund. The proposal was received with interest, and staff is hopeful that an acquisition partnership will materialize. If State Parks matches Pima County on a 1-to-1 or 2-to-1 basis, and these funds are subsequently matched with a Growing Smarter grant, as much \$4 million to \$6 million could be generated to purchase the State Trust Lands.

R13E

R14E

R15E



T12S

T13S

Catalina State Park Expansion

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Existing Park Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Mountain Parks
- Bureau Of Land Management (BLM)
- Catalina State Park
- National Forest Land
- Private Lands
- State Trust Lands

DRAFT

FIGURE 16b

Pima County Index Map



Index Map Scale 1:1,000,000

The information depicted on this display is the result of a data collection project funded by the Department of Transportation. The collection was done by the Department of Transportation Technical Services Unit. The data was collected in the field by the Department of Transportation Technical Services Unit. The data was collected in the field by the Department of Transportation Technical Services Unit. The data was collected in the field by the Department of Transportation Technical Services Unit.

Scale 1:14,000



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/daffy/mhp/sdcp/mtgpk/catal12d.dwg

Plotted: 04/14/99

(B) Existing Conditions -- Like the adjacent Tortolita Mountains, the formerly rural lands surrounding Catalina State Park have been the subject of considerable growth over the past 15 years. The park is now virtually surrounded by urban development on three sides. Of the 15 total miles of park boundary, six abut the Coronado National Forest and its Pusch Ridge Wilderness. The remaining nine miles of boundary -- including one mile of the southern boundary, and the entirety of the western and northern boundaries -- are bordered by private properties and undeveloped Arizona State Trust Land, and are consequently exposed to the effects of urban encroachment.

In its 1991 Management Plan for Catalina State Park, Arizona State Parks predicted that "...within ten years, Catalina State Park will indeed be an urban park functioning within the context of metropolitan Tucson." Eight years later, this prediction is well on its way to proving out. State Parks planners also noted that urban encroachment around the park would undoubtedly have a variety of effects, "...dramatic increases in visitation and vehicular traffic, altered viewsheds, degradation of air quality, boundary [issues with] residential developments...and increased demands on park infrastructure, equipment and staff."

The 7,600 acre Rancho Vistoso master-planned community is located immediately west of Catalina State Park and its proposed expansion area in the town of Oro Valley, and its developer, Vistoso Partners, is presently acquiring additional land to expand the scope of the project. The growing village of Catalina, which has considered incorporation in the past, is located immediately north of the subject area. The SaddleBrooke development, a large retirement community, is located nearby in southern Pinal County, and additional large-scale development -- thought to be another retirement community -- may be slated for the proximity of Saddle Brooke as well. This profound and accelerating regional development pattern argues for fast action in order to preserve the State Trust Land proposed for the expansion of the park and the creation of its biological linkage to the Tortolita Mountains.

[C] Park Concept -- According to the park's management plan, the purpose of Catalina State Park "...is to preserve vital natural resources and processes while providing recreational opportunities which promote interaction with the natural environment." Towards that end, State Parks has kept facility development to a minimum while providing recreational activities that are compatible with resource protection, such as hiking, birdwatching, horseback riding, mountain biking, camping, interpretive trail use, and environmental education and research activities. (Catalina State Park Management Plan.) The northern expansion of Catalina State Park proposed by the Sonoran Desert Conservation Concept Plan is compatible with the stated mission of the park and its fundamental concept, including its recreation element, and would help protect, and hopefully enhance, the resources the park was created to preserve.

(D) Natural Resources -- The natural resources contained within Catalina State Park's 5,000 acres are varied and unique. Its location at the base of the northwestern slopes of the Santa Catalina Mountains is one of the most breathtakingly scenic settings in Eastern Pima County, and the existence of the park helps to assure the protection of this dramatic viewshed, which has been significantly compromised just short distance to the south by the residential and commercial development on and along Pusch Ridge.

Sections of two major wash corridors--the Canada del Oro and the Sutherland washes--pass through the park, which protects the valuable riparian habitat within them. These washes and their tributaries support an extensive mesquite bosque. The Arizona Game and Fish Department has commented that "...the mesquite bosque vegetative community which occurs on the Canada del Oro, Sutherland Wash and associated tributaries is considered a critical wildlife habitat and a high-value riparian forest ecosystem. Other plant associations that occur within the park's riparian community include Arizona ash, cottonwood, sycamore, desert willow, oak, netleaf hackberry, Arizona walnut and Arizona cypress. Other major vegetation types found in the park include desert scrub, desert grassland, and foothill communities.

Many of these same qualities and characteristics are present on the park's northern expansion lands, which also encompass segments of the Canada del Oro and Sutherland washes. The gently-rolling hillsides and rocky ridges north of the park have outstanding scenic qualities, and all of the subject expansion Trust Lands contain excellent examples of natural Sonoran Desert habitat, including large and impressive stands of saguaro cactus.

The area's variety of vegetation types support a wide range of desert wildlife. Species typically found throughout Catalina State Park and on the park's proposed northern expansion lands include javelina, coyote, jackrabbit, cottontail, bobcat, skunk, squirrels, mule deer, and bats, as well as a multiplicity of snakes, lizards and birds. The park provides habitat for migratory neotropical birds and also wintering peregrine falcon. Desert bighorn sheep have been sighted in the park and on surrounding lands in the past, although their numbers have declined to a bare few in recent years, which is believed to be due to human encroachment into their habitat. The park's northern expansion lands contain habitat considered suitable for the endangered cactus ferruginous pygmy-owl. The Sonoran desert tortoise, a species of special concern, can be found within the habitat that exists in the area, and could conceivably be present on the expansion lands. Other special status wildlife that may exist on and around the subject expansion lands include the American peregrine falcon, the Lesser long-nosed bat, the Mexican long-tongued bat, and the California leaf-tongued bat.

The State Trust Lands proposed for addition to Catalina State Park as a part of the Sonoran Desert Conservation Concept Plan are a part of the eastern viewshed of the Oracle Highway corridor, one of the most scenic drives in southern Arizona. This route is identified in the Pima County Comprehensive Plan as one of the community's five principal "gateway" corridors, and derives a considerable portion of its beauty from these undisturbed Trust Lands at the foot of the Santa Catalina Mountains. The acquisition of the subject Trust Lands by Pima County and their addition to Catalina State Park will help protect this valuable scenic corridor and, as noted above, help preserve some of the area's dwindling rural character.

The subject park expansion lands are located within a geologically unusual "graben"--an area between two parallel faults filled with sedimentary deposits. According to local authorities, the graben makes this area a unique intermontane zone with noteworthy ecological characteristics. The park's expansion lands--particularly those nearest to the Sutherland Wash, experience unusual climatic conditions, and can receive up to twice the amount of rainfall received elsewhere in the Tucson basin.

(E) Cultural Resources -- The lands presently within the boundaries of Catalina State Park are home to a wide range of valuable cultural resources. Investigations conducted by the Arizona State Museum and others have found tools, flakes and projectile points that are believed to date back to 5000 B.C. These investigations also suggest that the area was occupied by Hohokam Indians from about 300 B.C. to around 1500 A.D. Some 38 archeological sites have been located and recorded in the park, the most significant of which is the Romero Ruin or "Pueblo Viejo." The Romero Ruin is a classic Hohokam habitation site and historic ranch compound that covers approximately 30 acres, and features a stone compound wall, several rooms of stone masonry construction, rock and trash mounds, rock alignments that are believed to have been irrigation troughs, and two depressions that may have been used as ball courts.

Of the variety of cultural resource studies that have been conducted in the park to date, the most comprehensive was the 1987 study "Archeological Survey in Catalina State Park With A Focus on the Romero Ruin" by the Institute for American Research. The findings of the study led to the creation of the Sutherland Wash Archeological National Register District in 1988. The State Trust Lands north of the Catalina State Park identified for addition to the park through the planning process for the Sonoran Desert Conservation Concept Plan (and included in the county's Catalina State Park API application) have not yet been systematically surveyed, but evidence of the occupation of these lands by Hohokam Indians can be found throughout the area. Additional sites are expected to be found along the Sutherland Wash and the nearby Canada del Oro Wash.

(F) Recreation Potential -- Catalina State Park is a leading destination for recreational trail users, and as previously noted, offers approximately 12 miles of recreational trail opportunities for hikers, equestrians and mountain bicyclists. The park is a particular favorite of horseback riders because of suitability of its trails for equestrian use, and the park's extensive equestrian center, which features expansive horse rig parking, corrals, water and other amenities. The 8-mile long 50-Year Trail begins in the park, as do the Sutherland and Romero Canyon Trails, which provide hiking and equestrian access into the adjacent Pusch Ridge Wilderness Area. Catalina State Park is considered the "Gateway to the Pusch Ridge Wilderness." The park is also a highly-regarded birdwatching site. Catalina State Park presently serves as the principal natural open space park for the rapidly growing northwest region of the Tucson Basin, including parts of the City of Tucson, the towns of Oro Valley, Tortolita and Casas Adobes, and the unincorporated village of Catalina. Each of these communities is home to large numbers of outdoor enthusiasts--including hikers, equestrians, mountain bicyclists and birdwatchers.

The park's potential expansion area includes segments of eight trails listed on the Eastern Pima County Trail System Master Plan, including the 50-Year Trail (Trail #29), which crosses the expansion area via a Special Land Use Permit from the State Land Department, the Canada del Oro Wash (Trail #2), and the Sutherland Wash (Trail #35). The property is presently being used by hikers, equestrians and mountain bicyclists. Low-intensity recreational trail use of the type that is presently occurring use should complement the expansion area's principal purpose, which is to function as a biological corridor. The suggested expansion area property also offers excellent opportunities for environmental education and scientific research.

(G) Linkages to Other Protected Natural Areas -- The preservation of a corridor of open land between the Tortolita Mountains and the Catalina Mountains capable of serving as a viable biological corridor has been a concern for many in the community for many years. This concern has increased in the 1990s, as the pattern of growth in the northwest region of the Tucson metro area hit a fever pitch.

The expansion of Catalina State Park as proposed in the Sonoran Desert Conservation Concept Plan will ultimately make this linkage possible, and assist the effort to preserve the integrity of the open lands in the northwest area and their resident wildfire populations.

(H) Implementation -- The effort to implement the expansion of Catalina State Park and establish the much-anticipated biological linkage between the park, the forest and the Tortolita Mountains began on November 10, 1998, when the Pima County Board of Supervisors approved the preparation and submission of an Arizona Preserve Initiative application encompassing the 2,320 acres of State Trust Lands north of the park.

The API application sought the reclassification of these lands for conservation purposes, and if it had been accepted, would have allowed them to remain in their natural state for up to 8 years while funding was amassed by Pima County to acquire the property.

While the application, which was submitted in April of 1999, was ultimately not accepted for technical reasons, the Arizona State Land Department encouraged Pima County to pursue the reclassification of the property after the results of the next decennial (2000) census have become available.

County staff will resubmit the application at the earliest opportunity. In the meantime, staff will ensure that Arizona State Land Department officials are aware of the community's commitment to the protection of these lands, and monitor the property to make sure it remains in excellent natural condition.

(I) Applicable Planning Documents -- The following planning documents contain information pertaining to Catalina Mountain Park and/or the area surrounding the park:

- Town of Oro Valley Parks, Open Space and Trails Master Plan (1999)
- Tortolita Mountain Park Master Plan (1997)
- Focus 2020 - Town of Oro Valley General Plan (1996)
- Pima County Comprehensive Plan (1992)
- Catalina State Park Management Plan (1991)
- Coronado National Forest Land and Resource Management Plan (1986)

6. Expansion of Other Existing Open Space Preserves in Eastern Pima County

Several other open space expansion efforts are presently underway or have recently been completed in Eastern Pima County that complement the goals of the Sonoran Desert Conservation Concept Plan. These projects include:

(A) Saguaro National Park

In the 1990s, two significant expansion efforts have been undertaken by the National Park Service on behalf of Saguaro. In 1991, President Bush approved Public Law 102-61, which authorized the expansion of the Rincon Mountain District by 4,111 acres. The RMD Expansion Area is located on the southern boundary of the park in the Rincon Valley, and is bounded by Camino Loma Alta on the west and the X9 Ranch on the east. The RMD expansion, which is nearing completion, protects a wide range of natural and cultural resources.

The expansion will also help facilitate the linkage of Saguaro National Park to Colossal Cave Mountain Park, should the proposal made by the Rincon Institute to protect the large quantity of State Trust Land in the Rincon Valley between the parks prove successful.

In 1994, President Clinton approved Public Law 103-363, which authorized the expansion of the Tucson Mountain District by 3,460 acres, and upgraded the status of Saguaro from National Monument to National Park. Unlike the RMD expansion, the TMD expansion lands occur in several locations around the perimeter park.

Two large tracts of expansion property are located on the eastern edge of the district. All of the property approved for acquisition possesses high resource values. Certain segments of the property contain suitable habitat for the cactus ferruginous pygmy-owl -- the protection of which is a principal goal of the Sonoran Desert Conservation Concept Plan.

(B) Coronado National Forest

The boundaries of the Coronado National Forest's 262,000 acre Santa Catalina Ranger District have been essentially static for many years, but a recent large open space acquisition in proximity of the forest may eventually lead to its expansion.

In late 1998, the City of Tucson and The Nature Conservancy teamed up to acquire 71 square miles of the Bellota Ranch for conservation and open space preservation purposes. The ranch is located adjacent to the forest in the Redington Pass area, and the 44,694-acre purchase consists of 10,418 acres of deeded land and 34,274 acres of grazing lease land controlled by the Arizona State Land Department (34,196 acres) and the Bureau of Land Management (80 acres). Nearly 2,000 acres of the deeded property fronts on the San Pedro River and contains significant riparian and aquatic habitat. The lion's share of the ranch acquisition is controlled by the City of Tucson, and open space advocates are hopeful that the almost 7,000 acres of deeded property in the city's possession will eventually become part of the forest, possibly through the application of federal Land and Water Conservation Funds, if such funding once again made available as is anticipated.

IV. Potential New Mountain Parks and Natural Preserves

The second key component of the Sonoran Desert Conservation Concept Plan's proposed enhancement of the Pima County Mountain Park and Natural Preserve System is the creation of new mountain parks and new natural preserves. As with the expansions of the County's existing parks and preserves, the new units will help protect valuable natural and cultural resources, facilitate the creation of biological corridors and linkages to existing resource areas which will assist in meeting regional endangered species compliance goals, and provide resource protection-compatible outdoor recreation opportunities. A description of each proposed new unit is included in this section.

1. Waterman-Roskruge Mountain Park

(A) Background -- Pima County's proposed Waterman-Roskruge Mountain Park occupies a large part of the western portion of the Avra Valley and is situated approximately 5 miles west of Tucson Mountain Park and the Tucson Mountain District of Saguaro National Park. At 56,031 acres in total size, Waterman-Roskruge Mountain Park, which is composed of a pair of connecting ranges -- the Waterman Mountains and the Roskruge Mountains -- will be one of the largest of Pima County's mountain parks, and more than twice the size of Tucson Mountain Park. The lands within the park boundary include 40,560 acres presently administered by the U.S. Bureau of Land Management, 12,460 acres of State Trust Lands, and 3,011 acres of private property. An attractive feature of the proposed park is the fact that it is bounded on the south and west by the Schuk Toak District of the Tohono O'odham Nation, which provides an opportunity to partner with the Nation in the interest of cultural and natural resource protection.

