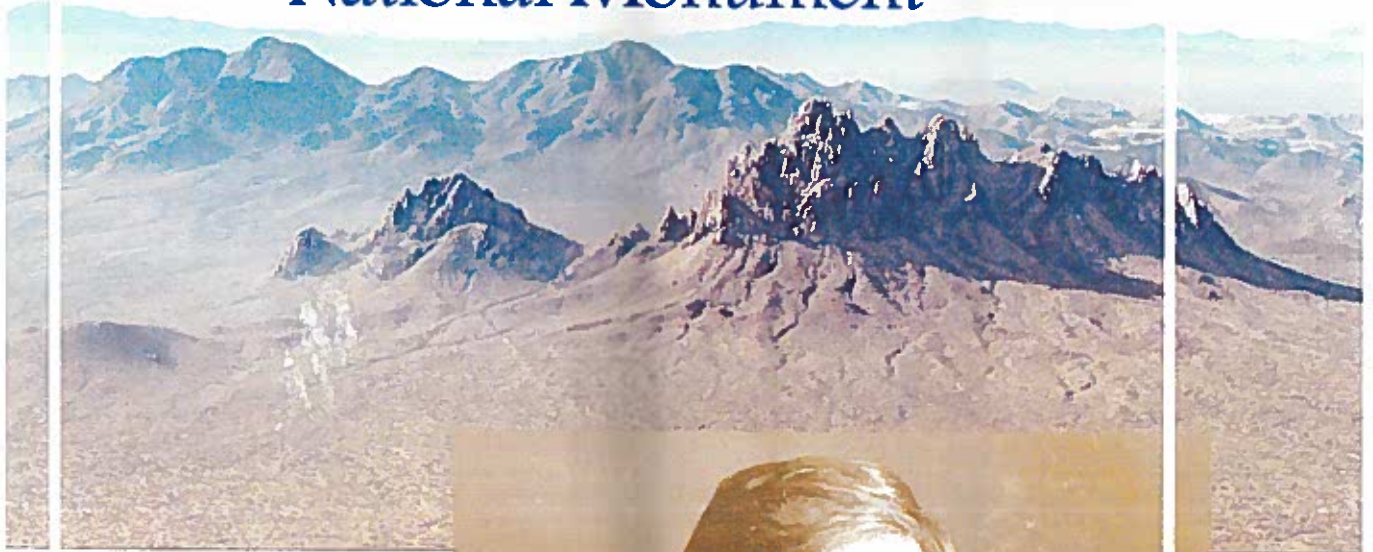


Proposal for the Establishment of the

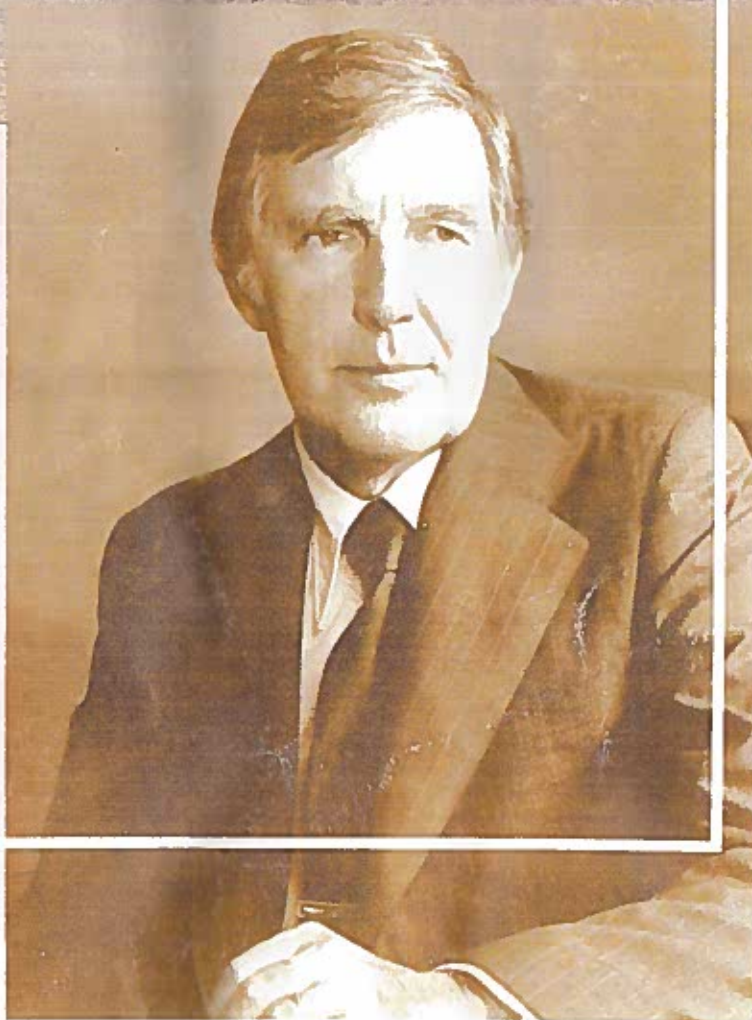
Morris K. Udall

Ironwood Forest-Upland Corridor National Monument



PRESENTED BY
THE COALITION FOR
SONORAN DESERT
PROTECTION

APRIL 2000



Proposal for the Establishment of the

Morris K. Udall

Ironwood Forest-Upland Corridor

National Monument

located in Pima and Pinal Counties
in Southeastern Arizona

Presented by the

Coalition for Sonoran Desert Protection



1. Statement for the Secretary of the

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Morris K. Udall
Ironwood Forest-Upland Corridor National Monument
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Introduction

On March 21, 2000, Secretary of the Interior Bruce Babbitt visited Tucson, Arizona. During his visit, the Secretary attended a Pima County Board of Supervisors meeting where the Board approved a resolution to pursue federal protection of an area in eastern Pima County called alternately the "Ironwood Preserve" and the "Ironwood National Monument." The County's proposal is a positive first step and we applaud the County for its efforts.

The Coalition for Sonoran Desert Protection is an alliance of forty-two conservation groups and neighborhood associations formed to advocate for the protection of the Sonoran Desert through the Sonoran Desert Conservation Plan process. We believe that the scientific and historical resources that exist in and well beyond the County's proposed Ironwood Preserve justify a national monument much greater in scale. The County proposal "would conserve one of the most valuable ironwood stands within the Sonoran Desert ecoregion," and we believe that goal is very laudable. The County also proposes that "the Preserve would achieve practical conservation goals that are necessary to promote recovery of the endangered pygmy-owl." The Coalition feels strongly that in order to realistically promote recovery of the endangered cactus ferruginous pygmy-owl (*Glaucothele setaceum*), a much broader preserve with connectivity for this species be established. We cannot continue to focus on single sites and expect adequate protection.

As well, we feel that a national monument would be a fitting tribute to a great conservationist, the late Congressman Morris Udall. We therefore propose that the President of the United States designate a national monument, to be known as the "Morris K. Udall Ironwood Forest - Upland Corridor National Monument." Our Proposal for such a monument includes the area north and west of Tucson that encompasses the greatest concentration of ironwoods in Arizona and a significant portion of federally designated critical habitat for the pygmy-owl, as well as countless archaeological sites of great importance to Native American cultures and others, outstanding geological and biological resources, and historical values beyond compare.

Current human activity within the proposed Monument's districts threatens the continued existence of these irreplaceable national treasures. Without the protection of a monument designation, the threats will certainly increase, causing resources to disappear or suffer damage from human activities in the area. The diminution of these resources would

constitute a grave loss to science, archaeology, history, and the Native American tribes who use the land for cultural practices. Furthermore, our Proposal includes considerable habitat important to the survival and recovery of the federally listed cactus ferruginous pygmy-owl; extending monument status to include these areas would significantly advance protection and recovery efforts for the pygmy-owl while warding off future rancor and conflict over use of these important habitats.

