

DESCRIPTION OF ACTIONS

For further details, see the AVFMP (Warren and AVFMP working group 2008) and EA (Draft 3 October, 2007), incorporated by reference.

The AVFMP proposes to implement prescribed fire management to achieve improved range and watershed health. It establishes measures to minimize adverse effects to federally listed species that could occur during the implementation of prescribed fire. It includes monitoring and an adaptive management program that allows the AVFMP to adjust to new information and to do so as outlined by the regulatory requirements. It also provides Altar Valley ranchers a clearly defined process that will remain predictable over the life of the plan. If Arizona State Land Department, Division of Forestry fire management policy changes or is amended in the future, the Altar Valley Fire Management Plan will be amended to reflect those changes.

A priority need for the Altar Valley is a range improvement measure that would begin to correct and make better a number of ecological problems that partly stem from range management practices dating to the late 1800s. One improvement measure recommendation for the Altar Valley is the reintroduction of fire. As a management tool fire can restore historic vegetation types by reducing woody-species encroachment, improve watershed stability and hydrologic function through increased herbaceous vegetative cover, and create a mosaic of vegetation types; all of which should improve wildlife biodiversity including threatened, endangered, and sensitive species.

The cooperating agencies have determined that reintroducing fire within prescribed limits would benefit watersheds and wildlife within the Altar Valley. Prescribed fire management will lessen the threat of catastrophic fire in riparian corridors, will lower the loss of mature nesting trees, will enhance native grasslands that preserve sensitive habitats and wildlife species, and will protect recreational values and livestock grazing uses. Conservation measures to minimize the short-term adverse effects on sensitive species are included in the AVFMP.

The cooperators are developing the AVFMP to re-introduce fire in the ecosystem. One of the main objectives of this plan is to establish a process to address ESA compliance/recovery goals, while implementing a Fire Management Plan (FMP). The AVFMP is being planned for a 10-year period. The AVFMP fire prescriptions will be annually reviewed and periodically revised according to monitoring results.

Objectives:

1. Within shrub-invaded native grasslands, kill 30 percent to 70 percent of the half shrubs, and maintain native-grass dominance with mesquite densities at less than 10 percent.
2. Within shrub-invaded nonnative grasslands, top kill 30 percent to 70 percent of mesquites less than 4 inches in diameter, stimulate native grass production, and maintain mesquite densities at less than 10 percent.
3. Prescribed fire have been indefinitely deferred for Southwest desertshrub vegetative associations. Although prescribed fire is not deferred in desert scrublands, these will require periods of favorable weather conditions to create continuous fine fuels at greater than 300 lbs per acre to implement prescribed fire. Prescribed fire will be implemented to maintain native perennial grass cover at the historic range of variability with adequate mix of native shrub species in good vigor.
4. Within mesquite woodlands, top kill 20 percent to 50 percent of mesquites less than 6 inches diameter, and maintain total shrub and mesquite canopy cover at 10-25 percent.
5. Within deciduous riparian habitats, including xeroriparian habitats and mesquite bosque, periodic cool season burns can be used to reduce fuels with a 1-hour time lag, to maintain tree overstory with no fuel

laddering, and to maintain mesquite densities greater than 60 percent in clumps of mature trees greater than 6 inches in diameter at root collar (drc).

6. Within oak, juniper, or piñon-oak canyons, reduce the 1-hour-time-lag fuels (0.01-to 0.125-inch diameter) by 30 to 80 percent, the 10-hour-time-lag fuels (0.26-to 0.99-inch diameter) by 10 to 40 percent, the 100-hour-time-lag fuels (1-to 3-diameter) by 1 to 10 percent, and 1,000-hour-time-lag fuels (3.1-to 12-inch diameter) by 1 to 20 percent.

CONSERVATION MEASURES

Pima pineapple cactus conservation measures:

Prescribed fire plans developed for areas without suitable Pima pineapple cactus habitat- as described above, do not require conservation measures.

Prescribed fire plans developed for areas that include suitable Pima pineapple cactus habitat will include the following:

- Single pass surveys to locate individual cactus will be performed over the suitable Pima pineapple cactus habitat within the boundaries of the proposed burn.
 - Suitable habitat will be determined by elevation and habitat type. If developed, a Pima pineapple cactus habitat model similar to the model used by the Buenos Aires National Wildlife Refuge will be used to determine suitable habitat.
 - Surveys are valid for a maximum of 6 years.
- Individual cactus will be protected from the effects of the prescribed fire.
 - This will be accomplished through the clearing of fuels from around individual cactus from the area between 2 to 3 m from the plant, leaving the vegetation within the 2 m radius untouched. A fire-proof, cone-like structure may be use instead to protect each plant.
 - An area with a high density of cacti or a group of cacti may be protected through blacklining a similar area around the cacti.
- Post fire census of the known cactus to determine effectiveness of protective measures will also be made.
 - This should occur within 30-60 days after the fire and again within 120 days.
- The acreage of each fire will be reported as will the location of cactus, protective measures used and their effectiveness in protecting individual cactus. This information will be used to determine the short-term vs. the long-term effects of the FMP.

Exceptions to these basic conservation measure are possible as part of a quantitative research study of fire within various fuel loads and types on Pima pineapple cactus approved by the Service. This study should include:

- Single pass surveys to locate individual cactus shall be performed as part of the study.
- No protective measures will be required for individual cactus within the study related burns up to a maximum 20% of the individual in a burn.
- Prescription parameters, fuel types, fuel loads, fire behavior, and fire severity should be part of the information to determine the fire effects on individual cactus and potentially the population as a whole.
- Post fire surveys to determine the fire effects on individual cactus within 30-days of the fire, within 6 months of the fire, and approximately 1 year after the fire. This schedule may be modified to fit approved research design.

- The results will be used to evaluate the basic conservation measures listed above. Modifications to the conservation measures will be proposed based upon these results and modification to the FMP may be made if applicable.

Prescribed burns on the Pima pineapple cactus mitigation bank will need to be consistent with the mitigation bank agreement.

Masked bobwhite conservation measures:

- Seasonal restriction if birds are present.
- Aerial ignition patterns should not have flame fronts ignited closer than ¼ mile apart, with exceptions for firefighter safety, personal property, or other resource protection measures.

Lesser long-nosed bat conservation measures:

- Prescribed burns will not include areas where smoke could affect roosts while bats are present, August 1st through October 31st.
- Ignition patterns should avoid high severity fire effects in Agave patches

Chiricahua leopard frog conservation measures:

- Avoid high severity fire affects upstream from any occupied habitat
- If extensive erosion is possible, sediment traps should be placed above occupied habitat to reduce potential take of this species.

Kearney's bluestar conservation measures:

- Avoid known populations

Southwest willow flycatcher conservation measures:

- Mesoriparian woodlands are not a common habitat feature in the action area and will not be included in any prescribe burn plans.

Mexican spotted owl conservation measures:

Prescribed burns that are planned to include suitable habitat of the Mexican spotted owl will have surveys conducted, per established Mexican spotted owl survey protocol (FWS 2003) as amended, to determine occupancy of the habitat within and adjacent to the burn perimeter.

