

# **BIOLOGICAL EVALUATION FOR THE LITTLE ROCK 2020 MPO AMENDMENT**

Freeport-McMoRan Tyrone Mining, LLC

Prepared for:



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## I. INTRODUCTION

Freeport-McMoRan Tyrone Mining, LLC (Tyrone), has submitted a 2020 Amendment to Mine Plan of Operations NMNM091644 (2020 MPO Amendment) for the Little Rock Mine (Little Rock) in Grant County, New Mexico (**Figure 1**), to support continued mining and related operations (the Project), including operations on land managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS). WestLand Resources, Inc. (WestLand), has prepared this Biological Evaluation (BE) to determine the potential for special-status species and/or their critical habitat to occur within the area proposed for anticipated life of mine (LOM) disturbance totaling approximately 557 acres (the Project Area; **Figure 2**). The Project includes the expansion of the current Little Rock pit and the surface disturbances necessary for the construction, operation, monitoring, closure, and post-closure maintenance of the mine.

This BE provides a screening analysis to determine the “Potential to Occur” for special-status species and/or their designated or proposed critical habitat within the Project Area. The Project Area includes land managed by the Las Cruces District Office of the BLM and land managed as part of the Gila National Forest (GNF) by the USFS. For the purposes of this Project, special-status species are defined to include:

- 1) Species listed, or proposed for listing, or candidates for listing, under the Endangered Species Act (ESA) by the U.S. Fish and Wildlife Service (USFWS) that have the potential to occur within the Project Area as identified by the USFWS Information, Planning and Consultation (IPaC) tool (**Appendix A**);
- 2) Species protected under the Bald and Golden Eagle Protection Act (BGEPA);
- 3) Species designated as sensitive by USFS for the GNF (**Appendix B**);
- 4) BLM sensitive species for the Las Cruces District Office (**Appendix C**);
- 5) Species designated as state threatened or endangered by the New Mexico Department of Game and Fish (NMDGF) as identified by the Biota Information System of New Mexico (BISON-M) for Grant County (**Appendix D**);
- 6) Species of plants designated as rare that are known to occur in Grant County (**Appendix E**); and
- 7) Birds of Conservation Concern for Bird Conservation Region (BCR) 35 (**Appendix H**).

The following sections describe the Project (**Section 2**), the Project Area location and environmental setting (**Section 3**), the review methods (**Section 4**) and potential to occur screening results for all special-status species (**Section 5**), as defined above. All references cited in the screening are provided in **Section 6**. In addition to the agency information provided in the Appendices listed above, the potential to occur determinations for rare plants was also based information collected from a rare plant survey of the Project Area by GeoSystems Analysis, Inc. (GSA; **Appendix E**) and the potential to occur determinations for bat species was informed by a survey of abandoned mine features within

the Project Area completed by WestLand (WestLand 2021). A complete list of special-status species analyzed for the Project is included in **Appendix I**.

## 2. PROJECT DESCRIPTION

As described in **Section 1**, Tyrone submitted the 2020 MPO Amendment for the Project, which includes the expansion of the current Little Rock pit and the surface disturbances necessary for the construction, operation, monitoring, closure, and post-closure maintenance of the mine. The Project proposes disturbance on federal lands outside that which was previously authorized under the MPO. Pursuant to the requirements of the BLM Surface Management Regulations, 43 Code of Federal Regulations (CFR) Part 3809 and USFS Minerals Regulations, 36 CFR Part 228, for a modification to plan-level operations, the agencies are conducting National Environmental Policy Act (NEPA) review of the proposed Project activities. The 2020 MPO Amendment identifies proposed disturbances associated with the LOM plan, which will enable:

- Construction, operation, and reclamation of the expanded open pit.
- Removal and adjustment of in-pit stockpiles and placement of the material in the following areas:
  - Historic North Stockpile will be expanded for the NRW Waste stockpile.
  - Waste from the East In-Pit Waste stockpile will be used for the Deadman Canyon Diversion at closure.
  - The North In-Pit Waste and West In-Pit Waste stockpiles will be slightly reconfigured.
  - The Reclaimed Copper Leach Stockpile will be removed and the CLW Waste stockpile will be constructed.
  - Fill from the Northern Haul Road will be used for the Deadman Canyon Diversion at closure.
- Installation of instrumentation, utilities, and access for various operational, monitoring, closure, and post-closure uses, including but not limited to:
  - Geotechnical instrumentation and monitoring facilities.
  - Power distribution system and components.
  - Communications facilities.
  - Surface water and groundwater management and dewatering facilities.
  - Access to facilities and components.

The surface disturbances proposed in the 2020 MPO Amendment are anticipated to increase the operating life of Little Rock an additional estimated 10 years, through 2030, depending on economics and mining methodology. Approval of the 2020 MPO Amendment will enable mining of approximately 196 million tons of leachable ore, with an estimated 211 million tons of uneconomic



material (waste rock) being mined to access the leachable ores. These estimates represent 61 million tons of leachable ore and 71 million tons of waste rock over the currently approved estimates.

### 3. PROJECT AREA

Little Rock is located adjacent to the existing Tyrone Mine facility in Grant County, New Mexico (**Figure 1**), approximately 14 miles southeast of the Gila River and adjacent to the Burro Mountain Region of the GNF. The Project Area lies within portions of Sections 8, 9, 16, 17, 20, and 21 of Township 19 South, Range 15 West of the New Mexico Meridian. The BE references the entirety of the 557-acre Project Area, although only limited areas of the agency-managed lands in the Project Area will be impacted by proposed Project activities. Approval of the 2020 MPO Amendment will increase the authorized disturbance of BLM-managed land by approximately 128.5 acres and USFS land by approximately 8.8 acres.

#### 3.1. PHYSIOGRAPHIC

The Project Area is located in the Burro Mountains, within the Basin and Range province (USGS 2009), within approximately 2,000 feet of the Continental Divide, at elevations ranging from 5,600 to 6,300 feet (ft) above mean sea level (amsl). The Project Area is characterized by sloping hills with ephemeral surface drainage features cut through volcanic and sedimentary rock. The steeper mountain slopes and hillslopes in the Project Area range from 15 to 45 percent.

#### 3.2. CLIMATIC

Temperature data are available from the National Oceanic and Atmospheric Administration (NOAA) Cooperative Station in Silver City, New Mexico (WRCC 2020). Climatic conditions are characterized by warm summers (87.5° F average temperature in July, the hottest month), mild winters (23.9° F average temperature in January, the coldest month) and low precipitation. The average annual precipitation in Silver City is 16.02 inches (WRCC 2020), falling primarily as rain during the monsoon season from July through October. Snow may fall between November and March.

#### 3.3. SURFACE WATER

The Project Area is located within the Upper Gila-Mangas Subbasin (Hydrologic Unit Code [HUC] 15040002) and intersects three drainage areas within the Mangas Creek Watershed, including Whitewater Canyon, California Gulch, and Deadman Canyon (**Figure 2**). All surface water features trend from south to north within the Project Area and are ephemeral (i.e., flow only in direct response to precipitation events or snowmelt) with channels above the regional aquifer. Flow within Mangas Creek is ephemeral for approximately 16 miles downgradient of the Project Area until flow begins at Mangas Spring, continuing approximately 4 additional miles to the Gila River.

Springs, seeps, stock tanks, and other surface water features in the Project Area and vicinity, including Sugarloaf Spring, are generally very small and produce a surface expression for small areas and/or only a short distance (Tierra 2010). Measurements of pH and water temperature taken from Sugarloaf Spring by Tyrone indicate that it is not an alkali spring, and the spring is often dry. The springs and seeps coincide with the ephemeral washes and localized low points, supporting the conclusion that these surface water features are associated with local, topographically driven flow systems rather than the regional aquifer (Tierra 2010).

### 3.4. SOIL

Soils in the Project Area are predominantly comprised of rock outcrop types, including Santa Fe-Rock outcrop complex, 20- to 45-percent slopes (55.8% of the total site area); Gaddes-Santa Fe-Rock outcrop complex, 15- to 45-percent slopes (0.5% of the site); and Lithic Haploborolls, loamy, mixed warm, 1- to 15-percent slopes (2% of the site) and Lithic Haplustalfs, loamy-skeletal, mixed, mesic-lithic (10.2% of the site) (Soil Survey Staff 2020 [accessed March 10, 2021], Tierra 2010). The remaining soils are a mix of loam associations, including Lonti gravelly loam, 15 to 35% slopes (11.9% of the site); Lonti gravelly clay loam, 0- to 8-percent slopes (2.2%); Manzano loam, 1- to 3-percent slopes (0.5%); Paymaster gravelly sandy loam, 3- to 15-percent slopes (9.2%) and Santana loamy sand, 15- to 25-percent slopes (2.5%). Lonti and Santana soil types in the Project Area are derived from mixed alluvium and/or colluvium derived from igneous, metamorphic, and sedimentary rock. Manzano and Paymaster soils types are made of mixed alluvium and/or residuum weathered from sandstone and shale and are found in the drainages of Whitewater Canyon, California Gulch, and Deadman Canyon (GeoSystems Analysis 2021) (**Appendix E**).

### 3.5. VEGETATION

The Project Area falls within a band of Madrean Lower Montane Woodlands that serves as a transition zone between the Chihuahuan Desert and Montane Coniferous Forest Eco-Regions (EPA 2021). Depending on the slope, aspect, and elevation, the site exhibits characteristics of two biotic community types: Madrean Evergreen Woodland and Interior Chaparral (TNC 2012). Predominantly, the Project Area is classified as Madrean Evergreen Woodland, characterized by alligator juniper (*Juniperus deppeana*), piñon pine (*Pinus edulis*), and oak (*Quercus* spp.), with ponderosa pine (*Pinus ponderosa*) within canyons, north-facing slopes, and slightly higher elevations. Lower elevations and south-facing slopes are more characteristic of Interior Chaparral, dominated by shrub live oak (*Quercus turbinella*), mountain mahogany (*Cercocarpus montanus*), manzanita (*Arctostaphylos pungens*), and sotol (*Dasylirion wheeleri*).

A site visit in October 2020 yielded 127 plant species that largely supported these broadscale designations (GeoSystems Analysis 2021); for a full list of plant species and their relative abundance, see **Appendix E**. The overstory of the site is dominated by gray oak (*Quercus grisea*), Emory oak (*Q.*

*emoryi*), alligator juniper, and piñon pine, with ponderosa pine dominant in some canyons. Common understory species included shrub live oak, Catclaw mimosa (*Mimosa aculeaticarpa*), mountain mahogany, California brickellbush (*Brickellia californica*), rubber rabbitbrush (*Ericameria nauseosa*), Wright's buckwheat (*Eriogonum wrightii*), and Wright's silktassel (*Garrya wrightii*). The herbaceous layer was predominantly composed of purple threeawn (*Aristida purpurea*), blue grama (*Bouteloua gracilis*), squirreltail (*Elymus elymoides*), bullgrass (*Muhlenbergia emersleyi*), Carruth's sagewort (*Artemisia carruthii*), and wirestem buckwheat (*Eriogonum pharnaceoides*).

## 4. METHODS

This section describes the categories of special-status species that were identified for analysis, how these species were screened for their potential to occur (including data sources), and the Potential to Occur categories.

### 4.1. SPECIAL-STATUS SPECIES IDENTIFICATION

A screening analysis was completed to evaluate the potential for special-status species or their critical habitat to occur within the Project Area. As stated in **Section 1**, special-status species in this BE are defined as:

- 1) Species designated by the USFWS as Endangered, Threatened, Proposed for listing, or Candidate for listing under the ESA that could have some potential to occur in the Project vicinity as identified by the USFWS IPaC tool (**Table 1, Appendix A**);
- 2) Species protected under the BGEPA (**Table 2**);
- 3) Species designated as sensitive by the USFS for the GNF (**Appendix B**);
- 4) BLM sensitive species for the Las Cruces District Office (**Appendix C**);
- 5) Species listed as state threatened or endangered by NMDGF as identified by BISON-M for Grant County (**Appendix D**);
- 6) Plant species designated as rare that are known to occur in Grant County (**Appendix E**); and
- 7) Birds of Conservation Concern for BCR Region 35 **Appendix H**.

### 4.2. SPECIAL-STATUS SPECIES SCREENING

Based on the special-status species list generated from the above sources, a screening analysis was performed to evaluate the potential for these species to occur within the Project Area and to determine the presence or absence of designated or proposed critical habitat within the Project Area. These determinations were based on review of:

- The natural history and known geographical and elevational ranges of the species.
- Results of the BISON-M species occurrences for Grant County, included as **Appendix D**.

- Other occurrence records in published or grey literature, including citizen science data (including eBird records).
- Data provided by the USFWS Critical Habitat Portal online mapping tool.
- Rare plant survey data collected by GSA for the Project Area in October 2020 (**Appendix E**).
- Survey of abandoned mine features in the Project Area for bat use by WestLand in June 2021 (WestLand 2021).

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 within the Project Area, the site is within the known range and distribution of the species, and habitat characteristics required by the species are present.