The Antiquities Act of 1906 authorizes the President to establish as national monuments "historical landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States...." 16 U.S.C. §§ 431 (1994).

The geographic area of the proposed Monument, comprising several distinct units of Arizona Upland Sonoran Desert, warrants permanent protection under the Antiquities Act of 1906. The map attached to this Proposal outlines the boundaries for the proposed monument.

The Antiquities Act authorizes the President, as part of his declaration of a national monument, to reserve land, "the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected." 16 U.S.C. §§ 431. This Proposal has been carefully delineated to comport with this requirement of the Antiquities Act yet still provide for sufficient land base to protect the objects and resources in the area in perpetuity.

The area of the proposed Monument includes archaeological, biological, geological, and historic objects identified within this Proposal. The area proposed is based on the conservation needs of these objects. Some of these objects, such as the geological, and biological resources are present throughout each unit of the proposed Monument. Others, such as the archaeological resources, are scattered within the units. Many objects, such as species of wildlife, are found in proximity, conjunction, or symbiotic relationship with one another.

Protection of such objects requires the protection of enough land surrounding them to maintain the relatively remote conditions that have made their continued existence possible. Indeed, the scientific value of the objects within the proposed Monument requires preservation of areas large enough to maintain the objects and their interactions. For example, according to the best science and conservation biology, species that are distributed throughout the units exist because of the environmental stability of the area. Many species rely upon the contiguity within the units and on the linkage between them to maintain viable populations and their role in the ecosystem. While the units are geographically separated, further fragmentation of these units would undermine the purposes of a monument designation.

With our proposal, the Coalition intends to promote a designation that adequately protects the viability of many species and their habitats. We are presently in the process of collecting data and ground-truthing many of these areas that have yet to be closely

studied. For example, The Nature Conservancy recently completed a report entitled "Conservation in the Sonoran Desert Ecoregion," which identified a list of 450 species that represent a cross-section of the Sonoran Deserts biodiversity. This report also identified 100 key habitat areas for those species. These vital areas have been broadly studied and warrant a closer look. We have incorporated two of these areas into our Proposal: the Sawtooth Mountains and the Tortolita Mountains. The Picacho Unit found in our Proposal is immediately adjacent to a third area (Picacho Peak) included in the Nature Conservancy report. We have also incorporated areas needed for protection of ironwoods, recovery of the cactus ferruginous pygmy-owl, and protection of other target species included in the Nature Conservancy report.

Our proposed Monument includes nine physically distinct but biologically connected units: the Silverbell - Ragged Top Unit, the Waterman - Roskrige Unit, the Tortolita - Durham Hills Unit, the Tortuga Unit, the Sawtooth Unit, the Picacho Unit, the Cat Hills - Grayback Unit, the Box Canyon Unit, and the Tortilla Unit.

We are excited about the opportunity to participate in the designation of the Morris K. Udall Ironwood Forest-Upland Corridor National Monument in southern Arizona. Thank you for your consideration of this request.

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Antiquities Act

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The land proposed for Monument status contains a wealth of biotic, scientific and cultural resources that we believe warrant protection; that various threats could damage these resources; that the monument presents exemplary opportunities for geologists, archaeologists, historians, botanists and biologists, and Native American religious study and practice.

Management of Federal Lands

The federal lands in the area described in this Proposal are currently under the jurisdiction of the Bureau of Land Management (BLM) in the Department of the Interior pursuant to its basic organic authority under the Federal Land Policy and Management Act of 1976. (FLPMA, 43 U.S.C. §§ 1702 et seq.).

Although management of the federal land should remain under federal jurisdiction, it should be subject to the overriding purpose of protecting the scientific and historic objects described in the Proposal. The establishment of a monument should therefore limit management discretion by mandating protection of the historic and scientific objects within the proposed Monument.

Objects of Historic or Scientific Interest

The proposed Ironwood Forest-Upland Corridor National Monument comprises nine geographically separated, yet biologically and geologically inter-connected units located within Pima and Pinal Counties to the west and north of Tucson, Arizona. The areas are within the drainage of the Santa Cruz River and Gila River. Elevations within the proposed Monument range from 1600 (Sawtooth Unit) to 4508 (Newman Peak in the Picacho Unit) feet above sea level. The maps which we have attached to this Proposal sets out the boundaries for the Monument. The areas together encompass approximately 320,000 acres of federal land, all of which is managed by the Bureau of Land Management. This Proposal describes objects in the area that warrant protection as a national monument.

Geological Resources

All 9 units of the proposed Monument lie within the Basin and Range geologic province of western North America. The Basin and Range province includes the deserts of southern and western Arizona, southwestern New Mexico, northern Mexico, southeastern California and the Great Basin of Nevada and western Utah, and contrasts strikingly with the Colorado Plateau of northern Arizona and southern Utah, which it partially encircles. The Basin and Range province is composed of a series of discontinuous mountain ranges that trend west-northwest to north. The

ranges alternate with roughly parallel intermountain basins. The intermountain valley floors are much lower than the Colorado Plateau and more arid (Morrison, 1985). In addition, the Earth's crust is significantly thinner in the Basin and Range than in the Plateau province as well as in much of the rest of the North American continent. This thinness differentiates it from all adjacent geologic provinces (Damon, pers. comm., 1987).

The proposed Monument contains a valuable cross section of Basin and Range geology. It lies along the boundary between the Mexican Highland section of the Basin and Range of eastern Arizona, and the lower elevation Sonoran Desert section of western Arizona. The 9 units included in the Proposal display much of the diversity of age, structure and lithology typical of the mountains of the Arizona sections of this geologic province. For example, the Tortolita Mountains are a metamorphic core complex composed principally of 25 - 28 million year (my) old crystalline rocks such as granodiorite, granite and quartz monzonite (Keith et al., 1980). Ragged Top Mountain, west across Avra Valley from the Tortolitas, is a 25 my rhyolitic peak adjacent to the porphyritic copper formation of the Silverbell Mountains (Damon, pers. comm., 1987). The Waterman Mountains, adjacent to the Silverbells on the south, are composed of ~300 my sedimentary rocks, including limestone (Armin, 1987).

The wide open vistas and craggy ranges of the Basin and Range province in Arizona have played an instrumental role in the development of our collective national image of the rugged "Old West," yet surprisingly, only limited segments of this geologic province have garnered Federal protection to date. The proposed Monument would ensure that a fully representative cross section of Sonoran Basin and Range geology is retained intact for future generations to appreciate and enjoy.

Surface hydrology

The 9 units of the proposed Monument are drained by an ephemeral wash system. The Santa Cruz River acts as the principle drainage for the southern units while the Gila River drains the northern units. The south and east side of the Waterman and Roskrige Mountains drain northeastward into the Blanco and Brawley Wash system, while the east side of the Silverbell Mountains are part of the Blanco and Los Robles watershed. The west side of all three ranges drain into Aguirre Wash, which connects with Green Wash on the east side of the Sawtooth Mountains, downstream from the Green Canal segment of the wash that crosses agriculture land. The Brawley, Los Robles and Green Wash systems eventually reach the Santa Cruz River, which is a narrow, shallow bed in this region in stark contrast to the massive concrete-lined entrenched sandy ditch that passes through Tucson some 50 miles upstream to the south.

The proposed Tortolita unit comprises principally the western and northern reaches of the Tortolita Mountains, and it drains directly into the Santa Cruz River. The proposed Picacho unit to the north drains into McClellan Wash which runs south along the east side of the Picacho Mountains, then turns west and then north along the west side, eventually emptying into Picacho Reservoir. From there, water is transported via two canals, one to the north and one to the west, eventually draining into the Gila River and the Santa Cruz Wash, respectively. The Tortilla Mountains of the proposed Tortilla, Grayback and Box Canyon units all drain directly into the Gila River, while the Cat Hills drain into or along the Florence Case Grande Canal and ultimately into the Gila River.

