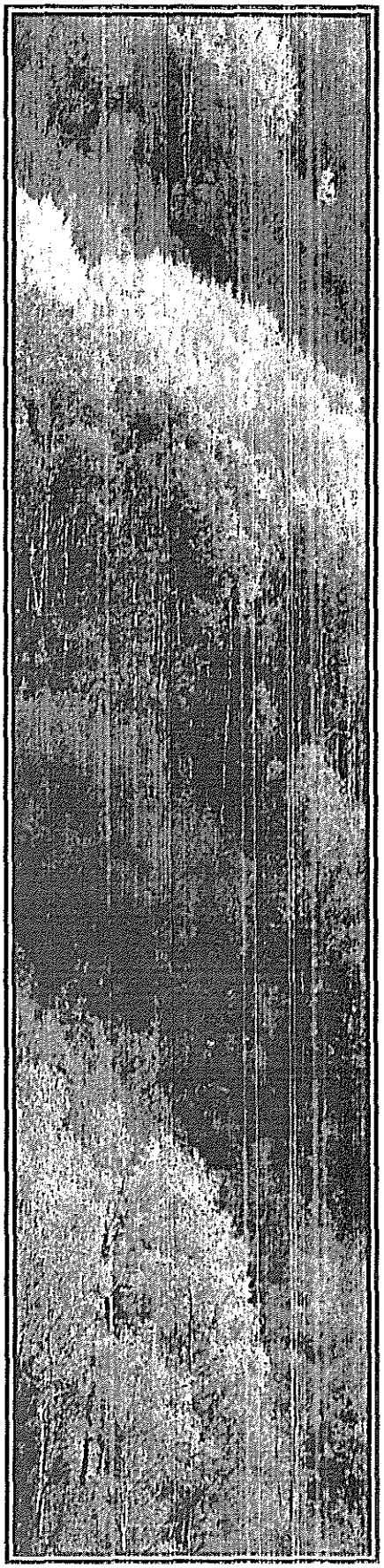
BIOLOGICAL ASSESSMENT FOR THE PROPOSED RECLAMATION OF 230 ACRES OF LAND SOUTHEAST OF COTTONWOOD, YAVAPAI COUNTY, ARIZONA



Prepared for

YAVAPAI-APACHE SAND AND ROCK
P.O. Box 249
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Prepared by

EnviroSystems Management, Inc.
Environmental Planning • Regulatory Compliance

November 30, 2004

BIOLOGICAL ASSESSMENT FOR THE PROPOSED RECLAMATION OF 230 ACRES OF LAND SOUTHEAST OF COTTONWOOD, YAVAPAI COUNTY, ARIZONA

US ARMY CORPS OF ENGINEERS
Los Angeles District-Arizona Planning Section
3636 North Central Avenue, Suite 740
Phoenix, Arizona 85012-1936

LOCATION:

Yavapai County, Arizona
T14N, R4E
NE ¼ of Section 10, NW ¼ of NW ¼ of Section 11,
Cornville, AZ and Middle Verde, AZ USGS 7.5 minute quads

Contact Person:
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Phone Number:
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Introduction
The purpose of this biological assessment is to review a proposed 230-acre land reclamation project in sufficient detail to determine to what extent the proposed action may affect any of the threatened, endangered, proposed, or sensitive species listed below. This biological assessment is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

Consultation to Date
Information obtained from the USFWS and AGFD regarding federally listed threatened or endangered or species of special concern was used when conducting the survey (USFWS 2004); the USFWS list along with the AGFD consultation letter are included in Appendix A.

Fifteen federally listed threatened (T), endangered (E), proposed threatened (PT), or proposed endangered (PE) species were identified as occurring in Yavapai County. In addition, seven candidate (C) and species of concern (SC) were identified.

No federally listed species or habitat was identified during field surveys on the project site. No direct impacts to federally listed species will occur as a result of development of the proposed parcel. The Verde River, located approximately 300 feet east of the project boundary, is designated as Critical Habitat for the razorback sucker (*Xyrauchen texanus*), spikedace (*Meda fulgida*), and loach minnow (*Tiaroga cobitis*). No Critical Habitat occurs on the project site. A stormwater pollution prevention plan will be implemented to avoid any potential degradation of the Verde River water quality resulting from stormwater runoff during and after development operations.

The species considered in this document are:

Threatened, Endangered, Proposed Threatened, or Proposed Endangered Species

Arizona agave (*Agave arizonica*) E
Arizona cliff-rose (*Purshia subintegra*) E
*Bald eagle (*Haliaeetus leucocephalus*) T
Brown pelican (*Pelecanus occidentalis*) E
Chiricahua leopard frog (*Rana chiricahuensis*) T
Colorado pikeminnow (*Ptychocheilus lucius*) E

Desert pupfish (*Cyprinodon macularius*) E
Gila chub (*Gila intermedia*) PE
*Gila topminnow (*Poeciliopsis occidentalis occidentalis*) E
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) E
Loach minnow (*Tiaroga cobitis*) T
Mexican spotted owl (*Strix occidentalis lucida*) T
Razorback sucker (*Xyrauchen texanus*) E
*Southwestern willow flycatcher (*Empidonax traillii extimus*) E
Spikedace (*Meda fulgida*) T

Candidate Species and Species of Concern

*Desert sucker (*Catostomus clarki*) SC
*Sonora sucker (*Catostomus insignis*) SC
*Ripley wild-buckwheat (*Eriogonum ripleyli*) SC
*Apache wild-buckwheat (*Eriogonum apachense*) SC
*Roundtail chub (*Gila robusta*) SC
*Verde Valley sage (*Salvia dorrii* ssp. *mearnsii*) SC
*Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) C
Page springsnail (*Pyrgulopsis morrisoni*) C

*Listed by the Arizona Game and Fish Department (AGFD) as occurring within 3 miles of the project area.

Critical Habitat

The Verde River, located approximately 300 feet east of the project boundary, is designated as Critical Habitat for the razorback sucker (*Xyrauchen texanus*).

Current Management Direction

The property is privately held by the Yavapai-Apache Nation and current management direction is provided by Yavapai-Apache Nation.