**Possible:** There are no known records of the species within the Project Area, 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. Given the uncertainty associated with species identification and accuracy of the location of observations from eBird and other citizen science databases, observations associated with citizen science databases are evidence that a species is possible within 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, and they may show up as transients. 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 or the habitat characteristics required by the species are not present.

## 5. POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR

The special-status species evaluated include 16 ESA-listed species identified by the USFWS IPaC tool (**Appendix A**), two BGEPA special-status species, 74 species designated by USFS (**Appendix B**), 70 species designated as sensitive by the BLM (**Appendix C**), 39 species for NMDGF (**Appendix G**), and 31 birds species designated as Birds of Conservation Concern for BCR Region 35 (**Appendix H**). No special-status or rare plants were observed during pedestrian surveys of the Project Area although potential habitat for some rare plants were noted (**Appendix E**). No bats or their sign were observed during the survey of 11 abandoned mine features (eight prospects, two adits, and one shaft) in the Project Area and all features were too shallow to provide suitable habitat for potential bat use (WestLand 2021).



Due to significant overlap in the special status species across the ESA-listed, BGEPA-listed, NMDGF-listed, BLM sensitive, GNF sensitive, rare plant, and Birds of Conservation Concern species, a complete list of the species included in this screening and the laws or agencies they are protected under, are included as **Appendix I**.

### 5.1. ESA-LISTED SPECIES

Of the 16 ESA-listed species identified, three are considered unlikely to occur and 13 are determined to have no potential to occur in the Project Area. The justification for the potential to occur of each ESA-listed species in the Project Area are provided in **Table 1** and summarized below. There is no designated or proposed critical habitat in the Project Area.

#### Unlikely:

- threatened; western Distinct Population Segment (DPS) of Yellow-billed cuckoo (*Coccyzus americanus*)
- threatened; Mexican spotted owl (*Strix occidentalis lucida*)
- experimental population; Mexican gray wolf (*Canis lupus baileyi*)

#### None:

- threatened; Chiricahua leopard frog (*Rana chiricahuensis*)
- experimental population; Northern aplomado falcon (*Falco femoralis septentrionalis*)
- endangered; Southwestern willow flycatcher (*Empidonax traillii extimus*)
- threatened; Beautiful shiner (*Cyprinella formosa*)
- endangered; Gila chub (*Gila intermedia*)
- threatened; Chihuahua chub (*Gila nigrescens*)
- endangered; Loach minnow (*Tiaroga cobitis*)
- endangered; Spikedace (*Meda fulgida*)
- threatened; Gila topminnow (incl. Yaqui) (*Poeciliopsis occidentalis*)
- threatened; Gila trout (*Oncorhynchus gilae*)
- endangered; Mexican long-nosed bat (*Leptonycteris nivalis*)
- threatened; Northern Mexican gartersnake (*Thamnophis eques megalops*)
- threatened; Narrow-headed gartersnake (*Thamnophis rufipunctatus*)

While gray wolf appeared on the IPaC screening in addition to the Mexican gray wolf, the gray wolf has been recently delisted, and as such, does not have protections under the ESA (USFWS 2020a).

## 5.2. BGEPA-LISTED SPECIES

Of the two BGEPA-listed species evaluated the golden eagle is considered possible to occur in the Project Area and bald eagles are unlikely. The basis for determination of each of the two BGEPA-listed species' potential to occur within the Project Area are provided in **Table 2** and summarized below.

### Possible:

- Golden eagle (*Aquila chrysaetos*)

### Unlikely:

- Bald eagle (*Haliaeetus leucocephalus*)

## 5.3. GNF SENSITIVE SPECIES

Screening of the 74 GNF sensitive species indicates that six species were considered possible to occur, 18 species are unlikely to occur, and 50 species have no potential to occur in the Project Area. Justifications for each potential to occur call for the Project Area are included in **Appendix B** and summarized below.

### Possible:

- Northern goshawk (*Accipiter gentilis*)
- American peregrine falcon (*Falco peregrinus*)
- Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)
- Spotted bat (*Euderma maculatum*)
- Hooded skunk (*Mephitis macroura milleri*)
- Wright's dogweed (*Adenophyllum wrightii* var. *wrightii*)

### Unlikely:

- Common black hawk (*Buteogallus anthracinus*)
- Costa's hummingbird (*Calypte costae*)
- White-eared hummingbird (*Hylocharis leucotis*)
- Yellow-billed cuckoo (*Coccyzus americanus*)
- Common ground dove (*Columbina passerine*)
- Gila woodpecker (*Melanerpes uropygialis*)
- Abert's towhee (*Melospiza aberti*)
- Gray vireo (*Vireo vicinior*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Notodontid moth (*Euhyparipax rosea*)

- Allen's big-eared bat/lappet-browed bat (*Idionycteris phyllotis*)
- Western red bat (*Lasiurus blossevillii*)
- Arizona gray squirrel (*Sciurus arizonensis arizonensis*)
- Arizona coralroot (*Hexalectris arizonica*)
- Davidson's cliff carrot (*Pteryxia davidsonii*)
- Mimbres figwort (*Scrophularia macrantha*)
- Pinos altos flame flower (*Pterisanthus humilis*)
- Blumer's dock (*Rumex orthoneurus*)

**None:**

- Lowland leopard frog (*Lithobates javapaiensis*)
- Western burrowing owl (*Athene cunicularia*)
- Arizona bell's vireo (*Vireo bellii arizonae*)
- Desert sucker (*Catostomus clarkii*)
- Sonora sucker (*Catostomus insignis*)
- Rio Grande sucker (*Catostomus plebeius*)
- Headwater chub (*Gila nigra*)
- Roundtail chub (*Gila robusta*)
- Rio Grande cutthroat trout (*Oncorhynchus clarki virginialis*)
- A stonefly (*Capnia caryi*)
- Dashed ringtail (*Erpetogomphus heterodon*)
- Gila mayfly (*Lachlania dencyanna*)
- Arizona montane vole (*Microtus montanus arizonensis*)
- Gunnison's prairie dog (prairie population) (*Cynomys gunnisoni*)
- Gunnison's prairie dog (montane population) (*Cynomys gunnisoni*)
- Goodding's onion (*Allium gooddingii*)
- Mogollon death camas (*Anticlea mogollonensis*)
- Greene milkweed (*Asclepias uncialis* ssp. *uncialis*)
- Villous groundcover milkvetch (*Astragalus humistratus* var. *crispulus*)
- Gila thistle (*Cirsium gilense*)
- Wootton's hawthorn (*Crataegus woottoniana*)
- Yellow lady's-slipper (*Cypripedium parviflorum* var. *pubescens*)
- Hess' fleabane (*Erigeron hessii*)
- Mogollon hawkweed (*Hieracium brevipilum*)
- Metcalfe's tick-trefoil (*Desmodium metcalfei*)

- Rusby's hawkweed (*Hieracium abscissum*)
- Heartleaf groundsel (*Packera cardamine*)
- Maguire's beardtongue (*Penstemon linarioides* ssp. *maguirei*)
- Metcalfe's penstemon (*Penstemon metcalfei*)
- Porsild's starwort (*Stellaria porsildii*)
- Mogollon clover (*Trifolium longipes* ssp. *neurophyllum*)
- Silver Creek woodland springsnail (*Ashmunella binneyi*)
- Snail (no common name) (*Ashmunella cockerelli argenticola*)
- Black Range woodlandsnail (*Ashmunella cockerelli cockerellii*)
- Snail (no common name) (*Ashmunella cockerelli perobtusata*)
- Whitewater Creek woodlandsnail (*Ashmunella danieli*)
- Iron Creek woodlandsnail (*Ashmunella mendax*)
- Snail (no common name) (*Ashmunella tetrodon animorum*)
- Snail (no common name) (*Ashmunella tetrodon inermis*)
- Snail (no common name) (*Ashmunella tetrodon mutator*)
- Snail (no common name) (*Ashmunella tetrodon tetrodon*)
- Bearded mountain snail (*Oreobelix barbata*)
- Snail (no common name) (*Oreobelix metcalfei acutidiscus*)
- Snail (no common name) (*Oreobelix metcalfei concentrica*)
- Snail (no common name) (*Oreobelix metcalfei metcalfei*)
- Snail (no common name) (*Oreobelix metcalfei radiata*)
- Mineral Creek mountainsnail (*Oreobelix pilsbryi*)
- Morgan Creek mountainsnail (*Oreobelix swopet*)
- Gila springsnail (*Pyrgulopsis gilae*)
- New Mexico springsnail (*Pyrgulopsis thermailis*)

#### 5.4. BLM SENSITIVE SPECIES

Of the 70 species designated as sensitive for the BLM for the Las Cruces District Office (**Appendix C**), none were present, six are possible, 10 are considered unlikely, and 54 have no potential to occur in the Project Area. Justification for the results of the screening analysis is included in **Appendix F** and are summarized below.

##### Possible:

- Pale Townsend's big-eared bat (*Corynorhinus townsendii pallascens*)
- Spotted bat (*Euderma maculatum*)

- Virginia's warbler (*Vermivora virginiae*)
- Piñon jay (*Gymnorhinus cyanocephalus*)
- Mexican whip-poor-will (*Antrostomus arizonae*)
- Monarch butterfly (*Danaus plexippus plexippus*)

**Unlikely:**

- Wright's marsh thistle (*Cirsium wrightii*)
- Mimbres's figwort (*Scrophularia macrantha*)
- Desert massasauga (*Sistrurus tergeminus edwardsii*)
- Gila monster (*Heloderma suspectum*)
- Western yellow bat (*Lasiurus xanthinus*)
- Mexican long-tongued bat (*Choeronycteris mexicana*)
- McCown's longspur (*Rhynchophanes mccownii*)
- Arizona botteri's sparrow (*Peucaea botteri arizonae* or *Aimophila botteri*)
- Bendire's thrasher (*Toxostoma bendirei*)
- Bald eagle (*Haliaeetus leucocephalus*)

**None:**

- Organ Mountain giant hyssop (*Agastache pringlei* var. *verticillata*)
- Howard's gyp ringstem (*Anulocaulis leiosolenus* var. *howardii*)
- Chapline's columbine (*Aquilegia chrysantha* var. *chaplinei*)
- Coppermine milkvetch (*Astragalus cobrensis* var. *maguirei*)
- Wild mountain rockcress (*Boechera zephyra*)
- Organ Mountains paintbrush (*Castilleja organorum*)
- Scheer's beehive cactus (*Coryphantha robustispina* ssp. *scheeri*)
- Duncan's pincushion cactus (*Escobaria duncani*)
- Villard's pincushion cactus (*Escobaria villardii*)
- Guadalupe mescalbean (*Dermatophyllum guadalupense*)
- New Mexico bitterweed (*Hymenoxys ambigens* var. *neomexicana*)
- Gypsum scalebroom (*Lepidospartum burgessii*)
- Guadalupe stickleaf (*Mentzelia humilis* var. *guadalupensis*)
- Crow flat greggia (*Nerisyrenia hypercorax*)
- Sand pricklypear (*Opuntia arenaria*)
- Wilkinson's nailwort (*Paronychia wilkinsonii*)
- Chihuahua scurfpea (*Pediomelum pentaphyllum*)
- Night-blooming cereus (*Peniocereus greggii* var. *greggii*)



- Alamo beardtongue (*Penstemon alamosensis*)
- Nodding cliff daisy (*Perityle cernua*)
- Parish's alkaligrass (*Puccinellia parishii*)
- Organ Mountains figwort (*Scrophularia laevis*)
- Gray sibara (*Sibara grisea*)
- Organ Mountains scaleseed (*Spermolepis organensis*)
- Gray-checked whiptail (*Aspidoscelis dixonii*)
- Big Bend slider (*Trachemys gaigeae*)
- Southwestern (Arizona) toad (*Anaxyrus microscaphus*)
- Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)
- Arizona shrew (*Sorex arizonae*)
- Chestnut-collared longspur (*Calcarius ornatus*)
- Black-tailed prairie dog (*Cynomys ludovicianus*)
- White-sided jackrabbit (*Lepus callotis*)
- Baird's sparrow (*Centronyx bairdii*)
- Arizona grasshopper sparrow (*Ammodramus savannarum*)
- Western burrowing owl (*Athene cunicularia*)
- Sprague's pipit (*Anthus spragueii*)
- Bell's vireo (*Vireo bellii arizonae*)
- Salt Playa (Sublette's) fairy shrimp (*Phallocryptus sublettei*)
- Moore's fairy shrimp (*Streptocephalus moorei*)
- Bowman's fairy shrimp (*Streptocephalus thomasbowmani*)
- Hacheta Grande woodlandsnail (*Ashmunella herbari*)
- Cooke's peak snail (*Ashmunella macromphala*)
- Shortneck snaggletooth snail (*Gastrocopta dalliana dalliana*)
- Cross holospira snail (*Holospira crossei*)
- Metcalf holospira snail (*Holospira metcalfi*)
- Fringed mountainsnail (*Radiocentrum ferrissi*)
- New Mexico talussnail (*Sonorella hachitana*)
- New Mexico talussnail (*Sonorella hachitana flora*)
- Doña Ana talussnail (*Sonorella todsoni*)
- Anthony blister beetle (*Lytta mirifica*)
- Desert sucker (*Catostomus clarkii*)
- Rio Grande sucker (*Catostomus plebeius*)
- Roundtail chub (*Gila robusta*)

- Rio Grande chub (*Gila pandora*)

## 5.5. NEW MEXICO STATE-LISTED SPECIES

The BISON-M online review tool was used to generate a list of New Mexico state species listed as either threatened or endangered by the NMDGF within Grant County (**Appendix D**). Of the 39 state-listed species, none were present, three are possible, 14 are considered unlikely, and 22 are not expected to occur in the Project Area. The justifications for the screening analysis are included as **Appendix G** and are summarized below.