It should be noted that only in the mightiest of floods would surface flow from all of these systems actually "empty" or "drain" one into the next as has been described above. On the other hand, our knowledge of the subsurface hydrology for the entire region is limited, and it would be

risky to assume that subsurface water movement through basin aquifers follow a similar route.

Biological resources

The proposed Monument contains an astonishing array of biological and botanical resources. Diverse plant and wildlife species inhabit the area including several federally and Arizona state listed endangered or threatened species, and Special Species of Concern. This proposal highlights several species which currently exist within the 9 units of the proposed Monument, and which are in need of protection.

Examples of biological research within the proposed Monument:

Many studies of desert plants and desert ecology have been conducted in the units of the proposed monument. For example, The International Biome Study was a project carried out in the early 1970's that studied deserts worldwide and modeled all of their ecological processes (plants, vertebrates, invertebrates, microbiology). One study site was in the Silverbell mountain bajada. The resulting baseline research is very thorough and is of tremendous help to research in the Sonoran Desert today (U.S. International Biological Programme, 1970-1974).

Studies of packrat middens have found the remains of seeds, leaves, fossil plant fragments, pollen, teeth and bones of vertebrates dating as far back as 22,450 years (Van Devender and Mead. 1990). In 1991, the Arizona Game and Fish Department set up a permanent study plot in the Silverbell Mountains to study the population ecology of the Desert Tortoise (Hart et al., 1992; Woodman et al., 1996). A study of "Landscape Evolution, Soil Formation and Ecological Patterns and Processes in Sonoran Desert Bajadas" (McAuliffe, 1994) located a study plot in the Silverbell bajada. The importance of the work done here earned the study the Crawford Prize for Ecology.

Kirby Bristow investigated the population of Desert Bighorn Sheep in the Silverbell and West Silverbell Mountains and on the northern portion of the ASARCO copper mine. That study concluded that, "the desert bighorn sheep within the SBSA (Silver Bell Study Area) represent the last viable desert bighorn sheep population indigenous to the Tucson basin. Among the reasons why the populations of this species have declined or become extirpated are the industrial, urban and agricultural developments nearby," (Bristow et al. 1996).

Ongoing studies of endangered plants in the proposed Monument region include a Nichols Turk's Head Cactus study started in 1997 in the Waterman Mountains. The work is being conducted by the Arizona Department of Agriculture and funded by U.S. Fish and Wildlife Service. An advantage for plant researchers in the proposed monument area is that fewer exotics have invaded the region compared to ranges closer to urbanized areas, such as the Tucson Mountains.

Species of special concern found within the proposed Monument:

The 9 units of the proposed Morris K. Udall Ironwood Forest-Upland Corridor National Monument fall almost exclusively within the Arizona Upland Subdivision (Arizona Upland) of the Sonoran Desert. This region is sometimes referred to as the "Palo Verde Cacti Desert" for obvious reasons: the ubiquitous green-barked palo verde tree and a wide variety of cacti inhabit the region. A characteristic of the Arizona Upland is the interdependence of the vegetation types and the animals of the region. Commonly, an understory of plants to 18 inches in height grows beneath a midstory layer from 18 inches to 6 feet tall. The midstory is in turn beneath the canopy of subtrees such as the palo verde, mesquite, and ironwood. Microclimates beneath the subtree canopy keep temperatures cooler in the summer and warmer in the winter which can make the difference for plants and animals that live in the harsh desert climate. For example, the giant columnar cacti, Saguaro (*Carnegiea gigantea*), requires such a "nurse" tree to grow under when

young in order to survive especially cold winters or hot dry spring and summer seasons. When such vegetative cover is removed by cattle grazing or other impacts, the young Saguaro will often die (MacMahon, 1986).

Over 50% of the annual precipitation in the Arizona Upland can fall during the summer monsoon of July, August and early September, while the rest generally comes during the months of winter and early spring. This bi-modal precipitation regime accounts for the broad diversity of plants and animals found in all the units of the proposed Monument. In fact, many visitors to the Arizona Upland are surprised to find that a so-called desert can be so lush and have so much variety.

A short listing of plants found in the Arizona Upland Division of the Sonoran Desert (a sampling of species of special concern will be discussed in more detail below) include Buckhorn, Jumping or Chainfruit, Teddy Bear and Pencil cholla, a number of varieties of prickly pear, Christmas cactus, the gorgeously blossomed Night Blooming Cereus, the stout Fishhook Barrel cactus, Hedgehog cactus, small Fishhook cactus with delicate lavender flowers, and of course, the giant Saguaro, the state flower of Arizona, and the most readily identifiable plant in the region if not the entire west. The Saguaro is a focus of animal activity, from woodpeckers who create the cavities which other birds, such as the endangered Cactus Ferruginous Pygmy-owl later inhabit, to lizards and wood rats. There is a particularly dense stand of Saguaro in the bajada of Ragged Top, at the northeast end of the proposed Silverbell-Ragged Top Unit.

Non-cactus plants of the Upland understory include Bursage, Brittle Bush which commonly covers hillsides in bright yellow flowers in the spring, Globemallow (orange flowers), Penstemon (bright pink flowers), Paperflower (yellow), and the Fairy Duster (reddish). In the middle story occur the Creosote Bush (even more common at lower elevations), the Jojoba (an edible nut grown commercially for its oil), and the aptly named Crucifixion-thorn, and Desert Broom (a pioneer species). Sub-trees of the Arizona Upland include the Blue and Foothills Palo Verde (uses green, chlorophyll-rich bark for photosynthesis), the Mesquite, the Ironwood (the second-most dense wood of any tree in the world), the Whitethorn Acacia, and the spidery Ocotillo with spindly, spiny arms of 10 feet or more and flaming orange flowers at the tips.

From even this incomplete list, the complexity of the vegetation in the Arizona Upland, well characterized by the 9 units of the proposed Monument, should be apparent, as should be its abundant potential for pharmaceutical, horticultural and ecological research.

A wide variety of animals call the Arizona Upland home as well: bighorn, mule deer, bobcat, mountain lion, javelina, coyote, kangaroo rat, pack rat, hummingbird, ground squirrel, vulture, hawks, cactus wren, gilded flicker, California Leaf-nosed bat, Mexican Long-nosed bat, rattle snakes, king snakes, gila monster, scorpion, tarantula, great-horned owl, elf owl, and the horned lizard, to name just a few.

A sample of Arizona Upland species of special concern are listed below. Many of the species found in this region and all of those discussed below are in some danger of extirpation due, in large part, to human encroachment and habitat fragmentation. Preservation of large tracts of intact habitat, such as that represented by the 9 units of the proposed Monument, is consistent with the best science available, and is in all of our best interest; it will ensure that we can continue to better understand and protect the complex web of life that has evolved in the arid environment of the Sonoran Desert's Arizona Upland Division.

Ironwood Tree (*Olneya tesota*). Ironwood ranks as one of the most ecologically important plant species of the Sonoran Desert. It is considered a “keystone” species and a “nurse plant” of benefit to many other species of desert flora and fauna. It is found in varying densities in all 9 units of the proposed Monument, and is, in fact, a unifying element of the Monument proposal.

These trees grow in two biotic communities in the desert Southwest and in Mexico: the ancient cactus and legume forests on rocky bajadas and alluvium, and in xeroriparian habitats along narrow corridors of ephemeral watercourses in the driest areas of the Sonoran Desert. An example of the former is the Tortolita Fan of the southern and western Tortolita Unit. The latter is represented in drainages of the proposed Sawtooth Unit. The highest density of ironwoods for all the study sites in the U.S. and Mexico was found in the Arizona Uplands of Pima County at Ragged Top Mountain just northeast of the Silverbell Mountains in the proposed Silverbell-Ragged Top Unit. Impressive densities of ironwood are also found in the Tortolita Mountain region, extending northward well into Pinal County.

