

**BIOLOGICAL EVALUATION  
FOR THE PROPOSED SKUNK CAMP  
TAILINGS STORAGE FACILITY,  
GILA AND PINAL COUNTIES, ARIZONA**  
Resolution Copper



102 Magma Heights – Superior, Arizona 85173

Project Number: 807.141 02 04

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WestLand Resources

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## I. INTRODUCTION AND BACKGROUND

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper (Resolution) to conduct a Biological Evaluation (BE) in support of evaluating an alternative tailings storage facility (TSF; the Project) located southeast of Superior and north of Kearny, Pinal County, Arizona (**Figure 1**). The purpose of this BE is to perform a screening analysis to determine the occurrence or potential to occur of special-status species and/or designated or proposed critical habitat in the proposed Project Area or its vicinity. The special-status species, for the purpose of this report, includes species listed under the Endangered Species Act (ESA) or Bald and Golden Eagle Protection Act (BGA) by the U.S. Fish and Wildlife Service (USFWS) that have the potential to occur in the Project Area (**Appendix A**).

Details of the Project are provided in the following sections: description and location of the Project (**Section 2**), environmental setting of the Project Area (**Section 3**), special-status species screening analysis methods (**Section 4**), results of the analysis (**Section 5**), and references cited in the text (**Section 6**).

## 2. PROJECT LOCATION AND DESCRIPTION

The Project is described as follows regarding its location, area, and description. The Project is located approximately 8 miles north of Kearny on the border of Pinal and Gila counties, within portions of Sections 33-35 of Township 2 South, Range 14 East, portions of Sections 1-4, 8-12, 14-16, and 22 of Township 3 South, Range 14 East, of the Gila and Salt River Baseline and Meridian (the Project Area). The Project Area is approximately 4,137 acres and is composed of lands administered by ASLD (2,551 acres) and private lands (1,587 acres) (**Figure 2**).

The Project would occupy the upper portion of Dripping Spring Valley, northeastern slopes and foothills of the Dripping Spring Mountains, and southwestern foothills of the Pinal Mountains including a 4-mile reach of Dripping Spring Wash, a 3.5-mile reach of Stone Cabin Wash, and a 4.8-mile reach of Skunk Camp Wash (**Figure 2**).

The Project is a thickened slurry tailings storage facility. The thickened slurry would be piped from Resolution's West Plant Site near Superior to the Project Area.

## 3. ENVIRONMENTAL SETTING OF THE PROJECT AREA

The Project Area is described as follows regarding its location, land uses and physical and biological resources.

### 3.1. LAND USE

The Project Area consists of both disturbed and undisturbed lands. Disturbance is most evident along existing roadways that currently appear to be used mainly for recreation, residential access, and grazing activities. The main roads within the Project Area include North Dripping Springs and East Looney Springs Trail. Several off-road vehicle roads (aka “jeep trails”) are found throughout valley bottoms and along ridges within the Project Area. Numerous pullout areas are found along the roadways, generally in flat areas. The majority of the Project Area contains terrain that remains relatively undisturbed.

### 3.2. PHYSICAL FEATURES

The Project Area is located in a mountainous region that is transitional to the Central Highlands which border the Colorado Plateau and the Basin and Range physiographic provinces (Ffolliott 1999). Elevations range from approximately 3,074 feet (ft) above mean sea level (amsl) in the valley floor to approximately 3,730 ft amsl in the northeastern slopes of the Dripping Spring Mountains. Topography is dominated on the southwest side by dendric drainages cut into the moderately steep mountain slopes and on the northeast side by north trending pediments and intervening linear drainages.

Surficial geology within the Project Area includes Miocene and Pliocene conglomerate overlain by Pleistocene and Holocene surficial deposits on ridges and pediments. Quaternary alluvial deposits occur on the floors of Dripping Spring, Stone Cabin, and Skunk Camp washes. A fault runs the length of Dripping Spring Wash (Cornwall, Banks, and Phillips 1971).

Soils within the Project Area are predominately Bodecker-Riverwash Complex (0-5% slopes), and Whitehouse Stronghold Complex (5-60%) within Dripping Spring Wash, and Chiricahua-deloro-leyte soils along the western portions (10-50%) (Soil Survey Staff 2018).

### 3.3. SURFACE WATER FEATURES

The Project Area is located within the Middle Gila watershed, approximately 5 miles northwest of the Gila River (**Figure 1**). There is no perennial surface water flow in the Project Area, but surface water from runoff events flows in ephemeral washes towards the southeast, discharging into the Gila River. The Gila River has highly variable flow and is dependent on upstream releases from Coolidge Dam, flows from tributaries, including the San Pedro River (downstream of Coolidge Dam), and precipitation in the area (BOR 2010).

Major drainages in the Project Area include Dripping Spring, Stone Cabin, and Skunk Camp washes (**Figure 2**). One spring, Haley Spring, is mapped at the edge of the Project Area, as well as five named and unnamed earthen tanks including Lookout and Ord. Additional springs (Chimney, Indian, Looney, Stone Cabin, Stone Cabin Box, and Woodchopper springs) and earthen tanks (Cottonwood and Big tanks) are mapped in the immediate vicinity of the Project Area.



Wetland features were identified using USFWS National Wetlands Inventory Wetlands Mapper (<https://www.fws.gov/wetlands/Data/Mapper.html> [updated 2018]). There are 18 wetlands that intersect, 7 that are described as freshwater ponds, and 11 labeled as riverine within the Project Area. Desktop review of these areas suggest that these sites are not necessarily wetlands and are likely buffers around known drainages or potentially stock tanks.

### 3.4. VEGETATION

Based on the broad scale biotic community mapping of Brown and Lowe (1980), the majority of the Project Area is mapped as Semidesert Grassland (northern, central, and southern portions), followed by Interior Chaparral (western portion), and Arizona Upland Subdivision of Sonoran Desertscrub (southeastern portion) (Brown 1994). Vegetation typical of Semidesert Grasslands include mesquite (*Prosopis* spp.), oaks (*Quercus* spp.), yucca (*Yucca* spp.), prickly pear (*Opuntia* spp.), agave (*Agave* spp.), and a variety of grasses (Brown 1994). Interior Chaparral plant species (Pase and Brown 1994) include scrub live oak (*Quercus turbinella*), crucifixion thorn (*Canotia holacantha*), skunkbush (*Rhus trilobata*), desert ceanothus (*Ceanothus greggii*), mountain mahogany (*Cercocarpus* spp.), catclaw mimosa (*Mimosa aculeaticarpa*) and barberry (*Berberis* sp.) (Brown 1994). Plants typical of Arizona Upland Subdivision of the Sonoran Desertscrub community include saguaro (*Carnegiea gigantea*), paloverde (*Parkinsonia* spp.), jojoba (*Simmondsia chinensis*), and occasional crucifixion thorn (*Canotia holacantha*) (Brown 1994).

## 4. SPECIAL-STATUS SPECIES SCREENING ANALYSIS METHODS

### 4.1. SPECIAL-STATUS SPECIES IDENTIFICATION

Special-status species for the purpose of this report includes:

- 1) Species listed by the USFWS under the ESA that have been identified by the USFWS Arizona Ecological Service Field Office through the Information, Planning, and Conservation System (IPaC)<sup>1</sup> online query (**Appendix A**).
- 2) Species protected under the Bald and Golden Eagle Protection Act (BGA) that have been recorded within 5 miles of the Project Area and identified by the Arizona Game & Fish Department (AGFD) Heritage Database Management System (HDMS) online environmental review tool query (**Appendix B**).

The USFWS IPAC tool was used to identify USFWS special-status species that have some potential to occur within the Project Area or vicinity<sup>1</sup>, as well as to identify whether designated or proposed critical habitat occurs within or in the vicinity of the Project Area (**Appendix A**). USFWS

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<sup>1</sup> The IPaC list identifies special-status species and designated and proposed critical habitat that *may* occur within one or more delineated United States Geological Survey 7.5-minute quadrangles that the Project Area intersects (**Appendix A**).

special-status species included in this analysis are species that are listed as endangered, threatened, proposed for listing, candidates for listing, and experimental non-essential populations.

The AGFD HDMS online environmental review tool query was used to identify records of special-status species within 5 miles of the Project Area (**Appendix B**).