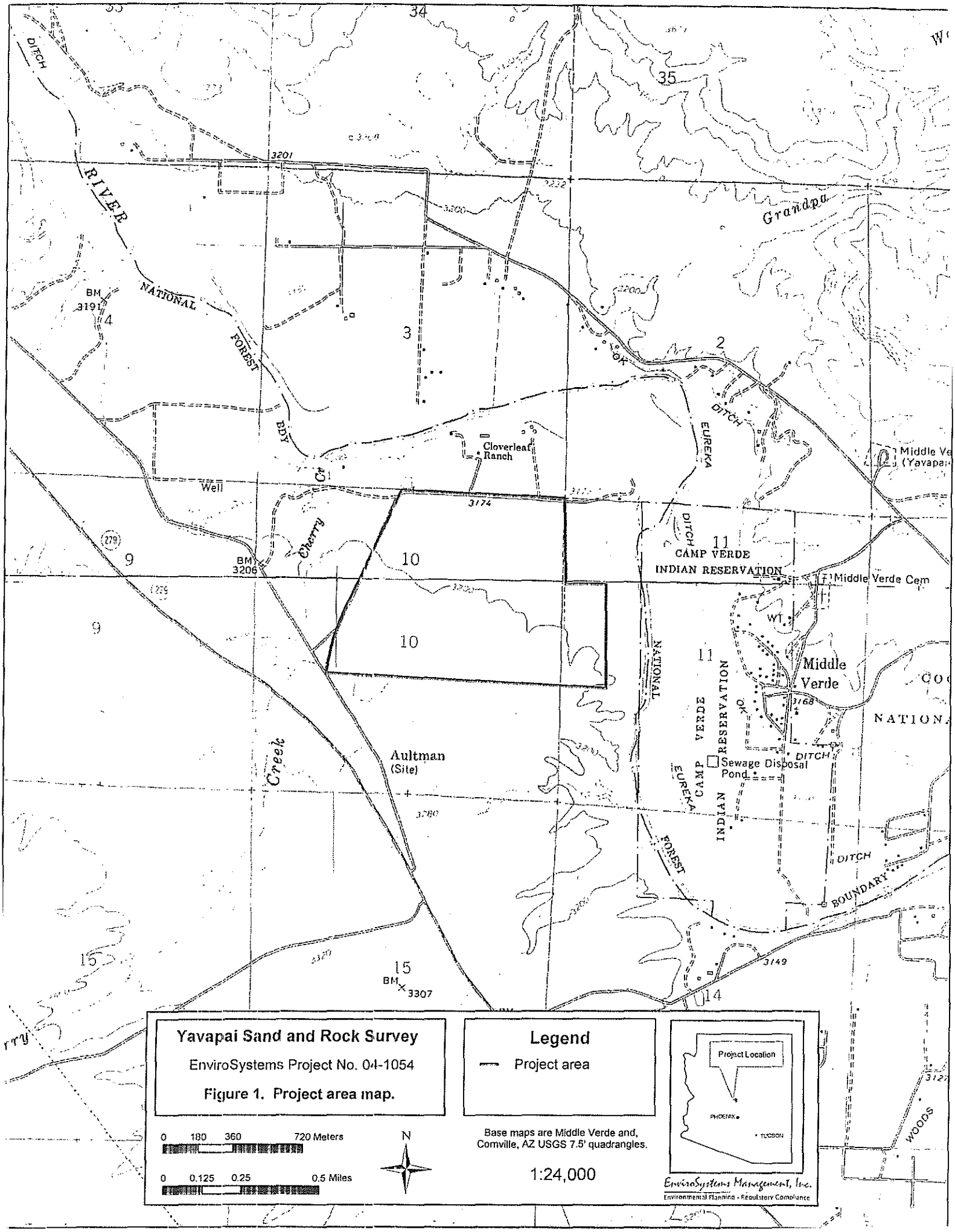
Description of the Proposed Action

The project area is located south-southeast of Cottonwood, Arizona, along the east side of Highway 279 (Figure 1). The parcel under consideration consists of approximately 230-acres of tribally owned land. The project is part of a conversion of land to agricultural uses, and would expand ongoing sand and rock mining operations. Topsoil and overburden would be removed and set aside for later reclamation of the project area. Rock, sand, and gravel would be removed to an average depth of thirty feet. Once the gravel removal operations are complete the land would be re-contoured, the overburden returned as fill to the desired subgrade, and the topsoil replaced. The land would then be used for agricultural purposes by the Yavapai-Apache Nation.

Action Area

The project area is located in the NE ¼ of Section 10 and the NW ¼ of Section 11, T14N, R4E. The survey area is west of Middle Verde and the Camp Verde Indian Reservation on the Middle Verde and Cornville, AZ USGS 7.5-minute quadrangles (Figure 1). Elevation ranges between 3,170 and 3,200 feet. The area lies in the Verde River Valley; the Verde River serves as the major drainage in the region and the only perennial water source near the project area. The Verde Valley area comprises a transition zone between the high elevation Colorado Plateau physiographic province and the low deserts of the Basin and Range province south of the Black Hills (Brown 1994).

The project area is underlain by the Verde Formation. This formation consists of limestone beds alternating with alluvial deposits of silt and sand, resulting from the formation's history as lake deposition (Chronic 1983, Nations and Stump 1981). Soils within the parcel are generally rocky or sandy, derived from decomposition of the Verde Formation (Hendricks 1985).


Yavapai Sand and Rock Survey
EnviroSystems Project No. 04-1054
Figure 1. Project area map.
Legend
Project area
Project Location
PHOENIX
TUCSON
0 180 360 720 Meters
0 0.125 0.25 0.5 Miles
N
Base maps are Middle Verde and, Comville, AZ USGS 7.5' quadrangles.
1:24,000
EnviroSystems Management, Inc.
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RIVER
NATIONAL
FOREST
Cloverleaf Ranch
Well
Cherry Cr
Aultman (Site)
Creek
CAMP VERDE INDIAN RESERVATION
Middle Verde
Middle Verde Cem
Sewage Disposal Pond
EUREKA DITCH
BOUNDARY
Grandpa
WOODS
BM 3191
BM 3206
BM 3307
3201
3174
3168
3149

The parcel slopes gently to the northeast toward the Verde River. The area under consideration is bisected by three minor drainages that carry seasonal runoff into the Verde River. Vegetation observed within the project area includes catclaw acacia (*Acacia greggii)*, mesquite (*Prosopis velutina*), one-seed juniper (*Juniperus monosperma)*, soapweed yucca (*Yucca elata)*, and Engelmann's prickly pear (*Opuntia phaeacantha* var. *discata*). Wildlife observed included Gambel's quail (*Lophortyx gambeli)* and desert cottontail (*Sylvilagus audubonii)*. A complete list of species encountered in the field is included in Appendix B. Photos of the project area are included in Appendix C. No perennial streams or wetlands exist in the project area. Potential degradation of Verde River water quality resulting from stormwater runoff during and after development of the site should be minimized to avoid impacting endangered fish habitat.