The park encompasses large sections of both the Waterman and Roskruge Mountains, two very scenic ranges that are named for Arizona pioneer George Roskruge, who served as U.S. Surveyor General of Arizona from 1896-97, and former California Governor Waterman, who once worked for a firm that operated mines in what are now the Waterman Mountains. An interesting aside is that Waterman Peak, the high point in the Waterman range, was named for Oracle resident Abbie Waterman, who was not related to Governor Waterman. Despite the many years of mining activity in the area, the lands remain in excellent natural condition. The area has also supported ranching for an extended period, and some grazing activity continues in and around the park. The area was identified for protection in the Sonoran Desert Conservation Concept Plan for a variety of compelling reasons, including the following:

- ▶ The property within the planning boundary of the park is home to several plant and animal species of considerable importance, including the endangered Nichol's Turk's Head cactus and the cactus ferruginous pygmy-owl, as well as desert bighorn sheep and desert tortoise.
- ▶ The range and its surrounding area is virtually wide open and needs the additional management and protection that mountain park status can provide. The area is presently being accessed by a small number off-highway vehicles for recreational purposes, which has the potential to cause significant, long-term impacts. Plant theft and wildcat dumping has also occurred within the boundaries of the proposed park.

- ▶ The establishment of a park or preserve would provide a key link in the creation a protected biological corridor connecting the Waterman and Roskrige ranges and the Tohono O'odham Nation to the Brawley Wash and the Tucson Mountains. This corridor will allow natural wildlife movement to continue in the area, and help protect the long-term biological viability of three of Tucson's most valuable natural resource areas. The creation of the park will also protect a fan of drainages that emanate from the Waterman and Roskrige Mountains and flow into the Blanco Wash, which also collects drainage from the Silverbell Mountains and ultimately flows into the Los Robles Wash. The Los Robles Wash is part of the Los Robles/Brawley/Altar Wash Complex, an important biological corridor identified for protection in the Sonoran Desert Conservation Concept Plan.
- ▶ Highly important cultural resources occur throughout this region adjacent to the Tohono O'odham Nation. The area in the vicinity of Cocoraque Butte and the foothills of the Roskrige Mountains are of considerable significance. Extensive Hohokam ruins and rock art locations have been recorded. This area is currently listed on the National Register of Historic Places.
- ▶ The creation of the park will protect more than a dozen miles of one of the last unspoiled viewsheds in eastern Pima County. The Waterman-Roskrige range offers one of the few remaining foothills areas that has not been impacted by development, and its viewshed is particularly significant because it is visible from a variety of prominent locations, including the Gates Pass Overlook, the Red Hills Visitor Center at Saguaro National Park West, and several other key locations in and around the Tucson Mountains.
- ▶ The lands encompassed by the park boundary have an network of existing roads and trails that are capable of providing low-impact recreation opportunities for hikers, mountain bicyclists and equestrians, as well as other related recreation potential. The provision of these opportunities should help relieve pressure on other open space areas through the dispersion of recreational interest and use.

The fact that the proposed park is mostly composed of BLM lands means that the establishment of the unit will be relatively simple and inexpensive. The park can be created through the execution of a Cooperative Management Agreement (CMA), a simple process that requires only a few hours of staff time to produce. The relatively small quantity of private land within the park should also not be difficult to address, because two major owners are either actively looking to sell their property or are presently pursuing a land exchange with the BLM. The greater difficulty lies with the park's more than 12,000 acres of State Trust Land. Future discussion will consider how to address this challenge.

(B) Existing Conditions -- The area surrounding the park is essentially rural. The Avra Valley continues to be the agricultural center of eastern Pima County, and cultivated fields (or formerly cultivated fields) can be found a short distance from the park. However, the growing town of Marana is located at the northern end of the valley, and interest in residential development west of the Tucson Mountains has been increasing for several years. The Avra Valley is poised for significant growth, and it won't be long before the area's transition from its rural agricultural orientation to a broader mixture of uses begins to pick up steam.

The Silverbell Mine, located in the Silverbell Mountains a short distance north and west of the proposed park at the western end of Avra Valley Road, has been active since the 1920s, and is presently owned and managed by Silverbell Mining, L.L.C., a partnership between ASARCO and Mitsui that was formed in 1996. ASACRO has a 75% interest in the mine, and Mitsui 25%. The mine complex covers a total of 18,000 acres, and incorporates lands secured in a trade with the BLM in 1992. The mine, which consists of three open pits and employs 114 people, produces high-purity cathode copper; 1998 production was 55 tons per day. The Silverbell Mountains contain a large quantity of BLM land, a considerable portion of which has been designated for mining. The remaining portion of the range, particularly the West Silverbells, are a future county mountain park candidate. The area encompassed by the proposed park is fully accessible to the public and receives only minimal protection. Several dirt roads lead into the interior of the proposed park from Avra Valley Road and Manville Road and are continuously open. Despite being essentially exposed and having only a small amount of law enforcement coverage, the area included in the park proposal gets little visitation and is in remarkably good natural condition. Evidence of mining activity can be found in a variety of locations within the park--particularly around Waterman Peak. The Waterman mountains contain a number of mining claims, several of which are considered to be active by the U.S. Bureau of Land Management.

Indications of the area's ranching history are also evident, and several ranches presently operate in the area. Pima County recognizes the activities of ranching interests operating in and around the proposed park, and will work with local ranchers to protect traditional uses that contribute to the conservation plan. The park property has an existing internal road and trail network that is currently in use by a small number of motorized and non-motorized users. OHV activity is apparent on roads and in several washes. The proposed park is very remote and an ideal site for activities such as plant and reptile harvesting and illegal dumping, which occurs within the boundaries of the proposed park periodically. The creation of the park could control access and bring a higher level of management to the area, which would help protect the land's presently good condition and its valuable natural and cultural resources.

[C] Park Concept -- The Sonoran Desert Conservation planning process will result in recommendations for use of this and other open areas, however, Pima County's concept for Waterman-Roskrige Mountain Park might involve a primitive mountain park with a minimal amount of development. Improvements could be restricted to recreational trails accommodating a non-motorized shared use pattern, a principal trailhead access parking lot with a water source, several additional trailhead staging areas around the perimeter of the park, a few shade structures, and other primitive, low-intensity improvements. A visitor contact station and restrooms could be sited at what will likely be the park's principal access point along Avra Valley Road in Section 22 of T12S, R9E, and given the size of the park, another contact station might be appropriate at some point at the western end of Manville Road. The focus of the park could be on the protection of the area's sensitive natural resources and the provision of compatible/complementary recreational activities, and development will not occur until at least a concept master plan has been produced and appropriate federal review processes completed. Accessible features for disabled park users will be incorporated at every opportunity, including accessible trail opportunities offering varying levels of challenge.

Unlike Tucson Mountain Park, public access to the Waterman-Roskruge Mountain Park would come from its periphery, and it is possible that no private or commercial vehicles would be allowed into the interior of the park. This access configuration would help protect natural resources and significantly lessen traffic enforcement requirements. Existing public roadways are capable of providing sufficient access to perimeter of the park. Possible trailhead locations include along Avra Valley Road, near the western end of Manville Road, and at some point along Mile Wide Road. Several roads lead into the park from the Schuk Toak District (and from the park onto reservation lands). Access to and from the Schuk Toak District could be explored with the Nation as a part of the planning process.

(D) Natural Resources -- The Waterman and Roskruge Mountains area is one of the most significant repositories of natural resources in Eastern Pima County, and the effective protection of these invaluable assets is perhaps the leading motivation for the development of the park. The proposed park is anchored by two connecting low mountain ranges -- the Waterman Mountains, which are limestone-based, and the Roskrouge Mountains, an area volcanic in nature. Limestone mountains are unusual in the Sonoran Desert, and this characteristic contributes to the range's plant diversity. The highest point in the park is Waterman Peak, which rises to 3,808 feet. These mountains combine to offer a pristine and very scenic viewshed that is visible from considerable distances. As noted, excellent panoramic views of the range can be had from the Gates Pass Overlook and Saguaro West's Red Hills Visitor Center, as well as any other high point in the Tucson Mountains.

The park's Sonoran desertscrub vegetation, which includes both upland and riparian habitat, is dense and generally in excellent natural condition. The park supports a wide variety of plant and animal life. The area's notable vegetative diversity includes two very important cactus species--the Nichol's Turk's head cactus, and the Pima pineapple cactus. Both are listed endangered species, and comprise two of the six types of endangered cacti that can be found within the state of Arizona. The Pima Indian mallow, a plant species of special concern, can also be found within the park. During wetter years, a remarkable profusion of wildflowers can be seen throughout the area.

Typical wildlife species that can be found inside the proposed park include desert tortoise, mule deer, bobcats, javelina, coyote, desert cottontail, and gray fox. A small herd of bighorn sheep visits the range from the nearby Silverbell Mountains from time to time. Migratory neotropical birds, Harris's hawks and burrowing owls are among the abundant bird life in the park, which may also include the endangered cactus ferruginous pygmy-owl.

Consistent with the value and significance of the resources located in the proposed park, two areas within its boundaries have received special-status designations. The first is a BLM *Area of Critical Environmental Concern* or "ACEC" located in the northwestern corner of the park, and the second is an area in the southern part of the park formally designated as critical habitat for the cactus ferruginous pygmy-owl. The ACEC consists of a total of 3,100 acres-- 1,900 acres of BLM land, 600 acres of State Trust Land, and 540 acres of private property-- and was created to help delineate and protect the habitat of the endangered Nichol's Turk's Head Cactus.



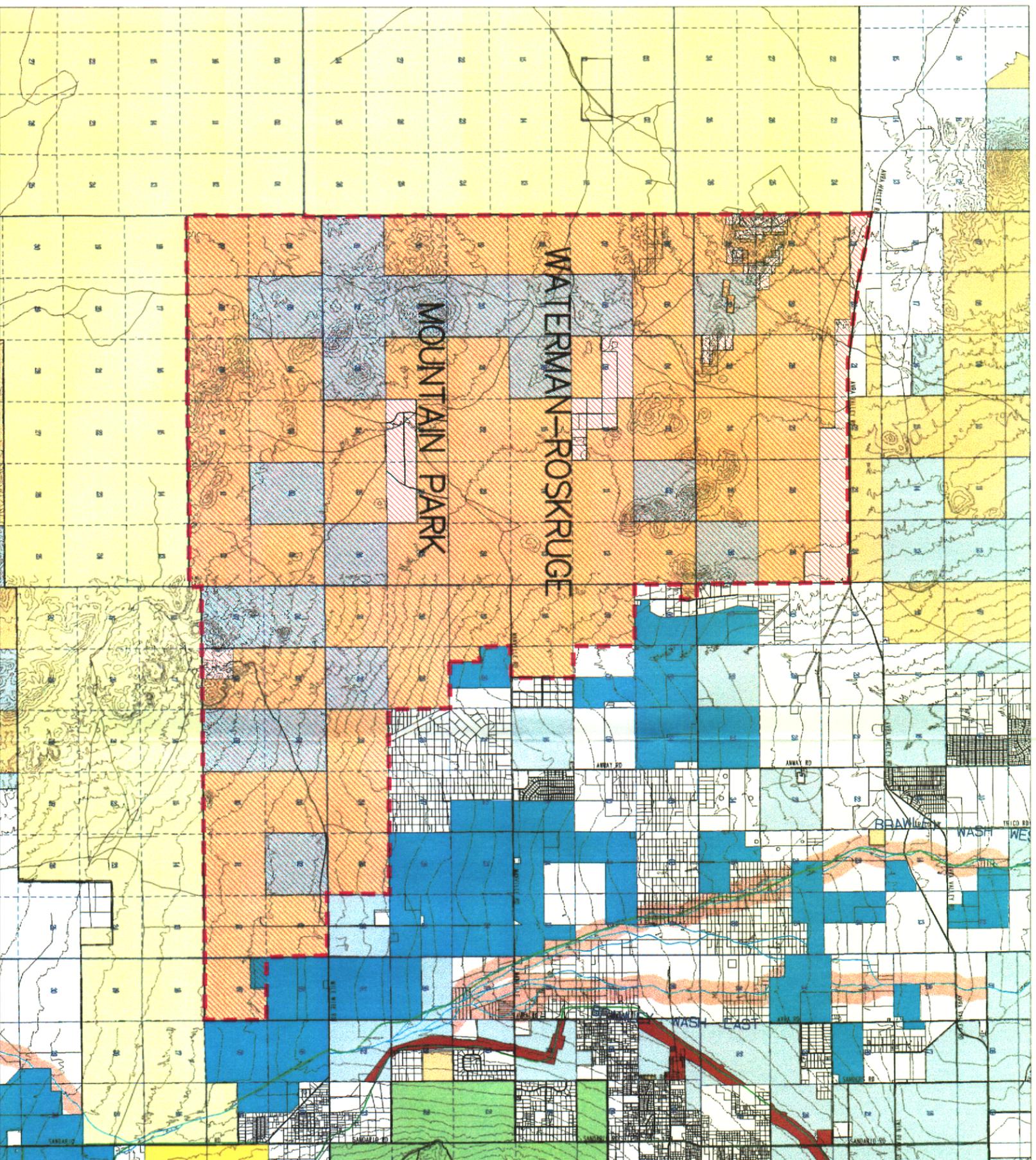
Waterman/Roskrige Mountain Park

R8E

R9E

R10E

R11E



T14S

T13S

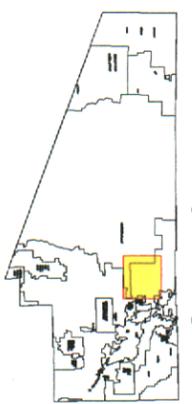
T12S

Waterman-Roskrige Mountain Park

Park

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Existing Park Boundaries
- Proposed Park Boundaries
- Trails
- Wildlife Corridor Links
- Proposed Mountain Parks
- Bureau Of Land Management (BLM)
- Private Lands
- State Trust Lands
- Bureau Of Reclamation
- Bureau Of Reclamation "Wildlife Mitigation Corridor"
- Indian Nation
- National Parks And Monuments
- Tucson Water Land In Avra Valley

WATERMAN-ROSKRUGE MOUNTAIN PARK:
 State: 12,460 Acres
 Federal: 40,560 Acres
 Private: 3,011 Acres



Index Map Scale 1:1,500,000

Figure 27

The information depicted on this display is the result of digital analysis performed on a variety of geospatial data sources. The accuracy of this information is dependent on the accuracy of the data used in the analysis. The information is provided "as is" and is not intended to be used for any purpose other than the one for which it was prepared. The user assumes all responsibility for any use of this information.

Scale 1:14,000



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(E) Recreation Potential -- The existing recreation pattern on the lands is sparse, owing to the distance of the site from metropolitan Tucson and the fact that the recreation opportunities in the area are little known. However, small numbers of hikers, equestrians, explorers and birdwatchers and mountain bicyclists presently use the area, as do off-highway vehicles, particularly ATVs. Evidence of ATV activity can be found in several washes that cross the site. Despite the wide-open nature of these lands and the mining activity that once occurred here, the resources are in remarkably good condition.