#### 4.2. SPECIAL STATUS SPECIES SCREENING

Based on the special-status species lists generated from the above sources, a screening analysis was performed to evaluate the potential for special-status species or designated or proposed critical habitat to occur within the Project Area. Determinations of the potential for special status species or designated or proposed critical habitat to occur in the Project Area were based on:

- Examination of the natural history and known geographical and elevational ranges of special-status species;
- Results of an AGFD HDMS online environmental review tool query, which provided records of special-status species within 5 miles of the Project Area (**Appendix B**);
- Review of other occurrence records in published or grey literature<sup>2</sup>; and
- Comparisons of this information with the habitats present in the Project Area

The criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

- **Present:** The species has been observed to occur in the Project Area based on known records, the Project Area is within the known range of the species, and habitat characteristics required by the species are known to be present.
- **Possible:** The species has not been observed in the Project Area based on known records, but the known, current distribution of the species includes the Project Area, and the required habitat characteristics of the species appear to be present in the Project Area.
- **Unlikely:** The known, current distribution of the species does not include the Project Area, but the distribution of the species is close enough such that the Project Area may be within the dispersal or foraging distance of the species. The habitat characteristics required by the species may be present in the Project Area.
- **None:** The Project Area is outside of the known distribution of the species, and/or the habitat characteristics required by the species are not present.

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<sup>2</sup> Grey literature includes documents that are not controlled by commercial publishers such as technical reports produced by government agencies, academic institutions, scientific research groups, or private industry (e.g., AGFD unpublished species abstracts and maps).

### 4.3. SURVEYS WITHIN THE PROJECT AREA

WestLand is not aware of species-specific surveys within the Project Area.

## 5. SPECIAL-STATUS SPECIES SCREENING ANALYSIS

Results from the IPaC query (**Appendix A**) and HDMS query (**Appendix B**) yielded eight USFWS special-status species with some potential to occur in the Project Area or its vicinity. There is no designated or proposed critical habitat within the Project Area, but HDMS records indicate that there is designated critical habitat for the southwestern willow flycatcher (SWFL; *Empidonax traillii extimus*), Gila chub (*Gila intermedia*), and Mexican spotted owl (*Strix occidentalis lucida*), and proposed critical habitat for yellow-billed cuckoo (YBC; *Coccyzus americanus*) within 5 miles of the Project Area (**Appendix B**). Based on this screening analysis, the potential for the eight special-status ESA-listed species to occur within the Project Area are as follows:

- Possible – threatened western Distinct Population Segment (DSP) of yellow-billed cuckoo;
- Possible – Golden eagle (*Aquila chrysaetos*);
- Unlikely – endangered Gila chub (*Gila intermedia*);
- None – endangered Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*);
- None – threatened Northern Mexican gartersnake (*Thamnophis eques megalops*);
- None – endangered southwestern willow flycatcher;
- None – experimental non-essential gray wolf (*Canis lupus*); and
- None – endangered ocelot (*Leopardus [Felis] pardalis*).

The basis of determination of each species' potential to occur within the Project Area is provided in **Table 1**. The two species that could possibly occur are discussed further in **Sections 5.1.1** through **5.1.2**.

**Table I. Screening Analysis: Potential for Occurrence of Special Status Species within the Project Area**

Species	USFWS Status	Potential to Occur in the Project Area	Habitat and Range
<b>P L A N T S</b>			
<b>Arizona Hedgehog Cactus</b> ( <i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i> )	Endangered	None	Occupies rugged steep-walled canyons, boulder-pile ridges and slopes in Interior Chaparral and Madrean Evergreen Woodland and desert grasslands at elevations between 3,300 and 5,700 ft (AGFD 2003). Suitable substrate includes bedrock open slopes where individuals occur in cracks and crevices and between boulders on stable rock formations such as Apache Leap Tuff, Schultze Granite, Pinal Schist, and Pioneer Quartzite (TNF 2000). HDMS has an occurrence record for this species within 5 miles of the Project Area ( <b>Appendix B</b> ), however, the Project Area does not contain appropriate habitat geologic substrates, and the Project Area is outside of the predicted habitat for this species (Baker 2013).
<b>F I S H</b>			
<b>Gila Chub</b> ( <i>Gila intermedia</i> )	Endangered	Unlikely	This fish occupies pools, springs, backwaters and streams at elevations between 2,000 and 5,500 ft (USFWS 2017, 2015). Endemic to the Gila River basin in southwestern New Mexico, central and southeastern Arizona (USFWS 2017). Normally found in smaller headwater streams, cienegas, springs, or marshes (AGFD 2015). Known to occur in marginal sites (refuges), and likes permanent sites such as seeps and springs (AGFD 2015).  HDMS has critical habitat and records of this species within 5 miles of the Project Area ( <b>Appendix B</b> ), and the critical habitat occurs on three sides of the Project Area (USFWS 2018). There is one spring, Haley Spring, mapped within the Project Area that has not been verified. There are no other springs, seeps, or marshes mapped in the Project Area and surface water otherwise occurs in the form of isolated earthen stock tanks and ephemeral washes.
<b>R E P T I L E S</b>			
<b>Northern Mexican gartersnake</b> ( <i>Thamnophis eques megalops</i> )	Threatened	None	Inhabits densely vegetated habitats along perennial aquatic environments (e.g., streams, cienegas, and occasionally stock tanks) from 3,000 to 5,000 ft. Occurs within the middle/upper Verde River drainage and middle/lower Tonto Creek in central Arizona, and Cienega Creek and isolated wetlands in southeast Arizona (USFWS 2014c; AGFD 2012).  Project Area is outside the known geographic range of this species. There are no HDMS occurrence records within 5 miles of the Project Area ( <b>Appendix B</b> ).

**Table I. Screening Analysis: Potential for Occurrence of Special Status Species within the Project Area**

Species	USFWS Status	Potential to Occur in the Project Area	Habitat and Range
<b>B I R D S</b>			
<b>Yellow-billed Cuckoo</b> (YBC; <i>Coccyzus americanus</i> ), western DPS	Threatened	Possible	<p>In Arizona, most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant, but also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite. Dense understory foliage is an important factor for nesting (Halterman et al. 2015; USFWS 2014b), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (WestLand 2013). Occurs throughout Arizona.</p> <p>HDMS has records of this species within 5 miles of the Project Area (<b>Appendix B</b>). Areas with numerous trees are present along portions of the Project Area including north facing slopes and canyon bottoms within segments of Dripping Spring, Skunk Camp, and Stone Cabin washes.</p>
<b>Southwestern Willow Flycatcher</b> ( <i>Empidonax traillii extimus</i> )	Endangered	None	<p>Inhabits cottonwood/willow and/or tamarisk riparian communities along rivers and streams. It nests and forages where relatively dense and expansive growths of trees and shrubs are established, near or adjacent to surface water or underlain by saturated soil (AGFD 2002). In Arizona, this species breeds very locally along dynamic riparian systems, including the middle Gila, Salt, Verde, San Pedro, and San Francisco rivers (USFWS 2013a).</p> <p>HDMS has records of this species within 5 miles of the Project Area (<b>Appendix B</b>). However, the Project Area does not contain perennial streams.</p>
<b>Golden Eagle</b> ( <i>Aquila chrysaetos</i> )	Bald and Golden Eagle Protection Act	Possible	<p>Inhabits pinyon pine-juniper woodlands, Sonoran desertscrub, Madrean evergreen oak woodlands, semiarid grasslands, chaparral, and landscapes dominated by big sagebrush. Constructs its nest in areas with little to no human activity, in tall trees, cliffs, canyon, or rock ledges (Corman and Wise-Gervais 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Kochert et al. 2002). A fairly common resident in appropriate habitat throughout the state (Corman and Wise-Gervais 2005).</p> <p>HDMS has records of this species within 5 miles of the Project Area (<b>Appendix B</b>). The Project Area is within the geographic range and contains appropriate foraging habitat for the species.</p>