- If occupancy can't be demonstrated, the burn may progress as planned.
- If occupancy is demonstrated, the burn will be implemented:
 - Outside the Mexican spotted owl breeding season March 1 through August 31.
- If occupancy is demonstrated and the burn is planned during September 1 through February 28, the burn will be implemented:
 - So that the nest core areas are left undisturbed, approximately 100 acres around the nest,
 - or
 - Fire and fire management activities will remain more than a ¼ mile away from the nest.

Western yellow-billed cuckoo conservation measures:

- Mesoriparian woodlands are not a common habitat feature in the action area and will not be included in any prescribe burn plans.

STATUS OF AND EFFECT ON THE SPECIES

CHIRICAHUA LEOPARD FROG *Rana chiricahuensis*

Status: Listed threatened 2002

Description: A medium to large, stocky frog with adult lengths snout to vent from 5.0-13.5 cm (2.0-5.4 in). The ground color on the dorsum is green to brown; the upper lip stripe is faint or absent in front of the eye; the head and face is usually green. The skin is rougher with more tubercles, and dorsal spots are generally smaller and more numerous than in other leopard frogs. Dorsolateral folds are broken toward the rear of the body, angling inward. The eyes are higher on the head and more upturned than other Arizona leopard frogs. The hind feet are webbed, and males have a swollen and darkened thumb base. In adults (and some juveniles), the rear surface of the thigh is speckled with “salt and pepper” markings, or small dots each densely covered with light-tipped tubercles, usually on a dark ground color. The venter is a dull whitish or yellowish color, while gray mottling usually occurs on the throat and sometimes on the chest. The groin and lower abdomen are often yellow. The call is a “snore” of unusually high pulse rate. Chiricahua leopard frogs predominate in permanent tanks and streams.

Total Range: Mountain regions of central and southeastern Arizona, southwestern New Mexico, south in the Sierra Madre Occidental to Western Jalisco, Mexico.

Range within Arizona: Arizona range is divided into two areas. The first (northern population) extends from montane central Arizona east and south along the Mogollon Rim to montane parts of west-southwestern New Mexico. The second is located in the mountains and valleys south of the Gila River in southeastern Arizona and southwestern New Mexico, and extends into Mexico (adjacent Sonora) along the eastern slopes of the Sierra Madre Occidental.

Biology: *Rana chiricahuensis* are highly aquatic habitat generalists. Adults become active in February, and eggs are laid in spring and sporadically through the summer and fall. Male *R. chiricahuensis* usually call above water, but may also advertise below water. Their call consists of a 1-3 second long, low-pitched, hollow snore. Home ranges for males tend to be larger than those for females. Post-metamorphic Chiricahua leopard frogs are generally inactive from November-February, however, a detailed study of wintertime activity or habitat use has not been done.

Reproduction: At high elevation, *R. chiricahuensis* breeds in late May through August. At lower, warmer localities, breeding occurs from mid-February through June and sporadically until September. Females deposit 300 to about 1500 eggs in spherical masses attached to submerged vegetation, suspended within 5 cm of the surface. Eggs take approximately 14 days to hatch; larvae metamorphose in 3-9 months. Tadpoles may over-winter.

Food Habits: Adults eat arthropods and other invertebrates. Larvae are herbivorous and likely eat available food items including algae, organic debris, plant tissue, and minute organisms in the water. Stomach analyses of other members of the leopard frog complex from the western United States show a wide variety of prey items, including many types of aquatic and terrestrial invertebrates (e.g., snails, spiders, and insects) and vertebrates (e.g., fish, other anurans [including conspecifics], small birds).

Habitat: The primary habitat type of *R. chiricahuensis* is oak, mixed oak and pine woodlands. Other habitat types range into areas of chaparral, grassland, and even desert. *R. chiricahuensis* are habitat generalists that live and breed in lentic and lotic habitats in natural and man-made systems. Natural aquatic systems include cienegas, rocky streams with deep rock-bound pools, river overflow pools, oxbows, permanent springs, permanent pools in intermittent streams, and beaver ponds. Man-made aquatic systems include earthen stock tanks, livestock drinkers, irrigation sloughs, wells, mine adits, abandoned swimming pools, and ornamental backyard ponds.

Elevation: 1066-2408 m (3500-7900 ft).

Plant Community: Wide variety of permanent and semi-permanent aquatic systems in oak, mixed oak and pine woodlands, but also chaparral, grassland, and desert. Vegetation that has been associated with egg masses includes *Potamogeton* sp., *Rorippa* sp., *Echinochloa* sp., and *Leersia* sp.

Population Trends: Statewide decline. Local abundance appears to fluctuate greatly.

Reasons for decline: Most important threats are disease (Chytridiomycosis), non-native predators and competitors (bullfrogs, sport fish, crayfish), effects of small, isolated populations, loss of aquatic habitat through drying, damming, diverting, or siltation, and heavy grazing.

Status of Chiricahua leopard frog in the Action Area: The status of the species within the action area is not well known. Known populations exist within the BANWR as discussed in the BO listed below. Within the planning area, Chiricahua leopard frogs would typically be found within dirt stock tanks, except when the tanks are inhabited by invasive predators such as bullfrogs and crayfish. Some of these tanks are targeted for future treatment to remove the invasive species and thereby improve habitat and population status. The Chiricahua leopard frog has a very high reproductive potential and can repopulate a tank fairly quickly once the aquatic habitat becomes hospitable.

Effects of the Proposed Action on the Species: Dirt tanks containing Chiricahua leopard frogs are typically surrounded by elevated berms, which serve as sediment traps, and effectively protect the tanks from ash and sediment flow. However, the inlets are somewhat vulnerable. To protect tanks from any infiltration of harmful ash, either the trap will be cleaned at some interval following the burn or a straw bale-type sediment trap will be used at the inlet in to prevent harmful ash from settling into the tanks. Dirt tanks are not burned, but may burn individuals during dispersement, depending on burn timing. The removal of vegetation can trigger an increase in water yield and storm-flow discharge resulting in increased transport of ash and nutrients. Heavy ash and soot content in water clogs tadpole and fish gills and leads to acute and chronic chemical effects, and reduced dissolved oxygen concentrations. In addition, inflow of ash and sediment into a water body is capable of smothering eggs and tadpoles, resulting in the loss of individuals and reproductive potential. Sediment and ash flow can also inhibit respiration in macroinvertebrates, resulting in reduced density and composition of macroinvertebrates (a primary food resource for the frogs). A reduction in the amount of prey can ultimately affect leopard frog numbers and reproduction. The conservation measures that are included in this action will minimize these potential indirect effects.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, LIKELY TO ADVERSELY AFFECT THE CHIRICAHUA LEOPARD frog.**

From: 1) Arizona Game and Fish Department. 2006. Rana chiricahuensis. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 11 pp. See online abstract for full details and references at www.azgfd.gov. 2) Biological opinion: Biological Opinion on the Buenos Aires National Wildlife Refuge Fire Management Plan for the 2005-2008 Burn Seasons (02-21-05-F-0243). 3) Pers comm. with M. Tuegle, USFWS.