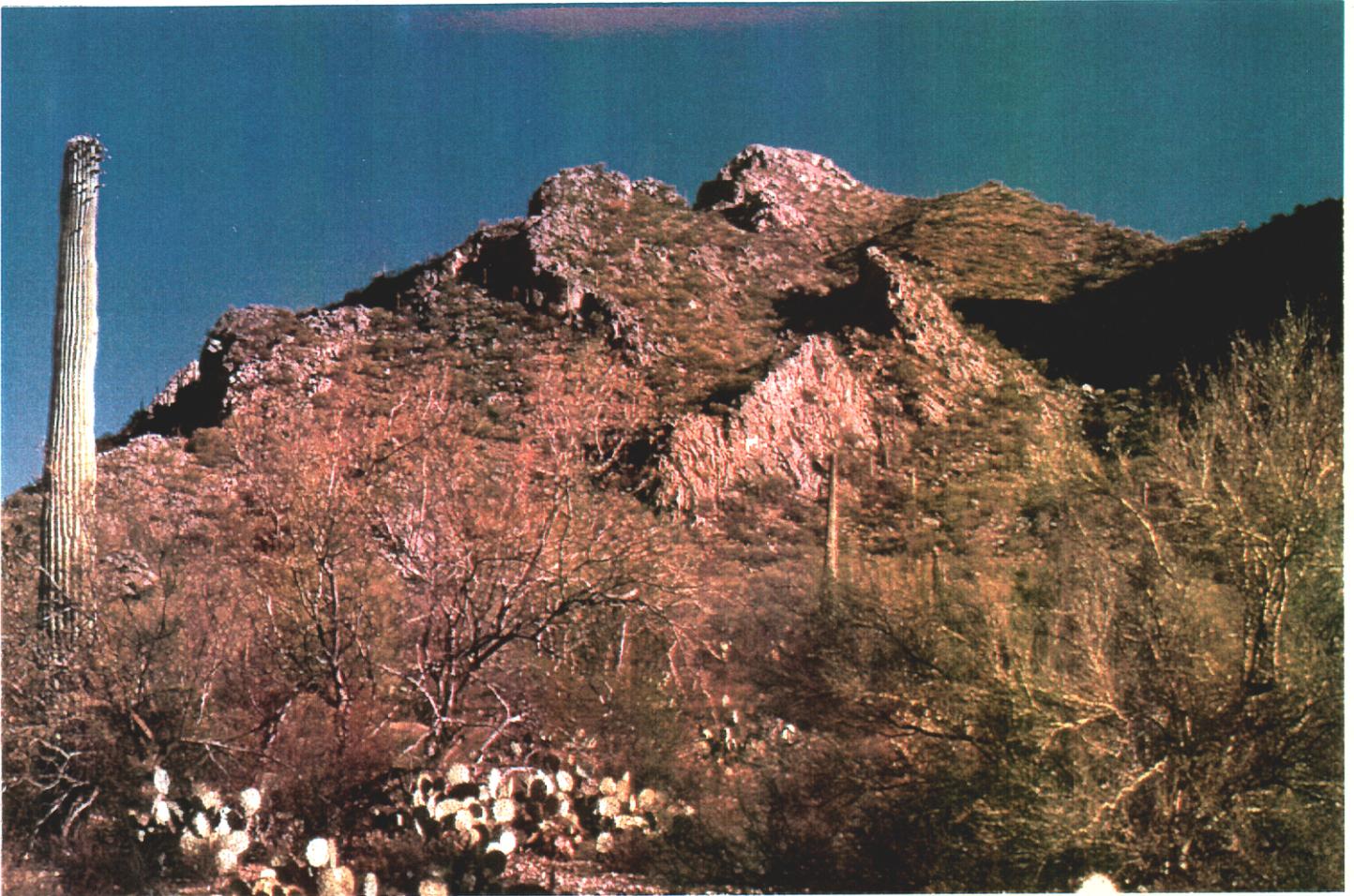
The proposed Waterman-Roskrige Mountain Park offers excellent recreation potential. An extensive road and trail system already exists on the lands within the park boundary, and little development would be required to create a functional, low-impact recreational trail system suitable for hikers, equestrians, and mountain bicyclists. Because the park is largely composed of federal lands, the extent of the system would depend on environmental analyses conducted in accordance with the federal National Environmental Policy Act (NEPA) to ensure that the park's recreational features do not compromise the land's inherent natural and cultural values.

No trails presently listed on the Eastern Pima County Trail System Natural Preserve provide access to the park or its vicinity. At the time the trails master plan was first produced in 1988-89, the area was beyond the project's planning boundary. The update of the Trails Master Plan that will be undertaken before the end of 1999 (and finished sometime in 2000) will examine the issue of trail access to this park and probably add several regional linkages serving the new unit to the system. These additions could include the El Paso Natural Gas utility corridor that traverses the Avra Valley from southeast to northwest; a linkage from the CAP Trail to the park--possibly along Mile Wide Road; the Manville Road right-of-way, and the Avra Valley Road right-of-way. In addition, the mild topography along the east side of the park would allow the development of an accessible loop trail for wheelchair users.

As noted, access will come from the perimeter of the park in several dispersed locations; private and commercial motorized vehicles will not have access to the interior of the park, which will provide a higher degree of resource protection and lower maintenance and management costs.

(F) Linkages to Other Protected Natural Areas -- One of the most important purposes of Waterman-Roskrige Mountain Park is the key role it will play in the creation of effectively protected biological corridor between the Tucson Mountains and the Waterman and Roskrige ranges. Both Tucson Mountain Park and the West Unit of Saguaro National Park are rapidly becoming surrounded by urbanization, and the link to the west is the most viable option for connecting these two invaluable natural preserves to other open space areas.

As noted elsewhere in this report, the purpose of a biological corridor is to allow the continuation of natural movement patterns of wildlife, which helps protect the genetic health of the populations in these areas and the fundamental viability of the preserves themselves. Species that would benefit directly from this effort over the long term will be large and small mammals such as the mule deer and javelina, and special status species such as the cactus ferruginous pygmy-owl, which would otherwise have had an unprotected gap between the Tucson Mountain Park and Waterman-Roskrige segments of its critical habitat designation.



Waterman/Roskrige Mountain Park

Protected biological corridors would also be useful in providing trail linkages between units, although the number of connector trails will be kept to a minimum in order to assure the efficacy of the corridor. A gap of only about two miles separates Waterman-Roskrige Mountain Park and Tucson Mountain Park, thanks to the U.S. Bureau of Reclamation's Tucson Mitigation Corridor, which extends the open space within Tucson Mountain Park an additional two miles to the west. Inside this gap is a combination of three kinds of land:

- (1) State Trust Land,
- (2) land owned by Tucson Water, and
- (3) private property.

Under present practices, the State Trust Land will need to be purchased or leased to add it to the corridor. The Tucson Water lands make up the largest quantity of property in the corridor, and includes a segment of the Brawley Wash, itself a identified biological corridor that is of critical importance to area wildlife.

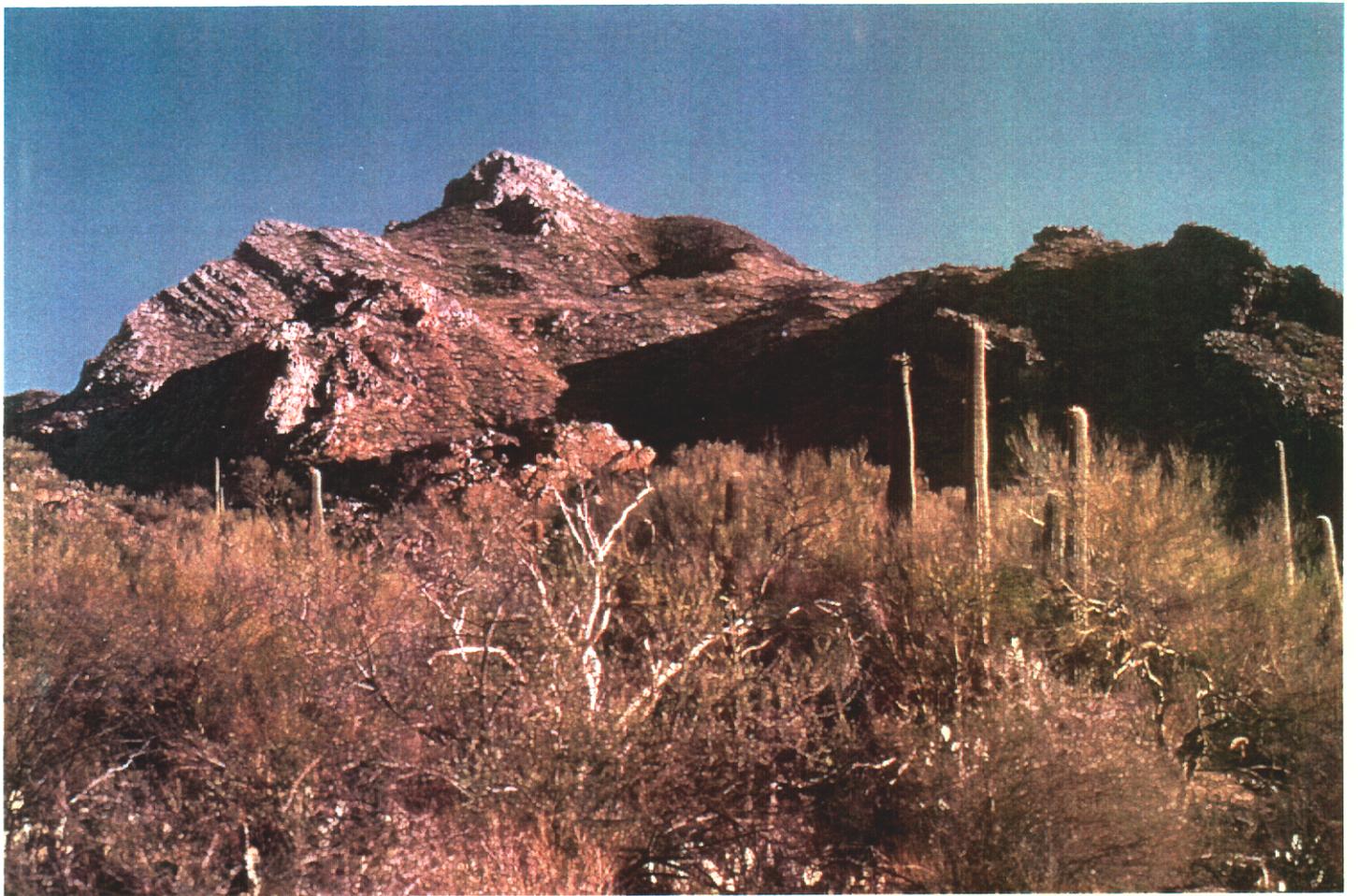
The nearby Silverbell mountains, which are located immediately north of Waterman-Roskrige Mountain Park across Avra Valley Road, also contain very significant resource values, and are listed as the possible future site of a county mountain park.

The Silverbells are home to a small population of bighorn sheep, and some of these animals are known to migrate to the Waterman Mountains illustrating the importance of a viable link between these ranges.

A portion of the Silverbells have been designated for mining, and the ASARCO Silverbell mine is in operation near the western end of Avra Valley Road. However, a large quantity of land in the range not slated for mining is in excellent natural condition and is controlled by the BLM and the State Land Department. Pima County's partnership with the BLM could be expanded to address the Waterman-Roskrige Mountain Park-to-Silverbell Mountains linkage at the time planning for the park occurs.

(H) Applicable Planning Documents -- The following planning documents contain information pertaining to the proposed Waterman-Roskrige Mountain Park and the surrounding area:

- Avra Valley Land Use Study for City of Tucson Property Holdings (1996)
- Pima County Comprehensive Plan (1992)
- Town of Marana General Plan (1997)
- BLM Phoenix District Resource Management Plan (1988)
- The Findings of the Pima County Open Space Committee (1988)



Waterman/Roskrige Mountain Park

2. Santa Rita Mountain Park

(A) Background -- The proposed 10,703-acre Santa Rita mountain park is situated in the picturesque foothills of the Santa Rita Mountains south of Sahuarita Road and west of Davidson Canyon. The community of Corona de Tucson is located approximately 2.5 miles west of the park at Houghton Road.

The proposed park, which surrounds the northeastern corner of the Nogales Ranger District of the Coronado National Forest, extends southward to the point where the Davidson Canyon drainage exits the forest. The park is principally composed of State Trust Lands (8,876 acres), but also includes about 1,826 acres of private property. The extensive natural resources encompassed by the Santa Rita Mountain Park include Fagan Lake, a man-made pond just outside the Coronado National Forest popular with local anglers that is managed by the Arizona Game and Fish Department.

Santa Rita Mountain Park was included as a component of the Mountain Park and Natural Preserve element of the Sonoran Desert Conservation Concept Plan for several reasons.

First, the creation of Santa Rita Mountain Park would protect the scenic northeastern slopes of the Santa Rita Mountains, an important viewshed that can be seen from the majority of the Tucson basin. The northern foothills of the Santa Ritas have already been impacted by residential development and mining activity, and the foothills region within the park represents a rapidly diminishing opportunity to protect the area's superb scenic values.

Second, in addition to protecting the scenic values of the northeastern Santa Rita foothills, the park would help protect the visual integrity of the Highway 83 corridor, which is a State Scenic Route, and one of the most picturesque and enjoyable drives in southern Arizona.

Third, the park would help protect a segment of the range's northern watershed, which flows into Davidson Canyon and ultimately through the Tucson Basin. The dense vegetation that lines the drainages that feed Davidson Canyon have outstanding wildlife habitat values, and are located on State Trust Land that would be protected by the creation of the park.

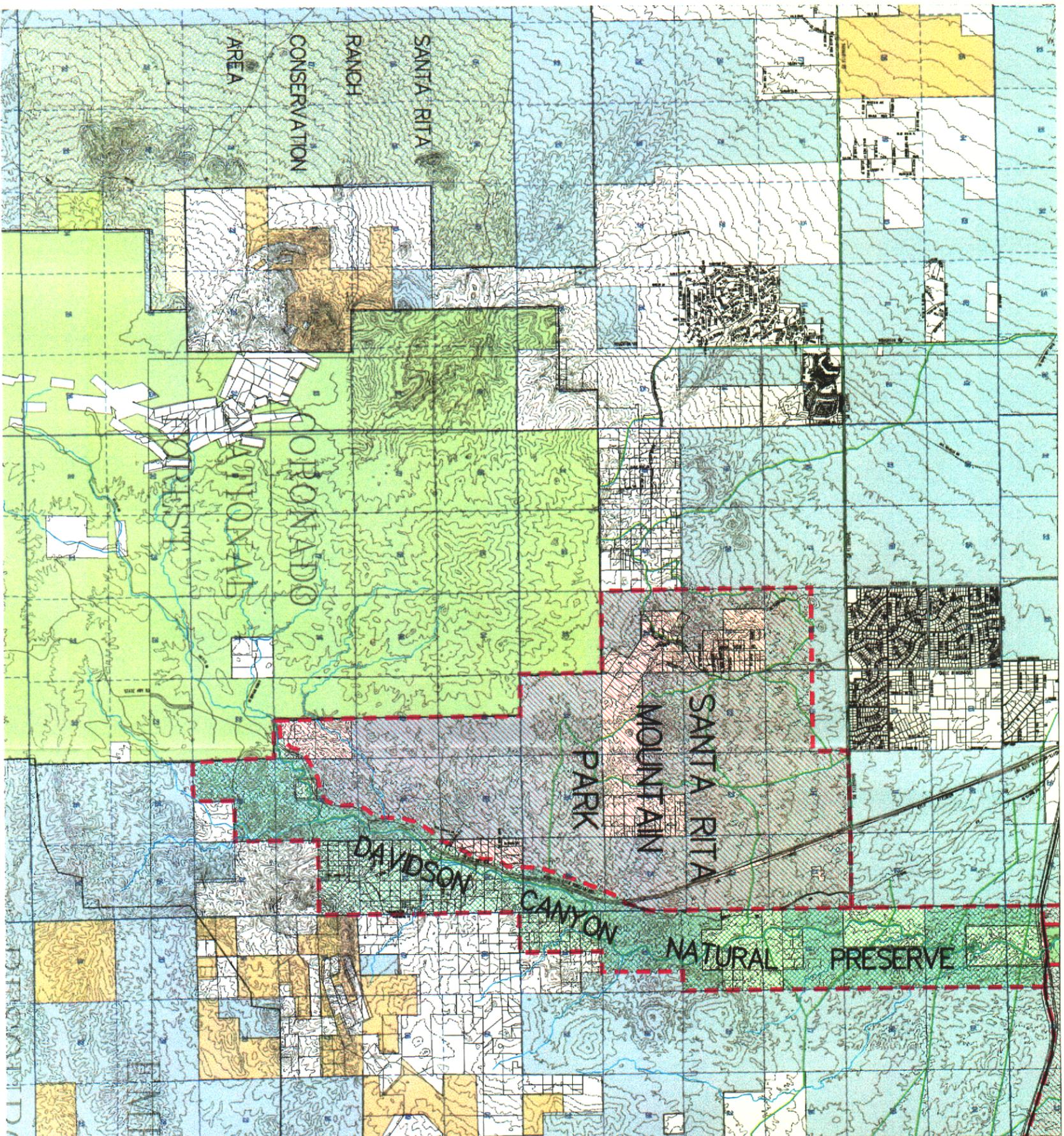
Fourth, the park would provide a variety of low-impact recreational opportunities on its existing jeep roads and trails, and would assure public access into the northern reaches of the Coronado National Forest, which is now at issue less than two miles away.