Species Accounts and Status of the Species in the Action Area

Name:
Arizona agave
Agave arizonica

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Arizona agave occupies mesas and slopes in isolated clusters (usually clones) or as isolated plants. This species is found in Interior Chaparral, Desert Grassland and the transition zone between grassland and pinyon-juniper vegetation types on shallow, rocky soils derived from granite, schist, gneiss, quartzite, tuff and limestone (AGFD 2003a). Elevations range from 3,000 to 6,000 feet and occurrence coincides with the range of its assumed parents (*A. chrysantha, A. toumeyana* var. *toumeyana* and *A. toumeyana* var. *bella*). Critical Habitat was not identified at the time of listing (1984). Fewer than 100 plants are known to exist. While some plants are known to occur on private land, most plants are on the Tonto National Forest in the New River Mountains. One isolated individual occurs southeast of Payson (Green Valley Hills) and another near Parker Creek at the south end of Sierra Ancha Mountains.

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
A no effect determination to this species was made because of the distance to known locations of Arizona agave. In addition, none were observed during field surveys.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Arizona cliff-rose
Purshia subintegra

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Arizona cliffrose occurs on rolling, rocky, limestone hills and slopes within Sonoran Desertscrub (AGFD 1997a). The species occurs where the winters are mild, summers are hot, and the 9 - 34 in. of rainfall is evenly distributed between summer and winter rainfall periods. This species is restricted to calcareous limy-tuff soils derived from Tertiary lacustrine deposits that are nutrient deficient but high in lithium, nitrates, and magnesium (USFWS 1992, ARPC 2000). Crucifixion-thorn (*Canotia holacantha*) is the most common plant associate. Arizona cliffrose is known from central Arizona near Horseshoe Lake, Maricopa County; near Cottonwood, Yavapai County; near Burro Creek, Mohave County; and near Bylas, Graham County (USFWS 1992).

Analysis of effects:
Effects to this species are not anticipated.

Determination of effect/Rationale/Recommended mitigation:
A no effect determination was made due to the lack of nutrient-deficient, calcareous limy-tuff soils required for Arizona cliffrose on the project site. In addition, none were observed during field surveys.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Bald eagle
Haliaeetus leucocephalus

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Bald eagles occur in Arizona as either breeding populations or winter migrants at elevations between 460 and 7,400 feet. Nests occur in tall trees, cliff faces, ledges, and pinnacles near open water for foraging. Perches for shelter, roosting, foraging and guarding are important habitat components. Their diet is comprised mainly of fish, with small mammals, carrion, birds and reptiles eaten to a lesser extent (AGFD 2002a). Bald eagles occur in the central and northern portion of the state. Resident nesting occurs along Tonto Creek, the Salt River and the Verde Rivers on the Tonto National Forest.

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
Nesting habitat within the project boundary is nonexistent. Bald eagles are known to nest on the Verde River. Noise and visual activity generated by construction that could affect bald eagles along the Verde River by deterring an individual from entering the site will most likely cause it to land in another location.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Brown pelican
Pelecanus occidentalis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The California brown pelican is a large, dark brown-gray water bird with webbed feet. Brown pelicans live in all habitats on the Pacific, Atlantic, and Gulf coasts, nesting occurs on islands (USFWS 1998). They are rarely seen inland. It is an uncommon transient in Arizona on many Arizona lakes and rivers, often blown in by storms. Individuals wander up from Mexico in summer and fall. There are no records of breeding brown pelicans in Arizona.

Analysis of effects:
No effects to the California brown pelican are expected.

Determination of effect/Rationale/Recommended mitigation:
Suitable habitat for the brown pelican within the project boundary is non-existent. If pelicans were to pass over the site, noise and visual impacts associated with construction may cause this species to avoid the area.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Chiricahua leopard frog
Rana chiricahuensis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The Chiricahua leopard frog occurs in mountain regions of central and southeastern Arizona, at elevations between 3,500 and 7,900 feet (AGFD 2001a). Primary habitat includes oak, and mixed pine woodlands. They may also be found in areas of chaparral, grassland, and even desert, where rocky streams with deep pools, river overflows, or man-made aquatic systems occur. Adults eat arthropods and other invertebrates; larvae are herbivorous, feeding on organic debris, algae, and plant tissue (Stebbins 1985). At higher elevations, Chiricauha leopard frogs breed from mid-February through June; at lower elevations breeding takes place during summer (AGFD 2001a).

Analysis of effects:
No effect to this species is anticipated as a result of development of the proposed project.

Determination of effect/Rationale/Recommended mitigation:
No wetlands or perennial waters occur on the project site. No effect to this species is anticipated because there is no potential to impact this species or its habitat directly as a result of the proposed project. An unnamed ephemeral drainage runs through the parcel and eventually into the Verde River. Potential degradation of the

Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacts to water quality.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Colorado pikeminnow
Ptychocheilus lucius

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The Colorado pikeminnow historically ranged throughout the Colorado River basin in Wyoming, Colorado, New Mexico, Arizona, California, and Mexico. Now mostly confined to areas of Utah and Colorado, it has been extirpated from the southern portion of its range by construction of large dams along the Colorado and Gila rivers, and by competition and predation from non-native fishes. Colorado pikeminnow prefer eddies and pools in warm, swift mainstem rivers (USFWS 1998). They spawn over clean cobbles and rubble in relatively swift waters (AGFD 2002b). Juveniles utilize slackwater, backwater, and side channel areas with slow currents and silt/sand substrates. Fish have been experimentally stocked in the Salt River and Verde River drainages (AGFD 2002b). Fish have been experimentally stocked in the Salt River drainage (Cherry Creek, Canyon Creek, Salt River at Horseshoe Bend and Gleason Flat) and the Verde River drainage (Verde River from below Sullivan Lake to Beasley Flat, East Verde River, West Clear Creek, Fossil Creek, and Sycamore Creek [Yavapai County]).

Analysis of effects:
No effect to the Colorado pikeminnow is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Desert pupfish
Cyprinodon macularius

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The desert pupfish occurred historically in the Rio Sonoyta, San Pedro River, Santa Cruz River, lower Gila River, and lower Colorado River in Arizona, California, and Mexico (USFWS 1998). Pupfish occupy shallow waters of springs, small streams, and marshes, often associated with areas of soft substrates and clear water (USFWS 1998). Desert pupfish habitat occurs at elevations ranging from 1,200 to 3,450 feet (AGFD 2001b). There are no natural populations of this subspecies remaining in Arizona, reintroductions have been made in Pima, Pinal, Maricopa, Graham, Cochise, La Paz, and Yavapai counties (USFWS 1998).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No perennial waters occur on the project site. The proposed project is outside the known distribution of this species. The project area is at a higher elevation than this species is known to occur.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May affect species, not likely to adversely affect species or its habitat
_____ May beneficially affect species or its habitat
_____ Likely to adversely affect species or its habitat