**Table I. Screening Analysis: Potential for Occurrence of Special Status Species within the Project Area**

Species	USFWS Status	Potential to Occur in the Project Area	Habitat and Range
<b>M A M M A L S</b>			
<b>Gray Wolf</b> ( <i>Canis lupus</i> )	Proposed Experimental Population, Non-essential	None	In Arizona, this mammal is known to inhabit evergreen pine-oak woodlands (i.e., Madrean woodlands), pinyon-juniper woodlands (i.e., Great Basin conifer forests), and mixed-conifer montane forests (i.e., Rocky Mountain, or Petran forests), but are unlikely to occur in desert habitats (BISON-M 2017; USFWS 2016). Habitat selection is associated with availability of sufficient prey populations, such as elk and deer. The Mexican Wolf Experimental Population Area extends from eastern New Mexico to western Arizona, and from I-40 south to the US-Mexican border (USFWS 2016). The Dispersal and Occupancy Zone is located east of State Highway 87, and extends from I-40 to the US-Arizona Border.  The Project Area is outside the known geographic range for this species. There are no HDMS occurrence records within 5 miles of the Project Area ( <b>Appendix B</b> ).
<b>Ocelot</b> ( <i>Leopardus [Felis] pardalis</i> )	Endangered	None	Occupies dense thickets that are almost impenetrable in chaparral and thornscrub (AGFD 2010). Established sightings in Arizona are rare for this species. A male was killed by a vehicle on US 60 between Globe and Superior in April 2010 (USFWS 2010). The Project Area is outside the known geographic range for the species. The known, current distribution of the species does not include the Project Area but the distribution of the species is close enough such that the Project Area may be within the dispersal distance of the species. There are no HDMS occurrence records within 5 miles of the Project Area ( <b>Appendix B</b> ).

**U.S. Fish & Wildlife Service Categories:**

**Endangered** – Taxon in danger of extinction throughout all, or a significant portion, of its range.

**Threatened** – Taxon likely to become endangered in the foreseeable future throughout all, or a significant portion, of its range.

**Bald and Golden Eagle Protection Act** – Controls the taking, possession, and transportation within the U.S. of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) and their parts, nests, and eggs for scientific, educational, and depredation control purposes.

### **5.1.1. Yellow-billed Cuckoo**

#### **5.1.1.1. Natural History and Range**

The Yellow-billed cuckoo is a habitat specialist that prefers continuous areas of dense riparian habitat dominated by native tree species, especially cottonwoods and willows, for breeding (Halterman et al. 2015). YBC require relatively large (greater than 50 acres), contiguous patches of multilayered riparian habitat for nesting. This species may also use mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquites (AGFD 2011). In Arizona, YBC is most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and saltcedar are dominant (USFWS 2013b) and areas of upland-associated vegetation along drainages dominated by oaks and junipers (WestLand 2013). Dense understory foliage is an important factor for nesting.

Within Arizona, this species ranges throughout the central and southern portions and the extreme northeastern corner of the state, usually at elevations of less than 6,600 ft (AGFD 2011). Cuckoos have been reported along the Gila and San Pedro Rivers in Pinal County, on Pinal Creek, Pinto Creek, Tonto Creek, and the Salt River in Gila County, and on the Salt and Verde Rivers in Maricopa County (AGFD 2011; Halterman et al. 2015).

In Arizona, nesting activities may begin in late May, but typically begin in mid-June and end in late August (Halterman et al. 2015).

#### **5.1.1.2. Taxonomy and Listing History**

The YBC is federally listed under the ESA as Threatened (USFWS 2014b). The USFWS recognizes the western population of YBC as a distinct population segment (DPS) inclusive of all breeding yellow-billed cuckoos west of the Rocky Mountains (USFWS 2001). The YBC is also a wildlife species of special concern in Arizona and a Tonto National Forest (TNF) sensitive species. There is no proposed YBC critical habitat within the Project Area (USFWS 2014a). The nearest proposed critical habitat unit to the Project Area is along Gila River, 6 miles (9.6 km) to the southwest (USFWS 2014a).

#### **5.1.1.3. Potential to Occur Within the Project Area**

The HDMS report (**Appendix B**) indicates at least one record of YBC occurrence and proposed critical habitat for this species within 5 miles of the Project Area. Vegetation within portions of the Project Area appears to be moderately dense based on review of aerial imagery; however, most of the site remains relatively open. This suggests that the relatively sparse canopy coverage and density throughout the majority of the Project Area does not provide breeding habitat for this bird, but it does provide some potential for YBC foraging. It is also possible that migrating YBC could occur as transients in the Project Area during fall and spring migration.

The potential for this species to occur in the Project Area is possible.

### **5.1.2. Golden Eagle**

#### **5.1.2.1. Natural History and Range**

The Golden Eagle lives in open and semi-open country featuring native vegetation across most of the Northern Hemisphere. They are found primarily in mountains up to 12,000 ft, and in canyonlands, rimrock terrain, and riverside cliffs and bluffs. Golden Eagles nest on cliffs and steep escarpments that afford an unobstructed view of the surrounding habitat in grassland, chaparral, shrubland, forest, and other vegetation. The nests are constructed to create strong, flat or bowl-shaped platforms (Kochert et al. 2002; Sibley 2003).

The Golden Eagle preys mainly on small- to medium-sized mammals, including hares, rabbits, ground squirrels, prairie dogs, and marmots. Black-tailed jackrabbits are a key prey species throughout much of their range. Mated pairs hunt jackrabbits cooperatively during breeding season—one eagle diverting the animal's attention while the second makes the kill. These eagles are also capable of taking larger bird and mammal prey. In addition to live prey, Golden Eagles often feed on carrion, following crows and other scavengers to a meal. In addition to attacking prey from the air, Golden Eagles sometimes hunt on the ground, wildly flapping as they run (Corman and Wise-Gervais 2005; Tesky 1994).

#### **5.1.2.2. Listing Status**

In 1962, the BGA (16 U.S.C. 668-668d) outlawed harming these birds, their eggs, and their nests. Golden Eagles were removed from the federal list of threatened and endangered species in 2007, however, they remain protected under the BGA and the Migratory Bird Treaty Act (16 U.S.C. §§ 703-712).

#### **5.1.2.3. Potential to Occur Within the Project Area**

Portions of the Project Area include potential foraging and roosting habitat. The HDMS report (**Appendix B**) indicates a record of Golden Eagle within 5 miles of the Project Area.

The potential for this species to occur in the Project Area is possible.



## 6. REFERENCES

- Arizona Game and Fish Department. 2002. “Southwestern Willow Flycatcher (*Empidonax Traillii Extimus*) Draft.” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.
- \_\_\_\_\_. 2003. “Arizona Hedgehog Cactus (*Echinocereus Triglochidiatus* Var. *Arizonicus*).” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.  
[https://www.azgfd.gov/w\\_c/edits/documents/Echitrar.fo.pdf](https://www.azgfd.gov/w_c/edits/documents/Echitrar.fo.pdf).
- \_\_\_\_\_. 2010. “Ocelot (*Leopardus Pardalis*) Draft.” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.
- \_\_\_\_\_. 2011. “Yellow-Billed Cuckoo (*Coccyzus Americanus*).” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.
- \_\_\_\_\_. 2012. “Northern Mexican Gartersnake (*Thamnophis Eques Megalops*).” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.
- \_\_\_\_\_. 2015. “Headwater Chub (*Gila Nigra*).” *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department.
- Baker, M.A. 2013. “Draft Recovery Plan for *Echinocereus Arizonicus* Subsp. *Arizonicus* (Arizona Hedgehog Cactus).” *Prepared for the US Fish and Wildlife Service*.
- BISON-M. 2017. “Mexican Gray Wolf (*Canis Lupus Baileyi*).” *Biotic Information System of New Mexico*.  
<http://www.bison-m.org/booklet.aspx?id=050866>.
- Brown, D. E. 1994. *Biotic Communities – Southwestern United States and Northwestern Mexico*. Salt Lake City: University of Utah Press. Salt Lake City, Utah: University of Utah Press.
- Brown, D. E., and C. Lowe. 1980. “Biotic Communities of the Southwest [Map].” *General Technical Report RM-78*. Fort Collins, Colorado: Reprinted (and revised) 1994 by University of Utah Press, Salt Lake City.
- Bureau of Reclamation. 2010. “Final Environmental Assessment - Finding of No Significant Impact, Phase I Rehabilitation San Carlos Irrigation Project Facilities Pinal County, Arizona.” *Reclamation Managing Water in the West*. Phoenix, Arizona: U.S. Department of the Interior.
- Corman, T.E., and Cathryn Wise-Gervais. 2005. *Arizona Breeding Bird Atlas*. Albuquerque, New Mexico: University of New Mexico Press.
- Cornwall, H.R., N.G. Banks, and C.H. Phillips. 1971. “Geologic Map of the Sonora Quadrangle, Pinal and Gila Counties, Arizona.” *U.S. Geological Survey*. U.S. Department of the Interior.