JAGUAR *Panthera onca linnaeus*

Status: Listed Endangered 1997

Description: This is the largest cat native to the Western Hemisphere, measuring 3.7-4.8 ft (1.13-1.5 m) in head and body, while the tail measures 1.5-2.3 ft (0.5-0.7 m). Height at shoulder measures 2.3-2.5 ft (0.7-0.8 m), hind foot 9-12 in (22-30 cm), and weight is 150-225 lb (68-101 kg). Females are usually are

10-20% smaller than males. There are five toes on each forefoot, the pollex or first toe is smaller and set above the others. Each hind foot has four toes, the first being represented only by a tiny vestigial metatarsal bone. Each digit including the pollex has a sharp retractile claw. Skull is robust, relatively short, broad in the rostrum (more so in males than females), and wide in the zygomatic arches, with 30 teeth (canines large). This yellowish to tawny cat is uniformly spotted with black. Horizontal rows of spots on the sides and back form rosettes, a ring of black with a small black spot in the center; belly white with black spots. Ears are small, rounded, without tufts, and black on the back with small white or buff central spots. Pelage is rather short and bristly. The black pupil is round and the iris is golden to reddish yellow. Cubs have a long, coarse, woolly pelage, pale buff in color, and heavily marked with round black spots that may have pale-colored centers. They also have black stripes on their faces at birth, achieving adult coloration around 7 months of age. Mountain Lion (*Puma concolor*) is unspotted, Ocelot (*Leopardus pardalis*) is smaller, and Margay (*Felis wiedi*) is much smaller and lacks rosettes. Although the mountain lion stands taller at the shoulder, it is considerably narrower through the body and neck, and far less heavily muscled than the jaguar.

Total Range: Mexico to Brazil and northern Patagonia. Very rare in the United States: southern Arizona, New Mexico and southern Texas.

Range within Arizona: Southeastern Arizona. Jaguars persisted in central Arizona as late as the early 1960's, when three were taken on the Fort Apache and San Carlos Indian Reservations. Individuals were reported from southeastern Arizona into the 1970's and 1980's. In 1996, photographs documented two individuals from the Baboquivari Mountains, Pima County, and the Peloncillo Mountains, Cochise County. Another individual was documented in 2001 and 2003 west of Nogales.

Biology: Pumas and jaguars are known to have overlapping ranges and little interaction; they seem to mutually avoid one another (this is not the case of jaguar and ocelot). Separation between pumas and jaguars appears to be based upon prey selection with jaguars selecting larger prey items. Their home range varies from 10 to 170 square km, with smaller ranges reported from the rain forest and larger ones from open habitats. They climb trees quite well. Jaguars have been characterized as primarily nocturnal, although radio telemetry has shown that they are often active during the daytime, with activity peaks around dawn and dusk. Hunting primarily occurs at night, and on the ground. They sometimes move their kill to a more secluded or protected place, rarely in a tree, but usually make no attempt to hide their kill as do pumas.

Jaguars usually are solitary, except during mating or when the young are still dependent on their mothers. They are not known to migrate regularly, although lone males have been known to roam hundreds of kilometers.

Reproduction: They breed year-round range-wide, but at the southern and northern ends of their range there is evidence for a spring breeding season. In northern latitudes, jaguars are thought to breed from December to January. Gestation is about 100 days, with litter size ranging from 1-4 cubs (usually 2). Young are born in April-May, in dens in caves, dense brush or other heavy cover.

Food Habits: In the U.S.-Mexico borderlands, peccaries (javelina) and deer are presumably dietary mainstays, as they are in Jalisco, Mexico. Range-wide, the list of prey taken by jaguars includes more than 85 species, such as javelina, armadillos, caimans, turtles, birds, fish, and various species of livestock.

Habitat: These large cats are known from a variety of habitats, showing a high affinity to lowland wet habitats, typically swampy savannas or tropical rain forests. In the northern and southern periphery, they may occur in warmer, more arid habitat types, including oak-pine woodland. Unlike most cats, jaguars like water and were probably closely associated with the rivers and cienegas (marshes) once prominent in southern Arizona.

Elevation: Recent sightings in Arizona were recorded at 5,200 and 5,700 feet (1586 and 1739 meters).

Plant Community: Desert scrub to pine-oak woodland.

Population Trends: Since 1890, more than 60 jaguars have been documented from Arizona.

Reasons for decline: Past hunting and extermination programs, population isolation, habitat fragmentation from roads and development, and current lack of breeding females in the U.S.

Status of Jaguar in the Action Area: Regular sightings of one male individual by remote research

cameras within the project area. No known recent records of females in AZ.

Effects of the Proposed Action on the Species: The rare sightings of jaguar are located in the higher regions on the outside reaches of the burn areas. The highly mobile and shy jaguar will likely leave the area of a burn during human activity. Individuals may be disturbed by fire and heat exposure if remaining in the area or moving through during a burn. The low population status of the jaguar in the action area, coupled with increased activity and restrictions along the international border, result in few individuals exposed to the short-term negative effects from prescribed burns.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE JAGUAR.**

From: Arizona Game and Fish Department. 2004. Panthera onca linnaeus. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 8pp. See online abstract for full details and references at www.azgfd.gov. 2) Biological opinion: Biological Opinion on the Pedestrian Fence Proposed along the U.S. and Mexico Border near Sasabe, Naco, and Douglas (22410-2007-F-0416. 3) Pers comm. with M. Tuegle, USFWS.

KEARNEY'S BLUE STAR *Amsonia kearneyana*

Status: Listed Endangered 1989

Description: Perennial, milky sap multi-stemmed herb up to 90 cm (35.4 in) tall, with a thickened woody root. Alternate leaves with soft spreading hairs along the margins. The inflorescence is not too conspicuous. White flowers (with pale pinkish/bluish bottom) with large cylindrical, corky, seeds.

Total Range: Western slopes of the Baboquivari Mountains, Pima County, Arizona.

Range within Arizona: South and Sycamore canyons, Baboquivari Mountains, Pima County. Introduced into Brown Canyon, east side of the Baboquivari Mountains.

Biology: Insect predators attack embryo giving sterile appearing seeds. Responds to winter precipitation. Variability in flower shapes and sizes in plants. Hawk moths may pollinate at night. As plants mature, become five to six feet across.

Reproduction: Herbaceous perennial Flowers late April and May, fruiting June through August. Seeds may be sterile

Habitat: : Dry, open, slopes (20-30 degrees) at 4,000-6,000 ft (1220-1830 m) elevation in Madrean evergreen woodlands/interior chaparral transition zone and on stable, partially-shaded, coarse alluvium along dry washes at 3,600-3,800 ft (1095-1160 m) elevation under deciduous riparian trees and shrubs in Sonoran desertscrub or desertscrub-grassland ecotone.

Elevation: 3,600 - 6,400 ft. (1097 - 1950 m).