Name:
Gila chub
Gila intermedia

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The Gila chub is endemic to the Gila River Basin, occurring throughout small and medium sized tributaries, especially cienegas, in the headwaters of essentially all the major tributaries to the Gila River, including the Verde, Agua Fria, Aravaipa, San Pedro, and Santa Cruz drainages (AGFD 1996). It has recently been rediscovered in the San Pedro drainage in Sonora, Mexico, where it had not been collected since 1857 (AGFD 2002c). Gila chub typically occupy pools in small streams, marshes, cienegas, and other quiet waters, at an elevational range between 2,000 and 3,500 feet (USFWS 1998). It is highly secretive, remaining in deeper waters near cover. Spawning typically occurs in late spring through early summer (AGFD 1996). The Gila chub feeds mainly on invertebrates, and occasionally on other fish species (AGFD 1996).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and after development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Gila topminnow
Poeciliopsis occidentalis occidentalis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Gila topminnow have occurred historically in low to mid-elevation streams in drainages associated with the Gila River, occupying headwater springs and vegetated margins and backwater areas of intermittent and perennial streams and rivers (AGFD 2001c). The Gila topminnow lives primarily in shallow areas with aquatic vegetation and debris for cover. It can tolerate relatively high water temperatures and low dissolved oxygen (AGFD 2001c). Currently, disjunct populations exist in 9-11 natural locations and 22-24 re-introduced locations within the Gila River drainage and one location in the Bill Williams River drainage. Of these localities, 15 are springs while the rest are creeks and washes (AGFD 1996).

Analysis of effects:
No effect to the Gila topminnow is expected.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and after development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Lesser long-nosed bat
Leptonycteris curasoae yerbabuenae

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The lesser long-nosed bat is found in desert grassland and shrubland up to the oak transition zone (AGFD 2003b). This species roosts in caves, mine tunnels, and unoccupied buildings during the day (USFWS 1998). They forage in areas with saguaro, prickly pear, organ pipe cacti, ocotillo, paloverde, and agaves. From 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 nonpregnant 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. Lesser long-nosed bats are not present in Arizona during winter months (Nowak 1994).

Analysis of effects:
No effects to lesser long-nosed bats are anticipated.

Determination of effect/Rationale/Recommended mitigation:
Impacts to lesser long-nosed bats are not anticipated due to the absence of caves, mine tunnels, and/or buildings on site. It is possible that bats could forage within the project boundary. Because bats are nocturnal and construction activities will occur during the day, construction is not likely to affect lesser long-nosed bat foraging activities.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Loach minnow
Tiaroga cobitis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references).

Affected habitat description:
The loach minnow inhabits turbulent, rocky riffles of mainstream rivers and tributaries up to about 7,200 feet elevation. It is restricted almost exclusively to a bottom-dwelling habitat, swimming above the substrate for only brief moments as it darts from place to place. Adult loach minnow are typically found in water flowing 2 to 2.5 feet per second and 6 to 7 inches deep where they occupy the interstices of cobble-size substrate (these habitats occasionally have dense growths of filamentous algae). Larval and juvenile loach minnow are usually found in shallower, slower water over sand substrate.

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and after development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Mexican spotted owl
Strix occidentalis lucida

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The Mexican spotted owl is a medium-sized owl with large dark eyes and brown plumage and no ear tufts (USFWS 1998). It occupies varied habitats including mixed conifer and ponderosa pine/Gambel oak vegetation types, usually characterized by high canopy closure, high stem density, numerous snags, and downed woody material on sloped terrain (AGFD 2001d, USFWS 1998). In Arizona, this owl is patchily distributed in forested mountains from 4,500 to 10,000 feet (AGFD 2001d). Mexican spotted owls do not build nests, but use naturally occurring sites, often in large diameter trees, cliff cavities and abandoned hawk or raven nests. Spotted owls prey mainly on wood rats, which are snatched from the ground in their talons; birds, insects, reptiles and other types of small mammals are taken as well (AGFD 2001d).

Analysis of effects:
No effect to the species is anticipated because the proposed project does not contain suitable habitat for spotted owls.

Determination of effect/Rationale/Recommended mitigation:
No multi-layered canopies of mixed conifer forest exist within the project. A no effect determination was found due to the absence of habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Razorback sucker
Xyrauchen texanus

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:

Razorback suckers can attain lengths of three feet and weights exceeding six pounds (AGFD 2002d). They historically inhabited streams greater than one meter deep over sand, mud, or gravel substrates (Minckley 1973). They tend to occupy areas with strong, uniform currents over sandy bottoms, and eddies and backwaters lateral to the river channels, sometimes concentrating in deep places near cut banks or fallen trees. Except for spawning migrations, razorback suckers are fairly sedentary, moving relatively few miles over several months. Spawning occurs from late winter to early summer along gravelly shorelines or bays (AGFD 2002d). In the Green River during non-breeding season, the fish are found in depths of 2 to 11 feet over sand or silt substrates, with water velocities of 0.3 to 2.0 feet per second. During summer months use shifts to relatively shallow waters off mid-channel sandbars. This species formerly occurred throughout the Colorado River basin. Currently, populations in the lower basin are restricted to Lake Mohave, Lake Mead, and possibly the lower Colorado River below Havasu Creek (USFWS 1998). Substantial numbers of razorback suckers were reared through the juvenile and adult stages in hatcheries and in isolated ponds and released with limited success (AGFD 2002d).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. The Verde River, located approximately 300 feet to the east of the project area is designated Critical Habitat for the razorback sucker. Potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Southwestern willow flycatcher
Empidonax traillii extimus

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The southwestern willow flycatcher is an insectivorous, neotropical migrant that breeds in the southwestern United States and winters in Mexico and Central America. It is found in riparian habitats along perennial drainages where dense growth of willows, tamarisk, and other shrubs and medium-sized trees are present with a scattered overstory of cottonwoods. Breeding and foraging occurs throughout this habitat (Spencer et al. 1996). In Arizona, southwestern willow flycatchers arrive and begin to nest in late May and begin their southward migration by mid-August (Sogge et al. 1997).

Analysis of effects:
A no effect determination was made due to a lack of habitat on site.

Determination of effect/Rationale/Recommended mitigation:
The southwestern willow flycatcher requires riparian forest with multiple vegetation layers. No effect to the species is anticipated because the project area does not contain perennial waters, nor does it support the vegetation layers suitable for habitat southwestern willow flycatcher. If a migrating bird were to pass through the project site during construction, it would most likely avoid the immediate area.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Spikedace
Meda fulgida

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references).