The park may ultimately host a segment of the 780-mile, cross-state Arizona Trail, which would link to the park's existing internal trail system. Also important is the moderating effect that the park would have on the impacts of the proposed ASARCO Rosemont Mine

R15E

R16E

R17E



T16S

T17S

T18S

Santa Rita Mountain Park And Davidson Canyon Natural Preserve

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Santa Rita Ranch Conservation Area
- Bureau Of Land Management (BLM)
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

SANTA RITA MOUNTAIN PARK:
 State: 8,876 Acres
 Federal: 75 Acres
 Private: 1,826 Acres

DAVIDSON CANYON NATURAL PRESERVE:
 State: 3,343 Acres
 Federal: 2,79 Acres
 Private: 2,845 Acres



Scale Map Scale 1:15,000

Figure 30

The information depicted on this study is the result of digital analysis performed on a variety of resources provided and of the information presented in the report. The data and information are not intended to be used for any purpose other than the specific project for which they were prepared. The information is provided as a service to the client and is not intended to be used for any other purpose. This project is the property of the Department of Transportation. This project is the property of the Department of Transportation.

Scale 1: 27,000



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(B) Existing Conditions -- Santa Rita Mountain Park is located in an area that is generally rural for the time being, but which has already begun to make its transition from country to urban fringe. The nearby community of Corona de Tucson anchors the development in the area, and the park is presently bordered on its western side by a 1970s-era wildcat subdivision with more than 125 parcels, and by a large platted subdivision along its northern boundary.

In addition, several new subdivisions are in the planning stages in the immediate vicinity. Staff has reviewed the preliminary plats for two large subdivisions to be located west and east of the I-10 and Sonoita Highway intersection, both of which would be within approximately two miles of the park, and would have substantial impacts on the Sonoita Highway scenic corridor. A number of homes have already been built on the 1,826 acres of private property within the boundary of the proposed park, and others are likely to follow.

The State Trust Lands within the park are grazed by private ranching interests, and while the resources within the park are in good condition, the infiltration of non-native grasses is becoming an issue. The park site is dotted with a number of mine shafts, as well as several drill holes and quarries. Mine shafts often make good bat habitat, and the variety of bats in the area undoubtedly make use of some of these sites.

Existing road access to the park is excellent. The park is 2.5 miles south of Interstate 10, and can be reached by traveling south on the Sonoita Highway from I-10, or east on Sahaurita Road from Houghton Road.

(C) Park Concept -- The preliminary concept for Santa Rita Mountain Park is similar to the concepts for the other new mountain parks proposed in the Sonoran Desert Conservation Concept Plan, and suggests a primitive unit with only a small amount of development. Park features could include trails, a central trailhead access staging area, several peripheral trailhead sites spaced around the park's perimeter, and a few rustic shade structures at various locations in the park that will offer a place to rest, picnic, or conduct an educational program.

Additional facilities that may be considered include restrooms, a water source, and a visitor contact station at the park's main access point, which will probably be located along Sahaurita Road. Pima County's goal to provide access into its new mountain parks only from the outer perimeter for resource protection reasons will be easy to achieve in this case, since the most logical location for the park's principal access is a matter of feet from Sahaurita Road.

Because the park is located in an area historically and currently used by ranchers, Pima County could work with these ranchers to protect their use of the land and to preserve traditional uses that are consistent with resource conservation. The mine shafts, drill holes and quarries that exist on the site could be mitigated for public safety, but probably will not be sealed to protect bat habitat.

As with the other mountain parks and natural preserves proposed in the Sonoran Desert Conservation Concept Plan, the exact configuration of the park will not be determined until completion of the Sonoran Desert Conservation planning process.



Figure 31

(D) Natural Resources -- The proposed Santa Rita Mountain Park encompasses the rolling foothills and lower slopes of the northeastern part of the Santa Rita mountain range. The elevation of the lands within the confines of the park varies from a low of 3,700 feet at its northern edge along Sahuarita Road to approximately 4,400 feet along the southern and eastern boundaries of the park where it abuts the Nogales Ranger District of the Coronado National Forest. The high point in the park is a unnamed peak, 4,675 feet in elevation, in the far southwestern corner of Section 28 of T17S, R16E. The segment of the Santa Ritas viewshed protected by the park is very scenic and is visible from much of the Tucson basin. The dominant vegetative community within the park is Semi-desert grassland that includes a variety of grasses, including grama grasses at higher elevations. According to the U.S. Fish and Wildlife Service, the parklands formerly featured an oak savannah with large trees; however, the agency believes that this plant community has been diminished over time. Lehmann's lovegrass, an exotic grass species, has infiltrated the park and continues to propagate.

One of the most notable features of the Santa Rita Mountains is the tremendous diversity of wildlife that inhabits the range. In addition to the usual desert species that can be found in the area, such as mule deer, white-tailed deer, javelina, quail, cottontails and the like, the area is also home to the Mexican opossum, the coatimundi and mountain lions. A large variety of birds can also be found in the area, including hummingbirds, several kinds of hawks, Golden eagles, and the tropical kingbird. Reptiles are also plentiful, and include several kinds of rattlesnakes, frogs such as the lowland leopard frog, (a species of special concern) and the western barking frog, gila monsters, and the Sonoran desert tortoise.

The area is noteworthy for its large population of bats, which features the Mexican long-tongued bat, the Pale Townsend's big-eared bat, the California leaf-nosed bat, the Ghost-faced bat, and the Western red bat. The Santa Ritas may also support a broad range of threatened and endangered species. Listed-endangered species known or believed to exist in the range and on surrounding lands include the American peregrine falcon, the cactus ferruginous pygmy owl, the jaguarundi, the Lesser long-nosed bat, the pima pineapple cactus, and the Gila topminnow. Listed-threatened species include the Mexican spotted owl.

(E) Recreation Potential -- The area is presently lightly used for recreational purposes, partially because of its distance from urban Tucson and partially because it is not well-known. The park does have several existing primitive roads and trails, some of which are listed on the Eastern Pima County Trail System Master Plan. Master Plan-listed trails in or adjacent to the park include:

- Trail #70 - Sahuarita Road
- Trail #256 - Mt. Fagan East Loop
- Trail #257 - Mt. Fagan West Loop
- Trail #244 - Andrada Ranch Link
- Trail #267 - Twin Tanks Trail
- Trail #271 - State Highway 83
- Trail #275 - Old Sonoita Highway

In addition, a segment of the Arizona Trail may be ultimately sited through the park. This possible alignment would travel along the western side of the Davidson Canyon Natural Preserve and enter the park near the Highway 83-Sahuarita Road intersection.

The trail would pass through the park along its eastern side and eventually enter the forest, where it would then continue south to connect with the existing Arizona Trail alignment at Oak Tree Canyon. A decision about the whether this segment of the trail will traverse Santa Rita Mountain Park or parallel the Cienega Creek and link with the Empire-Cienega Resource Conservation Area will be determined by mid-fall, 1999.

Other recreational activities that would complement the park's resource protection mission include birdwatching, fishing, hunting (per the regulations of the Arizona Game and Fish Department), and possibly a small quantity of dispersed camping at carefully-selected sites.

(F) Linkages to Other Protected Natural Areas -- One of the most significant features of the proposed Santa Rita Mountain Park is the role it could play as a link in the regional open space system and the connections it will provide. The park backs up to the Nogales Ranger District of the Coronado National Forest, and would help protect the northeastern foothills of the Santa Ritas, which were not included in the forest when its boundaries were drawn. The park would link Davidson Canyon to the Coronado National Forest, and protect key drainage features that flow into the canyon.

From a regional viewpoint, the park serves as a link in a major corridor that connects the Nogales Ranger District of the forest to Davidson Canyon, the Cienega Creek Natural Preserve, Colossal Cave Mountain Park, and the Santa Catalina Ranger District of the Coronado National Forest. If the Rincon Institute's proposal to expand Colossal Cave Mountain Park into the Rincon Valley is successful, the corridor would also link to Saguaro National Park.

And, as mentioned, the park and its linkage to the Davidson Canyon Natural Preserve would enhance the purpose of the proposed Las Cienegas National Conservation Area.

(G) Applicable Planning Documents -- The following planning documents contain information pertaining to the proposed Santa Rita Mountain Park and/or the area surrounding the park:

- Eastern Pima County Trail System Master Plan (1996)
- Pima County Comprehensive Plan (1992)
- Coronado National Forest Land and Resource Management Plan (1986)

3. Davidson Canyon Natural Preserve

(A) **Background** -- Davidson Canyon is a broad, deep and impressive natural wash corridor approximately 12 miles long that contains high-quality riparian habitat and is extraordinarily picturesque. The canyon, situated a short distance east of the Sonoita Highway and south of Cienega Creek, connects the Cienega Creek Natural Preserve with the Nogales Ranger District of the Coronado National Forest. The first 1.5 miles of the canyon is located north of 1-10, and the remainder is south. The canyon parallels the Sonoita Highway for four miles near its southern end, crosses under the highway in Section 15 of T17S, R16E, and ultimately enters the forest. The northernmost mile of Davidson Canyon is presently within the boundaries of the Cienega Creek Natural Preserve. The proposed Davidson Canyon Natural Preserve, a 6,191-acre unit, and would encompass the roughly 11 miles or so of the canyon not presently protected by Pima County or any other land management agency.

More than half of the land within the proposed Davidson Canyon Natural Preserve--approximately 3,343 acres--is State Trust Land controlled by the Arizona State Land Department. The other principal land type in the preserve is 2,845 acres of private property, which includes both large and small parcels. A small amount of federal property, than 3 acres, is also included. As noted, Pima County already owns the northernmost mile of the canyon, which is located within the Cienega Creek Natural Preserve.

Davidson Canyon is located in an region that has been ranched since the 1870s, and ranching still continues on the State Trust Lands that compose and/or surround much of the canyon.

The protection of the canyon through the creation of the Davidson Canyon Natural Preserve was included in the Sonoran Desert Conservation Concept Plan because of the variety of ways it serves Pima County's natural resource conservation program. First and foremost, the creation of the preserve will protect a very significant riparian corridor that includes natural springs and experiences regular stream flows in certain locations, even during relatively dry periods. When protected, this protected riparian corridor will provide a key biological linkage between the Cienega Creek Natural Preserve and both the proposed Santa Rita Mountain Park and the Nogales Ranger District of the Coronado National Forest. From a regional perspective, the proposed Davidson Preserve is the principal facilitator of a connection between the two districts of the national forest, as well as a possible linkage through Colossal Cave Mountain Park to the Rincon Mountain District Expansion Area of Saguaro National Park.

The preserve's significance as a corridor between protected natural areas is difficult to overstate; no other linkage proposed in the Sonoran Desert Conservation Concept Plan would connect as many existing or proposed units.

The canyon's hydrologic characteristics are also important. Davidson Canyon collects drainage from the northeastern slopes of the Santa Rita Mountains and the northern and western faces of the Empire Mountains, and this runoff ultimately flows into Cienega Creek and through the Tucson Basin. Protecting the canyon in its natural form will maintain its important flood control capacity, as well as its natural recharge capabilities.

The Davidson Canyon Natural Preserve would also play a major role in protecting the scenic State Highway 83 corridor, which it parallels for a considerable distance. The conservation of the properties within the southern five miles of the preserve would protect and enhance what is universally regarded as one of southern Arizona's most picturesque drives.

Davidson Canyon's unspoiled rural location belies its exposure to compromising influences. In 1995, a large mining company proposed the development of a major mine along the canyon that would have involved blasting out large segments of adjacent land in search of the area's mineral value. The proposal was halted by litigation from a local rancher, who challenged the renewal of the firm's State Trust Lands mineral lease. However, interest in mining sections of the canyon continues to exist, and this fact provides additional motivation for its timely protection.

(B) Existing Conditions -- The area surrounding Davidson Canyon looks rural, but appearances can be deceiving. This area is actually entering a transition phase, and large-scale development has been proposed for vacant private land very close to the proposed preserve. A tentative plat for the Mountain View Estates subdivision has been submitted for county review that proposes to build up to 382 homes just 1 mile east of the preserve's western boundary. The subdivision is planned for the east side of the Interstate 10-Sonoita Highway intersection, and will straddle I-10. Another large subdivision has been proposed for the west side of the Sonoita Highway immediately south of I-10. Both of these projects, which are located six miles east of the existing Rita Ranch development, are the definition of urban sprawl, and will undoubtedly be followed by other similar projects. When viewed in context with the previously-approved Vail Valley Ranch subdivision a few miles to the north, and existing subdivisions one mile west of the Sonoita Highway-Sahuarita Road intersection, a distinctive regional pattern begins to emerge. The land around the proposed Davidson Canyon Natural Preserve may be open for now, but significant change is just around the corner.

(C) Preserve Concept -- The preliminary concept for the Davidson Canyon Natural Preserve is for a protected natural area with controlled access more or less consistent with the Cienega Creek Natural Preserve model. While its resources are not regarded to be as sensitive as those encompassed by the Cienega Creek preserve, Davidson Canyon is nonetheless of considerable significance biologically because of its status as an important biological corridor.

There might be a small number of recreational trails sited outside of the canyon proper (most of the trails already exist), some interpretive signage, a staging area in an appropriate location, and a shade structure or two. Signage and structures could reflect the traditional character of the area -- primitive and rustic.

Several trails listed on the Eastern Pima County Trail System Master Plan, as well as a possible alignment for the Arizona Trail, pass through the proposed preserve. All of these trails are designated for non-motorized shared use (hikers, equestrians and mountain bicyclists), except for the Davidson Canyon Trail, which occurs in the bottom of the canyon and is open to hikers and equestrians.