Plant Community: Madrean evergreen woodland/interior chaparral transition zone to Sonoran desertscrub or desertscrub-grassland ecotone.

Population Trends: The one native population consists of approximately surviving 65 plants (1993). Transplants in Brown Canyon discussed below.

Reasons for decline: Extreme rarity, vulnerable canyon bottom habitat flooding and insect and livestock damage.

Status of Kearney's blue-star in the Action Area: The largest population of Kearney's blue star (over 300 individuals) is in the upper reaches of Brown Canyon on BLM land. There are a few other scattered locations (20-30 plants) in Thomas Canyon. Thomas Canyon locations may be located in designated BLM wilderness. The BLM has paid a contractor to establish monitoring plots for Kearney's blue star, but these plots have not been established yet.

Effects of the Proposed Action on the Species: All known locations are in Brown Canyon or on the western side of Babocamari mountains, areas that are not targeted for burn. Possible unidentified individuals within AVFMP project area. These could experience direct effects from flame and heat, and indirect effects from ash and sediment flows.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE KEARNY'S BLUE STAR.**

From: 1) Arizona Game and Fish Department. 2003. Amsonia kearneyana. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6pp. See online abstract for full details and references at www.azgfd.gov. 2) Pers comm. with M. Tuegle, USFWS.

LESSER LONG-NOSED BAT *Leptonycteris curasoae yerbabuena*

Status: Listed Endangered 1988

Description: A medium-sized bat with a forearm measuring 51-56 mm (2.0-2.2 in), wingspan of 36-40 cm (14-16 in), and weight averaging 21-23g (0.7-0.8 oz). The short, dense fur is yellowish-brown or pale gray above and cinnamon-brown below. They have an elongated snout, with a nose-leaf, an erect triangular flap of skin at the tip of the snout. There is no tail, and the interfemoral membrane is reduced to a narrow band along each hind leg. These bats have large eyes and reduced ears compared to other bats in Arizona. There are two molars above and below, molariform teeth in contact with one another, zygomatic arch complete, and 4 lower incisors, but sometimes these are lost. The loss of incisors might enable the bat to protrude the tongue more easily, to collect nectar.

Total Range: Occupying the lowland deserts of Mexico from Oaxaca and Veracruz through western Mexico to Baja California, and northward to south-central and southeast Arizona and southwest New Mexico, extending southeasterly through Guatemala to El Salvador.

Range within Arizona: Southern Arizona from the Picacho Mountains southwesterly to the Agua Dulce Mountains and southeasterly to the Galiuro and Chiricahua mountains and then southerly into Mexico and beyond. Not present in Arizona during winter months. Both sexes are found in the southern part of their range, at least in Mexico. There appear to be both sexual and seasonal differences in their Arizona range. During the early part of their stay (late April to late July) pregnant females congregate at traditional roost sites, give birth, and raise their young at lower elevations within the range of columnar cacti. Males and perhaps non-pregnant females do not arrive until sometime in July. By late July most females and young have dispersed from the maternity colonies and some have moved to higher elevations where they are found feeding on agave flowers. By late September or October all of these bats are migrating south to Mexico, exactly where is not known.

Biology: These bats do not hibernate. They cannot withstand prolonged exposure to cold.

They migrate in September/October to Mexico, where they breed and spend the winter. They then return to Arizona in the spring to bear young. The tongue is long and tipped with brush-like papillae that help mop up nectar. Like most nectar feeders, the teeth are much modified, having lost the cutting and crushing cusps of the insect feeding species of bats. Unlike most other bats and rodents found in arid and semiarid areas, the kidneys of *Leptonycteris* are not adapted for water conservation and salt excretion. Maximum concentrations of urea and salts in the urine are the lowest reported for any mammal including an aquatic mammal such as the beaver (Carpenter 1969). This is related to *Leptonycteris* feeding on nectar with its high water and low salt content and the need to get rid of large amounts of water rapidly while retaining salts. Even still, its diet of nectar enables this bat to be essentially independent of free water. *L. curasoae* is considered an important pollinator of various agave species, columnar cacti and other Mexican plant species. Pollen collects on their heads and shoulders (sometimes making them look

yellow) when they stick their head into a flower to get nectar. As they go from plant to plant, pollen is rubbed off on the pistils at each flower thus pollinating them.

Reproduction: Females arrive in Arizona pregnant and as early as the second week in April. They join other females in maternity colonies late in pregnancy sometime in April or early May. Maternity colonies may number in the hundreds to thousands, and in a few places, in the tens of thousands. Males form separate, smaller colonies. One young per year is born during May. Young can fly by the end of June. Maternity colonies break up by the end of July.

Food Habits: In Arizona, they feed on nectar and pollen from flowers of saguaro and organ pipe cactus in early summer and agave later in the summer and early fall. They may feed on ripe cactus fruits at the end of the flowering season. They may also take a few insects incidentally when taking nectar. *L. curasoae* also takes sugar water from hummingbird feeders at night.

Habitat: Desert grassland and shrubland up to oak transition. They roost in caves, mine tunnels, and occasionally in old buildings. They forage in areas of saguaro, ocotillo, paloverde, prickly pear and organ pipe cactus and later in the summer among agaves. There appear to be seasonal differences in when certain habitats are occupied.

Elevation: 1,190 - 7,320 ft. (363 - 2,233 m).

Plant Community: Palo Verde/Saguaro, Semidesert Grassland, and Oak Woodland.

Population Trends: Populations are presumed to have declined significantly.

Reasons for decline: Thought to be related to reduction of numbers of maternity colonies and decline in size of remaining maternity colonies in Arizona and Sonora due to exclusion and disturbance. Additionally, thought to be negatively affected by large reductions in acreage of native agaves over large areas of northern Mexico due to excessive harvesting for local manufacture of mescal and tequila. Excessive browsing on newly emergent flower stalks of *Agaves* has also been suggested as possibly decreasing foraging opportunities and thus contributing to declines among these bats. Extreme northern edge of distribution, possible over-harvesting of native (as opposed to cultivated) agaves in northern Mexico, exclusion from some roost sites and disturbance at others. Easily disturbed at roost sites. Livestock grazing in areas with agaves may affect them, particularly if overgrazing is allowed. Also intense grazing could result in trampling of young agaves and livestock may occasionally feed on the flowering stalks of the agaves.

Status of lesser long-nosed bat in the Action Area: There are no known roost sites, and lesser long-nosed bats are only known to use the Altar Valley to forage. In general, survey and monitoring data indicate that the LLNB is slightly more abundant in Arizona and New Mexico than indicated in the final listing rule, although some roost sites have been abandoned or diminished due to human disturbance. Census of 11 roosts in Arizona (2004) was 72,615, a relatively stable number since 2001.