Affected habitat description:
Adult spikedace occupy moderate to large perennial streams, where they inhabit runs, pools, and swirling eddies that are typically less than three feet deep and have velocities of 1 to 2 feet per second (USFWS 1998). Adults often congregate in shear zones along gravel-sand bars, quiet eddies on the downstream edge of riffles, and broad, shallow areas above gravel-sand bars. Larval spikedace most commonly occupy slow-velocity waters near stream margins over sand-dominated substrates. In winter, spikedace appear to seek out protected areas, either cobble streambanks or slow-velocity areas in the lee of gravel bars. Spawning occurs in shallow sand and gravel-bottomed riffles. Spikedace historically occurred in Aravaipa Creek, Eagle Creek, the upper Verde River system in Arizona, and the Gila River system in New Mexico at elevations ranging from 3,500 to 4,200 feet (AGFD 2002e). In Arizona, populations are currently found in Aravaipa Creek, Eagle Creek, and a portion of the upper Verde River (USFWS 1998).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (T&E):
__X__ No effect to species or its habitat
_____ May effect species, not likely to adversely effect species or its habitat
_____ May beneficially effect species or its habitat
_____ Likely to adversely effect species or its habitat

Name:
Desert sucker
Catostomus clarki

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references).

Affected habitat description:
Desert suckers are found in rapids and flowing pools of streams, primarily over bottoms of gravel-rubble with sandy silt in the interstices. Adults live in pools, moving at night to swift riffles and runs, where they feed on encrusting algae scraped from stones (AGFD 2002f). Young suckers inhabit riffles throughout the day, feeding on midge larvae. Individuals exhibit little seasonal movement, and resist downstream displacement during floods. Desert suckers are highly adaptive to a wide range of temperatures, tolerating water temperatures as high as 90° F (AGFD 2002f). Desert suckers may be able to tolerate lower oxygen levels than other native stream fishes. The desert sucker occurs throughout the Gila River basin and in tributaries to the Bill Williams River at elevation from 480 to 8,840 feet (AGFD 2002f).

Analysis of effects:
The project will have no effect on desert suckers or their habitat.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Sonora sucker
Catostomus insignis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references).

Affected habitat description:
The Sonora sucker is a medium-sized fish, maximum size is 80 cm and 4.5 lbs. Sonora suckers are found in a variety of habitats, from warm water rivers to trout streams (AGFD 2002g). They generally prefer gravelly or rocky pools, and deep, quiet waters. Both young and adults are ominvorous, feeding on diatoms, invertebrates, and algae (AGFD 2002g). Spawning begins in late winter and continues through mid-summer, it does not seem to be dependent on stream flow or temperature (AGFD 2002g). Range in Arizona consists of the Gila and Bill Williams river drainages, including the Verde River.

Analysis of effects:
The project will have no effect on Sonora suckers or their habitat.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Ripley wild-buckwheat
Eriogonum ripleyi

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Ripley wild-buckwheat is a low (less than 8 inches tall) trailing subshrub of the Polygonaceae family. Its numerous trailing branches root at the nodes, giving it an arching appearance. The upper leaf surfaces are grayish-green and lightly hairy. Leaf margins are downrolled and densely white hairy below. It is distinctive in its bractless flowering stems terminating in a single infloresence. Petals are white with a red-brown center stripe (AGFD 1997b). It has been found in widely disjunct sites from the Hualapai Reservation in northwestern Arizona to Horseshoe Lake Reservoir north of Phoenix (ARPC 2001). It is found on a variety of substrates including Tertiary lakebeds on well-drained powdery soils derived from limestone, on sandy clay

soil on the edge of sandstone mesas, and on volcanic tuff, ash, and redeposited limestone and chalky clay (AGFD 1997b). It occurs between 2,000 and 6,000 feet and flowers in April (AGFD 1997b, ARPC 2001).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
Habitat requirements for this species are fairly broad. However, no Ripley buckwheat plants were observed during field surveys.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Apache wild-buckwheat
Eriogonum apachense

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Apache wild-buckwheat is a shrubby perennial that grows to 60 cm tall. It is densely branched, with deciduous leaves that are white and fuzzy on the underside (ARPC 2000). When in flower or fruit, from September through November, the plants are usually leafless. This buckwheat is restricted to white, gypsum soils and is only known to occur near Bylas, Arizona on the San Carlos Reservation, where it grows in association with Arizona cliffrose (*Purshia subintegra*) (ARPC 2000). The white gypsiferous soils near Cottonwood may also serve as habitat for this species, although it has not yet been identified from the area (ARPC 2000).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
Habitat requirements for this species are specific, the project area does not contain the white, gypsiferous soils that Apache wild-buckwheat requires. In addition, no Apache buckwheat plants were observed during field surveys.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Roundtail chub
Gila robusta

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references).

Affected habitat description:
Roundtail chub occupy cool to warm water, mid-elevation streams and rivers. Typical adult microhabitat consists of pools up to eight feet deep adjacent to swifter riffles and runs. These chub prefer habitats with cover that consists of large boulders, tree rootwads, submerged large trees and branches, undercut cliff walls, or deep water. Smaller chubs generally occupy shallower, low velocity water adjacent to overhead bank cover (AGFD 2002h). Roundtail chub appear to be very selective in their choice of pools, they may be common in certain pools, but not in similar, nearby pools. Spawning takes place over gravel substrate (AGFD 2002h). This species was historically distributed throughout the larger tributaries of the Colorado River basin from Wyoming to Arizona and New Mexico. As a result of river impoundment and stream diversion, and predation by nonnative fishes, the roundtail chub is rare in most of the larger portions of the Salt, Verde, and Gila rivers (AGFD 2002h).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No habitat for this species occurs on the project site. However, due to its proximity to the Verde River, potential degradation of the Verde River water quality resulting from stormwater runoff during and post development of the site should be minimized to avoid impacting endangered fish habitat.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Verde Valley sage
Salvia dorii ssp. *mearnsii*
Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
Verde Valley sage is a woody perennial in the mint family. It is a much-branched shrub growing up to 20 inches tall. It is often spiny. The narrow opposite leaves are covered with silvery hairs and give off a characteristic sage smell when they are crushed. Blue flowers occur in clusters along the upper stems and have conspicuous greenish, purple bracts (AGFD 1997c). Verde Valley sage grows on the whitish, powdery gypsiferous limestone soils of Tertiary lakebed deposits in central Arizona from 3,250 feet to 3,800 feet in open Creosote-Shrub communities. Flowering occurs April through June (ARPC 2001, AGFD 1997c).

Analysis of effects:
No effect to this species or its habitat will occur as a result of the proposed project.

Determination of effect/Rationale/Recommended mitigation:
This species has very specific soil requirements, which do not exist, on the project site. No habitat for this species occurs on the project site.