### Possible:

- American peregrine falcon (*Falco peregrinus anatum*)
- Yellow-eyed junco (*Junco phaeonotus*)
- Spotted bat (*Euderma maculatum*)

### Unlikely:

- Abert's towhee (*Melospiza aberti*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Broad-billed hummingbird (*Cynanthus latirostris*)
- Common black hawk (*Buteogallus anthracinus*)
- Common ground dove (*Columbina passerine*)
- Costa's hummingbird (*Calypte costae*)
- Elegant trogon (*Trogon elegans*)
- Gila woodpecker (*Melanerpes uropygialis*)
- Gray vireo (*Vireo vicinor*)
- Lucifer hummingbird (*Calothorax lucifer*)
- White-eared hummingbird (*Hylocharis leucotis*)
- Varied bunting (*Passerina versicolor*)
- Exp. population; Mexican gray wolf (*Canis lupus baileyi*)
- Gila monster (*Heloderma suspectum*)

### None:

- Lowland leopard frog (*Lithobates yavapaiensis*)
- Baird's sparrow (*Centronyx bairdii*)
- Bell's vireo (*Vireo bellii*)
- Buff-collared nightjar (*Antrostomus ridgwayi*)
- Brown pelican (*Anaxyrus microscaphus*)

- Neotropic cormorant (*Phalacrocorax brasilianus*)
- Northern aplomado falcon (*Falco femoralis septentrionalis*)
- Northern beardless tyrannulet (*Camptostoma imberbe*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Thick-billed kingbird (*Tyrannus crassirostris*)
- Chihuahua chub (*Gila nigrescens*)
- Gila chub (*Gila intermedia*)
- Gila topminnow (*Poeciliopsis occidentalis occidentalis*)
- Gila trout (*Oncorhynchus gilae*)
- Loach minnow (*Rhinichthys cobitis*)
- Roundtail chub (*Gila robusta*)
- Spikedace (*Meda fulgida*)
- Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)
- Narrow-headed gartersnake (*Thamnophis rufipunctatus*)
- Northern Mexican gartersnake (*Thamnophis eques megalops*)
- Gila springsnail (*Pyrgulopsis gilae*)
- New Mexico springsnail (*Pyrgulopsis thermalis*)

## 5.6. NEW MEXICO RARE PLANT SPECIES

According to the New Mexico Rare Plant Technical Council (<https://nmrareplants.unm.edu/>), there are a total of 22 rare plant species known to occur in Grant County. A survey was conducted for rare plants in the Project Area (**Appendix E**). No rare plant species were encountered during the survey and potential habitat was present for six species that were determined to be unlikely in the Project Area. The remaining 16 plants are considered as having no potential to occur because individuals or their potential habitat were not observed in the Project Area.

### Unlikely:

- Grayish-white giant hyssop (*Agastache cana*)
- Davidson's cliff carrot (*Cymopterus davidsonii*)
- Mogollon whitlowgrass (*Draba mogollonica*)
- Pinos altos flame flower (*Phemeranthus humilis*)
- Mimbres figwort (*Scrophularia macrantha*)
- Wright's campion (*Silene wrightii*)

### None:

- San Luis Mountain giant hyssop (*Agastache mearnsii*)

- Wheel milkweed (*Asclepias uncialis*)
- Chenopod brickellbush (*Brickellia chenopodia*)
- Bigleaf sedge (*Carex amplifolia*)
- Wooton's hawthorn (*Crataegus wootoniana*)
- Yellow lady's slipper (*Cypripedium parviflorum* var. *pubescens*)
- Metcalfe's tick-treefoil (*Desmodium metcalfei*)
- Ray Turner's surge (*Euphorbia rayturneri*)
- New Mexico gumweed (*Grindelia decumbens* var. *neomexicana*)
- Reclined gumweed (*Grindelia decumbens* var. *subincisa*)
- Nightblooming cereus (*Pionocereus greggii*)
- Maguire's beardtongue (*Penstemon linarioides* ssp. *maguirei*)
- Slender spiderflower (*Peritoma multicaulis*)
- Parish's alkali Grass (*Puccinellia parishii*)
- Woolly campion (*Silene thurberi*)
- Porsild's starwort (*Stellaria porsildii*)

## 5.7. BCR 35 BIRDS OF CONSERVATION CONCERN

The USFWS, acting to fulfill a mandate specified within an amendment to the Fish and Wildlife Conservation Act, developed the BCC report (USFWS 2008) to identify migratory and non-migratory bird species (beyond those already federally listed under the ESA) that, without conservation efforts, may result in the species becoming candidates for listing under the ESA. Within the BCC, the USFWS designated BCRs and identified at-risk bird species with potential to occur within that region. The Project Area is located within BCR 35 (Chihuahuan Desert, U.S. portion only), which encompasses most of southern New Mexico, western Texas, and northcentral Mexico, and lists 31 bird species of concern (USFWS 2008). Of the 31 state-listed species, none were present, six are possible, 11 are considered unlikely, and 14 are not expected to occur in the Project Area. The potential to occur for these species in the Project Area are described briefly below (see **Appendix H** for a justification for each species potential to occur):

### Possible:

- Ferruginous hawk (*Buteo regalis*)
- Golden eagle (*Aquila chrysaetos*)
- American peregrine falcon (*Falco peregrinus*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Virginia's warbler (*Vermivora virginiae*)
- Yellow warbler (*Setophaga petechia*)

**Unlikely:**

- Bald eagle (*Haliaeetus leucocephalus*)
- Common black hawk (*Buteogallus anthracinus*)
- Western Distinct Population Segment, yellow-billed cuckoo (*Coccyzus americanus*)
- Lucifer hummingbird (*Calothorax lucifer*)
- Gray vireo (*Vireo vicinor*)
- Bendire's thrasher (*Toxostoma bendirei*)
- Grace's warbler (*Setophaga graciae*)
- Cassin's sparrow (*Peucaea cassinii*)
- Black-chinned sparrow (*Spizella atrogularis*)
- McCown's longspur (*Rhynchopanes mccownii*)
- Varied bunting (*Passerina versicolor*)

**None:**

- Snowy plover (*Charadrius nivosus*)
- Mountain plover (*Charadrius montanus*)
- Long-billed curlew (*Numenius americanus*)
- Flammulated owl (*Psiloscoops flammeolus*)
- Elf owl (*Micrathene whitneyi*)
- Western burrowing owl (*Athene cunicularia*)
- Bell's vireo (*Vireo bellii*)
- Sprague's pipit (*Anthus spragueii*)
- Colima warbler (*Oreothlypis crissalis*)
- Red-faced warbler (*Cardellina rubrifrons*)
- Lark bunting (*Calamospiza melanocorys*)
- Baird's sparrow (*Centronyx bairdii*)
- Chestnut-collared longspur (*Calcarius ornatus*)
- Painted bunting (*Passerina ciris*)



Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
AMPHIBIANS					
<i>Lithobates chiricahuensis</i>  Chiricahua leopard frog	Threatened (USFWS 2002a, USFWS 2012b); designated critical habitat (USFWS 2012b).	Breeds in perennial to semi-permanent montane aquatic environments including cattle tanks, creeks, cienegas, pools, rivers, springs, lakes and reservoirs (USFWS 2011). Larvae are obligate on aquatic habitats whereas adults are primarily aquatic but also utilize terrestrial habitats (USFWS 2012b). May disperse from occupied habitat one mile overland, three miles along intermittent drainages, and five miles along permanent water courses, or some combination thereof (USFWS 2012b).  Elevation: 3,200-8,890 ft (USFWS 2012b).	Occurs in Arizona and New Mexico, U.S. and Sonora, Chihuahua and Durango, Mexico (USFWS 2012b).	Found in west-central and southwestern portion of the state where suitable habitat can be found (Natural Heritage New Mexico 2021).	<b>None.</b>  There is no suitable habitat in the Project Area. Previous surveys immediately adjacent to the site did not detect this species, nor were there any water features within five-mile radius that could support leopard frogs (Tierra 2010). Given that the nearest suitable habitat is beyond the dispersal capabilities of this species (i.e., greater than five miles away), the Project Area would not contribute to CLF dispersal, nor provide year-round suitable habitat for populations or metapopulations of CLF.  There is no designated critical habitat in the Project Area.

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
BIRDS					
<i>Coccyzus americanus</i> (western Distinct Population Segment)  Yellow-billed cuckoo	Threatened (USFWS 2014a); designated critical habitat (USFWS 2021b).	<p>Most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013c). Also utilizes drier woodlands including mesquite bosques, drainages in desert scrub and desert grassland with a tree component, and Madrean evergreen woodlands in perennial, intermittent or ephemeral drainages (USFWS 2020c). They may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020).</p> <p>Elevation: Typically below 6,600 ft (AGFD 2011b).</p>	<p>Is a long-distance neotropical migrant (Hughes 2020). At the species level, breeds throughout temperate North America south to Mexico and the Greater Antilles (Hughes 2020). The western DPS breeds west of the Continental Divide and the watershed boundary between the Rio Grande and Pecos River and the Chihuahuan Desert. The USFWS considers the historical breeding range to include southern British Columbia, Canada and in Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas, U.S. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014a). Winters in South America, east of the Andes and typically south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia and northern Argentina (USFWS 2014a).</p>	<p>Occurs throughout the state where suitable habitat is present and is considered rare to fairly common. Breeding areas include the San Juan, Dry Cimarron, Rio Grande, Pecos, Mora, Canadian, San Francisco, and Gila valleys (BISON-M 2018d, accessed January 2021). Is most common in the south and along major drainages (eBird 2021).</p>	<p><b>Unlikely.</b></p> <p>There is no riparian habitat in the Project Area. However, this species uses ephemeral drainages in the southwest, thus the Project Area has some marginally suitable habitat and there have been eBird detections of yellow-billed cuckoo in the vicinity of the site (eBird 2020). Given that the habitat in the Project Area is marginal and constitutes a minor portion of the available habitat for cuckoo, it is unlikely for this species to occur in the site. Although it is possible that cuckoo may traverse the Project Area while foraging or migrating.</p> <p>There is no designated critical habitat in the Project Area.</p>

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Falco femoralis septentrionalis</i>  Northern aplomado falcon	Endangered (USFWS 1986); no critical habitat; non-essential experimental population (USFWS 2006a).	Within the U.S., they use coastal prairies, desert grasslands, oak woodlands and riparian gallery forest (Keddy-Hector, Pyle, and Pattern 2017). They have historically occurred in relatively flat and open habitats (USFWS 2014c). Builds nests in large trees, cliffs, utility poles, artificial platforms or on the ground when elevated nest sites are not available (Keddy-Hector, Pyle, and Pattern 2017). They are expected to use similar habitat year-round (Keddy-Hector, Pyle, and Pattern 2017).  Elevation: In southwestern US, most common from 3,300–4,900 ft (AGFD 2001c).	Is mostly non-migratory, although local nomadic movement may occur (Keddy-Hector, Pyle, and Pattern 2017). The <i>septentrionalis</i> subspecies occurs in New Mexico and Texas, U.S. and the Mexican states of Chihuahua, northwestern Chiapas, western Campeche, Oaxaca, San Luis Potosi, Tabasco, and Vera Cruz (USFWS 2014c). Before reintroductions in Texas, the last known breeding of this species in the U.S. occurred in New Mexico in 1952. Current populations are primarily in Mexico, with isolated populations in southern Texas and from northern Chihuahua to southern New Mexico.	Occasional in the southern portion of the state; rare and local, mainly in grassland-shrubland areas at lower elevations (BISON-M 2017a).	<b>None.</b>  The Project Area contains marginally suitable habitat of oak woodlands. However, this species is considered very rare in the state and there have been no sightings of this species within forty miles (and this eBird record occurred over 20 years ago) (eBird 2020). Moreover, the Project Area constitutes a small percentage of the overall marginal habitat available for this species in state. Thus, the probability of their use of marginal habitats is very low.
<i>Empidonax traillii extimus</i>  Southwestern willow flycatcher	Endangered (USFWS 1995); designated critical habitat (USFWS 2013a).	Breeds in successional stands of dense riparian vegetation composed of trees and shrubs along rivers or lakes (AGFD 2002b, USFWS 2013a). Migrates along riparian habitats, including those with shorter or more sparse vegetation or smaller patches than would be suitable for nesting (USFWS 2013a). They are a long-distance neotropical migrant and winters in habitats outside of the U.S. (Sedgwick 2020).  Elevation: In Arizona, 75–9,180 ft (AGFD 2002b).	Breeds in Arizona, California, Colorado, New Mexico, Nevada, Texas and Utah, U.S. Winters in southern Mexico and south to northern South America (USFWS Sedgwick 2020, 2013a).	Populations occur along the Rio Grande and Gila River drainages, with much smaller populations at isolated locales in the San Juan, upper Canadian, Zuni, San Francisco, Mimbres, and Pecos River drainages (NMDGF 2018). Historical breeding records are also known from the Canadian, Chama, San Francisco, San Juan, and Zuni River drainages. Species occurs widely throughout the state during migration (BISON-M 2018c).	<b>None.</b>  There is no suitable riparian habitat with dense riparian vegetation in the Project Area and there are no eBird detection records are limited to perennial waterways with tracts of riparian vegetation in New Mexico (eBird 2021).  There is no designated critical habitat in the Project Area.