Davidson Canyon Natural Preserve

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Santa Rita Ranch Conservation Area
- Bureau Of Land Management (BLM)
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

DAVIDSON CANYON NATURAL PRESERVE:
 State: 3,343 Acres
 Federal: 2,79 Acres
 Private: 2,845 Acres

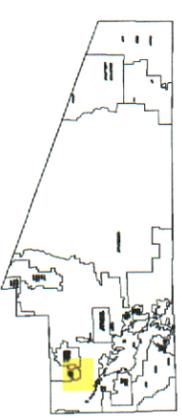


Figure 32

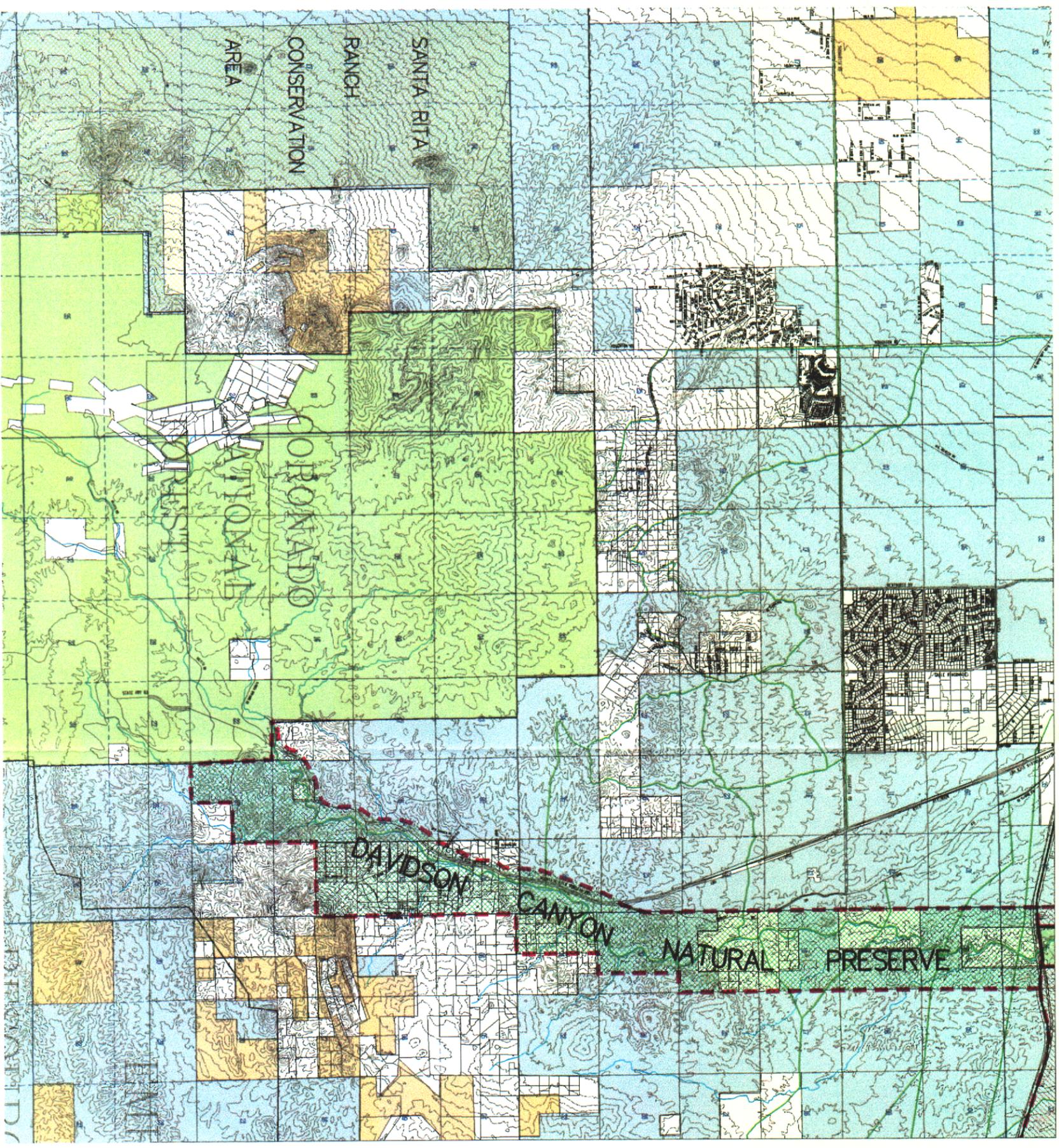
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Scale 1:27,000



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Existing roadways are capable of providing sufficient access to the preserve. A segment of the Old Sonoita Highway 1.5 miles long passes through the preserve along its western edge, and could provide access to a public staging area if such a facility proved desirable. The new Sonoita Highway also passes in immediate proximity of the preserve. An existing primitive trailhead situated along Marsh Station Road within the segment of the Cienega Creek Preserve that encompasses the lower mile of Davidson Canyon is presently used to access the canyon. This existing Cienega trailhead, coupled with an additional trailhead just east of the Old Sonoita Highway in Section 19 of T17S, R17E, would probably provide all the access that might be needed to the proposed preserve.

(D) Natural Resources -- The Davidson Canyon Natural Preserve encompasses both riparian and Sonoran Desert upland habitat, and its plant associations include the Velvet Mesquite-Mixed Scrub Association, Velvet Mesquite Association, Burroweed-Mesquite Association and the Creosote Association. The canyon's riparian habitat and spring-fed stream flows are its most significant and valuable features. Like the Cienega Creek corridor, the canyon's interior boasts an exceptional variety of plant and animal species, including velvet mesquite, whitethorn and catclaw acacia, cottonwood trees, seepwillow, saltbush, desert hackberry, graythorn, prickly pear, sacaton and deergrass. Upland plant species include the mesquite, palo verde, creosote, barrel cactus, ocotillo, yucca, and potentially the Pima Pineapple cactus, a listed endangered species. Wildlife species likely to be found within Davidson Canyon include endangered leopard frogs, fish such as the long-finned dace and potentially the endangered Gila topminnow, waterbirds, Mexican garter snakes, coyote, gray fox, skunk, collared peccary, bobcat, mule deer, and several varieties of bats, including the Mexican long-tongued bat. The Canyon's scenic values are another of its outstanding natural resources. The canyon's depth and breadth can be surprising, and certain sections of its rocky slopes are as visually appealing as the natural features in Cienega Creek's Three Bridges area. Other natural features of Davidson Canyon of importance--and great benefit -- to Pima County are the canyon's flood control and natural recharge capabilities.

(E) Recreation Potential -- Davidson Canyon presently experiences only a small amount of recreational use. The area provides scenic hiking and horseback riding opportunities, but is not easily accessible south of I-10 and is not well known. The use of the short (1.5-mile) segment of Davidson Canyon north of Interstate 10 comes most often from visitors to the Cienega Creek Natural Preserve. An existing paved trailhead parking area along Marsh Station Road a short distance south of Cienega's Three Bridges site provides hiker and equestrian access into the north end of the canyon.

The majority of the visitation that occurs in the area south of I-10 probably comes in the form of a few explorers in motorized vehicles, who can use a utility corridor that runs south of I-10 to gain access to the vicinity of the canyon from the Sonoita Highway. A pair of primitive, little-used dirt access roads that can be reached from the south side of I-10 also provide access to the area. Two major utility corridors traverse the canyon, as do at least two ranch roads, all of which are used by visitors to the area to cross the canyon corridor. In addition to motorized users, a small quantity of equestrians and bicyclists use the existing primitive jeep roads on both sides of the canyon for recreational purposes, and hikers and equestrians occasionally use the bed of the wash.



Davidson Canyon

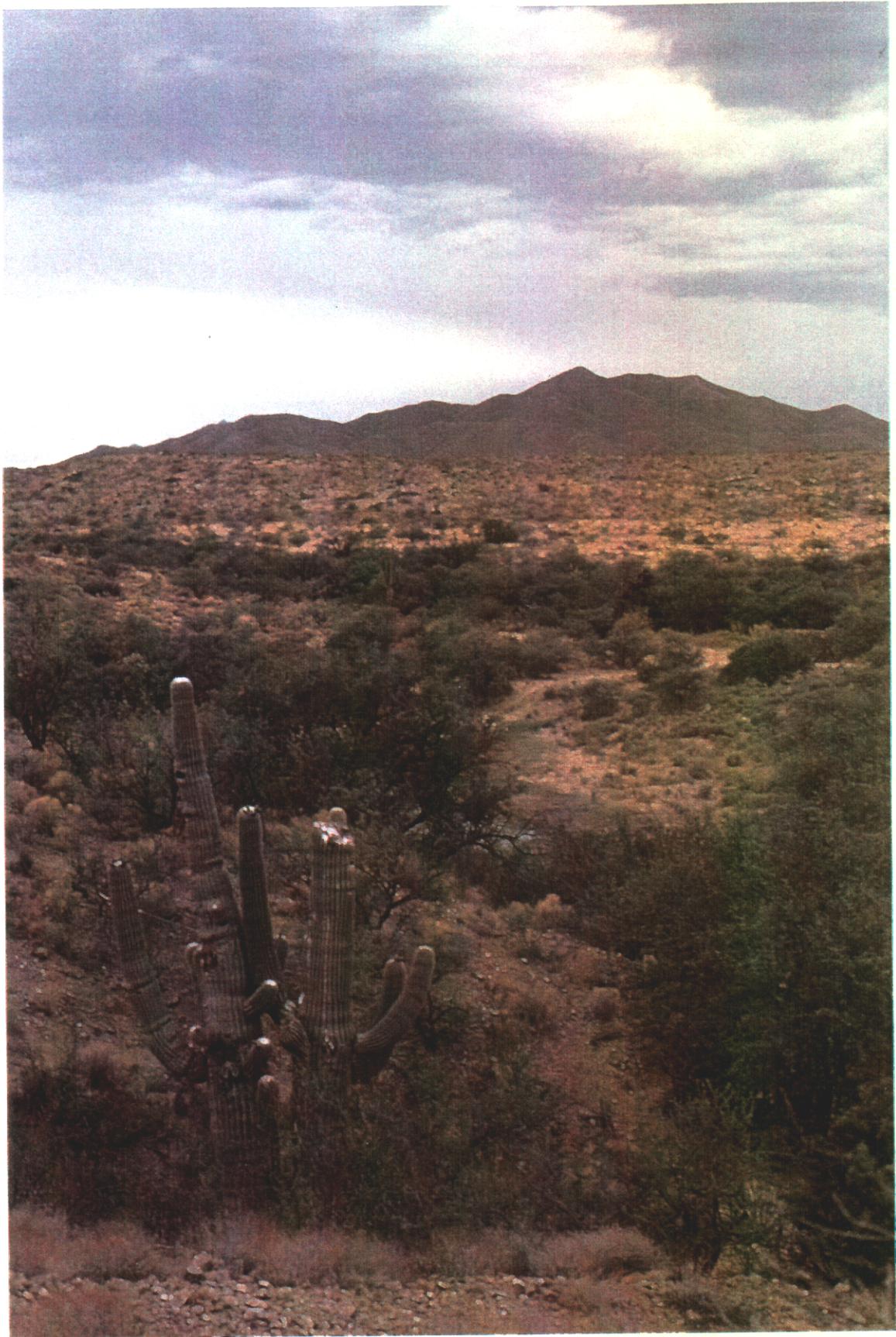
Six trails listed on the Eastern Pima County Trail System Master Plan pass through the preserve. These trails, which all support a non-motorized shared-use pattern except for the bed of wash in the bottom of Davidson Canyon, include:

- Trail #56 - Davidson Canyon
- Trail #278 - Gas Pipeline
- Trail #279 - Cienega-Area Powerline
- Trail #248 - Davidson Loop
- Trail #244 - Andrada Ranch Link
- Trail #267 - Twin Tanks

In addition to the trails presently listed on the Eastern Pima County Trail System Master Plan, a segment of the Arizona Trail may also be sited within the preserve corridor. Two options are presently being considered for the Arizona Trail segment between Colossal Cave Mountain Park and the existing end of the trail at Oak Tree Canyon within the Nogales Ranger District of the Coronado National Forest. One option would have the trail skirt the Cienega Creek Natural Preserve and ultimately connect with the northern extreme of the BLM's Empire-Cienega Resource Conservation Area about 6 miles south of Interstate 10. The other option would route the trail along the west side of Davidson Canyon, through the county's proposed Santa Rita Mountain Park, and into the adjacent Coronado National Forest. Both alignments have considerable potential, and field work is now being conducted to determine which is the most suitable.

As noted, sufficient public access to the preserve can be provided by existing roadways. The best public access configuration would appear to be a combination of the existing Davidson trailhead within the Cienega Creek Natural Preserve and a new staging area just off the Old Sonoita Highway in Section 19 of T17S, R17E, approximately 1.25 miles south of the Saurita Road alignment. The potential new trailhead facility would be roughly 4.25 miles south of the existing trailhead, and could be sited immediately adjacent to the intersection of two Master Plan-listed trails with Davidson Canyon. Both of the Master Plan listed-trails are east-west trending alignments; the trail that connects to the canyon from the west leads into the proposed Santa Rita Mountain Park, and the trail that intersects the canyon from the east leads into the heart of the proposed Las Cienegas National Conservation Area.

(G) Linkages to Other Protected Natural Areas-- One the two best features of the Davidson Canyon Natural Preserve is the terrific opportunity it presents to secure a perpetual biological linkage between the Santa Rita Mountains and the Cienega Creek Preserve. As previously noted, the canyon will play the principal role in the effort to create a chain of protected open space that includes the 262,000-acre Santa Catalina Ranger District of the Coronado National Forest and its 38,590-acre Rincon Wilderness, Colossal Cave Mountain Park, the Cienega Creek Natural Preserve, Santa Rita Mountain Park, and the 370,000-acre Nogales Ranger District of the Coronado National Forest and its 25,260-acre Mount Wrightson Wilderness. Additional linkages from Colossal Cave Mountain Park across the Rincon Valley to Saguaro National Park, the extension of the Cienega Creek Natural Preserve to the Empire-Cienega Resource Conservation Area, and the proposed Las Cienegas National Conservation Area further illustrate the dramatic potential of this proposed network.



Davidson Canyon

The 12 mile-long canyon is an excellent wildlife corridor: long, relatively deep, and wide. The significant depth of the canyon at the location where it is crossed by Interstate 10 (1.5 miles south of its confluence with Cienega Creek) is a valuable feature, because it places the roadway a considerable distance from the creek bed, reducing the impact of the noise and activity produced by this high-volume roadway. The crossing is far superior to the I-10 crossing of Cienega Creek, which is relatively close to the bed of the creek, and much more intimidating to animal movement because of the proximity of the traffic and the vibrating deck of the bridge.

(H) Applicable Planning Documents -- The following planning documents contain information pertaining to the proposed Davidson Canyon Natural Preserve and/or the area surrounding the preserve:

- Eastern Pima County Trail System Master Plan (1996)
- Cienega Creek Natural Preserve Management Plan
- Pima County Comprehensive Plan (1992)
- Coronado National Forest Land and Resource Management Plan (1986)

4. Cerro Colorado Mountain Park

(A) **Background** -- Compared to the sprawling mountain ranges that house other county mountain parks, the Cerro Colorado Mountains, which cover an area of about 13 square miles, are relatively small. Despite its less-than-imposing stature, this compact range, named for its rocky red volcanic form, is among the most scenic and biologically diverse in southern Arizona.

The craggy peaks of the Cerro Colorados, located less than 6 miles due south of the Sierrita Mountains and immediately north of the Arivaca Road, rise above the surrounding countryside to a height of 5,319 feet. These mountains are nearly pristine, and boast lush bajadas surrounded by broad plains covered with unbroken Sonoran Desert upland and riparian vegetation.

Of the 14,254 acres of land within the boundary of the proposed mountain park, 10,863 acres are State Trust Land. The remaining property is divided between public lands administered by the U.S. Bureau of Land Management (1,980 acres) and privately-owned property (1,411 acres). Virtually all of the Cerro Colorado range itself is State Trust Land, except for a half section island of private property at the very top of the range owned by the Marley Cattle Company.

The hospitable topography and ample vegetation of the plains that surround the Cerro Colorados make the area ideal cattle country, and several working ranches, including the nearby Marley, Sopori, Rancho Seco and Santa Lucia ranches, continue to operate in and around the proposed park. The Marley Cattle Company holds the grazing lease for the majority of the range. Silver mining occurred in the area surrounding the mountains in the 1800's, and several old extraction sites dot the area, including the Cerro Colorado or "Hintzelman" mine, and the "Mary G" mine.

The proposed park was included in the Sonoran Desert Conservation Concept Plan for several reasons. One of the most important reasons is to protect the unspoiled Cerro Colorado mountain range and its exceptional natural resources. The range supports an abundance of wildlife, including mule deer, white-trail deer, javelinas, and coatimundis.