Standard tree-ring dating of ironwood, the old growth tree of the desert, is difficult due to the inconsistent growth patterns and the extreme density of the wood. However, reliable estimates put the older trees at 800 years, and it is likely that some live even longer. In addition, the Ironwood is an extremely slow-growing tree. The wood is very hard and so dense (specific gravity of 1.14) it does not float in water. Ironwoods can reach a height of over 40 feet, with a dense crown and blue-green leaves. A nitrogen fixing legume, it blooms with pea-like purple flowers from May until June and produces a fruit encased in brown pods. The pea-like pods mature at a time of year when few other plants are producing fruit, creating a significant dependence of wildlife on the seeds.

As a nurse plant and keystone plant species, the Ironwood provides enormous resources for the surrounding environment.

Ecological Value of Ironwood

- Flowers, pollen and nectar for native bees.
- Dense canopy provides shade for nesting, burrowing and resting wildlife. The temperature under an Ironwood can be 15° cooler than the surrounding temperature.
- Canopy provides nesting sites for white-winged doves and other birds.
- Larger trees provide roosting sites for owls and hawks.
- Trellis for vines.
- Protection from sunburn for the night-blooming cereus and other cacti.
- Protection from freezes for saguaro and senita.
- Leaves provide forage for desert bighorn sheep, pronghorn antelope and mule deer.
- Nurse plant for young seedlings of many varieties, some foraged by bighorn and rabbits.
- Refuge for desert tortoise burrows dug in and around roots, and for other rodent nest and resting sites.
- Seeds provide food for collared peccaries, rodents, and birds such as doves and quail.
- Leaf litter provides nitrogen and organic matter.
- Symbiotic bacteria (N₂-fixing) and fungi, with the roots of the Ironwood, create islands of fertility in the alkaline desert soils.
- Deep roots hold soil banks in place.

Biological Diversity of Ironwood Forests

Studies conducted in Ironwood forest areas indicate the presence of tremendous biodiversity. Six hundred and seventy four species of vertebrates, invertebrates, and vascular plants were recorded in Ironwood habitat in the Silverbell study site of the International Biome Project (IBP). The IBP rated the Ironwood as the second most valuable plant in terms of community importance, second to the triangle-leaf bursage.

Species in the ironwood forest at the IBP Silverbell study site:

Ants:	25 species
Orthoptera:	25 species
Bees:	188 species
Anurans:	12 species
Lizards:	19 species
Snakes:	24 species
Birds:	57 species
Mammals:	64 species
Vascular plants:	250 species
Total:	674 species

In recognition of the central role the ironwood occupies in maintaining the health and biodiversity of the Sonoran Desert, Mexico has given the tree special protection status. This pivotal species faces many serious threats from habitat fragmentation due to the rapid growth of urban/suburban sprawl in both Pima and Pinal counties, grazing, wood cutting in Mexico, and competition with exotic species. Ironwoods are cut for the woodcarving and charcoal burning industries in Mexico. Both these products are exported for consumption in the U.S. The Ironwood is particularly vulnerable to extractive industries, urban sprawl and other threats to its habitat because its rate of growth is extremely slow and it has low levels of seed establishment (recruitment).

Cactus Ferruginous Pygmy-owl (*Glancidium brasilianum cactorum*). The Cactus Ferruginous Pygmy-owl (CFPO) is one of four subspecies of the ferruginous pygmy-owl. A small bird, it is approximately 6.75 inches long with up to 2 inches of the total body length comprising the tail. The eyes are yellow and there are no ear tufts.

In March of 1997, the U.S. Fish and Wildlife Service (USFWS) listed the CFPO as Endangered in Arizona. (Federal Register: March 10, 1997 Vol 62 #46 pp. 10730-10747). Historically, CFPO's in Arizona may occur in riparian woodlands, mesquite bosques, semidesert grasslands and Sonoran desert scrub. The subspecies currently occurs primarily in the Arizona Upland Subdivision of the Sonoran Desert below 4000 feet, which includes mesquite species, palo verde species, acacia species, ironwood, bursage, and mature columnar cacti such as saguaro and organ pipe. Unifying characteristics among these habitats include braided-wash systems with dense vegetative cover comprised of 3 levels: canopy, midstory and ground cover. Recently observed nest sites have been predominantly in saguaro cavities with the exception of 2 nest sites located in tree cavities in 1999 (CFPO Survey Protocol Revised Jan. 2000, Federal Register: March 20, 2000 Vol 65 #54 pp. 14999-15000).

Critical Habitat was designated by the USFWS July 12, 1999 (Federal Register: 7-12-99 Vol 64 #132 pp. 37419-37440). This document defined those areas that are: "(I) essential to the conservation of the species; and (II) that may require special management consideration or

protection...Aside from the protection that may be provided under Section 7, the [Endangered Species] Act does not provide other forms of protection to lands designated as critical habitat."

The Service also states, "we formed an interconnected system of suitable and potential habitat areas extending from the Mexican border through the northernmost recent pygmy-owl occurrences east of Phoenix...they are within the geographic areas occupied by the species, are essential to the conservation of the species, and are in need of special management consideration or protection."

This proposed Monument accomplishes the goal of the USFWS by connecting those areas designated as critical habitat based on topographic and vegetative features while avoiding, wherever possible, developed areas. The several Units of the proposed Monument are essential for the facilitation of movement of birds between best-suited habitat areas, and are important for dispersal and genetic exchange.

The central threat to the survival of the CFPO, according to the USFWS, is habitat fragmentation of the Arizona Upland Subdivision of the Sonoran Desert.

Desert Bighorn Sheep (*Ovis canadensis mexicana*). Desert Bighorn Sheep are synonymous with the rugged lonesome stretches of the southwestern United States. These sheep live and thrive in regions where few people and most predators cannot reach: the sharp cliff faces and ragged peaks of the Basin and Range. Catching sight of a Desert Bighorn turns an ordinary desert trip into a tale to tell and retell for years to come. While neither endangered nor threatened at this time, Desert Bighorn Sheep continue to lose more and more of their historic range to human impacts. Most recently, they were considered extirpated from the Santa Catalina Mountains 45 miles east of Ragged Top, although 1 or 2 individuals may yet remain. Maintaining viable herds of these noble desert animals is of scientific importance, and reintroducing them to areas previously inhabited is of both scientific and historic interest.

The small bighorn sheep herd in the proposed Silverbell-Ragged Top Unit is considered the last remaining population in the Tucson Basin. Habitat fragmentation due to human activities in the region has left their continued viability precarious. Annual Arizona Game and Fish overflights during the past 16 years have indicated a mean stable population of 44 sheep, with a high of 99 in 1992 and a low of 34 counted 3 years later, in 1995 (Bristow et al., 1996). However, Berger (1990) found that bighorn populations with less than 50 individuals were susceptible to rapid extinctions.

Human activities that have a significant impact on the sheep population include mining (ASARCO mines a copper porphyry deposit on approximately 6,000 hectares of land in the north end of the Silverbell Mountains, close to Ragged Top), cattle grazing (essentially the rest of the land in the region is open to grazing on BLM and state land), ORV use, and hikers, climbers and their pets.

During a 1992 land exchange that added 1558 hectares of land to ASARCO's holdings in the Silverbell Mountains, the Arizona Game and Fish Department recommended that ASARCO provide a conservation easement on the northern portion of their property to ensure that bighorn rams and their ewes could continue to move freely between the West Silverbell Mountains and the Silverbell Mountains (Bristow et al., 1996). To our knowledge this easement was never secured. Such movement is important to the health of the herd. It is likewise critical to protect corridors between the Silverbell Mountains to the north and the Waterman and Roskrige Mountains to the

south, where sheep have occasionally been found.