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Strix occidentalis lucida</i>  Mexican spotted owl	Threatened (USFWS 1993a); designated critical habitat (USFWS 2004).	<p>Prefers old-growth mixed conifer or pine-oak forests, or such forests with complex structure. Also uses narrow canyons with cliffs and conifer or riparian woodlands (Gutiérrez, Franklin, and Lahaye 2020). In Arizona, canyon habitats typically contain Madrean evergreen oak or Madrean pine-oak woodlands (Wise-Gervais 2005). In forested areas, nests in large trees whereas in canyon habitats, will nest in trees, caves or on rocky ledges (USFWS 2012c). Primarily forages for rodents in a range of forest or woodland habitats, but diet also includes lagomorphs, bats, birds, reptiles and arthropods (AGFD 2005, Gutiérrez, Franklin, and Lahaye 2020, USFWS 2012c) . They have large home ranges, with single owls in Arizona utilizing an average of 1,600 acres and pairs an average of 2,000 acres (AGFD 2005). Migration is variable within areas and among years (AGFD 2005, Gutiérrez, Franklin, and Lahaye 2020). When winter movements do occur, this species may move locally, primarily to lower elevations and more open sites with pinyon pine-juniper woodlands, open mountain shrub habitat, conifer forests or deciduous riparian trees (AGFD 2005, Gutiérrez, Franklin, and Lahaye 2020).</p> <p>Elevation: 2,720-10,000 ft (AGFD 2005).</p>	Is primarily non-migratory, although there may be some short distance (12 to 30 miles) or altitudinal movement (Gutiérrez, Franklin, and Lahaye 2020). Occurs patchily in Colorado, Utah, Arizona, New Mexico and western Texas. Range extends from the international border southward along the Sierra Madre Occidental and Oriental to Michoacán (Gutiérrez, Franklin, and Lahaye 2020, USFWS 2012c).	Occurs in summer and winter throughout the state, except for in the eastern plains. They are more abundant in the south. Some of the larger populations are found in the Gila National Forest and Sacramento Mountains (Ganey et al. 2014, New Mexico Avian Conservation Partners 2017).	<p><b>Unlikely.</b></p> <p>The Project Area is within the known distribution of this species and there is marginally suitable habitat in the site. However, given the lack of mature forest habitat and the on-going levels of disturbance, it is unlikely that a spotted owl would remain in this area for an extended period. Despite this, it is possible that this species may forage or pass through the site. The closest area of designated critical habitat is north of Silver City, about 20 miles from the Project Area.</p> <p>There is no designated critical habitat in the Project Area.</p>

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
FISH					
<i>Cyprinella formosa</i>  Beautiful shiner	Threatened (USFWS 1984); designated critical habitat (USFWS 1984).	Utilizes riffles of small to medium streams with sand, gravel, and rock bottoms (BISON-M 2018a).  Elevation: less than 4,500 ft (BISON-M 2018a).	Extirpated from the U.S. in 1968, but still found in much of its historical range in Mexico. Breeding stock were collected from Mexico in 1989 and placed at Dexter National Fish Hatchery in New Mexico. In 1990, several individuals were taken from the hatchery and were reintroduced on San Bernardino National Wildlife Refuge in southeastern Arizona (Cochise County)(Cobble 1995). Historically occurred throughout the Rio Yaqui Basin in the U.S. and Mexico and the Mimbres River in New Mexico, primarily in Cochise County in Arizona, and Grant and Luna counties in New Mexico (Cobble 1995).	Historically found in Rio Yaqui drainage and the Mimbres River (Cobble 1995), although it is now considered to be extirpated in the state (NatureServe Explorer 2021, Sublette et al. 1990).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area and this species is presumed extirpated in New Mexico.  There is no designated critical habitat in the Project Area.
<i>Gila intermedia</i>  Gila chub	Endangered (USFWS 2005); designated critical habitat (USFWS 2005).  [Note: USFWS (2017) determined that <i>G. nigra</i> and <i>G. intermedia</i> should be subsumed into <i>G. robusta</i> and intends to review the status of Gila chub.]	Typically occurs in pools of small streams or cienegas. However, this species can also be found in larger streams. It is often found near undercut banks, overhanging vegetation, and various types of cover within the aquatic habitat (USFWS 2015b).  Elevation: 2,000–5,500 ft (USFWS 2015b).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 2015b).	All historically documented populations have been extirpated except in Turkey Creek, in northwestern Grant County (USFWS 2005).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area and the site does not fall in the known distribution of this species.  There is no designated critical habitat in the Project Area.



Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Gila nigrescens</i>  Chihuahua chub	Threatened (USFWS 1983); no critical habitat.	Requires perennial water and prefers habitat with pools and undercut bank habitat (USFWS 1983). In streams, they are found mainly in lateral-scour pools where flow is against or along undercut banks and pools around channel obstructions such as boulders and root wads (Propst and Stefferud 1994).  Elevation: There are few records from New Mexico, but elevations range from approximately 6900 ft to 7,100 ft. Across the range (including Mexico), elevations range from 4,500-7,100 ft (Propst and Stefferud 1994).	Native to the Mimbres River drainage in New Mexico and the Guzmán and Laguna Bustillos basins in Chihuahua, Mexico (Propst 1999).	Historically, probably occupied all warmwater reaches in the Mimbres River drainage, but they are currently found regularly only in Moreno Spring, in about a 9.3 mile reach of the Mimbres River from the confluence of Allie Canyon downstream to the New Mexico Department of Game and Fish Mimbres Property south of Mimbres (Propst 1999).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.
<i>Meda fulgida</i>  Spikedace	Endangered (USFWS 2012a); designated critical habitat (USFWS 2012a).	Inhabits shallow riffles with sand, gravel, and rubble substrates of moderate to large perennial streams (USFWS 2012a).  Elevation: 1,620–4,500 ft (AGFD 2013).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. (USFWS 2012a).	Found in the mainstem Gila River, as well as in the lower end of the West, Middle, and East forks of the Gila River, and Mangas Creek within Hidalgo, Grant, and Catron counties (BISON-M 2017b).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.  There is no designated critical habitat in the Project Area.
<i>Rhinichthys [=Tiaroga] cobitis</i>  Loach minnow	Endangered (USFWS 2012a); designated critical habitat (USFWS 2012a).	Typically inhabits swift, small to large perennial streams where it uses interstitial spaces or lee areas of primarily cobble substrates for resting and spawning (USFWS 2012a). However, slow, silty streams are occasionally used (Minckley and Marsh 2009, p. 174). Adults are often found in areas with coarse, filamentous algae (Minckley and Marsh 2009, p. 174, USFWS 2012a).  Elevation: Below 8,000 ft (USFWS 2012a).	Endemic to the Gila River Basin in Arizona and New Mexico (USFWS 2012a). In Arizona, only found in Aravaipa, Campbell Blue Creeks, and White, San Francisco, and Blue Rivers (USFWS 1991).	Found in the Gila River and its tributaries including the West, Middle, and East forks (Paroz and Propst 2007); the San Francisco and Tularosa Rivers and their tributaries in Catron County (Propst et al. 2009); Blue River and its tributaries, including Dry Blue, Campbell Blue, Pace, and Frieborn creeks (Catron County) and Dry Blue Creek. and Blue Rivers and some of their tributaries (USFWS 2012a).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.  There is no designated critical habitat in the Project Area.

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Poeciliopsis occidentalis occidentalis</i> [Note: There are no currently recognized subspecies of <i>P. occidentalis</i> (Integrated Taxonomic Information System 2019, Accessed April 8, 2019)].  Gila topminnow	Endangered (USFWS 1967) as <i>P. occidentalis</i> ; no critical habitat.	Occurs in springs, cienegas, permanent and intermittent streams and the margins of large rivers. Prefers warm, shallow, and slow-moving water but can occur in lentic habitats or lotic habitats with moderate current. Additionally, favors areas with algal mats or debris along stream margins (USFWS 1998b).  Elevation: Historical records from 1,320-7,510 ft, with most records occurring below 5,000 ft (AGFD 2001a).	In the U.S., occurs in the Gila River Basin of Arizona and New Mexico. In Mexico, they occur in the Rio Sonora, Santa Cruz River and Rio de la Concepción basins in Sonora (USFWS 1998b).	Historically found in the Gila River at Frisco Hot Springs (Sheffer et al. 1997) and San Francisco River drainage, although this species may be extirpated in New Mexico (Paroz et al. 2006). In 1989, the Gila topminnow was stocked in a pond on the New Mexico Department of Game and Fish Red Rock Wildlife Management Area (NMDGF 2018) however, the effort was unsuccessful.	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.
<i>Oncorhynchus gilae</i>  Gila trout	Threatened (USFWS 1967, USFWS 2006b); no critical habitat.	Inhabits perennial montane streams in coniferous and mixed woodland, montane coniferous forest, and subalpine forests (USFWS 2003). These streams area characterized by high flow variability but with low turbidity and high dissolved oxygen. Spawns in areas with flow over substrates of coarse sand or gravel. Juveniles likely use areas with slow current such as stream margins, side channels or shallow bars. Subadults favor riffle habitats whereas adults prefer pool habitats (USFWS 2003).  Elevation: 5,400-9,200 ft (USFWS 2003).	Found in Arizona and New Mexico (USFWS 2003).	Historically occurred in the headwater streams of the Gila and San Francisco rivers. As of 2001, there were documented populations in Grant, Catron, and Sierra counties (USFWS 2002b). Three streams within Grant County were known to contain populations of the Gila trout (McKnight Creek, Sheep Corral Canyon, and Black Canyon). Gila trout were introduced into McKnight Creek (USFWS 1993b).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
MAMMALS					
<i>Canis lupus baileyi</i>  Mexican gray wolf	Endangered (USFWS 1975, USFWS 2015a); non-essential experimental population (USFWS 1998a, USFWS 2015a); non-essential experimental population remanded but remains in place until a new rule is finalized (Ctr. for Biological Diversity v. Jewell 2018).	Occurs in sparsely to densely forested mountainous terrain or adjacent grasslands where prey is abundant. Prey species include cervids, peccaries, lagomorphs and rodents (USFWS 2015a).  Elevation: 3,000-12,000 ft (AGFD 2001b).	The <i>baileyi</i> subspecies occurs in Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 2015a).	They have been translocated into the Gila National Forest (Mexican Wolf Interagency Field Team 2020). The non-essential experimental population boundaries are south of I-40 and is divided into management zones. Zone 1: Initial releases and translocations can occur into Apache-Sitgreaves National Forests, and the Tonto Basin Ranger District of Tonto National Forest. Zone 2: Areas outside of Zone 1, south of I-40 and east of Hwy 60/89 and 93, I-10 and I-19 allows for natural dispersal and occupancy. Initial releases allowed on private and tribal land with approved management agreements. Translocations and release of pups less than 5-months old allowed on Federal lands. Zone 3: Areas south of I-40 and west of Hwy 60/89 and 93, I-10 and I-19. Within Zone 3 no releases or translocations are allowed but can be occupied by naturally dispersing individuals (USFWS 2015a).	<b>Unlikely.</b>  While the Project Area occurs within the secondary recovery zone of the Blue Range Recovery Area, and suitable habitat for the wolf exists in areas surrounding the site. However, no wolves have been documented on the site. Currently, there are no packs within 45 miles of the Project Area (USFWS 2021c). However, due to the high mobility of this species, it is possible that an occasional wolf could disperse through the area. Given that the size of the Project Area is negligible relative to the available habitat for this species, the sensitivity of gray wolves to disturbance (true), it is highly unlikely that this species will occur in the site.