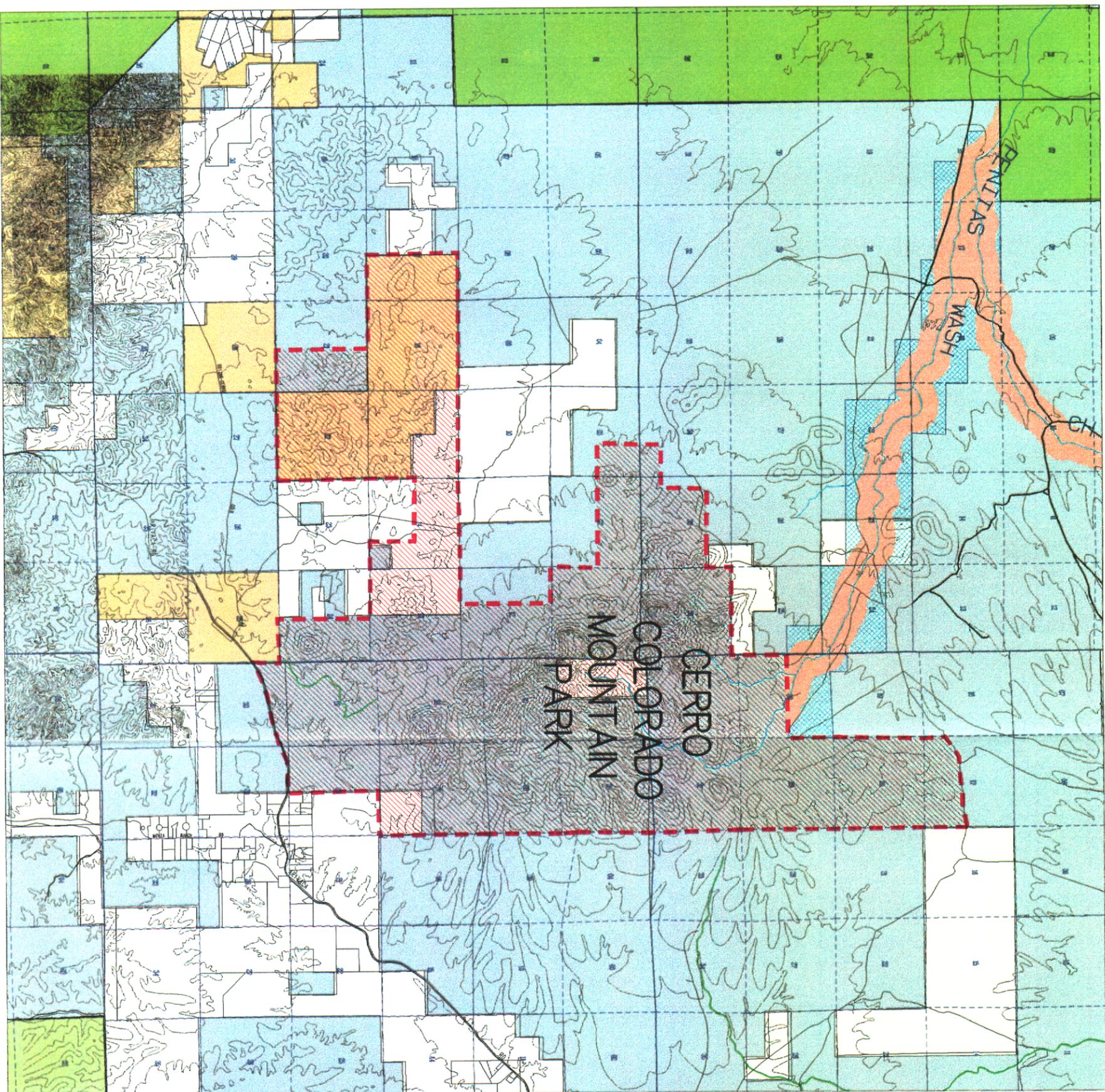
A very rare spotted jaguar was reportedly seen in the range in 1997. The park will also help protect the Cerro Colorado's watershed, as well as undisturbed tracts of rare high desert grassland on the upper portions of the mountains.

Another important purpose of the park is the protection of the range's viewshed, which is unimpaired, and a truly impressive sight for a full 360 degrees. The western face of the mountains is particularly picturesque, with unusual and highly scenic rock formations interspersed with dense vegetation.

Also of considerable importance is the ability to link the entirety of the proposed park to the nearby Buenos Aires National Wildlife Refuge and the Las Guijas Mountains. An overland linkage to the refuge could easily be established using a combination of BLM land and State Trust Land.

R10E

R11E



T20S

T19S

Cerro Colorado Mountain Park

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Wildlife Corridor Links
- Proposed Mountain Parks
- Riparian Habitat / Wildlife Corridor Link
- Bureau Of Land Management (BLM)
- Private Lands
- State Trust Lands
- Buenos Aires National Wildlife Refuge
- Coronado National Forest

CERRO COLORADO MOUNTAIN PARK:
 State: 10,863 Acres
 Federal: 1,980 Acres
 Private: 1,411 Acres

Pinna County Index Map



Figure 35

Index Map Scale: 1:5,000,000

The information provided on this project is the result of digital photography and is not a substitute for a field visit. The information is provided for informational purposes only and is not intended to be used for any other purpose. The information is provided as is and is not intended to be used for any other purpose. The information is provided as is and is not intended to be used for any other purpose.

Scale 1: 24,000



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 http://www.dot.co.pima.az.us



Another very valuable linkage identified in the Sonoran Desert Conservation Plan is the Penitas Wash corridor. The Penitas Wash flows out of the northwestern slopes of the range and connects with the northeastern corner of the Buenos Aires Refuge. The Penitas Wash corridor proposed for protection in the Sonoran Desert Conservation Plan encompasses 3,183 acres and is virtually a small natural preserve unto itself.

The Penitas Corridor includes a section of the Champurrado Wash, which drains the southern slopes of the Sierrita Mountains and intersects with the Penitas Wash just outside the refuge.

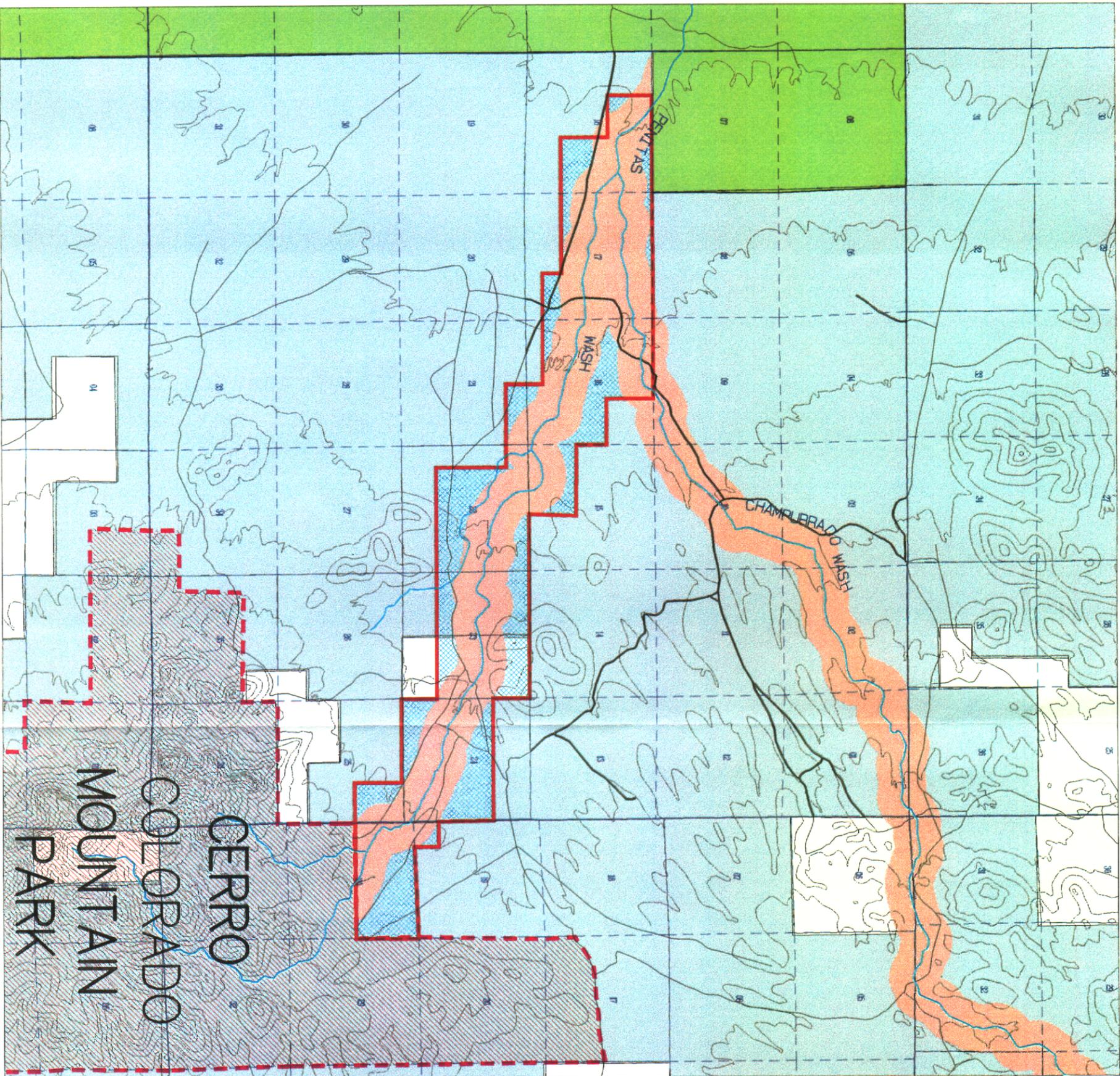
The vicinity of the Cerro Colorados offers strong recreation potential. While the range itself is more suited to hardy hikers, the broad, relatively flat lands surrounding the park are ideal for recreational trail use. Pima County also recognizes the value of ranch uses that are consistent with conservation goals.

(B) Existing Condition -- The proposed Cerro Colorado Mountain Park is located in a remote rural area approximately 35 miles southwest of Tucson. Green Valley, the largest nearby population center, is about 20 miles away. The proposed park is located roughly at the midpoint between the small communities of Arivaca and Arivaca Junction 11 miles west of I-19, and is readily accessible via the Arivaca Road, a high-quality two-lane rural highway.

The lands within the park are generally in excellent natural condition. The park is surrounded by a large quantity of undeveloped, essentially flat land, the majority of which is owned by the State Land Department and private property owners. These lands are also in very good condition. The Trust Lands and BLM land surrounding the park are leased by local ranchers for grazing purposes. Several ranches currently operate in the area, including the Marley, Sopori, Rancho Seco and Santa Lucia ranches. The state grazing leases for all but the southern end of the Cerro Colorado range are held by the Marley Cattle Company.

While the vicinity of the Cerro Colorado mountains is not presently feeling significant development pressure, the potential exists for the several thousand acres of private ranch land adjacent to and/or near the park to be sold at some point in the future for development purposes. Pima County hopes to keep these presently open lands in their natural state by including them in one of the Sonoran Desert Conservation Plan's Ranch Conservation Areas.

(C) Park Concept -- Initial concepts for Cerro Colorado Mountain Park include a primitive mountain park with a minimal amount of development. Improvements could consist of a system of recreational trails accommodating a non-motorized shared use pattern, a principal trailhead access parking lot, two or three additional small trailhead staging areas in appropriate locations around the perimeter of the range to help disperse visitation, and a few small, rustic shade structures at certain locations along the trail system to provide a place to rest, picnic, or conduct an educational program.

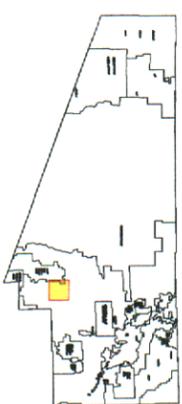


Penitas Wash

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Penitas Wash Area

- Wildlife Corridor Links
- Proposed Mountain Parks Private Lands Riparian Habitat Wildlife Corridor Link State Trust Lands
- Buenos Aires National Wildlife Refuge

PENITAS WASH:
 State: 2,947 Acres
 Federal: 0 Acres
 Private: 236 Acres



Index Map Scale: 1:1,500,000

Figure 36

The information depicted on this display is the result of a digital analysis performed on a series of quadrangles. The accuracy of the information presented is limited to the accuracy of the source data. The Pima County Department of Planning and Economic Development does not warrant the accuracy of the information depicted herein. This report is a submission to the Department of Transportation.

Scale 1: 17,000

PIMA COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
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 Pima County Administration Center
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In the manner of Tortolita Mountain Park and Pima County's other newly proposed mountain parks, public access to Cerro Colorado Mountain Park would come from the outer edge of the park in the interest of protecting the natural resources located in the park's interior. As visitation grows in the years ahead, a visitor contact station, a water source and restrooms could be added at the main trailhead staging area.

Cerro Colorado Mountain Park is located in a traditional ranching area goals could include traditional uses that are consistent with conservation concepts.

Careful assessment would be made before any trails or other improvements are implemented to ensure the maximum level of protection for the park's natural resources. As with the other mountain parks and natural preserves proposed in the SDCP, the exact configuration of the park will not be determined until the Sonoran Desert Conservation planning process is complete.

The primitive development concept for Cerro Colorado mountain park would not only ensure maximum protection of the Cerro Colorado's unspoiled resources, it would also be considerably less expensive to implement and operate than other more intensive park models.

(D) Natural Resources -- The unspoiled quality and significance of the range's natural resources make a strong case for the kind of effective protection that a county mountain park can provide. The range's volcanic geology and picturesque red rocks support a variety of plant and animal species. Plant communities in the mountains and its surrounding area include grasslands at lower elevations, as well as additional grassland and the Madrean evergreen-oak community at higher elevations. The Pima pineapple cactus, a listed endangered plant species, exists in the area and may also occur within the boundaries of the park.

The Cerro Colorados boast an impressive roster of wildlife species, including, as previously noted, mule deer, white-trail deer, javelinas, and coatimundis, as well as cliff-dwelling raptors such as the rarely-seen golden eagle. Special status wildlife species in the area include the spotted jaguar and the masked bob-white quail--both of which are listed endangered species--and the Northern gray hawk, Pale Townsend's big-eared bat and Sonoran desert tortoise, all species of special concern. The proposed park will also protect a key portion of the area's watershed. The Cerro Colorado's watershed features are of critical importance because they help sustain several nearby riparian areas, including riparian habitat in the nearby Buenos Aires Preserve. Wildlife authorities have noted that this habitat is especially important for migrating neotropical birds.

The range's exceptional viewshed is another of its outstanding natural assets. The view around the Cerro Colorados is literally unblemished for a full 360 degrees, a very rare characteristic for mountains in Eastern Pima County that will be preserved through the creation of the mountain park.



Cerro Colorado Mountain Park

(E) Recreation Potential -- The Cerro Colorado Mountain Range and its surrounding area offers excellent recreation potential. Its remote location and unspoiled surroundings, located a considerable distance from any significant urbanization, are an ideal setting for a county mountain park, and will offer outstanding opportunities for solitude and natural quiet.

The extent of the area's existing recreation pattern is little known, although it is probably safe to say that small quantities of recreationists of all kinds presently visit the area. Hunters, equestrians and mountain bikers are known to use the area, and it is presumed that a few adventurous hikers occasionally explore the range. Shooters, rockhounds and OHV enthusiasts undoubtedly visit the area as well.

The range itself seems best suited for hiking, but the undulating lands surrounding the mountainous area are ideal for the development of a recreational trail system serving a non-motorized shared-use pattern (hikers, equestrians and mountain bicyclists).

Some trail segments have been developed through the movement of cattle, and these segments can be easily incorporated into an overall system, lessening the amount of new trail development that will be necessary. This recreation pattern is compatible with the ranching activity presently occurring in the area, and the ranching community has traditionally welcomed public visitation. Three trails listed in the Eastern Pima County Trail System Master Plan exist in the immediately vicinity of the proposed park. These trails include:

Trail #81 - Proctor Wash/Bob Brown Lateral (connects the Cerro Colorados and Sierritas);

Trail #82 - Cerro Colorados Mountains South Access Road

Trail #296 - Batamonte Road

An update of the Trails Master Plan will begin in late 1999, and the area around the Cerro Colorados will be reviewed for possible interim additions. A significant number of additions may not be made until additional detailed study of the area is made during the Sonoran Desert Conservation planning process.