Effects of the Proposed Action on the Species: Foraging of LLNB may be affected by smoke effects from prescribed burns and the loss of some agave. Most prescribed burns will likely occur during May and June to facilitate mesquite control. Although LLNB are foraging at this time, the localized, short-term smoke affects will only prevent foraging in the treatment area, and the bats will move to other areas in the valley to forage. Agaves tend to be higher out of the lower valley in rocky slopes where fire will not carry as well, leaving many agave untouched by fire. Saguaro cactus and agaves will be protected to the extent possible from habitat restoration and enhancement projects within the plan.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE LESSER LONG-NOSED bat.**

From: Arizona Game and Fish Department. 2003. Leptonycteris curasoae yerbabuenae. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish

Department, Phoenix, AZ. 8 pp. See online abstract for full details and references at www.azgfd.gov.

2) *Biological opinion: Biological Opinion on the Pedestrian Fence Proposed Along the U.S. and Mexico Border near Sasabe, Naco, and Douglas (22410-2007-F-0416. 4) Pers comm. with M. Tuegle and Scott Richardson, USFWS. 5) Lesser Long nosed bat 5 year review located at:*

http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/LLNB/LLNB_5yr_Final.pdf

MEXICAN SPOTTED OWL (*Strix occidentalis lucida*)

Status: Listed Threatened (1993) Critical Habitat Listed (USDI, FWS 2001)

Description: The subspecies *lucida* is a medium sized owl where males average 23-41 cm (9-16 in) in length and females average 30-34 cm (12-13.4 in). The MSO is a brown colored owl with large, irregular and numerous white spots on the head, neck, back, and underparts, giving it a lighter appearance than the other two subspecies. The sexes are nearly identical, but females have darker head and face color, and breeding females have brood patches. The remiges and rectrices of both sexes are dark brown and barred with light brown and white; tail has about ten light bands. MSO has a round face that lacks ear tufts. The large, round, brownish facial disks are concentrically barred with dark brown, with a dark brown border. Their dark brown eyes appear almost black. The bill is a pale yellowish green color, and their legs and feet are fully feathered.

Total Range: The MSO currently occupies a broad geographic area, but does not occur uniformly throughout its range. It can be found from southern Utah and central Colorado south through Arizona, New Mexico, and western Texas (mountains in the Trans Pecos) to the Mexican Plateau (Michoacan and Guanajuato).

Range within Arizona: Patchily distributed in forested mountains statewide, along with steep canyons on the Colorado Plateau including the Grand Canyon. They have been found in the following counties: Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, and Yavapai.

Biology: Mexican Spotted owls are mostly solitary outside the breeding season. They roost during the day, and hunt at dusk and at night. Lifetime nest site tenacity has been observed by pairs. Some migrate 20-50 km between summer and winter ranges. Seasonal migration of some individuals occurs in many or most MSO populations, and in both sexes, but not always year to year. Reasons why only some owls migrate are unknown. Adults are generally long-lived; however, there is a low survival of young to breeding age. Based on banding studies, the species often live for 16-17 years. Exploitive competition (where individuals compete for similar resources such as prey and nest sites) may occur with Great Horned owl (*Bubo virginianus*). They are not a fast flier, but are very agile and maneuverable. Observed actively defending nest sites and fledged young against volant predators. Starvation is likely another common source of mortality. Both adults and juveniles may be affected by starvation in those years when there is a low abundance or availability of prey.

Reproduction: MSO's do not build their nests. In Arizona, they use cavity or abandoned platform nests about 80 feet up in coniferous tree, however, they also use ledges on cliffs or pothole sites, and mistletoe clusters. They are monogamous, breeding sporadically, and generally not nesting every year. In good years most of the population will nest, whereas in other years only a small proportion of pairs will nest. They have one brood, with egg laying peaking sometimes as early as early March in Arizona and New Mexico. Incubation of 1-3 eggs by female lasts 28-32 days. Hatching usually occurs in early to mid-May. Young leave the nest at about 5 weeks (June), and fly at about 6-7 weeks of age, and are independent by early fall (dispersal of young occurs in September-October).

Food Habits: MSO regularly caches excess food, usually on tree branches. Prey is snatched from the ground in talons after gliding descent from a perch. In Arizona: most common prey includes cottontails, deer mice, woodrats, and voles but also may prey upon various birds, bats, lizards, and snakes.

Habitat: They primarily breed in dense old growth mixed-conifer forests located on steep slopes, especially deep, shady ravines. These sites have high canopy closure, high basal area, many snags, and many downed logs. For foraging, multistoried forest with many potential patches is desirable. In Arizona,

they occur primarily in mixed-conifer, pine-oak, and evergreen oak forests; also occurs in ponderosa pine forest and rocky canyonlands. Range size for single owls in Arizona averages 1,600 acres and combined home ranges occupied by pairs averages 2,000 acres. Nest trees are usually large in size, whereas roosting occurs in both large and small trees. Nest tree species vary somewhat among areas and habitat types, but available evidence suggests that Douglas-fir is the most common species of nest tree.

Elevation: 4,500 - 10,000 ft.

Plant Community: Mixed-conifer forests are commonly used throughout most of the range. These forests are generally dominated by Douglas-fir (*Pseudotsuga menziesii*) and/or white fir (*Abies concolor*), with codominant species including southwestern white pine (*Pinus strobiformis*), limber pine (*Pinus flexilis*), and ponderosa pine (*Pinus ponderosa*). The understory often contains the above coniferous species as well as broadleaved species such as Gambel oak (*Quercus gambelii*), maples (*Acer* sp.), boxelder (*Acer negundo*), and/or New Mexico locust (*Robinia neomexicana*). In southern Arizona and Mexico, Madrean pine-oak forests are also commonly used, and are typically dominated by an overstory of Chihuahuan pine (*Pinus leiophylla*) and Apache pine (=Engelmann pine, *Pinus engelmannii*), in conjunction with Douglas-fir, ponderosa pine, and Arizona cypress (*Cupressus arizonica*). Evergreen oaks are typically prominent in the understory.

Population Trends: Unknown. According to USFWS (1995), there is inadequate data to estimate population trends in MSO near the Altar Valley. Based on crude population estimates, there may be 600-1,200 MSO's in Arizona.

Reasons for decline: Loss of old-growth forests (its preferred habitat), great horned owl predation, low reproductive success and low juvenile survival rates.

Status of Mexican spotted owl in the Action Area: Status is not well known within the project area. Nesting habitat should be surveyed prior to burns, especially "southern end, Kitt Peak". The Santa Rita Mountains support about 10,000 to 15,000 acres of MSO habitat, divided into 15 known PACs that cover the tops of the mountain range.

Effects of the Proposed Action on the Species: Mexican spotted owls are primarily found on Forest Service managed lands at higher elevations within the planning area. Wildlife biologists will be involved early in the decision-making process for using WFU or Rx within suitable habitats between 4,100 and 9,000 feet above msl. Treatment will be managed as low-intensity fire with scattered patches of moderate-to-high-intensity burns. Mortality of trees larger than 18 inches dbh will be limited to less than 10 percent. Pre-burn protocol surveys will be completed in areas determined as roosting habitat.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action [insert determination: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE MEXICAN SPOTTED OWL**, Critical habitat is designated for the MSO, but none occurs on the Coronado National Forest (closest designation is BR-W-13 to the south in Santa Cruz county); therefore, none will be affected.