Findings (Species of Concern):
__X__ No impact on the species

_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Western yellow-billed cuckoo
Coccyzus americanus occidentalis

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The yellow-billed cuckoo is a medium (12 inches long) neotropical migrant that winters in Central and South America. In the United States it is found in riparian woodlands and thickets dominated by cottonwoods and willows at elevations below 5,000 feet (Corman and Magill 2000). Yellow-billed cuckoos typically nest on horizontal branches 6-25 feet off the ground, mostly in willow or other dense deciduous vegetation close to water. They require a minimum of 25 acres of broadleaf forest at least 100 m wide (Gaines 1974) and at least 2.5 acres of dense nesting habitat per pair (Laymon and Halterman 1989). In Arizona, pairs are usually distributed every 0.5 mile in large blocks of contiguous habitat. Currently, cuckoos breed in disjunct riparian habitats in the west. In Arizona, it is found in mature cottonwood-willow riparian habitats along central and southern drainages and locally along the Virgin River (AGFD 1996). Cuckoos feed almost entirely on grasshoppers, cicadas, katydids, and caterpillars, though occasionally berries and fruit may be taken (AGFD 2002i).

Analysis of effects:
No appropriate nesting habitat occurs on the project site. Riparian areas associated with the unnamed drainage and the nearby Verde River may be utilized to forage.

Determination of effect/Rationale/Recommended mitigation:
A no effect determination was found due to the lack of suitable nesting habitat on the project site and the presence of higher value forage habitat in the region.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Name:
Page springsnail
Pyrgulopsis morrisoni

Data sources, including surveys conducted, prior BA/BE analysis or consultation:
Existing literature (see references), field surveys.

Affected habitat description:
The Page springsnail occurs in the running water of springs, seeps, marshes, spring pools, and outflows. Page springsnail habitats are isolated, mid-elevation (approximately 3,500 ft), permanently saturated, spring-fed aquatic climax communities commonly described as cienegas (AGFD 2004). Firm substrates such as cobble, gravel, woody debris, and aquatic vegetation are essential for egg-laying and grazing (AGFD 1996). It also utilizes aquatic vegetation including watercress, duckweed, water parsnip, water pennywort, water speedwell,

dock, waterweed, pondweed, and algae. High levels of dissolved carbon dioxide and calcium carbonates aid in aquatic predator exclusion and shell formation, respectively. This species is known from Upper Verde River drainage of central Arizona, with the type locality at Page Springs. The species is locally endemic and all extant populations exist within a complex of springs located within an approximately one mile area along the west side of Oak Creek around the community of Page Springs, Yavapai County (AGFD 2004).

Analysis of effects:
No effect to this species is anticipated.

Determination of effect/Rationale/Recommended mitigation:
No springs or perennial waters occur on the project site.

Findings (Species of Concern):
__X__ No impact on the species
_____ May impact individuals, but is not likely to result in a trend toward federal listing or loss of viability
_____ Has a beneficial impact on the species
_____ Likely to result in a trend toward federal listing or loss of viability for the species

Effects
Expansion of the proposed sand and rock mining operations represents a permanent loss of habitat to many native wildlife and plant species in the project area. However, there are no federally listed or protected species (or their habitats) that will be affected by the proposed project.

Drainages that cross the property flow to the northeast into the Verde River. Potential degradation of the Verde River water quality resulting from stormwater runoff during and after development of the site should be minimized through the implementation of best management practices.

Cumulative Effects
No effects to any federally listed species are anticipated as a result of development of the project site. No other present or planned developments in the area are known with impacts to federally listed species. However, potential degradation of the Verde River water quality from stormwater runoff as a result of this and other development in the region should be minimized.

Analysis of Alternate Actions
Because there are no effects to federally listed species, and there were no additional agency concerns, no alternatives will be analyzed for this project.

Conclusions and Determinations
The proposed project will not result in adverse effects to any federally listed, proposed for listing or candidate species.

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APPENDIX A
Agency Consultation and Letter

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399
(602) 942-3000 • AZGFD.COM

November 15, 2004

Ms. Suzanne Rhodes
EnviroSystems Management, Inc.
Fourth Street Corporate Center
2101 N. 4th St.
Suite 220
Flagstaff, AZ 86004

Re: Special Status Species Information for **Township 14 North, Range 4 East Section 10 and 11; Proposed Development.**

Dear Ms. Rhodes:

The Arizona Game and Fish Department (Department) has reviewed your request, dated November 9, 2004, regarding special status species information associated with the above-referenced project area. The Department's Heritage Data Management System (HDMS) has been accessed and current records show that the special status species listed on the attachment have been documented as occurring in the project vicinity (3-mile buffer). In addition this project occurs within the vicinity of Designated Critical Habitat for razorback sucker.

The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Making available this information does not substitute for the Department's review of project proposals, and should not decrease our opportunities to review and evaluate new project proposals and sites. The Department is also concerned about other resource values, such as other wildlife, including game species, and wildlife-related recreation. The Department would appreciate the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with project activities occurring in the subject area, when specific details become available.

If you have any questions regarding this letter, please contact me at (602) 789-3619. General status information, county and watershed distribution lists and abstracts for some special status species are also available on our web site at http://www.azgfd.gov/hdms.

Sincerely,

Ginger Ritter

Ginger L. Ritter
Heritage Data Management System, Data Specialist

SSS:glr

Attachment

cc: Rebecca Davidson, Project Evaluation Program Supervisor
Kevin Morgan, Habitat Program Manager, Region III

AGFD #11-11-04 (04)

Special Status Species within 3 Miles T14N, R4E Sec. 10 & 11

NAME	COMMON NAME	ESA	BLM	USFS	STATE
Buteogallus anthracinus	Common Black-hawk			S	WSC
Catostomus clarki	Desert Sucker	SC	S		
Catostomus insignis	Sonora Sucker	SC	S		
Ceryle alcyon	Belted Kingfisher				WSC
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	C		S	WSC
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		S	WSC
Eriogonum apachense	Apache Wild-buckwheat	SC			SR
Eriogonum ericifolium var. ericifolium	Heathleaf Wild-buckwheat			S	
Eriogonum ripleyi	Ripley Wild-buckwheat	SC		S	SR
Gila robusta	Roundtail Chub	SC		S	WSC
Haliaeetus leucocephalus	Bald Eagle	LT		S	WSC
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE			WSC
Polygala rusbyi	Hualapai Milkwort			S	
Salvia dorrii ssp. mearnsii	Verde Valley Sage	SC		S	SR

Within Critical Habitat for Razorback sucker. AGFD # 11-11-04(04). Proposed Development.

Arizona Game and Fish Department, Heritage Data Management System, November 15, 2004.