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Leptonycteris nivalis</i>  Mexican long-nosed bat	Endangered (USFSW 1988), no critical habitat.	A colonial cavern dweller that usually inhabits deep caverns, but also can be found in mines, culverts, hollow trees, and unoccupied (USFSW 1988). Occupies a variety of habitats from high-elevation pine oak woodlands to sparsely vegetated deserts. Foraging habitat includes columnar cacti and succulents such as saguaro cactus and paniculate agaves (century plants) (USFSW 1988).  Elevation: 3,700-7,800 ft (BISON-M 2018b).	They have been found in extreme southwestern New Mexico, the Big Bend area of Texas, the Chinati Mountains of Presidio County, Texas and southward to central Mexico (USFSW 1988).	Has been documented in the “bootheel” mountain ranges of southwestern portion of the state in Hidalgo County. There are known roosts for these species in the Animas Mountains, with another potential population in the Big Hatchet Mountains (Bogan, Cryan, and Weise 2006).	<b>None.</b>  Although there is a known roost site in the Bootheel mountain ranges of southwestern New Mexico (Bogan, Cryan, and Weise 2006), the Project Area is outside the reported geographic range for this species. Furthermore, the Project Area lacks suitable foraging habitat for this species. An internal survey of a decline shaft in the Project vicinity in 2014 by Bat Conservation International concluded that this species does not occur (BCI 2014).

Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
REPTILES					
<i>Thamnophis eques megalops</i>  Northern Mexican gartersnake	Threatened (USFWS 2014b); designated critical habitat (USFWS 2021a).	Is strongly associated with water due to its primarily aquatic prey base and is heavily dependent on fish species. Occurs near or in ponds, cienegas, lowland river riparian forests and woodlands, and upland stream gallery forests. Avoids steep mountain canyons. Most abundant in densely vegetated habitat. Associated with a variety of biotic communities including Sonoran Desertscrub, Semidesert Grasslands, Interior Chaparral, Madrean Evergreen Woodland and into the lower reaches of Petran Montane Conifer Forest (AGFD 2012, USFWS 2013b). May be found up to one mile (or more) away from water, using terrestrial habitat for brumation, digestion, or for thermoregulatory needs such as developing young (Jeff Servoss, USFWS pers. comm. to D. Cerasale, April 18, 2016).  Elevation: 130-8,497 ft (USFWS 2014b) but is most common below 5,000 ft (AGFD 2012).	Occurs in Arizona and New Mexico, U.S. (USFWS 2014b). Although it is poorly known, the range extends into Mexico and is thought to include Sonora, Chihuahua, Durango, Coahuila, Zacatecas, Guanajuato, Nayarit, Hidalgo, Jalisco, San Luis Potosí, Aguascalientes, Tlaxcala, Puebla, México, Michoacán, Oaxaca, Veracruz, and Querétaro (AGFD 2012).	The status of this species in the state is uncertain, although it is possible that this species may occur in Mule Creek (USFWS 2014d), and there is proposed critical habitat for this species in Gila River and Duck Creek, although portions of these areas are being considered for exclusion (USFWS 2020b); however, it is likely extirpated.	<b>None.</b>  There is no suitable aquatic habitat in the Project Area and the distance from the nearest suitable habitat is well outside of the dispersal capability of this species.  There is no designated critical habitat in the Project Area.



Table 1. Potential for Occurrence of ESA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Thamnophis rufipunctatus</i>  Narrow-headed gartersnake	Threatened (USFWS 2014b); proposed critical habitat (USFWS 2020b).	Is strongly associated with pool and riffle habitats in clear, rocky streams habitats in Petran Montane Conifer Forest, Great Basin Conifer Woodland, Interior Chaparral and the Arizona Upland subdivision of Sonoran Desertscrub. Occasionally utilizes lake shoreline habitats (USFWS 2014b). They primarily prey on fish species (USFWS 2014b). Bank-line vegetation is an important habitat component and this species favors areas with shrub- and sapling-sized plants for thermoregulation (USFWS 2014b). Been documented using site up to 656 ft away from the floodplain for hibernation (USFWS 2014b). Typically surface active between March and November with air temperatures of 52° to 89° F (USFWS 2014b).  Elevation: 2,300-8,000 ft (USFWS 2014b).	Occurs in Arizona and New Mexico (USFWS 2014b).	Confined to the Catron, Grant, and Hidalgo counties where it reaches the easternmost edge of its distribution, where it uses suitable rocky rivers and streams of the San Francisco and Gila River drainages. Expected to exist within the San Francisco River drainage at low densities. Individuals have been recently detected in Saliz Creek, Whitewater Creek, Diamond Creek, and Dry Blue Creek near the Arizona border in Catron County (New Mexico Game and Fish Department 2020).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area, and as there are no fish species present thus there is no suitable prey base. The nearest suitable aquatic habitat is outside of the dispersal capabilities of this species.  There is no proposed critical habitat in the Project Area.

Table 2. Potential for Occurrence of BGEPA-Listed Species within the Project Area

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Aquila chrysaetos</i>  Golden eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).	<p>Range-wide, breeds in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, prefers pinyon-juniper woodlands and Sonoran desertscrub (Driscoll 2005). Constructs large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Driscoll 2005). Known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Katzner et al. 2020). Primarily feeds on small mammals (greater than 80% of prey items) but also consumes birds, reptiles and fish (Katzner et al. 2020). In the western U.S. average territory size ranges from 22 to 55 square miles (AGFD 2002a).</p> <p>Elevation: In Arizona, typically breeds between 1,300-9,000 ft (Driscoll 2005).</p>	Is a short to medium-distance partial migrant with a Holarctic distribution (Katzner et al. 2020). In North America, primarily breeds in western portion of the continent from Alaska to central Mexico. Northern most populations are typically migratory. Year-round and non-breeding populations occur from central Saskatchewan to British Columbia, Canada and south throughout its range and sparsely in the eastern U.S. (Katzner et al. 2020).	Breed locally in suitable habitat throughout the state (Katzner et al. 2020, Parmeter, Neville, and Emkalns 2002).	<p><b>Possible.</b></p> <p>Have been detected within 3 miles of the Project Area (eBird 2021) and the site contains some marginally suitable foraging habitat. However, there are no cliffs for nesting, although there are some ponderosa pines are present. Given the nearby sightings of golden eagles and marginally suitable habitat present in the Project Area, it is possible that they may occur within or in the vicinity of the site.</p>
<i>Haliaeetus leucocephalus</i>  Bald eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).	<p>Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020).</p> <p>Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).</p>	Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).	Are present casually to occasionally in summer, but they migrate and winter almost statewide, although there is limited breeding in state (Buehler 2020).	<p><b>Unlikely.</b></p> <p>The Project Area within the range of this species and there are citizen scientists’ sightings of bald eagles within ten miles (eBird 2021). However, the site does not contain large bodies of water associated with this species. While it is possible that they may fly over the area while foraging, given the absence of preferred habitat, it is unlikely that this species will occur.</p>

## 6. REFERENCES CITED

- Arizona Game and Fish Department. 2001a. Gila Topminnow (*Poeciliopsis occidentalis occidentalis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- \_\_\_\_\_. 2001b. Mexican Gray Wolf (*Canis lupus baileyi*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. March 6, 2001. 7 pp.
- \_\_\_\_\_. 2001c. Northern Aplomado Falcon (*Falco femoralis septentrionalis*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2002a. Golden Eagle (*Aquila chrysaetos*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. July 27, 2002. 5 pp.
- \_\_\_\_\_. 2002b. 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. November 11, 2002. 7 pp.
- \_\_\_\_\_. 2005. Mexican Spotted Owl (*Strix occidentalis lucida*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. April 26, 2005. 12 pp.
- \_\_\_\_\_. 2011a. Bald Eagle (*Haliaeetus leucocephalus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. September 2, 2011. 9 pp.
- \_\_\_\_\_. 2011b. Yellow-billed Cuckoo (*Coccyzus americanus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 31, 2011. 6 pp.
- \_\_\_\_\_. 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. July 20, 2012. 8 pp.
- \_\_\_\_\_. 2013. Spikedace (*Meda fulgida*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6.
- Bat Conservation International. 2014. An Internal Survey Report of Abandoned Mine Conducted on the Property of Freeport- McMoRan Tyrone. Flagstaff, Arizona.
- BISON-M. 2017a. "Aplomado Falcon (*Falco Femoralis*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.

- \_\_\_\_\_. 2017b. "Spikedace (*Meda fulgida*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018a. "Beautiful Shiner (*Cyprinella formosa*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018b. "Mexican Long-nosed Bat (*Leptonycteris nivalis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018c. "Southwestern Willow Flycatcher (*Empidonax traillii extimus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018d. "Yellow-billed Cuckoo (western pop; *Coccyzus americanus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- Bogan, Michael A., Paul M. Cryan, and Christa D. Weise. 2006. Roosts and Nocturnal Movements of Long-Nosed Bats (*Leptonycteris curasoae* and *L. nivalis*) in Southwestern New Mexico. Albuquerque, New Mexico: U.S. Geological Survey and University of New Mexico. August 18, 2006.
- Buehler, David A. 2020. "Bald Eagle (*Haliaeetus leucocephalus*), version 1.0.\" The Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.baleag.01>. Ithaca, New York.
- Cobble, Kevin S. 1995. Yaqui Fishes Recovery Plan. Albuquerque, New Mexico: U.S. Fish and Wildlife Service. April 29, 1995. 48 pp.
- Driscoll, James T. 2005. "Golden Eagle (*Aquila chrysaetos*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 150-151.
- eBird. 2020. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2021. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. 2018. "eBird Status and Trends.\" Cornell Lab of Ornithology. <https://ebird.org/science/status-and-trends>. Ithaca, New York.
- Ganey, Joseph L, Gary C. White, James P. Ward Jr, Sean C. Kyle, Darrell L. Apprill, Todd A. Rawlinson, and Ryan S. Jonnes. 2014. "Demography of Mexican Spotted Owls in the Sacramento Mountains, New Mexico.\" *The Journal of Wildlife Management* 78 (1):42-49.
- GeoSystems Analysis, Inc.,. 2021. Little Rock Rare Plant Survey. Albuquerque, New Mexico. February 8.

- Gutiérrez, R J, A B Franklin, and W S Lahaye. 2020. "Spotted Owl (*Strix occidentalis*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Hughes, Janice M. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*), version 1.0." In *The Birds of the World [online]*, edited by P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Integrated Taxonomic Information System. 2019. "Integrated Taxonomic Information System online database." <http://www.itis.gov>.
- Katzner, T. E., M. N. Kochert, K. Steenhof, C. L. McIntyre, and E. H. Craig. 2020. "Golden Eagle (*Aquila chrysaetos*), version 2.0." In *Birds of the World*, edited by P. G. Rodewald and B. K. Keeney. Ithaca, New York: Cornell Lab of Ornithology.
- Keddy-Hector, D.P., P. Pyle, and M.A. Pattern. 2017. "Aplomado Falcon (*Falco femoralis*), Version 3.0. In the Birds of North America." Cornell Lab of Ornithology. <https://doi.org/10.2173/bna.aplfal.03>. Ithaca, New York.
- Mexican Wolf Interagency Field Team. 2020. Mexican Wolf Recovery Program Monthly Update January 1 - 31, 2020. U.S. Fish and Wildlife Service.
- Minckley, W. L., and P.C. Marsh. 2009. *Inland Fishes of the Greater Southwest - Chronicle of a Vanishing Biota*. Tucson, Arizona: University of Arizona Press.
- Natural Heritage New Mexico. 2021. "More Species Information for Chiricahua Leopard Frog." <https://nhnm.unm.edu/bcd/species/389323>.
- NatureServe Explorer. 2021. "NatureServe Explorer [web application] *Cyprinella formosa* Beautiful Shiner." <https://explorer.natureserve.org/>. Arlington, Virginia.
- New Mexico Avian Conservation Partners. 2017. Mexican Spotted Owl (*Strix occidentalis lucida*).
- New Mexico Department of Game and Fish. 2018. Threatened and Endangered Species of New Mexico 2018 Biennial Review. Santa Fe, New Mexico: Wildlife Management and Fisheries Management Divisions. October 5, 2018.
- New Mexico Game and Fish Department. 2020. Threatend and Endangered Species of New Mexico 20 Biennial Review: Draft. July 30.
- Parmeter, John, Bruce Neville, and Douglas Emkalns. 2002. New Mexico Bird Finding Guide. *Third Edition*. New Mexico Ornithological Society.
- Paroz, Yvette M., and David L. Propst. 2007. Distribution of Spikedace, Loach Minnow, and Cub Species in the Gila River Basin, New Mexico 1908-2007. *Prepared for the U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation*. New Mexico Department of Game and Fish Conservation Services Division. July 2007.