From: 1) Arizona Game and Fish Department. 2005. Strix occidentalis lucida. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 11 pp. See online abstract for full details and references at www.azgfd.gov. 2) Biological opinion: Mt Hopkins Summit Dorm (02-21-02-F-110). 3) Federal register, Volume 69, No. 168, August 31, 2004, Final Designation of Critical Habitat for the Mexican Spotted Owl. 4) Pers comm. with M. Tuegle, USFWS.

MASKED BOBWHITE *Colinus virginianus ridgwayi*

Status: Listed Endangered 1967

Description: A small to medium-sized quail measuring 21-26 cm (8.5-10.5 in). The male is slightly heavier than female. Adult male has brownish upperparts, finely barred with tan and black; white

forehead, and triangular patch on chin and throat, contrasting with chestnut crown and nape; remaining areas blackish, becoming chestnut posteriorly. Lower portions of throat, neck, and nape have white streaks bordered with black. Breast, sides, and flanks white, narrowly barred in zigzag pattern with black; some chestnut streaking on sides and flanks. Wings chestnut to brownish gray; many inner feathers patterned with buff, black, and gray. Male has slight head-crest that becomes erect when head is raised in alert. Adult female similar, but white areas on head replaced with buff, and remaining plumage less boldly marked. Juvenile plumage similar to that of adult female, but much duller and less boldly marked.

Total Range: Historically, the masked bobwhite ranged from south central Arizona, south into central Sonora, Mexico. It is estimated that this quail disappeared from Arizona in the early twentieth century. Existing naturally-occurring populations are limited to Sonora, Mexico. The birds have been reintroduced in southern Arizona.

Range within Arizona: Extirpated before or soon after 1900, the northern edge of range extended to bottomlands of Altar and Santa Cruz valleys. Habitat restoration efforts and reintroductions were halted in the late 1970s and early 1980s, but began again on Buenos Aires National Wildlife Refuge (in the Altar Valley) in 1985, where they still occur today.

Biology: The Bobwhite is typically a diurnal bird that feeds and roosts in coveys except during nesting season, forming groups of usually less than 20 individuals. Within coveys, birds roost together, often in direct contact. When flushed, they fly on noisy wings then glides to cover. Locomotion consists of quick walks and runs on the ground. Populations are typically sedentary, year-round residents, especially in areas of moderate to high quality habitat. Their voice is a clearly whistled *Bob-white!* or *poor, Bob-whoit!* The covey call is a *ko-loi-kee!* answered by *whoil-kee!*

Reproduction: The nesting season of the masked bobwhite corresponds to summer rains, since high humidity is important to successful egg hatch in quail. The nest is a shallow depression lined with grass, etc., concealed by woven arch of vegetation with side entrance. Eggs are white to creamy; clutch size is 5-15. Incubation lasts on average 23 days and hatching with laying and hatching corresponding to monsoon rains. Hatchlings are covered with natal down, and need active brooding by parents for about 2 weeks after hatching. Hatchlings can walk almost immediately upon hatching. Young birds take their first flight about 14 days after hatching, and usually remain with adults through late winter.

Food Habits: Green vegetation and insects contribute substantially to their diet in the spring and summer. Forb and grass seeds are important components of their fall and winter diets. Young birds are capable of procuring food and grit on first day of life.

Habitat: The broad valley desert grassland type with some brush and tree cover is their preferred habitat, especially with dense weed-grass habitats that include large varieties of forbs, grasses and legumes.

Elevation: 3,090 - 3,720 ft. (942 - 1135 m) on Buenos Aires National Wildlife Refuge

Population Trends: Northern limit of historic range is defined by the Altar and Santa Cruz valleys in Arizona. Extirpated from the U.S. by about 1900. They were reintroduced at the Buenos Aires National Wildlife Refuge in southern Arizona; three populations are known in Mexico.

Reasons for decline: Declines are attributed primarily to habitat loss from changing land uses in agriculture, forestry, and expanding suburbanization. Drought and cattle grazing led to the near-complete crash of the Sonoran population by 1985. Effects of cattle grazing include removal of cover, nesting habitat, and food resources overgrazing of weedy bottom lands, grassy and herb-strewn valleys, and forb-rich plains; spread of non-native plants; raptor and mammal predation; possibly competition by other native quail. Depletion of ground cover prevents fires that kill off invading woody plants, which in turn degrade habitat for bobwhite.

Status of masked bobwhite in the Action Area: In fall of 2002, masked bobwhite numbers on BANWR appeared to be stable and the same as in the prior five years, hovering at about 150, which includes audible responses and counted birds from covey flushes. However, recent evidence suggests the population has significantly declined and is "rare to infrequent". There are no known individuals within the AVFMP area.

Effects of the Proposed Action on the Species: Masked bobwhites are currently found only on BANWR located outside of project area. Affects may occur from smoke and possible fire extending beyond

control areas. Habitat improvement from fires may help MB expand their range in the future, but also subject to loss of individuals during fires if they extend beyond BANWR.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE MASKED BOBWHITE.**

*From: Arizona Game and Fish Department. 2001. *Colinus virginianus ridgwayi*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 7 pp. See online abstract for full details and references at www.azgfd.gov. 2) General Species information, UFWs Southwest Ecological Services Field Office website: <http://www.fws.gov/southwest/es/arizona/masked.htm>. 3) Biological opinion: Biological Opinion on the Buenos Aires National Wildlife Refuge Fire Management Plan for the 2005-2008 Burn Seasons (02-21-05-F-0243). 4) Pers comm. with M. Tuegle, USFWS.*

PIMA PINEAPPLE CACTUS *Coryphantha scheeri* var. *robustispina*

Status: Listed Endangered 1993

Description: Hemispherical cactus, adults measuring 10.0-46.0 cm (4.0-18 in.) tall, 8.0-18.0 cm (3.0-7.0 in.) diameter. Strong straw-colored central spines form cluster, one per areole, measure up to 3.0 cm (1.2 in.) long. Central spine 2.0 mm (0.08 in.) in diameter, curved or hooked at abruptly narrowing tip. Radial spines number 6 in young plants, increasing to 10-15 in older plants. Vary from 19.0-23.0 mm (0.76-0.92 in.) long with upper ones more slender. Areoles covered densely with deciduous wool which disappears at maturity. Tubercles grooved along upper surface. Stems can branch and clumps can form. Silky yellow flowers, coral color on edges, have narrow floral tube. Green fruit ellipsoid, succulent and sweet. Brown or black seeds finely veined or netted. May be confused with juvenile *Ferocactus*. However, *Ferocactus* spines flattened, have transverse ridges, in contrast with round cross-section of *Coryphantha* spines. Also, areoles of *Coryphantha* are on tubercles (bumps) with grooves along upper surface, while areoles of *Ferocactus* are on ridges (ribs).

Total Range: South-central Arizona and north-central Sonora, Mexico

Range within Arizona: Southeastern Arizona. Known range bounded by Santa Cruz County, Santa Rita Mountains (east); Pima County, Baboquivari Mountains (west), Tucson (north), Arizona-Mexican border (south).