Water catchment areas are extremely important to ewes and their lambs in the late winter and spring (Bristow et al., 1996). Harassment from recreational hikers and their pets during this period is a serious threat to the continued viability of the herd, particularly as the number of hikers increases. Pets, specifically dogs, should be excluded from the proposed Silverbell-Ragged Top and Waterman-Roskrige units during the period from 1 December to 15 April. Human activity should be restricted to at least 1/4 mile from catchments during this period as well.

Fragmentation of habitat occurs with the ever increasing vehicular use in this region, both motorized and bicycle. New wildcat roads, ORV, motorcycle and bicycle trails and increased use of existing roads and trails continually reduce the comfortable range for sheep movement. Elimination of feeder roads that lead to the base of the peaks would help significantly, and elimination of off-road use by motorized and non-motorized vehicles is critical.

Future expansion of Desert Bighorn Sheep habitat to other ranges within the proposed Monument could become a real possibility were the present herd to flourish rather than simply subsist. To achieve this goal is of obvious scientific interest, and of great importance to restoring the integrity of the historic biodiversity of the Arizona Uplands habitat.

Desert Tortoise (*Gopherus agassizii*). The Sonoran Desert population of the Desert Tortoise is protected in Arizona and throughout its range, and is considered a species of concern by the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department. Although we are aware of only a single preliminary survey (Schneider 1980) of tortoises in the Silverbell Mountains, local herpetologists in Tucson have long been aware of the large population of tortoises in the vicinity of Ragged Top Mountain. The area is considered excellent tortoise habitat in that it consists of a large undeveloped area characterized by Arizona Upland vegetation, including saguaros, native grasses, and palo verdes. Also, many landscape features associated with tortoises are present, including large boulders, dissected washes, and caliche caves.

The large size of the tortoise population in the Silverbells and its geographic location between isolated populations in the Picacho Mountains, Desert Peak, the Tucson Mountains and other mountain ranges in southern Arizona suggest that this population may be important for maintaining connectivity among these populations. However, at the present time little is known about these isolated populations and how vulnerable they are to extinction. It is very difficult to gather data on long-distance tortoise movements, although such movements are sometimes recorded during radio-telemetry studies (e.g., Barrett 1990). Cecil Schwalbe and his students at the University of Arizona have recently proposed to study the genetics of tortoise populations in the Tucson Basin, including the Silverbells and Desert Peak (Schwalbe et al. 1999). The primary method for long-term monitoring of Desert Tortoises in Arizona is repeated visual surveys of 1 km² or 1 mi² study plots during the summer months of July-September (e.g., Murray and Schwalbe 1997).

The greatest threats to tortoises in the area of the proposed Monument are probably sand and gravel mining, residential development, including increased road access, and continued cattle grazing. Sand and gravel mining represent a threat to tortoises because mining results in the direct loss of habitat, particularly of boulder fields and caliche caves necessary for tortoise shelter sites. Due to the extreme environmental conditions in the Sonoran Desert, tortoises must spend all or part of nearly every day in a protected shelter site, which most often consists of a deep

borrow or crevice associated with boulders, rock outcrops, or washes. Cattle grazing is thought to reduce tortoise populations because of the loss of the native grasses and forbs which form the diet of the desert tortoise.

By far the greatest threat to the Desert Tortoise in this area is the potential for continued residential development and development of roads. Like most wildlife, desert tortoises require large areas of contiguous land with suitable habitat. Development directly removes many elements of habitat, and introduces additional threats such as predation by domestic animals, introduction of diseases by exotic pets, illegal collecting, and others. In addition, the presence of roads increases the mortality of both young tortoises and adults. Studies in the Mojave Desert indicate the desert tortoise densities decrease in proximity of roads, suggesting that road kills may impact populations locally. Work on long-lived turtles (Congdon et al. 1993) indicate that these species are slow to mature and have very low annual reproductive output, but great longevity and high adult survival; however, large decreases in adult survival may lead to extirpation of populations.

Gila Monster (*Heloderma suspectum*). The Gila Monster is a listed Protected Species in the state of Arizona. It primarily inhabits upland desert scrub, desert grassland and thornscrub in the Sonoran and Mohave Deserts, reaching elevations of 5000 feet. It is found in high densities throughout the units of the proposed National Monument. The Gila Monster is the largest lizard in the United States, weighing up to 2 pounds and reaching a total length of 20 inches, including a large tail which is used for fat storage (Hare, 1999).

Gila Monsters spend up to 95% of their time underground. In the winter they hole up in dens or burrows, often using rock crevices or boulder piles for this purpose. They emerge in spring to search for food and mates, and are most active at this time. They feed on new-born woodrats, rock squirrels, and rabbits, and other animals which cannot easily escape, as well as on the eggs of reptiles and ground-nesting birds. With the onset of hot weather in late May or June, they return to underground burrows. They may be active again during the rainy season of July and August, but are not frequently seen (Hare, 1999).

These big lizards have many potential predators including hawks, owls, coyotes, mountain lions and kit foxes, but their color and pattern warn of a possible venomous bite and serve as effective deterrents. Human beings seem to be the animal's primary threat through collection, road kill, habitat loss, and intentional (illegal) killing (Hare, 1999). The preservation afforded this Arizona Protected Species throughout the extent of the proposed Monument is of obvious scientific interest.

Arizona Chuckwalla (*Sauromalus obesus tumidus*). The stout-bodied Chuckwalla, second largest lizard in the United States, is found in the Silverbell Mountains in the Silverbell-Ragged Top Unit of the proposed National Monument. The male can measure up to 18 inches in total length and the female is somewhat smaller. The coloration of these lizards is geographically variable and also varies between juveniles and adults, in addition to males and females. In adult males, the head, shoulder, and pelvic regions are melanistic, while the mid-body is light beige or tan and occasionally speckled with brown flecks. The tail is off-white. Adult females are brownish in color with a scattering of dark brown and red spots. Young Chuckwallas have four or five broad bands across the body, and three or four on the tail. These bands are usually lost in adulthood. Uniformly small scales cover the body, with larger scales protecting the ear openings.

The Chuckwalla is distributed throughout the deserts of southern California, southern Nevada, southwestern Utah, western Arizona, Sonora, and Baja California. Its distribution is closely aligned with the Mojave and Sonoran Deserts. The Arizona sub-species occurs exclusively in Arizona and the NW corner of Sonora, Mexico.

The Chuckwalla's preferred habitat is boulder-covered slopes, at elevations up to 4500 feet, although they are more common at lower elevations. They sun themselves on prominent rocks during warm weather, and it's not unusual to see several chuckwallas at the same time from a single vantage point. Chuckwallas are shy, and, if approached, will hide in the cracks and crevices of nearby rock faces or boulder piles. If the threat persists, they can wedge themselves tightly in the crevice by inflating their lungs, causing their body to press against the rock faces. This makes extraction nearly impossible for a predator.

Strictly herbivores in the wild, Chuckwallas are fond of yellow flowers, such as those found on the Brittle-bush. On occasion they will climb into this plant to feast on the bright yellow flowers.

Chuckwallas mate between April and July, with a clutch of as many as 16 eggs laid between June and August. The eggs hatch late in the summer. The Chuckwalla is currently a Federal Special Concern species (FSC). In desert communities with active development, the preferred habitat of the chuckwalla is under attack. In areas without disturbance, Chuckwallas populations appear healthy and stable.