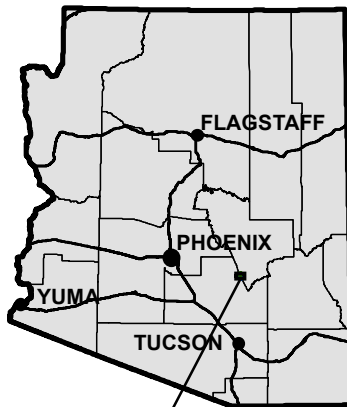
- Ffolliott, P.F. 1999. "Central Arizona Highlands." In *History of Watershed Research in the Central Arizona Highlands*, edited by M.B. Baker, Jr., 1–6. Fort Collins, Colorado: U.S. Forest Service, Rocky Mountain Research Station General Technical Report RMRS-GTR-29.
- Halterman, M.D., M.J. Johnson, J.A. Holmes, and S.A. Laymon. 2015. "A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-Billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods." Final Draft.
- Kochert, M. N., K. Steenhof, C. L. McIntyre, and E. H. Craig. 2002. "Golden Eagle (*Aquila Chrysaetos*)." *The Birds of North America Online*. Ithaca: Cornell Lab of Ornithology.
- Pase, C., and D. E. Brown. 1994. "Interior Chaparral." In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by D. E. Brown, 95–99. Salt Lake City, Utah: University of Utah Press.
- Sibley, D. 2003. *The Sibley Field Guide to Birds of Western North America*. 1st ed. Knopf.
- Soil Survey Staff. 2018. "Web Soil Survey." *Natural Resources Conservation Service, United States Department of Agriculture, Available Online*. Natural Resources Conservation Service, U.S. Department of Agriculture. <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.
- Tesky, Julie L. 1994. "*Aquila Chrysaetos*." In: *Fire Effects Information System, [Online]*. Rocky Mountain Research Station, Fire Sciences Laboratory: U.S. Department of Agriculture, Forest Service.
- Tonto National Forest. 2000. "Tonto National Forest Threatened, Endangered, and Sensitive (TES) Species 2000 Draft Abstracts." *U.S. Forest Service*. U.S. Department of Agriculture. [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fsbdev3\\_018579.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_018579.pdf).
- U.S. Fish and Wildlife Service. 2001. "Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Yellow-Billed Cuckoo (*Coccyzus Americanus*) in the Western Continental United States." *Federal Register* 66 (143). U.S. Fish and Wildlife Service: 38611–26. <https://www.gpo.gov/fdsys/pkg/FR-2001-07-25/pdf/01-18560.pdf#page=1>.
- \_\_\_\_\_. 2010. "Draft Ocelot (*Leopardus Pardalis*) Recovery Plan, First Revision." Albuquerque, New Mexico: U.S. Fish and Wildlife Service, Southwest Region.
- \_\_\_\_\_. 2013a. "Endangered and Threatened Wildlife and Plants, Designation of Critical Habitat for Southwestern Willow Flycatcher, Final Rule." *Federal Register* 78 (2): 344–534.
- \_\_\_\_\_. 2013b. "Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-Billed Cuckoo (*Coccyzus Americanus*); Proposed Rule." *Federal Register* 78 (192): 61622–66.
- \_\_\_\_\_. 2014a. "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule." *Federal Register* 79 (158): 48548–48652. <https://www.gpo.gov/fdsys/pkg/FR-2014-08-15/pdf/2014-19178.pdf>.

- \_\_\_\_\_. 2014b. “Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-Billed Cuckoo (*Coccyzus Americanus*); Final Rule.” *Federal Register* 79 (192). U.S. Fish and Wildlife Service: 59992–60038. doi:10.4135/9781452218564.n218.
- \_\_\_\_\_. 2014c. “Endangered and Threatened Wildlife and Plants; Threatened Status for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake; Final Rule.” *Federal Register* 79 (130): 38678–746.
- \_\_\_\_\_. 2015. “Gila Chub (*Gila Intermedia*) Draft Recovery Plan.” Albuquerque, New Mexico: U.S. Fish and Wildlife Service, Southwest Region.  
[https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/GilaChub/GilaChub\\_DraftRecoveryPlan\\_Final\\_October2014.pdf](https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/GilaChub/GilaChub_DraftRecoveryPlan_Final_October2014.pdf).
- \_\_\_\_\_. 2016. “Species Profile for Gray Wolf (*Canis Lupus*).” *Environmental Conservation Online System*. U.S. Fish and Wildlife Service.  
<https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A00D>.
- \_\_\_\_\_. 2017. “Critical Habitat for Threatened & Endangered Species [USFWS].” *USFWS ArcGIS Online*. U.S. Fish and Wildlife Service.  
<https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77>.
- \_\_\_\_\_. 2018. “Critical Habitat Portal.” U.S. Fish and Wildlife Service.
- WestLand Resources. 2013. “Comments on the 2013 Proposal by U.S. Fish and Wildlife Service to List the Western Distinct Population Segment of the Yellow-Billed Cuckoo (*Coccyzus Americanus*) as Threatened.” *Prepared for the Arizona Mining Association*. Tucson, Arizona: WestLand Resources, Inc.

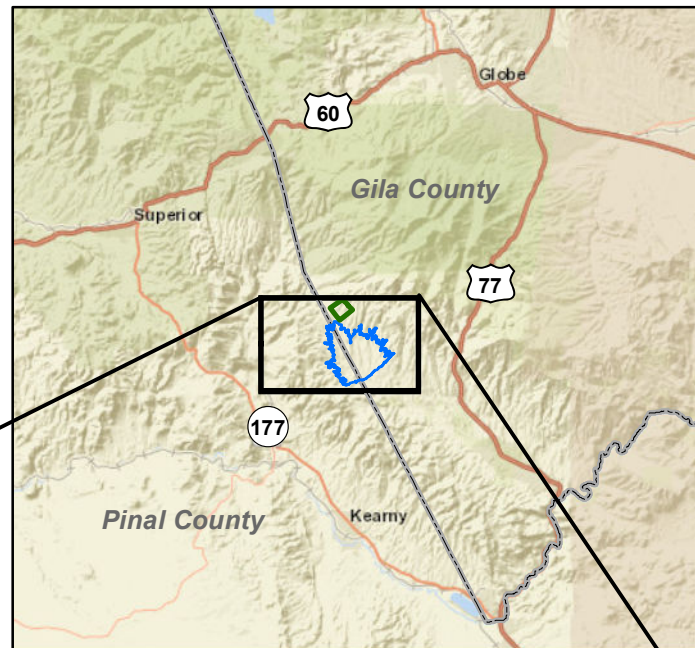
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# FIGURES