(F) Linkages to Other Protected Natural Areas -- A principal focus of considering establishment of the Cerro Colorado Mountain Park is developing a perpetually-protected biological connection between the range and the Buenos Aires National Wildlife Refuge, which is located approximately four miles west of the proposed park. Two principal approaches have been preliminarily identified to accomplish this goal. The first approach involves fashioning a protected broad overland link using a combination of State Trust and BLM land. A small quantity of private property within the proposed corridor complicates this project, but its overall potential is strong.

The second approach involves linking the northwestern corner of the park with the northeastern corner of Buenos Aires Refuge by developing a protected biological corridor around the Penitas Wash. Protecting the Penitas Wash and its riparian habitat makes sense as a project unto itself, but using it as a biological corridor between these two units increases its overall utility (the westernmost section of the Champurrado Wash, which flows out of the Sierrita Mountains, is included in the proposed link).

The Sonoran Desert Conservation Concept Plan specifically proposes the creation of the Penitas Wash corridor, and has identified a proposed boundary for the preserve that encompasses a total of 3,183 acres. Of that total, 2,947 acres are State Trust Lands, and the remaining 236 acres are private property.

A linkage between the northern end of the Cerro Colorados and the southern end of the Sierrita Mountains, which are approximately five miles apart, should be considered in the future. Creating a connection using mostly State Trust Lands is a viable possibility. The Ranch Conservation Area proposed for the lands surrounding these ranges could facilitate the creation of this important linkage.

(G) Applicable Planning Documents -- The following planning documents contain information pertaining to the proposed Cerro Colorado Mountain Park and/or the area surrounding the park:

- Buenos Aires National Wildlife Refuge Comprehensive Conservation Plan (due 9/99)
- Eastern Pima County Trail System Master Plan (1996)
- Pima County Comprehensive Plan (1992)
- BLM Phoenix District Resource Management Plan (1988)
- The Findings of the Pima County Open Space Committee - A Report to the Pima County Board of Supervisors (1988)

5. Buehman - Bingham Natural Preserve

(A) Background -- Assuring a permanent, viable link between the Catalina Mountains and the San Pedro River corridor and the protection of the sensitive plant and wildlife resources that presently exist in this area are the principal purposes of the Sonoran Desert Conservation Concept Plan's proposed 7,489-acre Buehman-Bingham Natural Preserve. This preserve, located in the San Pedro River Valley in the far northeastern corner of Pima County, could incorporate the 1,080 acres held by The Nature Conservancy along the eastern boundary of the Santa Catalina Ranger District of the Coronado National Forest in the Buehman Canyon area and Pima County's existing 285-acre Bingham Cienega holding along the San Pedro River. In total, the proposed preserve is composed of 5,004 acres of private property, 2,478 acres of State Trust Land, and 7 acres of federal land.

The specific rationales for the creation of the preserve include enhancing the protection of Buehman Canyon, one of the San Pedro River's most significant tributary canyons, and its delicate wildlife, which includes leopard frogs and two rare southwestern fishes--the Gila topminnow and desert pupfish. The preserve could also provide a protective context for the Bingham Cienega, an oasis for wildlife that supports a variety of rare wetland communities, including marsh, mesquite bosque, velvet ash-hackberry swamp forest, and historically, sacaton grassland. In addition, the preserve would establish an important protected wildlife migration corridor for wide-ranging wildlife species such as the black bear and mountain lion.

A link to the east with nearby Redfield Canyon, which is located along the southern edge of Graham County, would further enhance the preserve's effectiveness as a wildlife corridor. The preserve would also house a segment of Unit 6 of the recent critical habitat designation for the cactus ferruginous pygmy owl and the Huachuca water umbel, protect and enhance regional flood control capacity, and facilitate natural recharge.

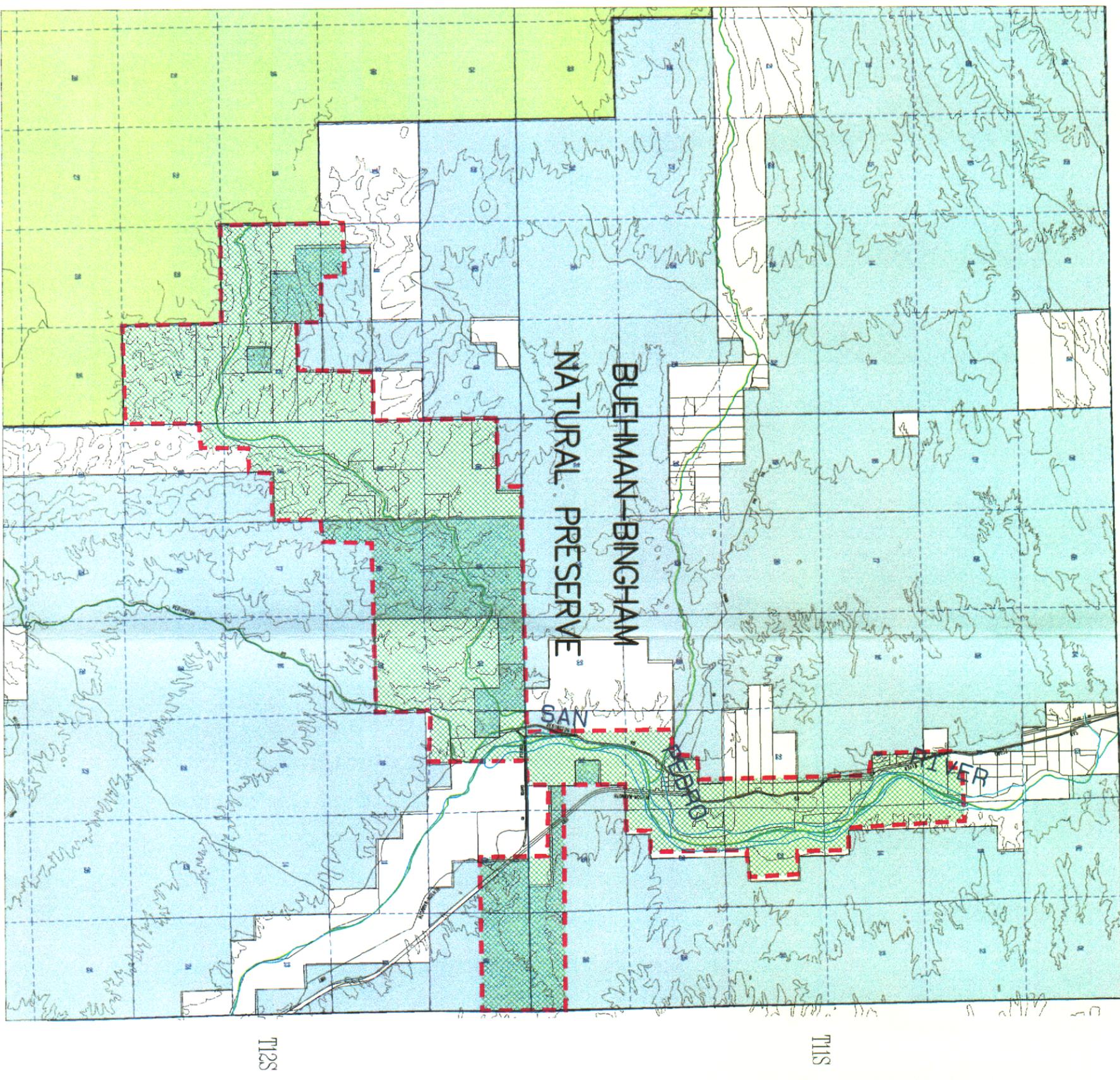
The 1997 Open Space Bond Program included \$1,000,000 in funding to facilitate the purchase of an additional 400 acres of land to enhance Pima County's existing 285-acre Bingham Cienega property (Project #RW-13). When they become available, the Open Space Bond funds will be used to attract additional funding in the form of matching grants, which will maximize the effectiveness of the bond dollars and allow more land to be acquired and protected.

(B) Existing Condition -- The Buehman-Bingham natural preserve is located in the San Pedro River Valley in the far northeastern corner of Pima County. The area is remote and rural. Ranching and farming have occurred in the valley for more than 100 years, and are the traditional staples of the area's economy. While the majority of the San Pedro River corridor is in private ownership throughout the region, the vast majority of the property on both sides of the river corridor is State Trust Land.

The sale of the Bellota Ranch to private interests in 1998 raised the specter of development and future urban sprawl in the San Pedro River Valley, but the subsequent acquisition of the property by The Nature Conservancy and the City of Tucson allowed these concerns to dissipate for the time being. The remoteness of the area and the lack of infrastructure and services make it unlikely that large scale development will occur at any time in the near future.

R17E

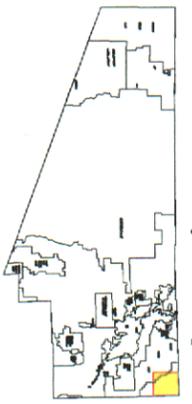
R18E



Buehman-Bingham Natural Preserve

- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Trails
- Proposed Pima County Natural Preserves
- Private Lands
- State Trust Lands
- National Forest Lands

BUEHMAN-BINGHAM NATURAL PRESERVE:
 State: 2,478 Acres
 Federal: 7 Acres
 Private: 5,004 Acres



Index Map Scale 1:1,500,000
 Figure 38

The information depicted on this display is the result of a digital analysis performed on a variety of databases. The accuracy of the information presented is limited to the accuracy of the source data. The Pima County Department of Planning and Economic Development is not responsible for any errors or omissions or for any consequences arising from the use of the information depicted herein.

This report is submitted to the Department of Transportation.

Scale 1: 24,000



However, the presence of water resources, coupled with the fact that the majority of the land in Pima County's portion of the valley is State Trust Land, means that development remains a possibility for the future. Several major road corridors pass through the proposed preserve: Redington Road, the San Pedro River Road, and the Benson-Mammoth Highway. The existence of these roads and their likely effect on the preserve's resources will be factored into the new unit's master-planning process.

[C] Concept for the Preserve -- Pima County's preliminary concept for the Buehman-Bingham Natural Preserve is for a protected natural area with controlled access based on the Cienega Creek Natural Preserve model. This approach might be appropriate given the sensitivity of the area's resources, but the development of a formal concept will not occur until additional planning and analysis has been undertaken as part of the Sonoran Desert Conservation planning process. Decisions about the level of public access and other activities will be made at that time.

(D) Natural Resources -- The unifying theme of the proposed Buehman-Bingham Natural Preserve is water--and the invaluable habitat it generates along the two major riparian corridors within its boundaries. The preserve encompasses the majority of Buehman Creek, which flows out of the Santa Catalina Mountains through Buehman Canyon, and a key segment of the 140 mile-long San Pedro River, one of the last remaining free-flowing rivers in the region. The value of Buehman Creek and the San Pedro River are well-recognized. The creek has been designated a *Unique Water of Arizona* by state authorities, and the San Pedro was deemed one of a handful of "Last Great Places" in the Western Hemisphere in 1991 by The Nature Conservancy. Both corridors are home to lush riparian habitat that literally abound with wildlife.

The San Pedro corridor encompasses a literal plethora of rare and valuable plant communities. For instance, Pima County's existing 285-acre Bingham Cienega holding, which abuts the river, contains cienega wetland, palustrine wooded swamp, cottonwood-willow riparian forest, and mesquite bosque. The Huachuca water umbel, a listed endangered species, depends on the San Pedro for survival. The Buehman Canyon corridor is similarly rich in vegetation, and is home to large stands of a variety of trees, including cottonwood, ash, walnut, willow, mesquite, hackberry, oak, sycamore, and juniper.

Not surprisingly, the lands within the preserve are home to a plethora of wildlife. Riparian species are particularly abundant, and include such high-value inhabitants as leopard frogs (a species of special concern) and a variety of fish, including the longfin dace, desert pupfish, and Gila topminnow. The pupfish and topminnow are both listed endangered species. Over 300 species of birds can be found in the area, two-thirds of which are neotropical migrants. Seldom-seen bird species identified in the area include the western yellow-billed cuckoo, the northern gray hawk, the zone-tailed hawk, and others, including the endangered Southwestern willow flycatcher, which was seen in the Bingham Cienega in 1991. Other wildlife known to frequent the area include coatimundi, black bear, whitetail and mule deer, javelina, bobcat, and ring-tailed cats.

Part of the San Pedro corridor was within the critical habitat designation for the pygmy-owl.

(E) Recreation Potential --Information regarding the existing recreation pattern in the vicinity of the proposed preserve is little known, but it is assumed that hikers and a handful of other recreationists presently use the area. Additional information regarding existing uses will be gathered when the unit's master plan is prepared.

Four trails listed on the Eastern Pima County Trail System Master Plan are either located within in or pass through the proposed preserve:

- Trail #7 - San Pedro River Corridor
- Trail #49 - Buehman Canyon
- Trail # 50 - Edgar Canyon
- Trail #53 - Redington Road

The San Pedro and Buehman Canyon trails are wash corridor trails suitable for hiking and equestrian use. The Edgar Canyon trail is a wash and cross-country trail capable of supporting a non-motorized shared-use pattern (hikers, equestrians, and mountain bicyclists). The Redington Road trail is a road right-of-way trail also suitable for non-motorized shared use. The access pattern for these trails will be subject to the preserve's master planning process, which, as noted, will be oriented towards the protection of the unit's sensitive natural and cultural resources.

(F) Linkages to Other Protected Natural Areas -- One of the key purposes of the proposed Buehman-Bingham Natural Preserve is to establish effectively protected biological linkages between the San Pedro River corridor and Pima County's current Bingham Cienega holding and other nearby protected open space areas. The principal linkage will be between the San Pedro and Buehman Canyon, which, as noted, will incorporate The Nature Conservancy's present 1,080-acre holding, which was donated to the Conservancy by Riley West, Inc. in 1997. This linkage will connect the 262,000-acre Santa Catalina Ranger District of the Coronado National Forest to the San Pedro River and protect a valuable wildlife movement corridor. The proposed preserve also includes a swath of mostly State Trust Land heading east to the convergence of the Pima County/Graham County/Cochise County lines, which will provide a significant part of a linkage to Redfield Canyon and the federal land jurisdictions a few miles inside both Graham and Cochise counties. The link to Redfield Canyon will establish a protected corridor to one of southern Arizona's most biologically-rich areas. It will also make a linkage possible to the Safford Ranger District of the Coronado National Forest--which contains the Galiuro Mountains and the 76,317-acre Galiuro Wilderness--and the BLM's 6,600-acre Redfield Canyon Wilderness and Muleshoe Ranch Preserve. Linking Redfield Canyon and these adjacent federal lands to the Buehman-Bingham Natural Preserve would have the ultimate effect of connecting the Coronado National Forest's Santa Catalina and Safford Ranger Districts.

(G) Applicable Planning Documents -- The following documents contain information pertaining to the proposed Buehman-Bingham Natural Preserve and/or the area surrounding the preserve:

- 1997 Open Space Bond Program
- Pima County Comprehensive Plan (1992)
- Bingham Cienega Management Plan (1992)

6. Other Potential New Mountain Parks and Preserves -- The Sonoran Desert Conservation Concept Plan includes two potential parks suggested through public comment, and identifies several potential Mountain Park and Natural Preserve System projects as "Future Projects." These efforts include:

(A) Silverbell Mountain Park -- The U.S. Bureau of Land Management administers a large quantity of land in the Silverbell Mountains region of Pima County northwest of the Tucson Basin--in fact, more than 100 sections. A large quantity of State Trust Land in excellent condition also exists in this area, and is interspersed among the BLM lands. These BLM and State Trust lands, located to the immediate north and west of the proposed Waterman-Roskruge Mountain Park, contain significant natural and cultural resources worthy of protection, including habitat for the desert big horn sheep and the desert tortoise, and numerous prehistoric rock sites. The range also possesses considerable recreation potential.