Tucson Shovel-nosed Snake (*Chionactis occipitalis klauberi*). The Tucson subspecies of the Shovel-nosed Snake occurs in the proposed Monument area. Ironically, it has not been seen in the Tucson Basin since 1981. The Shovel-nosed Snake is small, only 10 to 17 inches long. As the name implies, the snout is flattened and shovel-shaped, and the lower jaw deeply inset. Dark brown or black bands may be saddle-like or encircle the body. The basic ground color is cream, whitish, or yellow. Red or orange saddles may or may not be present between the dark saddles. The scales are smooth.

Strictly a desert dweller, the Shovel-nosed Snake is restricted to southeastern California, southern Nevada, southwestern and central Arizona, northeastern Baja California, and northwestern Sonora, Mexico. It is found in loose sandy areas such as washes, dunes, sandy flats and rocky hillsides that have sandy areas between the rocks. Vegetation is usually sparse and may include creosote bushes, grasses, cacti, and mesquite.

The underset lower jaw, muscular body, smooth scales, and shovel-shaped nose make this snake very good "sand swimmer." During the heat of the day it is usually submerged beneath the surface, emerging at night to hunt for food. It feeds on numerous kinds of insects (including their larvae) as well as spiders, scorpions, centipedes, and moths.

California Leaf-nosed Bat (*Macrotus californicus*). The California Leaf-nosed Bat is found in Ragged Top, in the Silverbell-Ragged Top unit of the proposed Monument. It is a medium size bat with large ears and a "leaf" on its nose, and lives year-round in Arizona in the Sonoran and Mohave desert scrub vegetation types throughout western, southern and central Arizona, south of the Mogollon Rim. Its range extends south to the Caribbean Islands, Guatemala and Mexico. The California leaf-nosed bat feeds primarily on large night-flying beetles, moths and grasshoppers taken in flight. They also feed on insect larvae taken from vegetation or the ground.

This bat typically begins to emerge about one hour after sunset, forages for about an hour, retires

to a night roost and then again becomes active a couple of hours before sunrise. It is a swift and agile flyer and can hover in flight while gleaning insects from vegetation.

Like others in its family, the California Leaf-nosed Bat is fairly unique in being an obligatory homeotherm: they neither hibernate nor allow their body temperature to drop significantly. This makes the species fairly unique among Arizona desert bats, all others of which either hibernate or migrate. Not surprisingly, one of the critical characteristics of a California Leaf-nosed Bat roosting site is that it be quite warm, even in winter. Almost all bat species and colonies are peculiar to the roost sites they choose, and loyal to those that they prefer. However, this species is probably more faithful to its roosts than many other species, because the warm caves (actually, often mine tunnels) are apparently important in allowing them to regulate temperatures during lower food availability in winter. Presumably this might be impossible in cold caves. Thus, if a cave or mine used for roosting is closed, or unduly disturbed, this bat cannot simply move to a nearby mine shaft, for it is unlikely to have appropriate winter time temperatures. Indeed, if the temperatures there were acceptable, they would already inhabit it (Carpenter, 2000).

The California leaf-nosed bat is currently listed as a candidate species on the list of Threatened Native Wildlife in Arizona. It is threatened by susceptibility to low temperatures, apparently limited winter roosts, and vandalism at roosts. In the 1950's there were a few small abandoned mine tunnels on south facing slopes of the southern Tucson Mountains, 50 miles southeast of Ragged Top. These were very warm, and at that time were inhabited by this species. The sites were disturbed and these bats apparently no longer inhabit the region (Carpenter, 2000).

Lesser Long-nosed Bat (*Leptonycteris curasoae* [=sanborni] *yerbabuenae*). The Lesser Long-nosed Bat is a Federally listed endangered species, and is listed as Threatened Native Wildlife in Arizona. It occupies known roosts within 18 miles of the southern units of the proposed Monument. It may forage within the proposed southern units.

This large, nectar-feeding bat is a summer resident of southern Arizona, south into Mexico and Baja California. It is a resident of desert scrub, feeding on the nectar and pollen of night blooming desert plants such as the Saguaro, Organ Pipe Cactus and Agave. The lesser long-nosed bat has a specialized, long nose and brush-tipped tongue for obtaining nectar and pollen. This species is one of the pollinators of several desert plants and is also known to use hummingbird feeders. Migration into Arizona begins in mid to late spring and young are born in nursery colonies in May and June.

These are one of the rarest bats in Arizona, found only in the southern portions of the state. Their populations appear to be declining, although the exact reasons are unclear. They are nectar feeders, helping to pollinate many important cactus species. With the decline in this species, Arizona may also see a decline in saguaro cactus and agave which depend on these bats for their pollination.

The Lesser Long-nosed Bat is threatened by loss of suitable mine and cave roosting habitat and disturbance to maternity roosts. Agave harvest in Mexico for the liquor industry may also be negatively affecting this species.

Mexican Long-tongued Bat (*Choeronycteris mexicana*). The Mexican Long-tongued Bat is listed by the State of Arizona as threatened, and occurs within the proposed Monument. This bat is a leaf-nosed bat with an exceptionally long nose and tongue, a special adaptation for feeding on nectar and pollen of night blooming desert plants such as Saguaro and Agave. This species is one

of the pollinators of several desert plants and is also known to feed from hummingbird feeders. These bats occur in southeastern Arizona at the northern end of their summer range, which extends south through Mexico and Central America to Honduras. They roost in small groups in Arizona, usually in the twilight regions of caves and mines but also in other relatively exposed locations. A single young is born in June.

Long-tongued bats are found from the palo verde-saguaro zone to the semidesert grassland and oak zone. They are currently listed as a threatened species on the list of Threatened Native Wildlife in Arizona. Its biology and population status are poorly known but a decline in numbers is evident. Threats to this species are not well known, but human disturbance of roosts may be an important factor. Agave harvests in Mexico for the liquor industry may also be negatively affecting this species.

Nichols Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholi*). Nichols Turk's Head Cactus is a small roundish cactus reaching ages of 45 years yet still only 3.5 in. across and 0.5 in. high. It is found in the Paleozoic limestone of the Waterman Mountains, in the Waterman-Roskrige Unit of the proposed Monument. Seeds of this ancient cactus have been found in pack rat middens dated to 22,000 years of age. It is a well-adapted, persistent plant, but is limited to limestone soils.

An ongoing "population dynamics" study of the Turk's Head Cactus is revealing much about this miniature cactus and the environment it lives in. For example, it appears to depend on Desert Bighorn Sheep, also a species of concern found in and near the proposed Waterman-Roskrige Unit, to eat and then broadcast its seeds.

Of further interest, while working in the study area for the Turk's Head Cactus, researchers found remnant populations from the ice age of the Pleistocene era tucked away high in the Waterman Mountains.

Archaeological Resources

The pristine, largely undisturbed landscape proposed for the national monument holds the whole range of land use over the entire span of human habitation in the region. Prehistoric use is evident by the vast proliferation of irreplaceable rock art images, villages, burial sites, metate stones, ancient ball courts, plaza areas, pot shards and quarries. The number and quality of the archaeological sites in the area are unparalleled. Historic sites exist and are documented by ruins of homesteads, a ghost town, stagecoach routes, grave sites, and Spanish missions. Research in this historically rich area will add significantly to the existing body of scientific knowledge and to our cultural heritage.

It is clear from reviewing documents on file at the Site File Office of the Arizona State Museum with Sharon Urban, Public Archeologist, that tremendous potential exists with regard to cultural resources in the proposed Northern units of the Ironwood/Uplands National Monument.

These proposed units have received little or no attention in terms of archeological and cultural site research, with the exception of cursory surveys. However, within, just outside, or at the edges of virtually all units, culturally significant sites have been identified.

Archaeologists believe, for all units, that this close proximity of identified sites means that prehistoric people inhabiting these areas also used the land we are suggesting for protection.

With systematic surveys, more traces of their existence will be found. A few sites are known in these proposed units but many more are expected to exist. For example:

- At the western edge of the proposed Box Canyon Unit, in the vicinity of Cottonwood Canyon, are many recorded archeological sites considered extensive and complex.