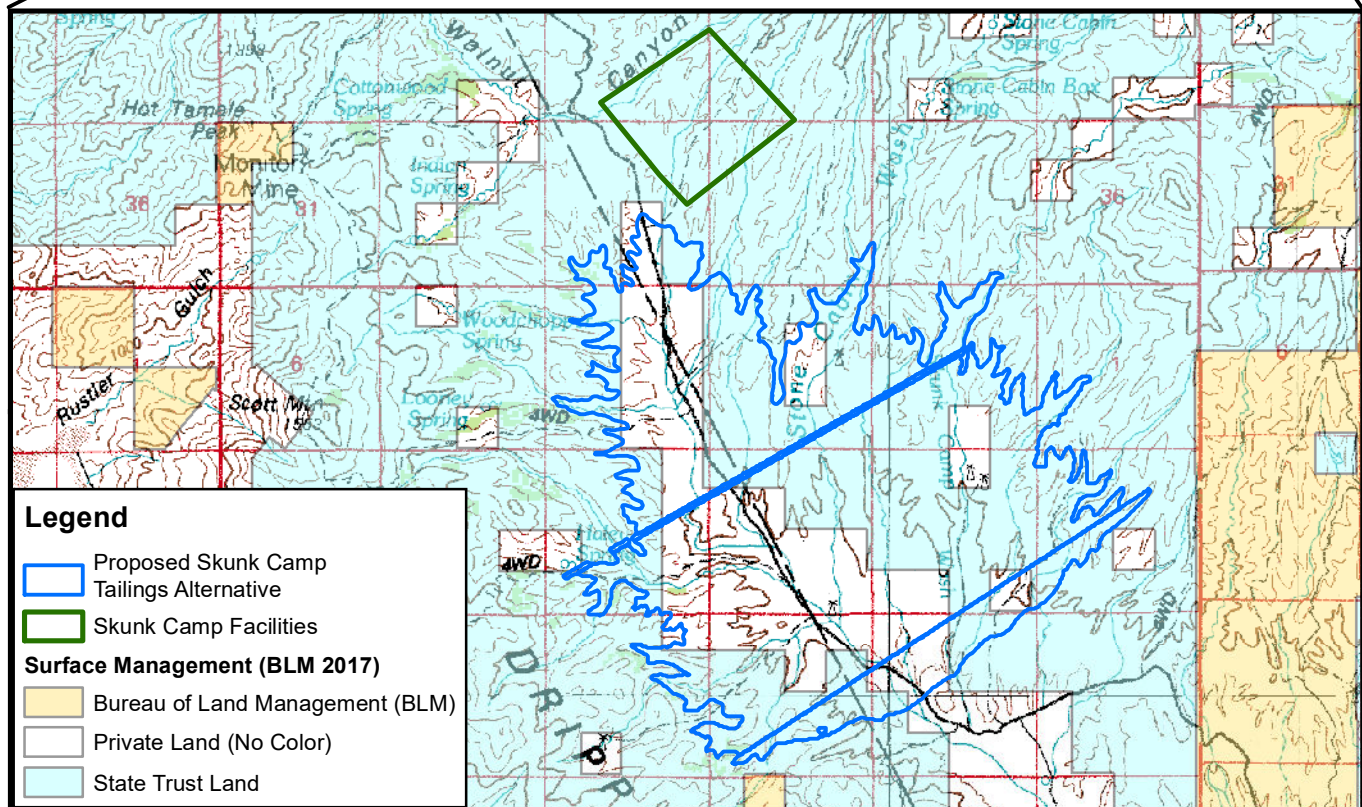
## ARIZONA

PROJECT  
LOCATION

## PROJECT VICINITY



Approximate Scale 1 Inch = 10 Miles



T2S, R14E, Portions of Sections 27, 28, and 33-35,  
T3S, R14E, Portions of Sections 1-4, 9-12, and 14-16,  
Gila and Pinal Counties, Arizona,  
Globe USGS 1:100,000 Quadrangle  
Image Source: ArcGIS Online World Street Map

## RESOLUTION COPPER

### Biological Evaluation For The Skunk Camp Tailings Storage Facility

VICINITY MAP

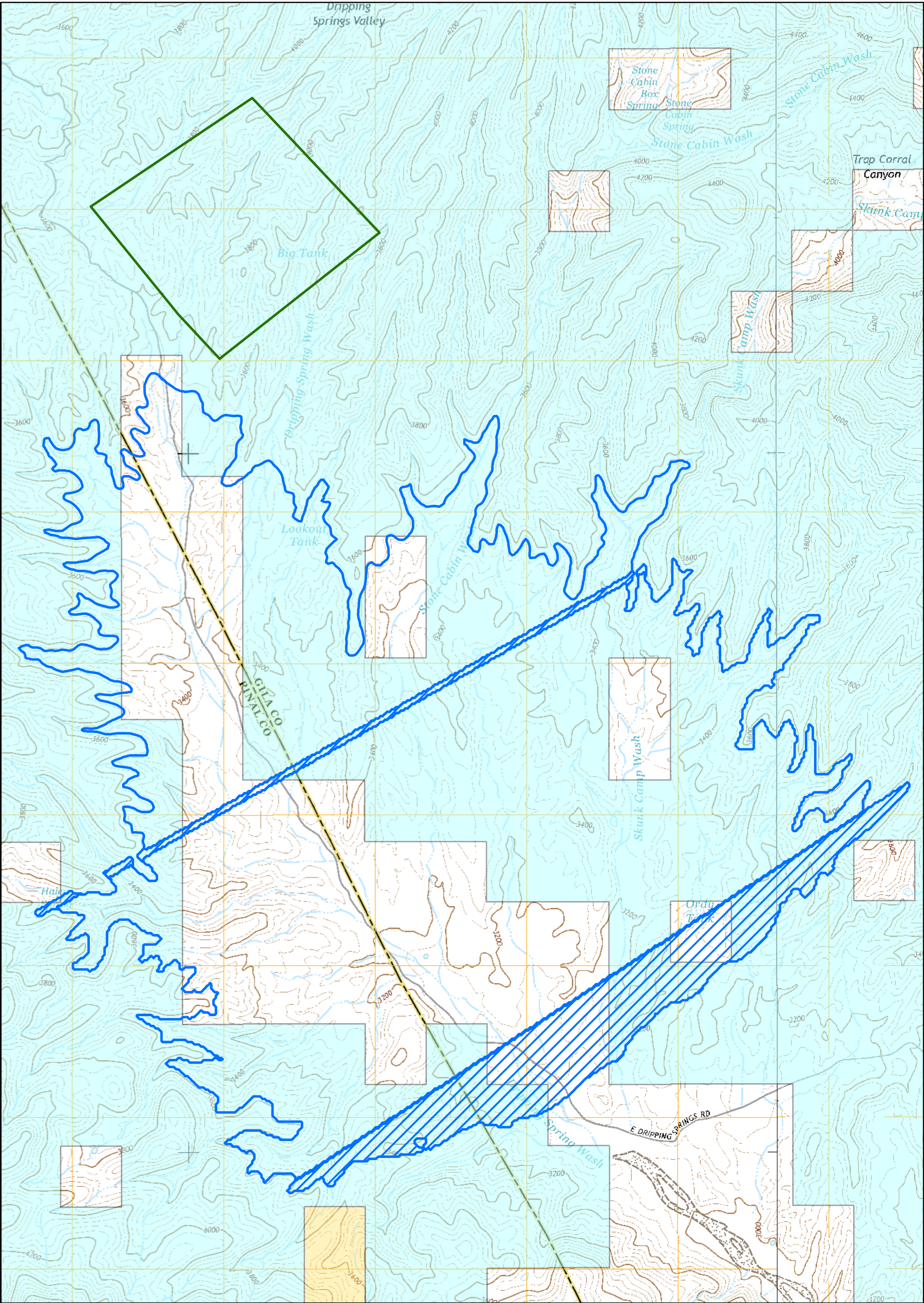
Figure 1

WestLand Resources



0 3,100 6,200 Feet  
0 1,000 2,000 Meters





T2S, R14E, Portions of Sections 27, 28, and 33-35,  
T3S, R14E, Portions of Sections 1-4, 9-12, and 14-16,  
Gila and Pinal Counties, Arizona,  
El Capitan Mountain and Hot Tamale Peak USGS 7.5' Quadrangles (2014)



WestLand Resources

N

01,0002,000

Feet

0300600

Meters

Legend

- Proposed Skunk Camp  
Tailings Alternative
- Skunk Camp Dams
- Skunk Camp Facilities
- Surface Management (BLM 2017)
- Bureau of Land Management (BLM)
- Private Land (No Color)
- State Trust Land

RESOLUTION COPPER  
Biological Evaluation For The  
Skunk Camp Tailings Storage Facility

PROJECT AREA  
Figure 2



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## **APPENDIX A**

### **USFWS IPaC Online Query**



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Arizona Ecological Services Field Office  
9828 North 31st Ave

#c3

Phoenix, AZ 85051-2517

Phone: (602) 242-0210 Fax: (602) 242-2513

<http://www.fws.gov/southwest/es/arizona/>

[http://www.fws.gov/southwest/es/EndangeredSpecies\\_Main.html](http://www.fws.gov/southwest/es/EndangeredSpecies_Main.html)



In Reply Refer To:

April 18, 2018

Consultation Code: 02EAAZ00-2018-SLI-0725

Event Code: 02EAAZ00-2018-E-01644

Project Name: Skunk Camp TSF alternative

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that may occur within one or more delineated United States Geological Survey 7.5 minute quadrangles with which your project polygon intersects. Each quadrangle covers, at minimum, 49 square miles. In some cases, a species does not currently occur within a quadrangle but occurs nearby and could be affected by a project. Please refer to the species information links found at:

[http://www.fws.gov/southwest/es/arizona/Docs\\_Species.htm](http://www.fws.gov/southwest/es/arizona/Docs_Species.htm)

<http://www.fws.gov/southwest/es/arizona/Documents/MiscDocs/AZSpeciesReference.pdf>.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to consult with us if their projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, we recommend preparing a biological evaluation similar to a Biological Assessment to determine whether the project may



affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. You should request consultation with us even if only one individual or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream effects. If the Federal action agency determines that the action may jeopardize a proposed species or adversely modify proposed critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend considering them in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 et seq.). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1026 species of birds are protected by the MBTA, including species such as the western burrowing owl (*Athene cunicularia hypugea*). Protected western burrowing owls are often found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle (or golden eagle) nest occurs in or near the proposed project area, you should evaluate your project to determine whether it is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles:

<https://www.fws.gov/migratorybirds/pdf/management/nationalbaldeaglenanagementguidelines.pdf>

<https://www.fws.gov/birds/management/managed-species/eagle-management.php>.