- Paroz, Yvette M., David L. Propst, and Jerome A. Stefferud. 2006. Long-Term Monitoring of Fish Assemblages in the Gila River Drainage, New Mexico 1988-2005. *Submitted to U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation: Conservation Services Division New Mexico Department of Game and Fish*. April 24, 2006.
- Propst, David L. 1999. Threatened and Endangered Fishes of New Mexico. *Tech. Rpt. No. 1*. Santa Fe, New Mexico: New Mexico Department of Game and Fish.
- Propst, David L., Yvette M. Paroz, Stephanie M. Carman, and Nikolas D. Zymonas. 2009. Systematic Investigations of Warmwater fish Communities FW-17-R-36 Performance Report 1 July 2008-30 June 2009. Santa Fe, New Mexico: New Mexico Department of Game and Fish. August 14, 2009.
- Propst, David L., and Jerome A. Stefferud. 1994. "Distribution and Status of the Chihuahua Chub (Teleostei: Cyprinidae: *Gila nigrescens*), with Notes on Its Ecology and Associated Species." *The Southwestern Naturalist* 39 (3):224-234.
- Sedgwick, James A. 2020. "Willow Flycatcher (*Empidonax traillii*), version 1.0." In *The Birds of the World [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Sheffer, Ruby J., Phillip W. Hedrick, W.L. Minckley, and Anthony L. Velasco. 1997. "Fitness in the Endangered Gila Topminnow." *Conservation Biology* 11 (1):162-171.
- Soil Survey Staff, Natural Resources Conservation Service. 2020. "Web Soil Survey." U.S. Department of Agriculture. <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.
- Sublette, James E., Michael D. Hatch, and Mary Sublette. 1990. "The Fishes of New Mexico." In. Albuquerque: University of New Mexico Press. 393.
- Tesky, Julie L. 1994. *Aquila chrysaetos*. *Fire Effects Information System [online]*. Rocky Mountain Research Station: U.S. Department of Agriculture, U.S. Forest Service.
- The Nature Conservancy. 2012. Brown and Lowe's Biotic Communities of the Southwest. *Digital version of David E. Brown and Charles H. Lowe's 1981 Map*: The Nature Conservancy of Arizona. June 27, 2012.
- Tierra Environmental Consultants, LLC. 2010. Little Rock Mine – Determination of NEPA Adequacy Analysis. Tempe, Arizona: Tierra Environmental Consultants, LLC. September 8, 2010.
- U.S. District Court for the District of Arizona. 2018. Center for Biological Diversity v. Jewell. *No. CV-15-00019-TUC-JGZ (/)*. March 30, 2018.
- U.S. Environmental Protection Agency. 2021. "Ecoregions Research." <https://www.epa.gov/ecoresearch/ecoregions>.



- U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. Arlington, Virginia: U.S. Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management,. December. 85 pp.
- U.S. Fish and Wildlife Service. 1967. Native Fish and Wildlife; Endangered Species. U.S. Department of the Interior. March 11, 1967. *Federal Register*, 32 (48):4001.
- \_\_\_\_\_. 1975. Endangered and Threatened Wildlife; Lists of Endangered and Threatened Fauna. *Federal Register*, 40 17590-17591.
- \_\_\_\_\_. 1983. Endangered and Threatened Wildlife and Plants; Threatened Status for Gila Nigrescens (Chihuahua Chub). *Federal Register*, 48 46053-46057.
- \_\_\_\_\_. 1984. Endangered and Threatened Wildlife and Plants; Final Rule To Determine the Yaqui Chub to be an Endangered Species with Critical Habitat, and to Determine the Beautiful Shiner and the Yaqui Catfish to be Threatened Species with Critical Habitat. August 31, 1984. *Federal Register*, 49 34490-34497.
- \_\_\_\_\_. 1986. Endangered and Threatened Wildlife and Plants; Determination of the Northern Aplomado Falcon to be an Endangered Species. Department of Interior. February 25, 1986. *Federal Register*, 51 6686-6690.
- \_\_\_\_\_. 1988. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Long-Nosed Bats. Final Rule. Federal Register. September 30. *Federal Register*, 53 5.
- \_\_\_\_\_. 1991. Loach Minnow *Tiaroga cobitis* Recovery Plan. September 30, 1991. 1-45.
- \_\_\_\_\_. 1993a. Endangered and Threatened Wildlife and Plants; Final Rule to List the Mexican Spotted Owl as a Threatened Species. U.S. Department of the Interior. March 16, 1993. *Federal Register*, 58 (49):14248-14271.
- \_\_\_\_\_. 1993b. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Second Revision). Albuquerque, New Mexico. December 8, 1993.
- \_\_\_\_\_. 1995. Final Rule Determining Endangered Status for the Southwestern Willow Flycatcher. February 27, 1995. *Federal Register*, 60 (38):10694-10715.
- \_\_\_\_\_. 1998a. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of the Mexican Gray Wolf in Arizona and New Mexico. U.S. Fish and Wildlife Service. January 12, 1998. *Federal Register*, 63 (7):1752-1772.
- \_\_\_\_\_. 1998b. Gila Topminnow, *Poeciliopsis occidentalis occidentalis*, Revised Recovery Plan. Albuquerque, New Mexico: U.S. Fish and Wildlife Services.
- \_\_\_\_\_. 2002a. Endangered and Threatened Wildlife and Plants; Listing of the Chiricahua Leopard Frog (*Rana chiricahuensis*); Final Rule. *Federal Register*, 67 (114):40790-40811.

- \_\_\_\_\_. 2002b. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Third Revision). *Technical Review Draft*. Albuquerque, New Mexico. April 2002.
- \_\_\_\_\_. 2003. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Third Revision). Albuquerque, New Mexico: U.S. Fish and Wildlife Service,. i-vii + 78 pp.
- \_\_\_\_\_. 2004. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Mexican Spotted Owl; Final Rule. August 31, 2004. *Federal Register*, 69 53182-53230.
- \_\_\_\_\_. 2005. Endangered and Threatened Wildlife and Plants; Listing Gila Chub as Endangered with Critical Habitat; Final Rule. November 2, 2005. *Federal Register*, 70 66664-66721.
- \_\_\_\_\_. 2006a. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of Northern Aplomado Falcons in New Mexico and Arizona. Final Rule. U.S. Department of the Interior. July 26, 2006. *Federal Register*, 71 (143):42298-42315.
- \_\_\_\_\_. 2006b. Endangered and Threatened Wildlife and Plants; Reclassification of the Gila Trout (*Oncorhynchus gilae*) from Endangered to Threatened; Special Rule for Gila Trout in New Mexico and Arizona. *Federal Register*, 71 40657-40674.
- \_\_\_\_\_. 2011. Chiricahua Leopard Frog (*Lithobates [=Rana] chiricahuensis*) 5-year Review: Summary and Evaluation. Phoenix, Arizona: Arizona Ecological Services Office. January 28, 2011.
- \_\_\_\_\_. 2012a. Endangered and Threatened Wildlife and Plants; Endangered Status and Designations of Critical Habitat for Spikedace and Loach Minnow. U.S. Fish and Wildlife Service. February 23, 2012. *Federal Register*, 77 (36):10810-10934.
- \_\_\_\_\_. 2012b. Endangered and Threatened Wildlife and Plants; Listing and Designation of Critical Habitat for the Chiricahua Leopard Frog Final Rule. U.S. Department of the Interior. March 20, 2012. *Federal Register*, 77 (54):16324-16424.
- \_\_\_\_\_. 2012c. Final Recovery Plan for the Mexican Spotted Owl (*Strix occidentalis lucida*), First Revision. *Southwest Region*. Albuquerque, New Mexico: U.S. Fish and Wildlife Service. September 2012.
- \_\_\_\_\_. 2013a. Endangered and Threatened Wildlife and Plants, Designation of Critical Habitat for Southwestern Willow Flycatcher, Final Rule. January 3, 2013. *Federal Register*, 78 (2):344-534.
- \_\_\_\_\_. 2013b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Proposed Rule. U.S. Department of the Interior. July 10, 2013. *Federal Register*, 78 (132):41550-41608.
- \_\_\_\_\_. 2013c. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. U.S. Department of Interior. October 3, 2013. *Federal Register*, 78 (192):61622-61666.

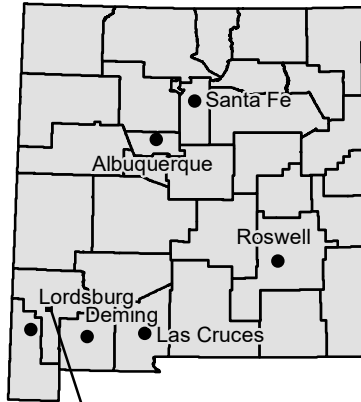
- \_\_\_\_\_. 2014a. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Final Rule. U.S. Department of Interior. October 3, 2014. *Federal Register*, 79 (192):59992-60038.
- \_\_\_\_\_. 2014b. Endangered and Threatened Wildlife and Plants; Threatened Status for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake; Final Rule. *Federal Register*. U.S. Department of the Interior. July 8, 2014. 38678-38746.
- \_\_\_\_\_. 2014c. Northern Aplomado Falcon (*Falco femoralis septentrionalis*) 5-Year Review: Summary and Evaluation. New Mexico Ecological Services Field Office. Albuquerque, New Mexico: U.S. Fish and Wildlife Service. August 26, 2014.
- \_\_\_\_\_. 2014d. Northern Mexican Gartersnake (*Thamnophis eques megalops*). July 2014.
- \_\_\_\_\_. 2015a. Endangered and Threatened Wildlife and Plants; Endangered Status for the Mexican Wolf; Final Rule. January 16, 2015. *Federal Register*, 80 2488-2512.
- \_\_\_\_\_. 2015b. Gila Chub (*Gila intermedia*) Draft Recovery Plan. Albuquerque, New Mexico: U.S. Fish and Wildlife Service, Southwest Region. 118 + Appendices A-C.
- \_\_\_\_\_. 2017. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and Roundtail Chub Distinct Population Segment: Proposed Rule; Withdrawal. U.S. Department of the Interior. *Federal Register*, 82 (66):16981-16988.
- \_\_\_\_\_. 2020a. Endangered and Threatened Wildlife and Plants: Removing the Gray Wolf (*Canis lupus*) From the List of Endangered. Department of the Interior. November 3, 2020. 85 69778-69895.
- \_\_\_\_\_. 2020b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed; Revised Proposed Rule. U.S. Department of the Interior. April 28, 2020. *Federal Register*, 85 (82):23608-23668.
- \_\_\_\_\_. 2020c. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule. U.S. Department of Interior. February 27, 2020. *Federal Register*, 85 (39):11458-11594.
- \_\_\_\_\_. 2021a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake; Final Rule. U.S. Department of the Interior. April 28, 2021. *Federal Register*, 86 (80):22518-22580.
- \_\_\_\_\_. 2021b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Final Rule. U.S. Department of the Interior. April 21, 2021. *Federal Register*, 86 (75):20798-20810.

- \_\_\_\_\_. 2021c. "Mexican Wolf Locations." Mexican Wolf Recovery Program, Published in Web AppBuilder for ArcGIS.  
<https://www.arcgis.com/apps/webappviewer/index.html?id=fa2f5e84ec5545f3985c917825805f65&extent=-12337235.6233%2C3947363.8229%2C-12057476.0998%2C4124086.2323%2C102100>.
- U.S. Geological Survey. 2009. A Tapestry of Time and Terrain: The Union of Two Maps - Geology and Topography. U.S. Department of the Interior.
- Western Regional Climate Center. 2020. "Cooperative Climatological Data Summaries."  
[https://wrcc.dri.edu/Climate/west\\_coop\\_summaries.php](https://wrcc.dri.edu/Climate/west_coop_summaries.php). Reno, Nevada.
- WestLand Resources, Inc. 2021. Bat Habitat Assessment Little Rock 2020 MPO Amendment.  
*Prepared for Bureau of Land Management Las Cruces District Office.* Tucson, Arizona. August 2021.
- Wise-Gervais, Cathryn. 2005. "Spotted Owl (*Strix occidentalis*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 224-225.