One example is a Late Phase Hohokam Sacaton (AD 1250-1375) village. It contains a Casa Grande style ball court, forming a plaza area, extensive trash mounds, and an abundance of broken shells, pot shards, and lithics (stone flakes from tool and weapon making). This area is unprotected and documents at the Museum note evidence of pot hunting.

In the more mountainous region to the east of the many Cottonwood Canyon sites, in the proposed Box Canyon Unit, archeologists expect to find evidence of these same Hohokam or earlier Archaic (6000 to 400 BC) people. Typical mountain sites are: seasonal camping areas, petroglyphs/rock art, shrines, and resource procurement and tool making areas.

- Within the proposed Grayback Unit on the Gila River, are great numbers of sites recorded in the Butte Reservoir Survey. Many village sites exist with large habitations, occasional masonry structures, terraces, ball courts, trash mounds, pottery shards, manos, metates, hammerstones etc.

Again, strong potential exists for culturally significant sites in the adjoining Grayback Unit.

- Within the Tortolita-Durham Hills Proposed Unit, some sites have been surveyed, but not researched.

One such site is a huge platform community, from the Hohokam Sedentary Classic Period, described in Museum documents as "dense with artifacts, with 50 trash mounds." It appears to incorporate a ball court and habitation structures. Ceramic shards are of Sacaton red on buff and Casa Grande red on buff. Many other artifacts exist. Agricultural fields are associated with the village.

Another site example within the Tortolita-Durham Hills Unit contains 2 trash mounds, a dense scatter of shards and lithics and Plainware ceramic shards. This site, unprotected, has also been vandalized.

- The Picacho Unit has recorded sites around the edges of the mountains. These are petroglyphs that occur in significant numbers. Archeologists strongly expect the existence of shrines, quarries, hunting blinds, signal fire points and additional rock art inside the mountain range in areas not yet surveyed.
- It should be noted that from 1980-1989, an archeological survey was conducted from Ina Road east to Picacho Peak, to the Florence Highway and west to the Silverbell Mountains. Well over 3000 sites are known from this survey. Some are as much as 2 miles square.

Three intact Hohokam communities were found. The central element of each community is the platform mound. Extending out from the platforms for a radius of 50 miles are rich and extensive artifacts, structures, and all other typical evidence of habitation.

Few such sites remain in or near the proposed Monument or indeed in Southern Arizona. These

irreplaceable cultural resources are rapidly being plowed under for agriculture, or paved over for development. (Madsen, 2000)

- In the Tortolita fan area of the proposed Tortolita-Durham Hills Unit are numerous surveyed areas with many sites dating from the Archaic Period (6,000 to 400 BC) through the Hohokam Period (400 BC to 1450 AD).

Large villages, agricultural fields, agave plantations, rock art, camp sites, stone tools and implements, and platform communities are found in the region. The potential exists for more archeological sites in the proposed Durham Hills-Tortolita Unit.

The Silverbell-Ragged Top Unit includes the Los Robles Archaeological District.

- Little surveying has been done in the Sawtooth Unit. Sites of archeological and cultural significance are considered highly likely. However, a recent, informal, cursory survey turned up areas of numerous pottery shards, lithics, and a petroglyph site (Gungle, 2000).

One site just out of the proposed unit, south east of Wildcat Peak and 0.5 miles from the lower Silverbell bajada, indicates further potential for this area. This site is late Archaic and is in two large sections. Scattered artifacts have been noted, plus agricultural fields and an abandoned earthen canal.

As noted above, the Sawtooth Mountains are expected to contain similar cultural, historic and archaeologically valuable mountain activity areas. The same can be said of the Tortuga Unit and the area south to the Ajo Highway.

Culturally, historically and archaeologically, the resource value of the proposed Northern Units is great. If these proposed areas can be preserved and protected from urban sprawl, pot hunters, off-road vehicles and mining operations, they can be adequately researched and studied. A story can be told about the use of the land and of the peoples of the past that can inform and enrich our lives today and for generations to come, as well as provide an essential line to their ancestors for the Native peoples of the area. Use of traditional ceremonial sites by Native peoples should be included in the Monument management plan, with input by the Native peoples.

Cultural Resources

The proposed monument regions of the Silverbell, Roskrige and Waterman Mountains and the Tortolita Fan are rich in medicinal and edible plants known to native peoples.

Traditional Uses of Ironwoods by Native Peoples

Medicinal and Curative Uses

The flowers, leaves, bark and roots of ironwood continue to be used as traditional medicines within the region.

- A paste of the roots is used for mouth, gum and other infections.
- Crushed leaves made into tea alleviate asthma, and clear mucous from the lungs.
- Bark tea treats diarrhea and stomachache.
- Tea from the flowers is used to cure kidney stones and strengthen blood circulation.

Food Uses

Native peoples use the protein-rich beans. The Seri, Cocopah, Sand Papago, Tohono O'odham, Gila River Pima, Maricopa, Quechan, and Yavapai all prepared a protein-rich flour and a gruel or mush from toasted or parched and ground seeds of ironwood. Bread was and is made from the flour. Seeds are known to have high fiber content, high lysine levels, unsaturated fats in the form of linoleic acid (48%) and oleic acid (35%) and are considered to be more digestible than peas, beans and soybeans.

Elements of the ironwood tree are used for ceremonial and ritual purposes, musical instruments, household construction and household utensils such as bowls and spoons, and for agricultural implements such as weeding knives, sickles and plowing hoes.

According to Louise Xavier, a traditional Tohono O'odham medicine woman, an engraved staff of ironwood is used in the O'odham marriage ceremony. Both the bride and groom hold the staff so that the marriage will be as strong and enduring as the ironwood itself.

Traditional uses of other plants

The traditional edible and curative native Sonoran Desert plants such as beans, mesquite-seed gum, prickly pear pads and plantago (plantain) seeds "have been proven effective enough in controlling blood sucrose levels to reduce or eliminate the need for insulin shots for diabetics."

A small sampling of traditional medicinal and edible plants are as follows:

- Agave: used in healing wounds. Known to have antibiotic, fungistatic, anti-inflammatory and estrogenic properties. High in vitamin C.
- Cholla Cactus: used for kidney problems. Some species have vasopressor activity from tyramines and cytotoxic activity. Edible fruit.
- Creosote Bush: curative for headache, high blood pressure, kidney problems, arthritis and gout. Has antimicrobial and analgesic action.
- Acacia Bush: For treating headache, urinary complaints, upset stomach. Antibiotic properties.
- Pincushion Cactus: Used to treat pain and heart palpitations. The alkaloids it contains may help to alleviate pain.
- Saguaro: Curative for rheumatism and gout pain. Contains isoquinoline alkaloids, dopamine (anti-parkinsonian), and heliamine (anti-tumor). Edible fruit.

National monument designation for this largely pristine plant area would help to preserve the many traditional medicinal and edible plants for scientific study. Traditional curative plants of the Sonoran Desert may translate into modern, scientifically researched medicines. Traditional use by Native peoples (saguaro fruit harvesting, cholla bud harvesting, etc.) should be included in a Monument management plan with input by the affected Nations. Edible plants could become viable commercial food sources.

Current Conflicts between Protection and Use

Many of the current uses of the land proposed for protection as a national monument are threatening the existence of the objects of historic and scientific interest. Current management of

these lands allows for degradation of the resources which require immediate protection if they are to be preserved. In the event of a national monument designation, many of these activities would necessarily need to be restricted, confined, or even prohibited in order to adequately protect the integrity of the objects of interest. Without the protection of a monument designation, the threats will increase, causing the objects to disappear or suffer damage from human activities in the area. The diminution of these resources would constitute a grave loss to science and to archaeology.