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following: <https://www.fws.gov/birds/policies-and-regulations/incidental-take.php>. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital

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television, radio, and emergency broadcast) can be found at:  
<https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php>.

Activities that involve streams (including intermittent streams) and/or wetlands are regulated by the U.S. Army Corps of Engineers (Corps). We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program <https://www.azgfd.com/Wildlife/HeritageFund/>.

For additional communications regarding this project, please refer to the consultation Tracking Number in the header of this letter. We appreciate your concern for threatened and endangered species. If we may be of further assistance, please contact our following offices for projects in these areas:

Northern Arizona: Flagstaff Office 928/556-2001

Central Arizona: Phoenix office 602/242-0210

Southern Arizona: Tucson Office 520/670-6144

Sincerely,

/s/ Steven L. Spangle Field Supervisor

Attachment

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Arizona Ecological Services Field Office**

9828 North 31st Ave

#c3

Phoenix, AZ 85051-2517

(602) 242-0210

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## Project Summary

Consultation Code: 02EAAZ00-2018-SLI-0725

Event Code: 02EAAZ00-2018-E-01644

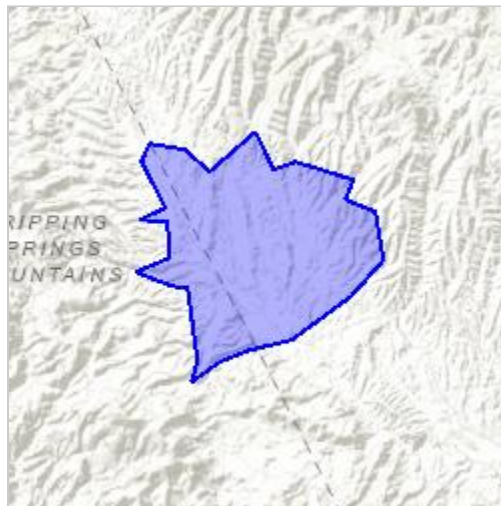
Project Name: Skunk Camp TSF alternative

Project Type: MINING

Project Description: Skunk Camp TSF alternative

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.183318155690046N110.89038819636917W>



Counties: Gila, AZ | Pinal, AZ

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## Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: Mexican gray wolf, EXPN population No critical habitat has been designated for this species.	Proposed Experimental Population, Non- Essential Endangered
Ocelot <i>Leopardus (=Felis) pardalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4474">https://ecos.fws.gov/ecp/species/4474</a>	

## Birds

NAME	STATUS
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a>	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

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## Reptiles

NAME	STATUS
Northern Mexican Gartersnake <i>Thamnophis eques megalops</i> There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/7655">https://ecos.fws.gov/ecp/species/7655</a>	Threatened

## Fishes

NAME	STATUS
Gila Chub <i>Gila intermedia</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/51">https://ecos.fws.gov/ecp/species/51</a>	Endangered

## Flowering Plants

NAME	STATUS
Arizona Hedgehog Cactus <i>Echinocereus triglochidiatus var. arizonicus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1702">https://ecos.fws.gov/ecp/species/1702</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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## **APPENDIX B**

### **AGFD HMDS Online Review**

# Arizona Environmental Online Review Tool Report



## *Arizona Game and Fish Department Mission*

*To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.*

**Project Name:**

Skunk Camp TSF

**Project Description:**

Skunk Camp TSF alternatives analysis

**Project Type:**

Mining, Extraction Other minerals (copper, limestone, cinders, shale, salt), Other minerals (copper, limestone, cinders, shale, salt)

**Contact Person:**

Gabrielle Diamond

**Organization:**

Private Consulting Firm

**On Behalf Of:**

CONSULTING

**Project ID:**

HGIS-07252

***Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.***



**Disclaimer:**

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is 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. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

**Locations Accuracy Disclaimer:**

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.



**Recommendations Disclaimer:**

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:  
**Project Evaluation Program, Habitat Branch**  
**Arizona Game and Fish Department**  
**5000 West Carefree Highway**  
**Phoenix, Arizona 85086-5000**  
**Phone Number: (623) 236-7600**  
**Fax Number: (623) 236-7366**  
**Or**  
[PEP@azgfd.gov](mailto:PEP@azgfd.gov)
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