A considerable quantity of the BLM land in the Silverbell range has been designated for extractive uses--specifically mining. The 18,000-acre Silverbell Mine, an open pit copper mining facility jointly owned by ASARCO and Mitsui, currently operates in the area, and a portion of the lands within the complex were secured through a land trade with the BLM in 1992.

The establishment of a Pima County Mountain Park in this area as a tool for enduring resource protection is a viable possibility. As with Waterman-Roskruge Mountain Park, the park unit could be created through a partnership with the BLM (i.e. a Cooperative Management Agreement), which would involve little real cost for Pima County because the ownership of the property would remain with the United States.

With the Avra Valley poised to grow at a rapid rate over the next few decades, these presently remote lands will be visited by increasing numbers of people, and it may be wise to consider the near-term development of a protective blueprint for the area.

Like the Watermans and Roskruges, these lands share a substantial boundary with the Tohono O'odham Indian Reservation which provides an opportunity to partner with the Nation in the interest of resource protection.

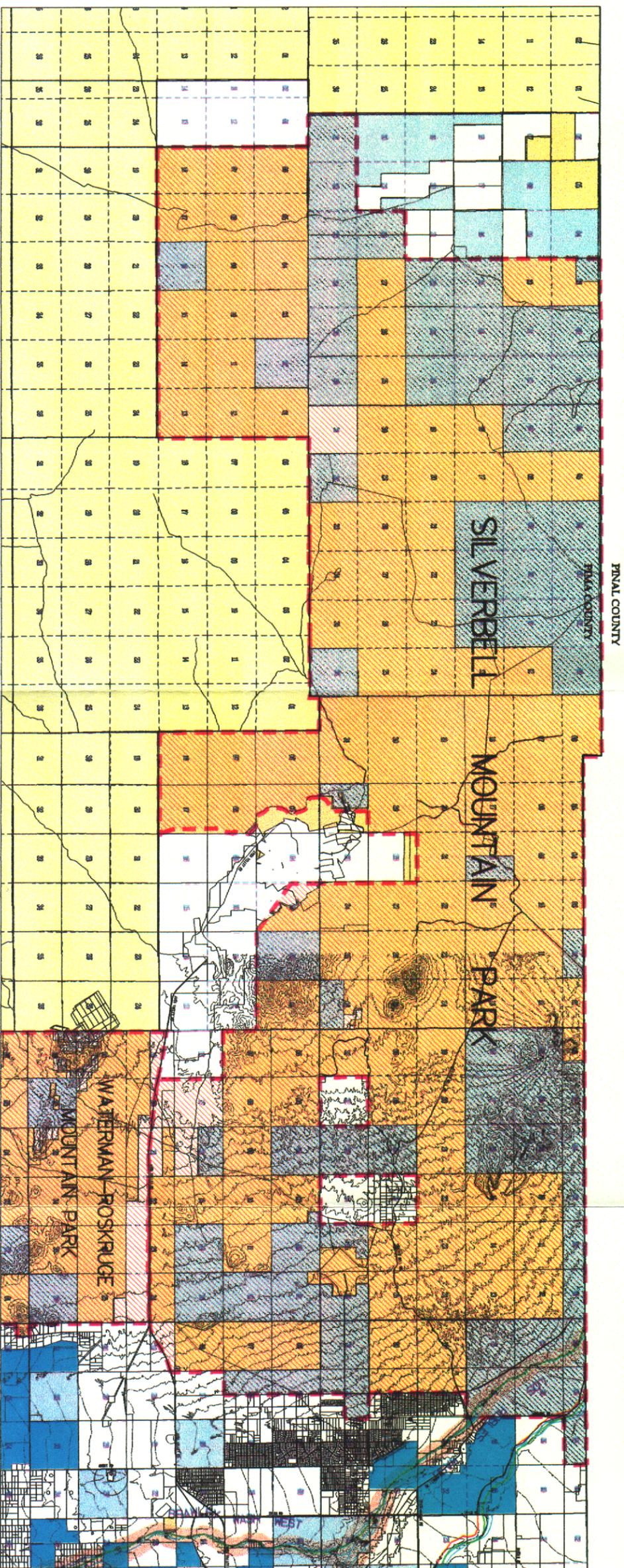
(B) Empire Mountain Park -- A Pima County Mountain Park encompassing the Empire Mountain range was first proposed more than 15 years ago. This park was identified for inclusion as a part of the Sonoran Desert Conservation Concept Plan during the public comment period.

The Tucson Field Office of the U.S. Bureau of Land Management is already active in the Empire Mountains area and is committed to acquiring additional land in the range to complement its existing holdings for the purpose of natural resource conservation.

The area is being analyzed and planned for as a part of the BLM's Sonoita Valley Planning Partnership (SVPP), which is producing a Resource Management Plan (RMP) for the Empire-Cienega Resource Conservation Area.

Silverbell Mountain Park

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PIÑA COUNTY

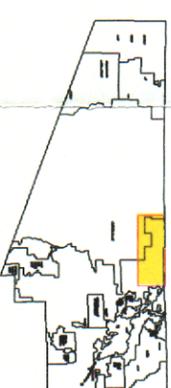
PIÑA COUNTY



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- Contour Lines
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Trails
- Administrative Boundaries
- Proposed Park Boundaries
- Proposed Mountain Parks
- Bureau Of Land Management (BLM)
- Private Lands
- State Trust Lands
- Tucson Water Land
- Tohono O'Odham Nation
- Wildlife Corridor Links



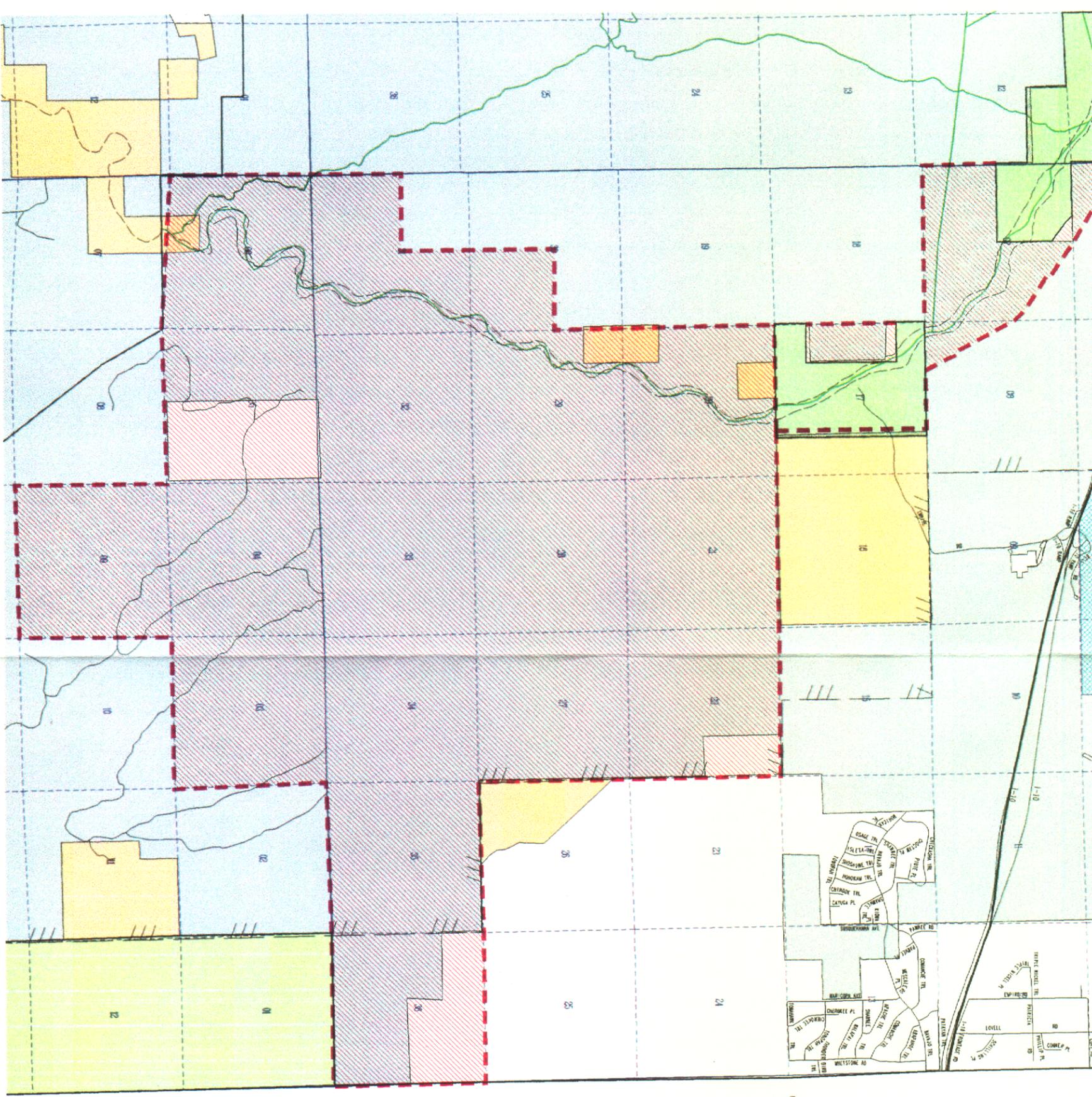
Pima County Index Map



Scale 1:45,000

R17E

R18E



T18S

T17S

Empire Mountain Park

- Empire National Conservation Area (NCA)
- Proposed Park Boundaries
- Parcel Base And Streets
- Township And Range Lines
- Section Lines
- Washes
- Administrative Boundaries
- Trails
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Riparian Habitat / Wildlife Corridor Link
- Bureau Of Land Management (BLM)
- Existing Pima County
- National Forest Land
- Private Lands
- State Trust Lands

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Pima County Index Map

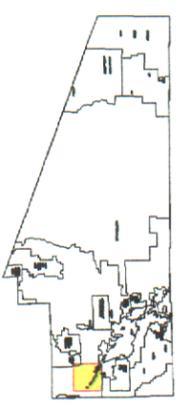


Figure 40

Index Map Scale: 1:1,500,000

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Scale: 1:14,000



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Plotfile: 05/17/99

[C] Tortolita Mountain Park Expansion into Pinal County -- A considerable portion of the Tortolita mountain range--more than 20 sections--extends into southern Pinal County. A small part of this southern-Pinal segment of the range is included within the existing Board of Supervisors-approved expansion boundary of Tortolita Mountain Park (two parcels totaling 310 acres have been purchased by Pima County in Pinal County to date). However, the majority of the southern-Pinal part of the Tortolita range is not within the park's expansion boundary and remains unprotected. A significant portion of these lands are controlled by the Arizona State Land Department and the U.S. Bureau of Land Management; the remainder are in private ownership. Enhancing the protection of the range through the expansion of Tortolita Mountain Park into southern Pinal County might be considered, based on three principal factors: (1) the significant natural resources that exist in and around the area, including suitable habitat for the cactus ferruginous pygmy owl; (2) the area's array of valuable cultural resources, particularly ancient archeological sites located on the east side of the range; and (3) the area's outstanding recreation potential. Couple these protection rationales with the fact that development pressures in this area are increasing rapidly, particularly along the Oracle Highway corridor and on the northwest sides of the park, and the need for near-term action becomes clear.

(D) Connecting the Buehman-Bingham Natural Preserve to Redfield Canyon and other adjacent protected federal lands. The long-term efficacy of Pima County's Buehman-Bingham Natural Preserve would be significantly enhanced if a permanent linkage between the preserve and nearby Redfield Canyon could be established. The Canyon is located approximately five miles east of the Pima-Graham county line just north of the Graham-Cochise county line, and most of the land between the proposed preserve and the canyon is State Trust Land. The Safford Ranger District of the Coronado National Forest, which contains the Galiuro Mountains and the 76,317-acre Galiuro Wilderness, and the BLM's 6,600-acre Redfield Canyon Wilderness and Muleshoe Ranch Preserve are also within proximity of the Canyon and could be potentially be linked to the proposed preserve. Achieving this multi-faceted linkage would also have the beneficial effect of connecting the Coronado National Forest's Santa Catalina and Safford Ranger Districts. The State Trust Lands between the proposed Buehman-Bingham Natural Preserve and Redfield Canyon should be earmarked for protection if the effort to have a certain percentage of Trust Lands set aside for conservation purposes is ultimately successful.

(E) Establishment of Sawtooth Mountain Park in Southern Pinal County. -- The Sawtooth Mountains are a small but very picturesque range located in southern Pinal County approximately 15 miles west of Picacho Peak and 5 miles north of the Pima-Pinal county line. The boundary of the Tohono O'odham Nation is located a short distance west of the mountains. The majority of the range is owned by the U.S. Bureau of Land Management, and is contained within 15,828-acre Cooperative Recreation Management Area (CRMA) designated by the Bureau of Land Management's 1988 Phoenix District Resource Management Plan (RMP). The CRMA also contains approximately 640 acres of State Trust Land. The CRMA's strong resource and scenic values and recreation potential make it an excellent candidate for a future county mountain park or state park. This potential park could also be linked with a future Pima County mountain park in the Silverbell Mountains area. Pinal County and other applicable entities such as Arizona State Parks should be encouraged to explore this opportunity.

V. Conclusion

The enhancement of Pima County's Mountain Park and Natural Preserve System is a major feature of the Sonoran Desert Conservation Plan because of its fundamental importance to the achievement of the County's conservation goals, and also because of the wide-ranging benefits the proposed expansion would confer upon the community.

With the listing of the pygmy-owl as endangered, the recent inclusion of Tucson Mountain Park within the critical habitat designation by the United States Fish and Wildlife Service, and the Board's acceptance of the Sonoran Desert Conservation Concept Plan, Pima County's mountain parks and natural preservers have become an even more important resource to the community.

There is flexibility in the County's system to manage at the level of conservation that is necessary, and this gives the community an opportunity to meet conservation compliance requirements at a regional level, in part through the County's parks and preserve system, while at the same time creating and implementing an adaptive management strategy which can adjust over time to actually improve the Sonoran Desert Conservation Plan as better scientific information becomes available.

The enhancement of the Pima County Mountain Park and Natural Preserve System will facilitate the protection of a wide range of invaluable natural and cultural resources around the Eastern Pima County. These include sensitive Sonoran Desert and riparian wildlife habitat and wildlife movement corridors. The plan will also contribute to the achievement of the goal of maximizing Pima County's biological diversity, including the protection of habitat considered critical to the recovery of the cactus ferruginous pygmy-owl.

Enhanced Pima County Mountain Park and Natural Preserve System

- Major Roads And Streets
- Township And Range Lines
- Washes
- Administrative Boundaries
- Proposed Park Boundaries
- Existing Park Boundaries
- Trails
- Anza National Historic Trail
- Wildlife Corridor Links
- Sierrita Ranch Conservation Area
- Proposed Mountain Parks
- Proposed Pima County Natural Preserves
- Riparian Habitat/Wildlife Corridor Links
- Catalina State Park
- Existing Pima County
- Indian Nation
- National Forest Land
- National Parks And Monuments
- National Wildlife Refuge
- Tucson Water Land
- Santa Rita Ranch Conservation Area
- Bureau Of Reclamation "Wildlife Mitigation Corridor"

Pima County Index Map

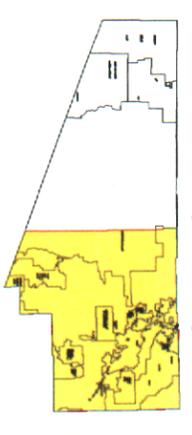


Figure 41

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Scale 1:150,000



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