Grazing

A report by the Coalition for Sonoran Desert Protection (CSDP) is underway which will identify possible grazing threats to lands identified for monument status. The CSDP would want to have input into the management plan process.

Mining

A report by the CSDP is underway to identify the threat to the biotic integrity of lands proposed for monument status.

This Proposal acknowledges the existing rights of mining claim holders who possess a valid discovery of a valuable mineral deposit. However, this Proposal requests that the federal agency with jurisdiction over the land units require validity checks for mining claims within the units should they be designated as a national monument. Exercise of valid rights, such as those with valid discovery of a valuable mineral deposit, should nonetheless be regulated in order to protect the purposes of a monument designation.

Lands within the units, if designated, should be withdrawn from entry, location, sale, leasing, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws and from disposition under all laws relating to mineral and geothermal leasing. The withdrawal should prevent the location of new mining claims under the 1872 Mining Law (30 U.S.C. §§ 21 et seq.) and should prevent the Secretary of Interior from exercising discretion under the mineral leasing acts and related laws to lease or sell federal minerals within the boundaries of the monument.

Off-road Vehicle (ORV) Use

Although relatively few roads exist at this time within the proposed Monument's boundaries and most of these are dirt, current off-road vehicular use in the proposed monument units is high. The use of ORVs, dirt bikes, and other motorized traffic over time creates new paths and roads. These paths and roads increasingly fragment the area with deleterious results to biological and archaeological resources. In order to protect the resources outlined in this Proposal, a monument designation should prohibit motorized and mechanized vehicle travel off road, except for reasonable administrative and emergency purposes. The Coalition for Sonoran Desert Protection would like to be involved in the discussions concerning the management plan for ORV use that will apply to the proposed monument.

State Land

The Enabling Act of Arizona granted certain lands within Arizona in trust for the support of the schools of the state. (A.R.S., Enab. Act, Sec. 28) The Arizona State Land Department is authorized by law to manage all lands owned or controlled by the State of Arizona, including the state trust lands. (A.R.S. § 37-102) The State Land Department is required to sell or lease the state trust lands in order to maximize the revenue for its beneficiaries, the schools of the state. (ARIZ. CONST. Art. X) Pursuant to this mandate, state trust lands in Arizona are currently

liquidated, especially when they lie within the path of development, or they are leased, either commercially or for grazing.

This Proposal for Federal monument status is tailored to exclude state trust lands to the greatest extent possible; however, some state lands remain within the boundaries of the units proposed for national monument designation. There are 160,000 acres of state trust land located within the proposed Monument's boundaries, constituting 33 percent of the total land base. If not now, at some point in the future, state trust lands located within the proposed Monument may be either sold or leased. Development, increased grazing and commercial lease of state lands within the boundaries of a monument would constitute a grave threat to the values and objects within the proposed monument. This Proposal suggests that those state lands falling within the boundaries of the units proposed for national monument designation be purchased and/or traded with federal lands elsewhere in order to preserve the integrity of the monument.

The area within the proposed Monument units contains approximately 160,000 acres of state land. Although a monument designation would not apply to those lands, this Proposal requests that should any of the lands be acquired by the federal government through trade or sale, they become part of the Monument.

Access to state and private lands which are landlocked within federal lands should be limited to necessary and reasonable access, and should not be allowed to harm monument resources.

Wildlife Linkage Units

Although this Proposal is tailored to exclude state land to the greatest extent possible, the Coalition realizes the biological inadequacy that protection of isolated units offers, and therefore encourages the State of Arizona and its Land Department to work toward contributing to the federal effort in protecting lands that provide essential wildlife linkages. The maps attached with this Proposal identifies key state trust lands that can accomplish some of this goal. Wildlife linkage units are not limited by the boundaries delineated in this Proposal.

Conclusion

The designation of the Morris K. Udall Ironwood Forest-Upland Corridor National Monument would protect an important biologically diverse habitat, rich in cultural and archaeological resources, and would honor the legacy of Arizona's greatest conservation leader and statesman.

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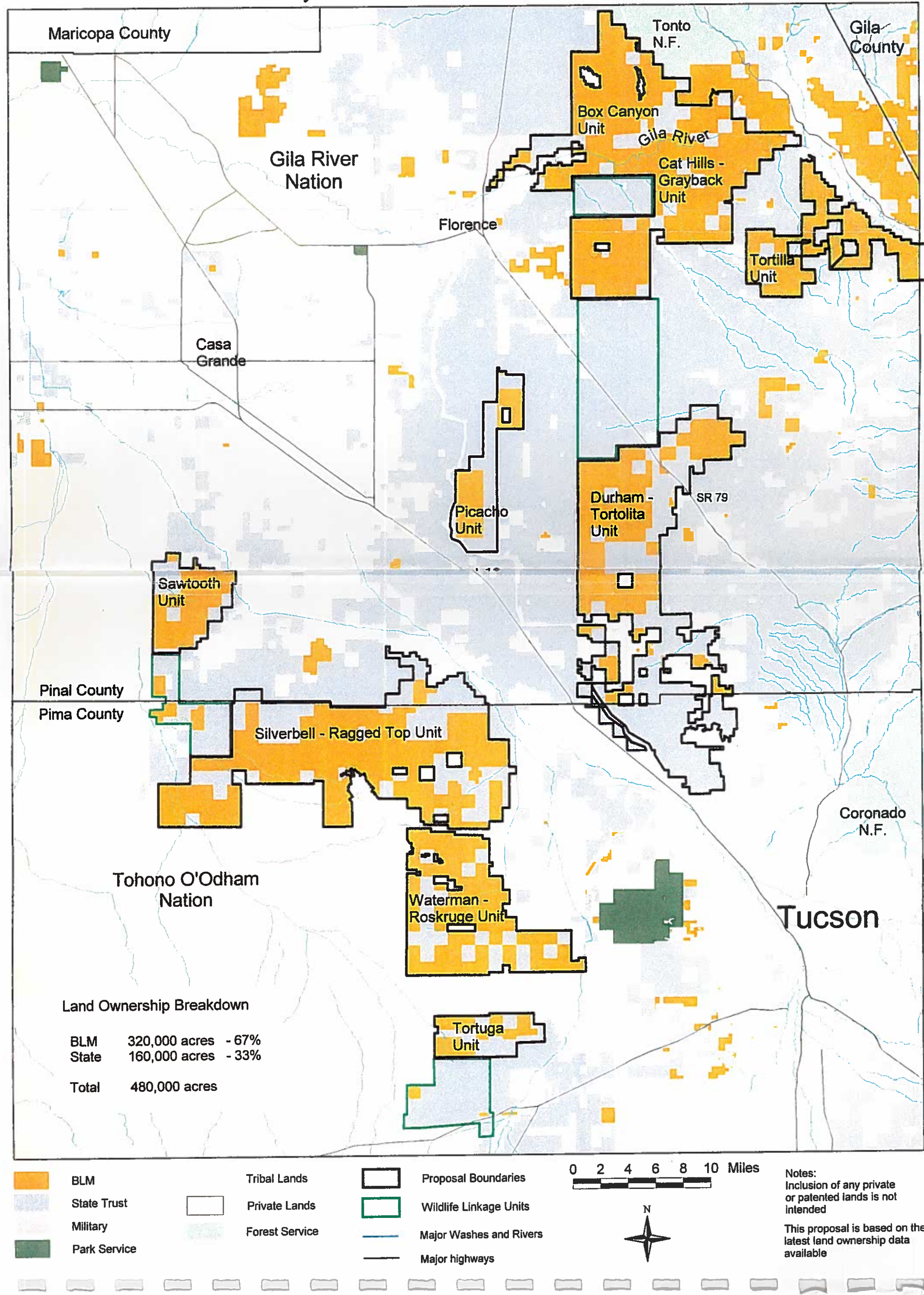
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