## Skunk Camp TSF

### Aerial Image Basemap With Locator Map



-  Project Boundary
-  Buffered Project Boundary

Project Size (acres): 5,483.22

Lat/Long (DD): 33.1893 / -110.9013

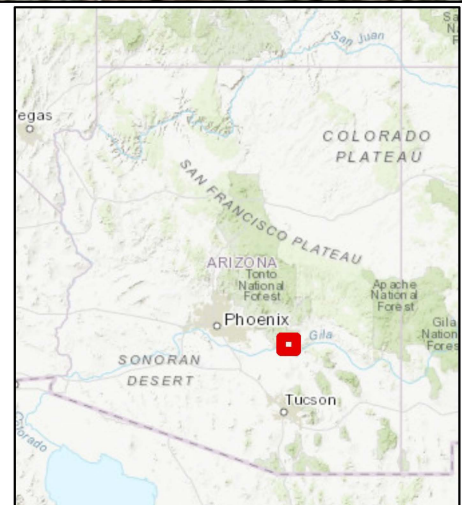
County(s): Gila; Pinal

AGFD Region(s): Mesa

Township/Range(s): T2S, R14E; T3S, R14E

USGS Quad(s): EL CAPITAN MOUNTAIN; HOT TAMALES PEAK

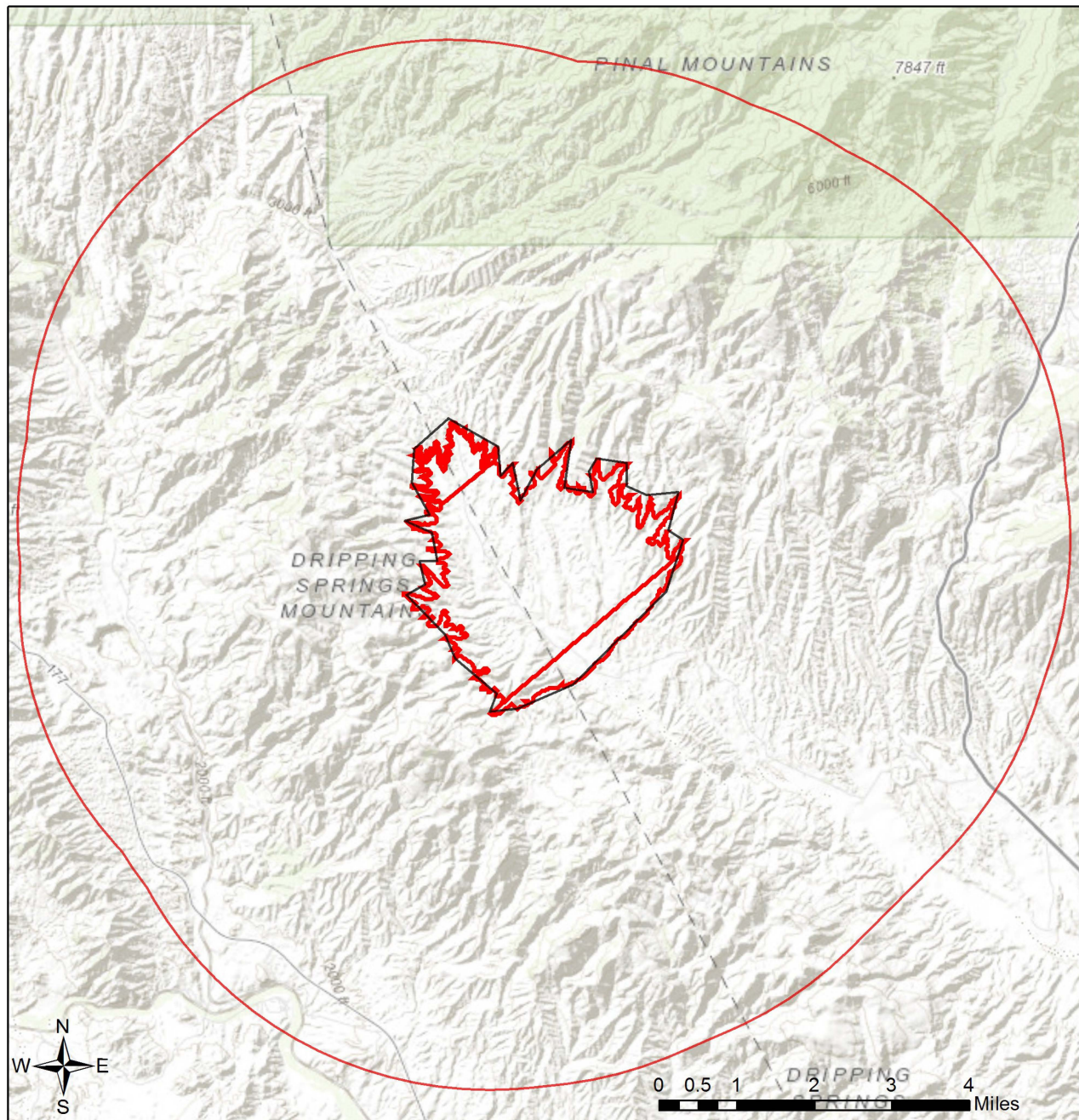
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, ©





## Skunk Camp TSF

### Web Map As Submitted By User



- ☐ Project Boundary
- ☒ Buffered Project Boundary

Project Size (acres): 5,483.22

Lat/Long (DD): 33.1893 / -110.9013

County(s): Gila; Pinal

AGFD Region(s): Mesa

Township/Range(s): T2S, R14E; T3S, R14E

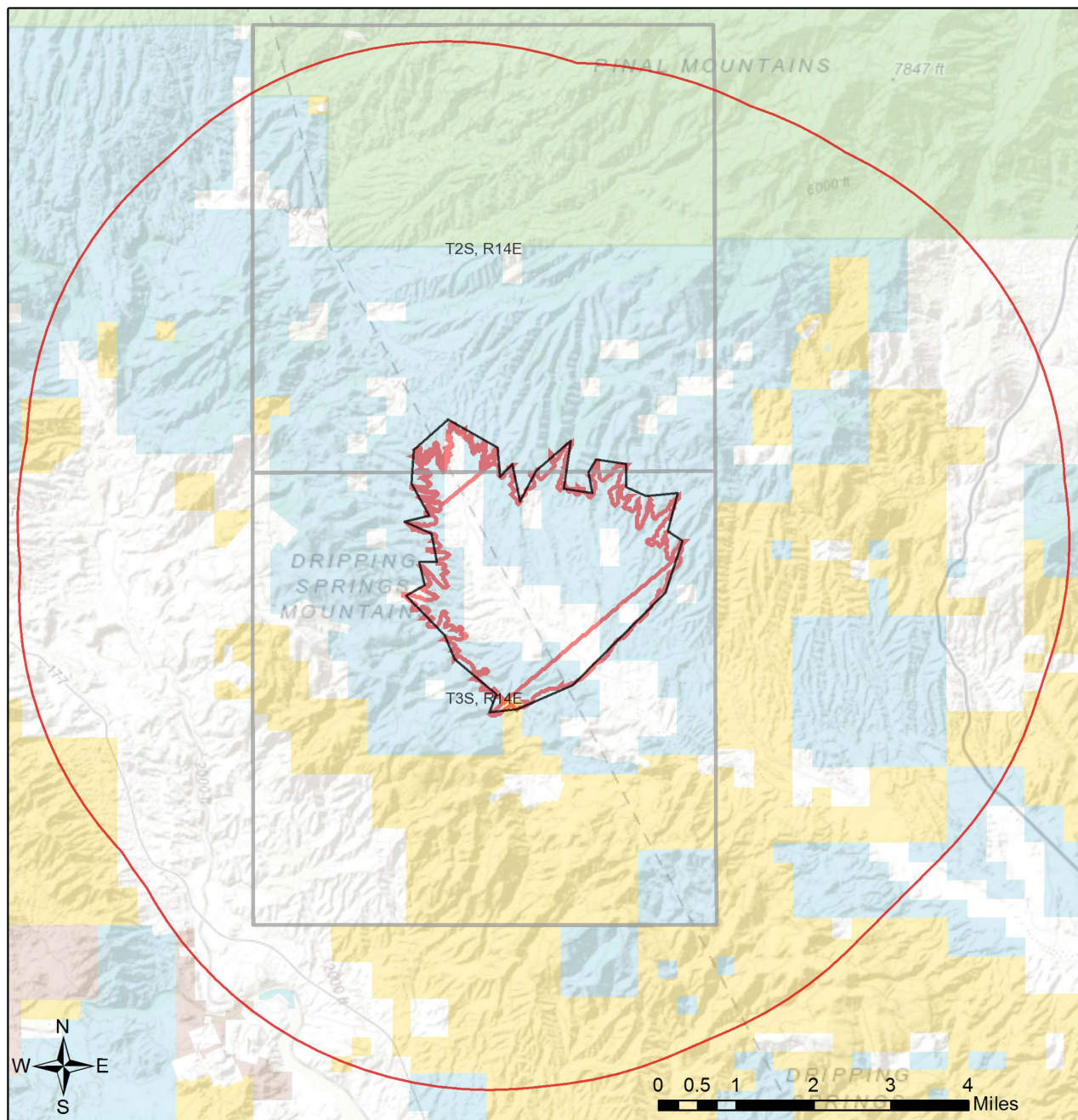
USGS Quad(s): EL CAPITAN MOUNTAIN; HOT TAMALE PEAK

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community



## Skunk Camp TSF

### Topo Basemap With Township/Ranges and Land Ownership



Project Boundary	Military	Project Size (acres): 5,483.22
Buffered Project Boundary	Mixed/Other	Lat/Long (DD): 33.1893 / -110.9013
Township/Ranges	National Park/Mon.	County(s): Gila; Pinal
<b>Land Ownership</b>	Private	AGFD Region(s): Mesa
AZ Game and Fish Dept.	State and Regional Parks	Township/Range(s): T2S, R14E; T3S, R14E
BLM	State Trust	USGS Quad(s): EL CAPITAN MOUNTAIN; HOT TAMALES PEAK
BOR	US Forest Service	Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
Indian Res.	Wildlife Area/Refuge	

**Special Status Species and Special Areas Documented within 5 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC		S		1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Bat Colony						
CH for Empidonax traillii extimus	Southwestern Willow Flycatcher Designated Critical Habitat					
CH for Gila intermedia	Gila Chub Designated Critical Habitat					
CH for Strix occidentalis lucida	Mexican Spotted Owl Designated Critical Habitat					
Catostomus clarkii	Desert Sucker	SC	S	S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Echinocereus triglochidiatus var. arizonicus	Arizona Hedgehog Cactus	LE			HS	
Empidonax traillii extimus	Southwestern Willow Flycatcher	LE				1A
Eriogonum capillare	San Carlos Wild-buckwheat	SC			SR	
Gila intermedia	Gila Chub	LE				1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Myotis ciliolabrum	Western Small-footed Myotis	SC				
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Opuntia versicolor	Stag-horn Cholla				SR	
PCH for Coccyzus americanus	Yellow-billed Cuckoo Proposed Critical Habitat					
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Strix occidentalis lucida	Mexican Spotted Owl	LT				1A