Biology/Reproduction: Succulent Perennial Flowers in mid-July with onset of summer rains. Plants very sparsely distributed. Densities can be lower than 1 plant per 4 acres. Seeds are viable; asexual reproduction (offsets) very important. Pollinated by small white and black bees. Obligate out-crossers. Bloom together one day a year (midday).

Habitat: Ridges in semidesert grassland and alluvial fans in Sonoran desertscrub. Plants are found on alluvial hillsides in rocky, sandy soils, habitat type is primarily desert grassland on flat ridgetops with little slope. Soils are mostly rocky loams.

Elevation: About 2,300 - 5,000 feet (702 - 1,525 m).

Plant Community: Lower Sonoran Desertscrub and Semi-desert Grassland (dominated by *Acacia constricta* (white-thorn acacia), *Prosopis velutina* (velvet mesquite), *Gutierrezia microcephala* (thread snakeweed), *Ambrosia deltoidea* (triangle-leaf bursage), and various other cacti and grasses)

Population Trends: Downward due to loss and degradation of habitat

Reasons for decline: Limited range and sparse distribution. Loss of habitat due to urban development, off-road vehicle use, road construction, agriculture, and mining; habitat degradation due to livestock grazing; alteration of habitat due to aggressive non-native grasses; and illegal collecting; range management practices that cause surface disturbances such as ripping and imprinting.

Status of pima pineapple cactus in the Action Area: Pima pineapple cacti prefer Sonoran desertscrub, semi desert grasslands, or the transition zone between these two communities at elevations between 2,300 and 4,500 feet above msl. Pima pineapple cactus densities vary across the AVFMP planning area as does Lehmann lovegrass. These two species generally occupy disparate areas in the Altar Valley—with relatively low pineapple cactus and high Lehmann lovegrass densities occurring within the southern portion of the Altar Valley; relatively high pineapple cactus and low Lehmann lovegrass densities occurring in the northern portion of the Altar Valley; and relatively high densities of both species occurring only in the transition zone between the southern and northern portions.

Effects of the Proposed Action on the Species: The proposed fire management plan may result in direct loss of individuals of Pima pineapple cactus due to prescribed fire and fire related activities. Within Pima pineapple cactus habitat, Rx and WFU activities will not exceed the fire management area maximum fire effects threshold (no more than 60 percent burned under low intensity; no more than 10 percent burned under a moderate-to-high fire intensity). WFU and RX will be deferred in southwest desertscrub vegetative communities. BANWR Fire BO, Robinet's old files. AZGFD HDMS, Draft Habitat Management Plan.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, LIKELY TO ADVERSELY AFFECT THE PIMA PINEAPPLE CACTUS.**

From: 1) Arizona Game and Fish Department. 2001. Coryphantha scheeri var. robustispina. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5 pp. See online abstract for full details and references at www.azgfd.gov. 2) Biological opinion: Buenos Aires National Wildlife Refuge Comprehensive Conservation Plan (02-21-02-F-207) 3) Pers comm. with M. Tuegle, USFWS.

SOUTHWESTERN WILLOW FLYCATCHER (*Empidonax traillii extimus*)

Status: Listed Endangered (1995)

Description: Small, usually a little less than 6 inches in length, including tail, with conspicuous light-colored wingbars. The body is brownish-olive to gray-green above with a whitish throat, pale olive breast and yellowish belly. It is best identified by vocalizations. The call is a liquid, sharply whistled whit! or a dry sprrit. The song is a distinct fitz-bew.

Biology: Spring arrival of willow flycatchers in Arizona is in late April with fall migration beginning as soon as the breeding season ends in July-August. The nest is built of shredded bark, cattail tufts, and grasses, and lined with fine grasses and feathers. Usually it is placed in a branch fork in a willow, near water. *E.t. extimus* arrives on breeding territory by late April to early May and migrates southward again in August and September. Preferred nesting habitat is mature *Populus fremontii*/*Salix goodingii* forests along still or slow moving watercourses at the lower elevations. Also found in *Tamarix pentandra* thickets. At higher elevations some are found in pure willow stands (*Salix* spp.). Brown-headed cowbird parasitizes nest by laying an egg in flycatcher's nest. Cowbird eggs hatch sooner and often out-compete the host young. As a result, flycatcher nest parasitized by cowbirds usually produces only cowbirds. Breeding colonies usually about 1.5 acres. Densities about 9-14 pairs per 100 acres. *E.t. extimus* is insectivorous, collecting flying insects by sallying (flying out short distances from perch) and, to a lesser extent, hovering and gleaning. Also eat few berries and seeds.

Reproduction: Males sing repeatedly from exposed perches while on breeding grounds, occasionally during migration. Breeding birds often heavily affected by brood-parasitism by brown-headed cowbirds. Lay clutch of 3 or 4 eggs from May through July. Incubation lasts 12-13 days and nestlings fledge after 12-14 days. Usually 1 brood per year but have been known to raise 2. Young tended by both parents. Leave nest at 12-15 days.

Habitat: In Arizona, this flycatcher breeds principally in (at low elevations) dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers, and (at high elevations) pure, streamside stands of willow. Migrants may occur more widely. Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated and mixed native/exotic.

Range: The wintering range of *E.t. extimus* is uncertain, but the species is known to winter from the west coast of central Mexico to northern South America. The breeding range includes Arizona and adjacent states. In Arizona, *E.t. extimus* breeds very locally along the Colorado River, the Alamo Lake area, at the headwaters of the Little Colorado and San Francisco rivers, along the middle Verde River, at Roosevelt Lake, and along the middle Gila and the San Pedro Rivers. Many of the breeding sites are occupied by five or fewer pairs.

Elevation: 75 - 9,180 feet (23–2798 m)

Population trends: Extreme population reductions noted range wide since 1800's because of habitat loss, though quantitative data are lacking. In the 1993 statewide survey, 23-27 paired males detected. In 1991 and 1992, Grand Canyon flycatchers, using patches dominated by tamarisk and varying in size from 0.08 hectare (0.2 acre), to 0.32 ha (0.8 acre), to 0.63 ha (1.5 ac), declined from 11 pairs in 1986 to present number of 4-5 singing males (3-4 pairs) (Tibbitts and Sogge 1993).

Reasons for decline: Threats to the species include loss and modification of southwestern riparian habitats from urban/agricultural development, water diversion and impoundment, channelization, livestock grazing, tamarisk invasion (*Tamarix* sp.), parasitism by brown-headed cowbirds and potential threats from pesticides and recreation.

Critical Habitat: On October 19, 2005, the FWS re-designated critical habitat for the SWWF (USFWS 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain.

Status of Southwestern Willow Flycatcher in the Action Area: Migrant flycatchers have been observed in Arvaca Creek, but there are no known nesting pairs within AVFMP area. In most of the valley there is not a very wide floodplain, water availability, nor the density of vegetation needed for nesting flycatchers. Additional site evaluation may be needed in riparian areas prior to scheduled burns.