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Arizona:

Counties Selected: Yavapai

Select one or more counties from the following list to view a county list:

Apache
Cochise
Coconino
Gila
Graham

View County List

Yavapai County

Common Name	Scientific Name	Listing Status	More Info
Arizona agave	*Agave arizonica*	E	
Arizona Cliff-rose	*Purshia (=Cowania) subintegra*	E	
bald eagle	*Haliaeetus leucocephalus*	AD, T	
brown pelican	*Pelecanus occidentalis*	DM, E	
Chiricahua leopard frog	*Rana chiricahuensis*	T	
Colorado pikeminnow (=squawfish)	*Ptychocheilus lucius*	E, EXPN	
desert pupfish	*Cyprinodon macularius*	E	
Gila chub	*Gila intermedia*	PE	
Gila topminnow (incl. Yaqui)	*Poeciliopsis occidentalis*	E	
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	
loach minnow	*Tiaroga cobitis*	T	
Mexican spotted owl	*Strix occidentalis lucida*	T	
Page springsnail	*Pyrgulopsis morrisoni*	C	
razorback sucker	*Xyrauchen texanus*	E	
southwestern willow flycatcher	*Empidonax traillii extimus*	E	
spikedace	*Meda fulgida*	T	
yellow-billed Cuckoo	*Coccyzus americanus*	C	

APPENDIX B
Plants and Wildlife Observed During Field Surveys

Common Name	*Scientific Name*
Plants	
catclaw acacia	*Acacia greggii*
three-awn grass	*Aristida sp.*
cane bluestem	*Bothriochloa barbinodis*
red brome	*Bromus rubens*
filaree	*Erodium cicutarium*
Wright's buckwheat	*Eriogonum wrightii*
snakeweed	*Gutierrezia sarothrae*
one-seed juniper	*Juniperus monosperma*
ratany	*Krameria parvifolia*
Desert Christmas cactus	*Opuntia leptocaulis*
prickly-pear cactus	*Opuntia phaecantha var. discata*
velvet mesquite	*Prosopis velutina*
russian thistle	*Salsola iberica*
silverleaf nightshade	*Solanum elaeagnifolium*
soapweed yucca	*Yucca elata*
Wildlife	
Gambel's quail	*Lophortyx gambeli*
desert cottontail	*Sylvilagus audubonii*
tree lizard	*Urosaurus ornatus*
common raven	*Corvus corax*
mourning dove	*Zenaida macroura*
white-crowned sparrow	*Zonotrichia leucophrys*

APPENDIX C
Project Area Photographs

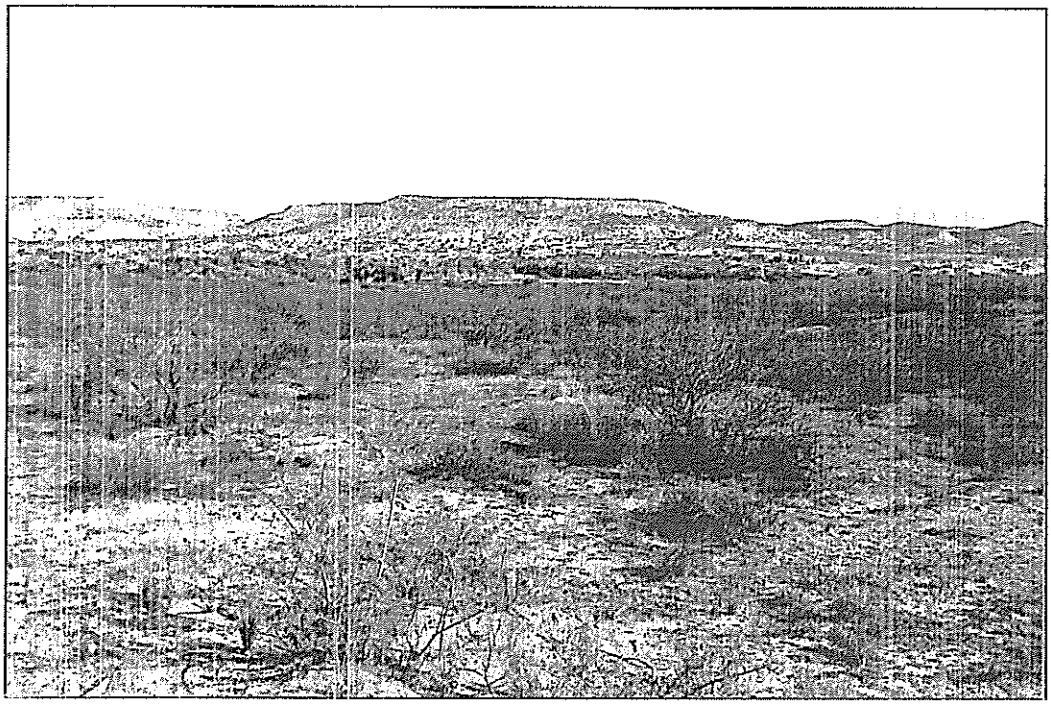

Photo 1. Project area, view to the north toward the Verde River.

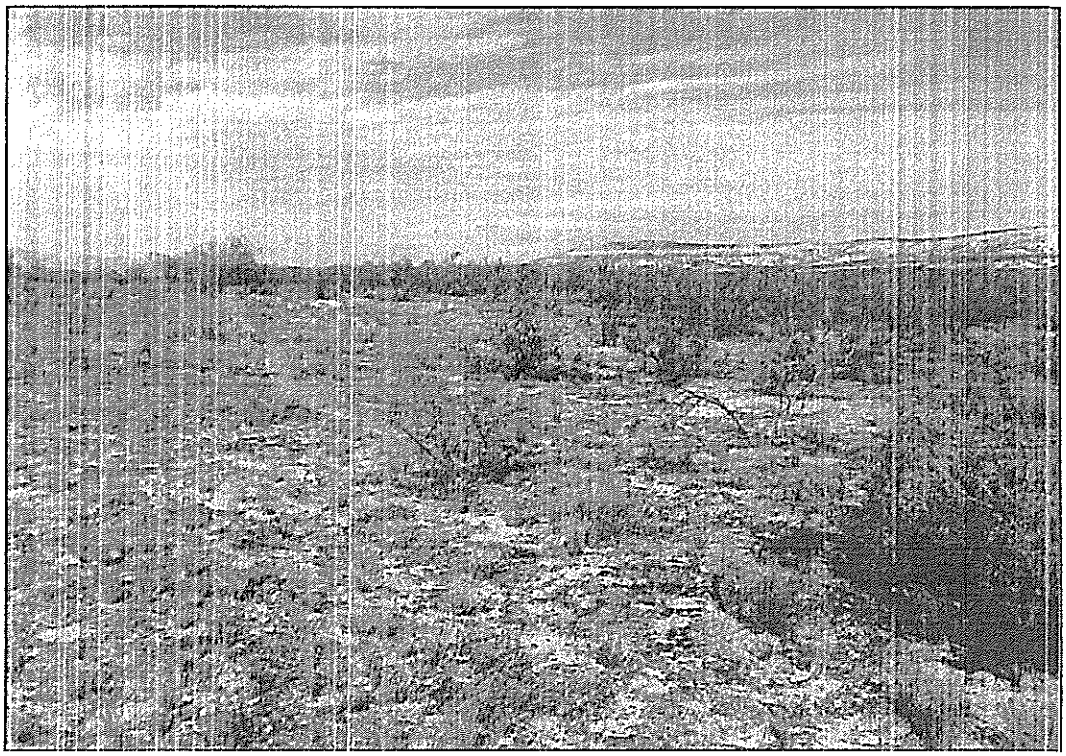

Photo 2. Project area, view to the northwest.