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/>

**Species of Greatest Conservation Need  
Predicted within 5 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		1B
Agosia chrysogaster	Longfin Dace	SC		S		1B
Aix sponsa	Wood Duck					1B

**Species of Greatest Conservation Need  
Predicted within 5 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Ammodramus savannarum perpallidus</i>	Western Grasshopper Sparrow					1B
<i>Ammospermophilus harrisi</i>	Harris' Antelope Squirrel					1B
<i>Anthus spragueii</i>	Sprague's Pipit	SC				1A
<i>Aquila chrysaetos</i>	Golden Eagle	BGA		S		1B
<i>Aspidoscelis flagellicauda</i>	Gila Spotted Whiptail					1B
<i>Aspidoscelis stictogramma</i>	Giant Spotted Whiptail	SC	S			1B
<i>Aspidoscelis xanthonota</i>	Red-backed Whiptail	SC	S			1B
<i>Baeolophus ridgwayi</i>	Juniper Titmouse					1C
<i>Botaurus lentiginosus</i>	American Bittern					1B
<i>Buteo regalis</i>	Ferruginous Hawk	SC		S		1B
<i>Buteo swainsoni</i>	Swainson's Hawk					1C
<i>Buteogallus anthracinus</i>	Common Black Hawk					1C
<i>Callipepla squamata</i>	Scaled Quail					1C
<i>Calypte costae</i>	Costa's Hummingbird					1C
<i>Cardellina rubrifrons</i>	Red-faced Warbler					1C
<i>Castor canadensis</i>	American Beaver					1B
<i>Catostomus clarkii</i>	Desert Sucker	SC	S	S		1B
<i>Catostomus insignis</i>	Sonora Sucker	SC	S	S		1B
<i>Chilomeniscus stramineus</i>	Variable Sandsnake					1B
<i>Chordeiles minor</i>	Common Nighthawk					1B
<i>Cistothorus palustris</i>	Marsh Wren					1C
<i>Coccythraustes vespertinus</i>	Evening Grosbeak					1B
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
<i>Colaptes chrysoides</i>	Gilded Flicker			S		1B
<i>Coluber bilineatus</i>	Sonoran Whipsnake					1B
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC	S	S		1B
<i>Crotalus cerberus</i>	Arizona Black Rattlesnake					1B
<i>Crotalus tigris</i>	Tiger Rattlesnake					1B
<i>Cynanthus latirostris</i>	Broad-billed Hummingbird		S			1B
<i>Dipodomys spectabilis</i>	Banner-tailed Kangaroo Rat			S		1B
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE				1A
<i>Empidonax wrightii</i>	Gray Flycatcher					1C
<i>Euderma maculatum</i>	Spotted Bat	SC	S	S		1B
<i>Eugenes fulgens</i>	Rivoli's Hummingbird					1B
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	SC		S		1B
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC	S	S		1A
<i>Gila intermedia</i>	Gila Chub	LE				1A
<i>Gila robusta</i>	Roundtail Chub	CCA	S	S		1A



**Species of Greatest Conservation Need  
Predicted within 5 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Ictinia mississippiensis	Mississippi Kite					1B
Incilius alvarius	Sonoran Desert Toad					1B
Junco phaeonotus	Yellow-eyed Junco		S			1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lepus alleni	Antelope Jackrabbit					1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Meda fulgida	Spikedace	LE				1A
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolni	Lincoln's Sparrow					1B
Melospiza aberti	Abert's Towhee		S			1B
Micrathene whitneyi	Elf Owl					1C
Microtus mexicanus	Mexican Vole					1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tuberculifer	Dusky-capped Flycatcher					1B
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myiodynastes luteiventris	Sulphur-bellied Flycatcher		S			1B
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Odocoileus virginianus	White-tailed Deer					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Patagioenas fasciata	Band-tailed Pigeon					1C
Peucedramus taeniatus	Olive Warbler					1C
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B



**Species of Greatest Conservation Need  
Predicted within 5 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Progne subis hesperia</i>	Desert Purple Martin			S		1B
<i>Psiloscops flammeolus</i>	Flammulated Owl					1C
<i>Setophaga petechia</i>	Yellow Warbler					1B
<i>Sphyrapicus nuchalis</i>	Red-naped Sapsucker					1C
<i>Sphyrapicus thyroideus</i>	Williamson's Sapsucker					1C
<i>Spizella atrogularis</i>	Black-chinned Sparrow					1C
<i>Spizella breweri</i>	Brewer's Sparrow					1C
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT				1A
<i>Sturnella magna</i>	Eastern Meadowlark					1C
<i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat					1B
<i>Terrapene ornata</i>	Ornate Box Turtle					1A
<i>Toxostoma lecontei</i>	LeConte's Thrasher			S		1B
<i>Troglodytes pacificus</i>	Pacific Wren					1B
<i>Tyrannus crassirostris</i>	Thick-billed Kingbird		S			1B
<i>Vireo bellii arizonae</i>	Arizona Bell's Vireo					1B
<i>Vireo vicinior</i>	Gray Vireo		S			1C
<i>Vulpes macrotis</i>	Kit Fox	No Status				1B
<i>Xantusia bezyi</i>	Bezy's Night Lizard		S			1B

**Species of Economic and Recreation Importance Predicted within 5 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Callipepla gambelii</i>	Gambel's Quail					
<i>Odocoileus hemionus</i>	Mule Deer					
<i>Odocoileus virginianus</i>	White-tailed Deer					1B
<i>Patagioenas fasciata</i>	Band-tailed Pigeon					1C
<i>Pecari tajacu</i>	Javelina					
<i>Puma concolor</i>	Mountain Lion					
<i>Sciurus aberti</i>	Abert's Squirrel					
<i>Ursus americanus</i>	American Black Bear					
<i>Zenaida asiatica</i>	White-winged Dove					
<i>Zenaida macroura</i>	Mourning Dove					

**Project Type: Mining, Extraction Other minerals (copper, limestone, cinders, shale, salt), Other minerals (copper, limestone, cinders, shale, salt)**

**Project Type Recommendations:**

Fence recommendations will be dependant upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the Wildlife Planning button at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, <https://agriculture.az.gov/>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information <https://www.azgfd.com/hunting/regulations>.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with the Office of Surface Mining may be required (<http://www.osmre.gov/index.shtml>).

Based on the project type entered, coordination with the Environmental Protection Agency may be required (<http://www.epa.gov/>).

Based on the project type entered, coordination with State Historic Preservation Office may be required (<http://azstateparks.com/SHPO/index.html>).

Pre- and post-survey/monitoring should be conducted to determine alternative access/exits to mines and to identify and/or minimize potential impacts to bat species. For further information when developing alternatives to mine closures, contact the Arizona Game and Fish Department Nongame Bat Coordinator at the Main Office in Terrestrial Branch, <https://www.azgfd.com/agency/offices> or (602) 942-3000.

Based on the project type entered, coordination with Arizona Department of Environmental Quality may be required (<http://www.azdeq.gov/>).

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (<http://www.azwater.gov/azdwr/default.aspx>).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Avoid/minimize wildlife impacts related to contacting hazardous and other human-made substances in facility water collection/storage basins, evaporation or settling ponds and/or facility storage yards. Design slopes to discourage wading birds and use fencing, netting, hazing or other measures to exclude wildlife.

**Project Location and/or Species Recommendations:**

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact:

Arizona Department of Agriculture

1688 W Adams St.

Phoenix, AZ 85007

Phone: 602.542.4373

<https://agriculture.az.gov/environmental-services/np1>

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at <http://www.fws.gov/southwest/es/arizona/> or:

**Phoenix Main Office**

2321 W. Royal Palm Rd, Suite 103

Phoenix, AZ 85021

Phone: 602-242-0210

Fax: 602-242-2513

**Tucson Sub-Office**

201 N. Bonita Suite 141

Tucson, AZ 85745

Phone: 520-670-6144

Fax: 520-670-6155

**Flagstaff Sub-Office**

SW Forest Science Complex

2500 S. Pine Knoll Dr.

Flagstaff, AZ 86001

Phone: 928-556-2157

Fax: 928-556-2121

HDMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area.  
Please review the Tortoise Handling Guidelines found at: <https://www.azgfd.com/wildlife/nongamemanagement/tortoise/>