Effects of the Proposed Action on the Species: The species is a riparian obligate; Mesoriparian woodlands are not a common habitat feature in the action area and will not be included in any prescribe burn plans. Smoke will likely drift into riparian areas and cause some short-term disturbance. Some burns may go beyond expected boundaries and result in additional suppression efforts.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE SOUTHWESTERN WILLOW FLYCATCHER.** There is no designated critical habitat for the species within the action area.

From: 1) Arizona Game and Fish Department. 2002. Empidonax traillii extimus. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6 pp. See online abstract for full details and references at www.azgfd.gov. 2) General Species Information, USFWS Southwest Ecological Services Website: <http://www.fws.gov/southwest/es/arizona/Southwest.htm> 3) Federal register/ volume 70, No. 201, October 19, 2005. Designation of Critical Habitat for the Southwestern Willow Flycatcher.

WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis*

Status: Candidate 2002

May 7, 2008

Description: Long and slender bird with relatively short dark legs. Grayish-brown above, white below; rufous primaries, lower mandible yellow. Bold black and white pattern under the tail. Song sounds hollow and wooden, a rapid staccato *kuk-kuk-kuk* that usually slows and descends to a *kakakowlp-kowlp* ending.

Total Range: Nests from southern Canada through northeastern United States, south through the United States to the Florida Keys, Central America and southern Baja California. Winters in South America to central Argentina and Uruguay (Terres 1980).

Range within Arizona: Southern and central Arizona and extreme northeast.

Biology: Unlike European cuckoo, only occasionally parasitizes black-billed cuckoo nest. Breeding often coincides with outbreaks of cicadas, tent caterpillars. May lay more eggs in good prey-abundant years. Extra eggs may be parasitized in other birds' nests.

Reproduction: Both male and female build nest, often in willow or mesquite thickets, from 4 to 30 ft above ground. Nest is stick platform, thinly lined with leaves, mesquite and cottonwood strips, grass and catkins with little depression to hold eggs. Incubate 3-4 unmarked, pale greenish-blue eggs. Eggs hatch synchronously. Incubation lasts 4-11 days with eggs changing color to greenish-yellow. Young are altricial but leave nest in 7-8 days.

Food Habits: Hairy caterpillars, bird eggs, frogs, lizards, ants, beetles, wasps, flies, berries and fruit. Young fed insect regurgitant.

Habitat: In Arizona, streamside cottonwood, willow groves, and larger mesquite bosques for migrating and breeding preferred. Rarely observed as transient in xeric desert or urban settings. Important for management of riparian habitat known to support cuckoo populations.

Elevation: 90 – 6,710 feet (27-2045 m) in Arizona

Plant Community: Mainly mature cottonwood-willow stands, to a lesser extent willows or isolated cottonwoods mixed with tall mesquites.

Population Trends: Populations extremely reduced. General decline in all areas seems to be occurring. North American Breeding Bird Surveys indicate population declines of 1.6% per year in North America.

Reasons for decline: Riparian habitat has declined up to 90% in Arizona and New Mexico thus negatively affecting this species. Other factors to consider include clearcutting, grazing, and pesticide use in riparian areas.

Status of Western yellow billed cuckoo in the Action Area: According to Game and Fish when they surveyed the Altar Valley drainage in 1999 they found 13 pairs, and 2 single birds. This was during the breeding season. Additional detections in 1998 were 4 pairs in Arivaca Creek near Arivaca and 2 pairs in Arivaca Cienega (both detected by A. Flesche in June 1998). In 1999 1 pair was found in Arivaca Creek and 2 pairs plus 2 single birds in Arivaca Cienega. The USGS found 8 pairs in Arivaca creek in 1999, 1 pair in Champurrado Wash, 1 pair and 1 single in Lindberg Tank Wash, 1 pair in Penitas Wash, and 2 pairs in San Luis Wash -- all in the Altar Valley drainage.

Effects of the Proposed Action on the Species: Riparian obligate. Riparian areas not targeted for burns. Smoke effects. Burn may go beyond expected boundaries. Depends on timing of burns. Mesoriparian woodlands are not a common habitat feature in the action area and will not be included in any prescribe burn plans.

CONCLUSION: After considering the known information on the distribution and habitat requirements of the species and the distribution of potential habitats within the project area, it is my determination that the proposed action: **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE YELLOW-BILLED CUCKOO.**

*From: 1) Arizona Game and Fish Department. 2002. *Coccyzus americanus occidentalis*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5 pp. See online abstract for full details and references at www.azgfd.gov.*

2) General Species Information, USFWS Southwestern Ecological Services Website: <http://www.fws.gov/southwest/es/arizona/Yellow.htm>.

GENERAL EFFECTS OF THE ACTION

Some temporary disturbance will occur during fire and until recovery of forage species for wildlife occurs. Short term effects include the potential increase of exotic Lehmann lovegrass within the grassland habitats in the valley, ashflow into riparian areas and tanks, direct loss of individuals to heat, flame or smoke; erosion, damage from fire implementation activities (staging areas, fire lines, camps), predation from loss of cover. These effects are expected to be short term and rapidly diminish after the first growing season. Long-term benefits include improved watershed condition, control shrub invasion, maintenance of grassland habitat. The application of prescribed burning should help to restore portions of the ecosystem and improve wildlife habitat diversity. However, an undesired effect may be increased Lehmann lovegrass stands that support higher fuel loads, more intense heat and can burn more often than native grasslands, with the potential result of higher mortality of Pima pineapple cactus and habitat alteration.

Indirect effects of prescribed burning and associated livestock range conservation practices should consist of increased herbaceous vegetation (forage) and cover resources for wildlife species.

The AVFMP includes monitoring and an adaptive management program that allows the AVFMP to adjust to new information and to do so as outlined by the regulatory requirements. It also provides Altar Valley ranchers a clearly defined process that will remain predictable over the life of the plan. If Arizona State Land Department, Division of Forestry fire management policy changes or is amended in the future, the Altar Valley Fire Management Plan will be amended to reflect those changes.

CUMULATIVE EFFECTS

AV has experienced high levels of illegal immigration and drug smuggling activity over the last few years resulting in disturbance to wildlife through human presence, litter, increased number of foot trails, vandalism and other use of resources. The actions of the U.S. Border Patrol have also increased in response to this increase in activity.

Recreation on federal, state & private lands has increased dramatically over the last decade, including a high increase in the off-road use of ATVs. These activities increase erosion, fragment habitat by adding trails, increase disturbance to wildlife and increase risk of unplanned wildland fires.

In addition to AVFMP burns, the BANWR implements prescribed burns that can have additive smoke and habitat alteration effects.

In addition, the corridor along SR 86 from Tucson, AZ to Three-points, AZ is being developed at an increased rate, in particular the north end of the Altar Valley. This area is likely to be under increased pressure for urban developments in the near future. Developments in this area could increase human disturbance to wildlife and effectively isolate the southern portion of the Altar Valley from the rest of the range of Pima pineapple cactus.