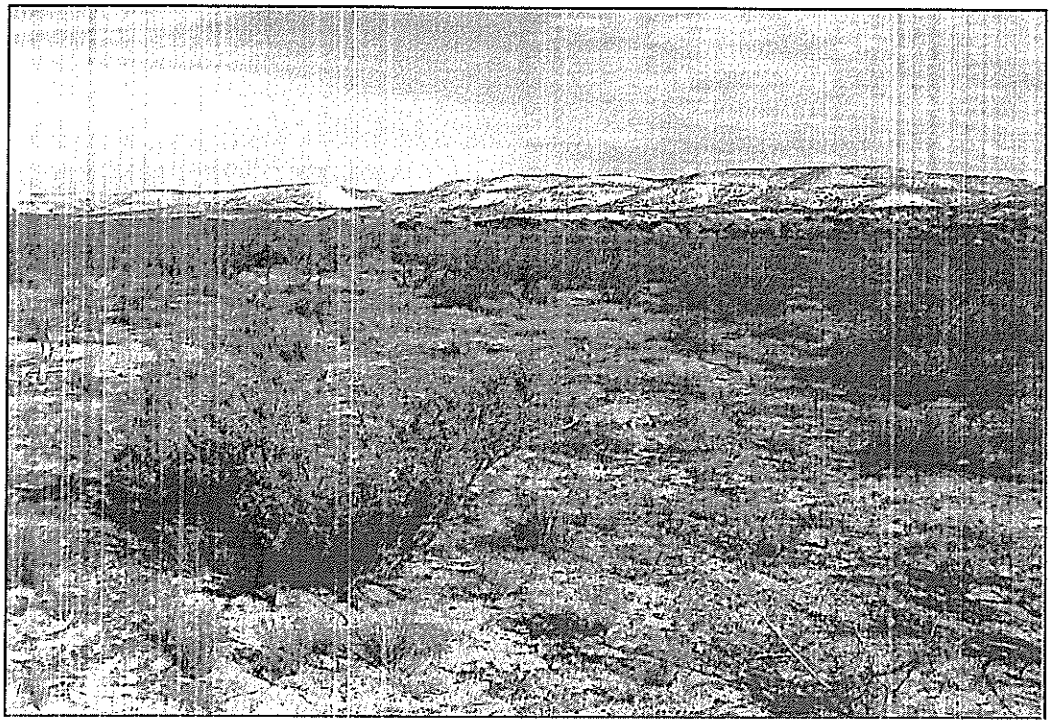

Photo 3. Representative vegetation in the project area.

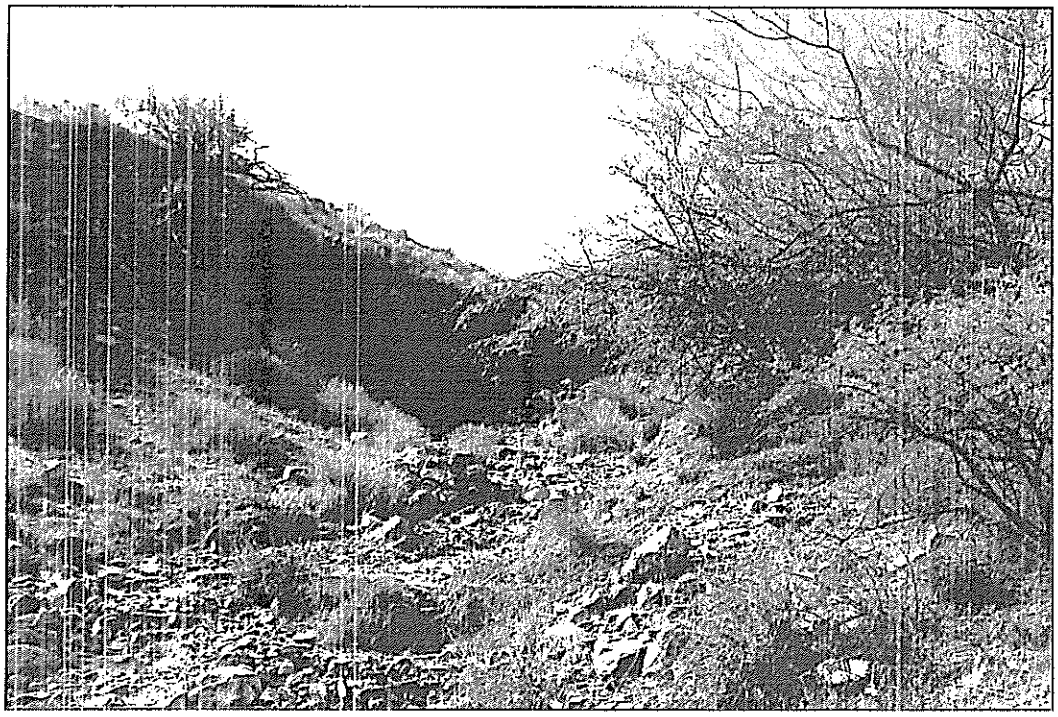

Photo 4. Drainage on the east side of the project area, near the Verde River.

EnviroSystems Management, Inc.

Environmental Planning • Regulatory Compliance

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www.esmaz.com

Transmittal

To: Mr. Ed Davidson	**From: Suzanne Rhodes**
Phone: (928) 567-3109	**Date:** November 30, 2004
Subject: Yavapai-Apache Sand and Rock Biological Evaluation in support of 404 permitting	**CC: Jim Binick**

☐ **For review** ☑ **For your information** ☐ **For distribution**

• **Comments:** Enclosed is one copy of the Yavapai-Apache Sand and Rock Biological Evaluation. I sent a separate copy of the report and a copy of the invoice to Jim Binick of Shephard-Wesnitzer to support the 404 permitting. If you have any questions please contact me at EnviroSystems Management, Inc. or srhodes@esm.com