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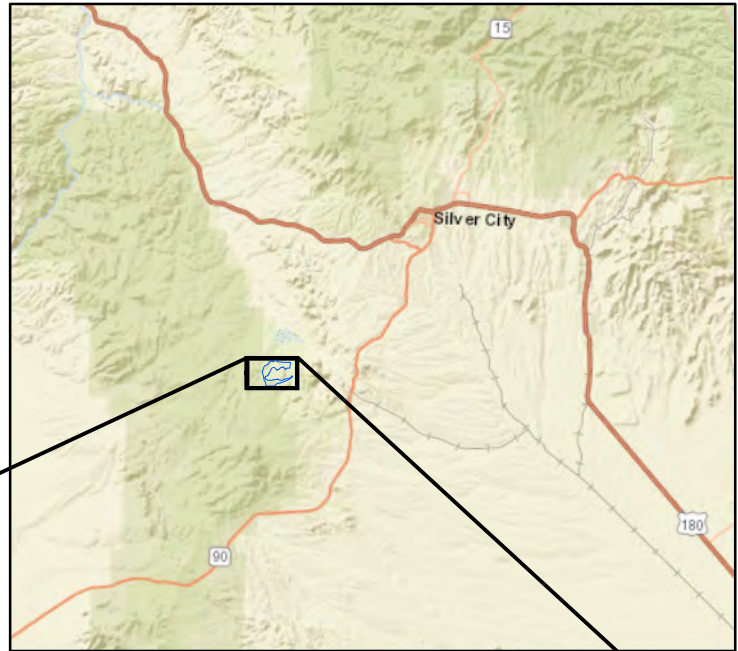
**FIGURES**

## NEW MEXICO

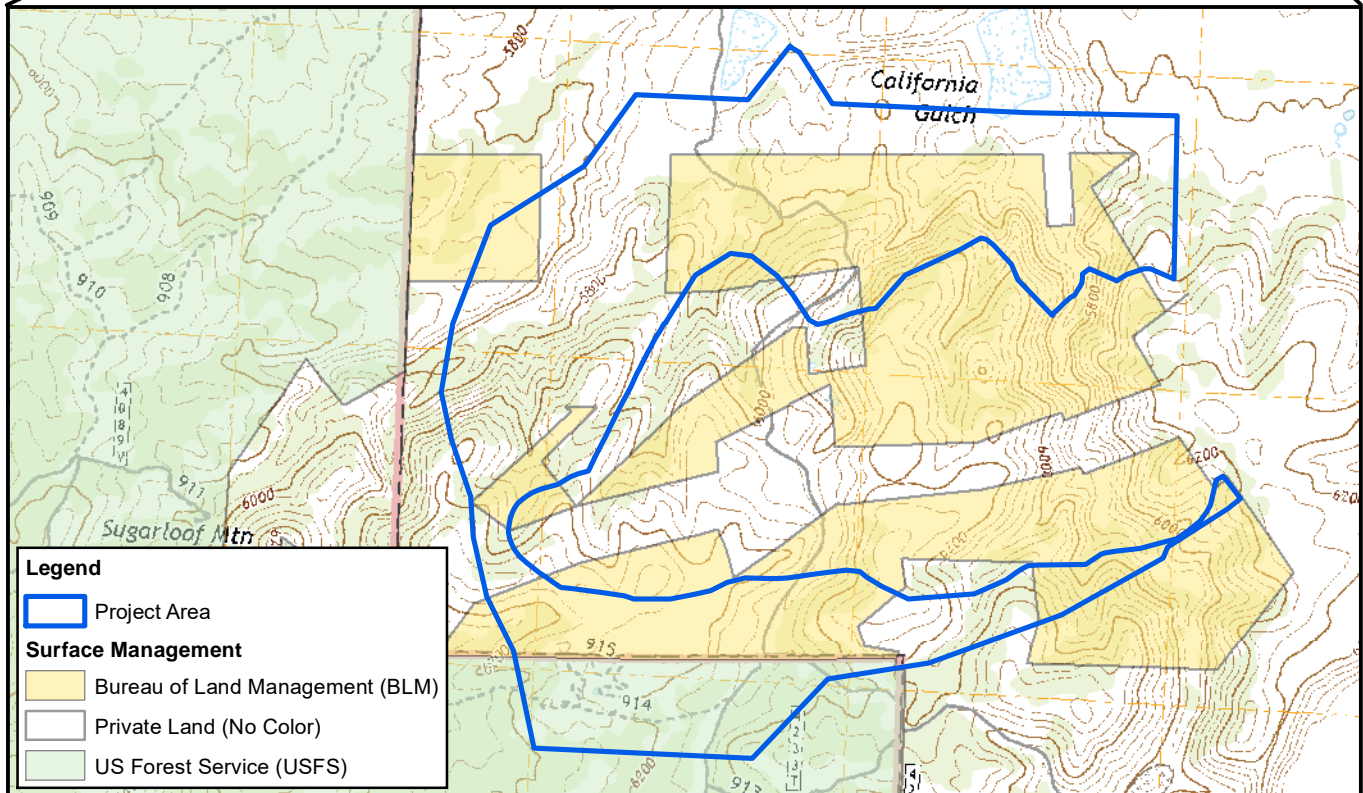


PROJECT  
LOCATION

## PROJECT VICINITY



Approximate Scale 1 Inch = 10 Miles

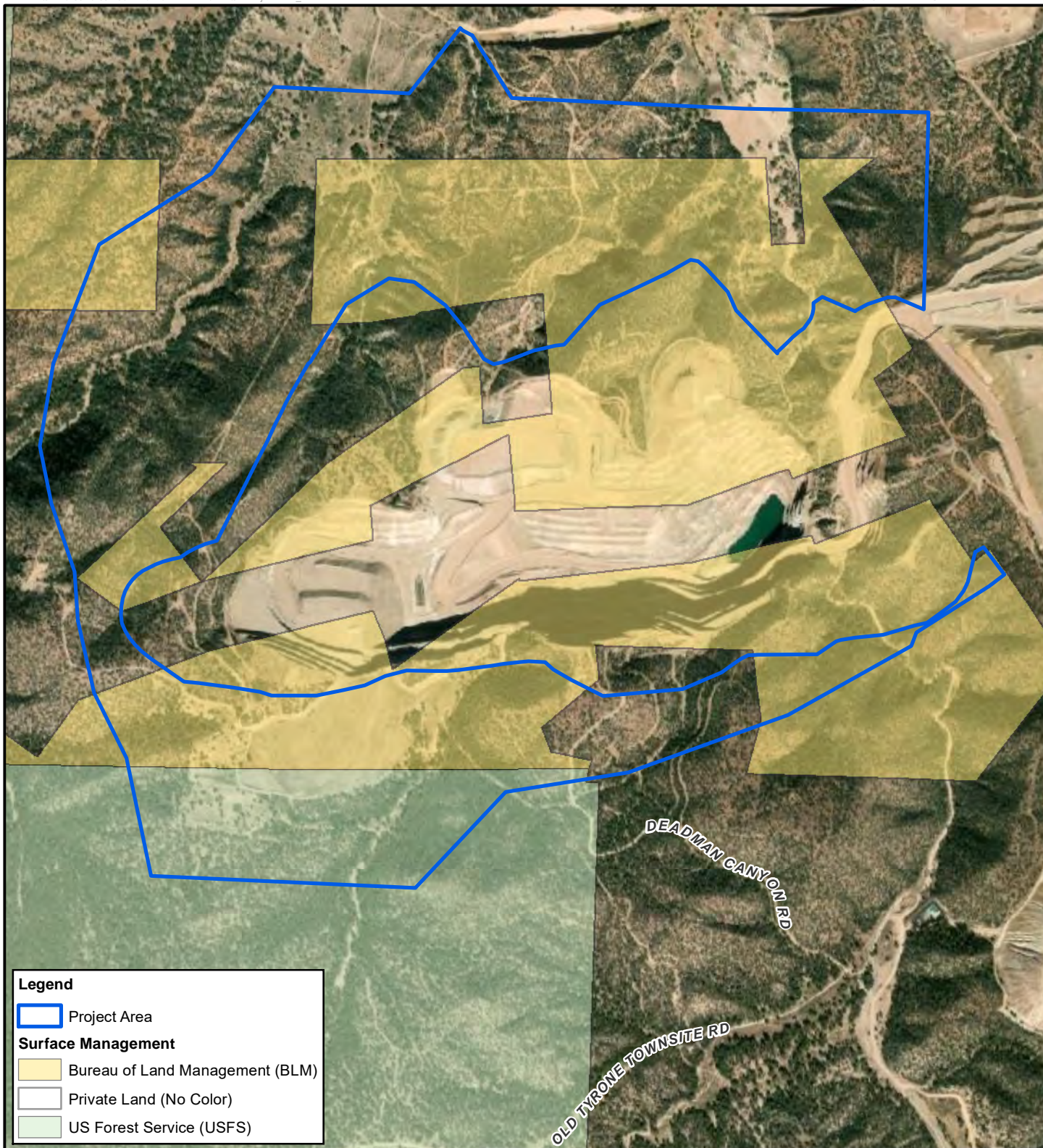





T19S, R15W, Portions of Sections 8, 9, 16, 17, 20 and 21,  
Grant County, New Mexico  
Wind Mountain USGS 7.5' Quadrangle (2020)  
Surface Management: BLM 2014,  
Image Source: ArcGIS Online, World Street Map

**FREEPORT-MCMORAN  
TYRONE INC.**  
**Little Rock Biological  
Evaluation**

VICINITY MAP  
Figure 1



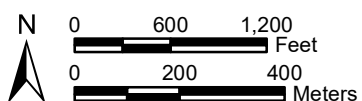
**Legend** Project Area**Surface Management** Bureau of Land Management (BLM) Private Land (No Color) US Forest Service (USFS)

T19S, R15W, Portions of Sections 8, 9, 16, 17, 20 and 21,  
Grant County, New Mexico  
Surface Management: BLM 2014,  
Image Source: ArcGIS Online, World Imagery 10/25/2019

**FREEPORT-MCMORAN  
TYRONE INC.**  
Little Rock Biological  
Evaluation

PROJECT AREA

Figure 2



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## **APPENDIX A**

### **IPaC Query Results**

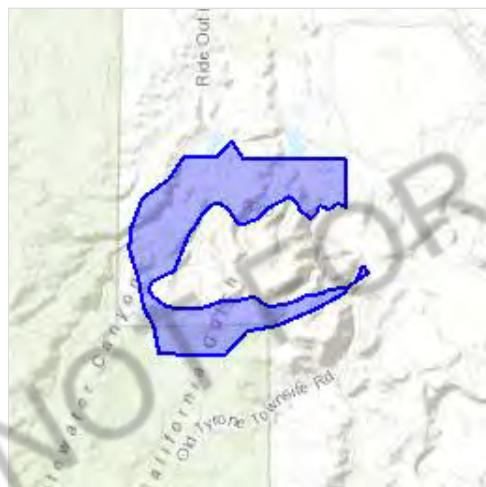
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Grant County, New Mexico



## Local office

New Mexico Ecological Services Field Office

☎ (505) 346-2525

🏠 (505) 346-2542

2105 Osuna Road Ne

Albuquerque, NM 87113-1001

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

[http://www.fws.gov/southwest/es/ES\\_Lists\\_Main2.html](http://www.fws.gov/southwest/es/ES_Lists_Main2.html)



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [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.

The following species are potentially affected by activities in this location:

## Mammals

NAME

STATUS

Gray Wolf *Canis lupus*

Proposed Endangered

No critical habitat has been designated for this species.

Mexican Long-nosed Bat *Leptonycteris nivalis*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8203>Mexican Wolf *Canis lupus baileyi*

EXPN

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3916>

## Birds

NAME	STATUS
<b>Mexican Spotted Owl</b> <i>Strix occidentalis lucida</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a>	Threatened
<b>Northern Aplomado Falcon</b> <i>Falco femoralis septentrionalis</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a>	EXPN
<b>Southwestern Willow Flycatcher</b> <i>Empidonax traillii extimus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a>	Endangered
<b>Yellow-billed Cuckoo</b> <i>Coccyzus americanus</i> There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

## Reptiles

NAME	STATUS
<b>Narrow-headed Gartersnake</b> <i>Thamnophis rufipunctatus</i> There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/2204">https://ecos.fws.gov/ecp/species/2204</a>	Threatened
<b>Northern Mexican Gartersnake</b> <i>Thamnophis eques megalops</i> There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. <a href="https://ecos.fws.gov/ecp/species/7655">https://ecos.fws.gov/ecp/species/7655</a>	Threatened

# Amphibians

NAME	STATUS
<p>Chiricahua Leopard Frog <i>Rana chiricahuensis</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p><a href="https://ecos.fws.gov/ecp/species/1516">https://ecos.fws.gov/ecp/species/1516</a></p>	Threatened

# Fishes

NAME	STATUS
<p>Beautiful Shiner <i>Cyprinella formosa</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p><a href="https://ecos.fws.gov/ecp/species/7874">https://ecos.fws.gov/ecp/species/7874</a></p>	Threatened
<p>Chihuahua Chub <i>Gila nigrescens</i></p> <p>There is <b>proposed</b> critical habitat for this species. The location of the critical habitat is not available.</p> <p><a href="https://ecos.fws.gov/ecp/species/7156">https://ecos.fws.gov/ecp/species/7156</a></p>	Threatened
<p>Gila Chub <i>Gila intermedia</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p><a href="https://ecos.fws.gov/ecp/species/51">https://ecos.fws.gov/ecp/species/51</a></p>	Endangered
<p>Gila Topminnow (incl. Yaqui) <i>Poeciliopsis occidentalis</i></p> <p>No critical habitat has been designated for this species.</p> <p><a href="https://ecos.fws.gov/ecp/species/1116">https://ecos.fws.gov/ecp/species/1116</a></p>	Endangered
<p>Gila Trout <i>Oncorhynchus gilae</i></p> <p>No critical habitat has been designated for this species.</p> <p><a href="https://ecos.fws.gov/ecp/species/781">https://ecos.fws.gov/ecp/species/781</a></p>	Threatened
<p>Loach Minnow <i>Tiaroga cobitis</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p><a href="https://ecos.fws.gov/ecp/species/6922">https://ecos.fws.gov/ecp/species/6922</a></p>	Endangered
<p>Spikedace <i>Meda fulgida</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.</p> <p><a href="https://ecos.fws.gov/ecp/species/6493">https://ecos.fws.gov/ecp/species/6493</a></p>	Endangered

# Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A  
BREEDING SEASON IS INDICATED  
FOR A BIRD ON YOUR LIST, THE



BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

#### Grace's Warbler *Dendroica graciae*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 20 to Jul 20

#### Red-faced Warbler *Cardellina rubrifrons*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 10 to Jul 15

#### Rufous Hummingbird *selasphorus rufus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .

- The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

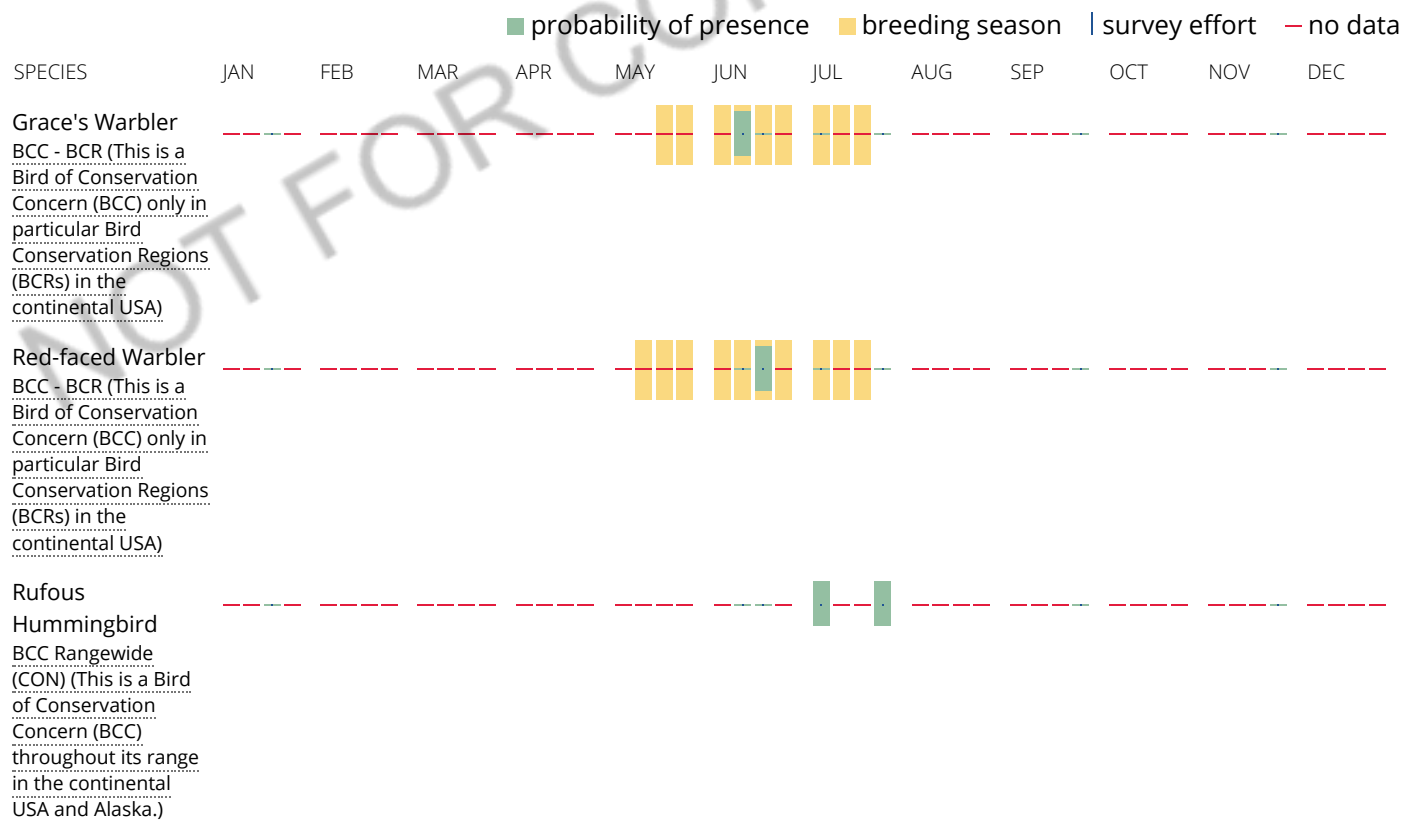
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND

[PUBF](#)

RIVERINE

[R4SBC](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters.

Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

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## **APPENDIX B**

### **USFS GNF Sensitive Species Potential to Occur**



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
AMPHIBIANS				
<i>Lithobates yavapaiensis</i>  Lowland leopard frog	Occur in a variety of perennial to near perennial waters in desert grasslands to pinyon juniper biotic communities (AGFD 2006b). Inhabits large rivers, streams, canals, cienegas, cattle tanks or other aquatic features (Rorabaugh 2008). Can survive in semi-permanent aquatic systems by retreating into deep mud cracks, mammal burrows, or rock fissures, but large pools are required for adult survival and reproductive efforts (Bureau of Reclamation 2016). Elevation: In Arizona, from 480–6,200 ft (AGFD 2006b).	Historic range included Arizona, California, Nevada, New Mexico, U.S. and extreme northeastern Baja California, northern Sonora, and possibly northwestern Chihuahua, Mexico (AGFD 2006b, Bureau of Reclamation 2016). Current range is restricted to southern Arizona and adjacent portions of Sonora (Bureau of Reclamation 2016).	Is thought to be extremely rare and likely extirpated in the state. A 1995 survey of 72 potential locations in the state, including six historical sites that had not been surveyed in the past 10 years, resulted in no observations. State populations are now believed to be extirpated or occurring in very low numbers (BISON-M 2019c).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area, and this species is likely extirpated from the state.
BIRDS				
<i>Buteogallus anthracinus</i>  Common black hawk	Associated with swamps, marshes, flooded forests, coastal plains, mangroves, and riparian areas with perennial water. In the southwestern U.S. they are an obligate riparian species (Schnell 2020). In Arizona, they occur along perennial and intermittent streams with perennial pools in drainages with sycamores, Arizona alder, Fremont cottonwood, Arizona cypress, Arizona walnut, Goodding’s willow, velvet ash, velvet mesquite or tamarisk. Hunts for arthropods and small vertebrates including fish, frogs, snakes, and lizards from streamside perches. High branches, rock ledges, sandbars or streamside rocks are used as foraging perches (Schnell 2020). U.S. populations are migratory and winter in Mexico or further south (Schnell 2020). Migratory habitat is insufficiently known, but this species is generally believed to follow riparian corridors (Sadoti 2010). Elevation: In Arizona, 1,800–7,000 ft (Averill-Murray and Corman 2005).	Is a partial migrant. Migratory breeding populations in extreme southern Utah and Nevada, Arizona, New Mexico and western Texas in the U.S. and eastern Sonora, western Chihuahua, western Durango, and eastern Nayarit. Resident from Sinaloa and Tamaulipas and south, primarily along the coasts to Ecuador, Columbia, and Venezuela in northern South America. Occasional individuals have been reported overwintering in southern Arizona (Schnell 2020).	Found along the Gila, San Francisco, and Mimbres rivers in the southwest quadrant of the state, as well as along the Rio Hondo in the southeast. It occasionally nests along the Rio Grande as far north as Albuquerque, and in the Canadian River and Upper Pecos drainages (BISON-M 2020a, Schnell 2020).	<b>Unlikely.</b>  While there is no suitable habitat in the Project Area, there have been citizen scientist detections of this species within 10 miles of the site (eBird 2021). As there are ephemeral water features in the Project Area, it is possible that this species may fly over the site while foraging or migrating, although this is very unlikely.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Calypte costae</i> Costa's hummingbird	<p>Breeds in Sonoran and Mojave desertscrub, coastal scrub, chaparral and tropical deciduous forest (Baltosser and Scott 1996). Occurs in upland desertscrub, desert washes and in riparian vegetation associated with springs or intermittent streams, in Arizona (Corman 2005b). During migration, this species uses xeric habitats but also is known to travel along drainages, which may be more mesic than habitats used during breeding (Baltosser and Scott 1996). Arizona populations may travel westward to summer in chaparral and costal scrub of California and Baja California.</p> <p>Elevation: In Arizona, typically 100–4,700 ft, occasionally up to 7,800 ft (Corman 2005b).</p>	<p>Is a partial migrant (Baltosser and Scott 1996). Migratory breeding populations occur in east-central California, southern Nevada, Arizona and extreme southwestern New Mexico and Sonora, Mexico. Resident breeding populations occur in southern California, southwestern Arizona and in Baja California, Baja California Sur and northwestern Sonora, Mexico. Wintering populations occur in southern Sonora, Sinaloa and Nayarit (Baltosser and Scott 1996).</p>	<p>An uncommon and sporadic breeder in the southwest and south-central mountains and is most commonly found in Guadalupe Canyon and inside canyons along the lower Gila River from Cliff south (BISON-M 2017e).</p>	<p><b>Unlikely.</b></p> <p>There is marginally suitable habitat for this species in the Project Area, including ephemeral washes, and there have been citizen scientist detections of this species within 10 miles of the Project Area (eBird 2021). It is possible that this species may fly over the site while foraging or migrating, although it is very unlikely.</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Hylocharis leucotis</i>  White-eared hummingbird	Breeds in pine, pine-oak and mixed conifer forests particularly in edge habitats or clearings (Arizmendi et al. 2015). Occurs in forested mountain canyons and in shrubby, previously burned or otherwise disturbed areas in Arizona. These habitats may include broadleaf or coniferous trees such as Arizona sycamore, bigtooth maple, Gambel’s or Madrean evergreen oak, pines, Douglas Fir or locust (Corman 2005d). Arizona populations winter in habitats outside of the U.S. (Arizmendi et al. 2015).  Elevation: In Arizona, 4,900–8,400 ft (Corman 2005d).	Is partial migrant, with the northern most populations withdrawing southward (Arizmendi et al. 2015). Breeds from southeastern Arizona, U.S. and southward through highlands of Mexico, Guatemala, El Salvador, Honduras and Nicaragua (Arizmendi et al. 2015, Corman 2005d). May also breed in portions of New Mexico and Texas (Arizmendi et al. 2015). During the winter, this species withdraws from the U.S. and Sonora, Chihuahua and Nuevo León, Mexico (Arizmendi et al. 2015).	Verified only as migrants in the state and was found summering in the Animas Mountains in the mid-1970s. Subsequently, it was reported from two sites in the Peloncillo Mountains. In 1993, at least four individuals were at two sites in the Piños Altos Mountains, and individuals were reported from two sites in the Sangre de Cristo Mountains (eBird 2021).	<b>Unlikely.</b>  While there is some potentially suitable shrubby habitat in the Project Area, it was detected in the Piños Altos Mountains in the early 1990s (eBird 2021), they are considered rare of the state. Therefore it is highly unlikely to occur in the Project Area.
<i>Accipiter gentilis</i>  Northern goshawk	Breeds in old growth deciduous, coniferous or mixed forests. The most suitable areas have high canopy cover and open understories (Squires and Reynolds 1997). Most commonly breeds in ponderosa pine forests but is also found in mixed-conifer, ponderosa pine-Gambel’s oak, Madrean pine-oak woodland habitats in Arizona (Wise-Gervais 2005). Forages on a variety of prey types (birds, small mammals, etc.) that are spotted from perches (AGFD 2013) in a range of habitats from sagebrush to dense forest, including riparian areas (Squires and Reynolds 1997). Migratory and wintering habitat is poorly known. However, during the winter this species has been documented to use cottonwood riparian forests, aspen groves, spruce-fir forests, pine forests and open habitats (Squires and Reynolds 1997).  Elevation: In Arizona, 4,750–9,120 ft (AGFD 2013).	Is a partial migrant that breeds throughout the Holarctic region wherever suitable habitat exists (Squires and Reynolds 1997). In the U.S., breeds in Alaska, Arizona, California, Colorado, Connecticut, Idaho, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, South Dakota, Utah, Vermont, Washington, West Virginia, Wisconsin and Wyoming (Squires and Reynolds 1997). Winter range is as per the breeding range and irregularly south (AGFD 2013).	The small population in the state occurs locally in mature, closed canopied coniferous forests of mountains and high mesas (BISON-M 2020c). Known in the Jemez, Manzano, Mogollon, Peloncillo, Pinos Altos, Sacramento, San Francisco, San Juan, San Mateo, Sandi, Sangre de Cristo, and Zuni mountains (BISON-M 2020c).	<b>Possible.</b>  The Project Area is within the currently known geographic range, and vegetation communities resemble those known to be used by the species. A nest site has been reported within about two miles of the Little Rock Mine boundary (Tierra Environmental Consultants 2010).

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Athene cunicularia</i>  Western burrowing owl	Inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In Arizona, they are most commonly breeds in grazed grasslands and open disturbed areas such as the edges of agricultural fields, fallow fields, bladed areas, irrigation embankments, airports and golf courses. They also breed in sparsely vegetated Sonoran or cold-temperate desertscrub (Martin 2005). Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011). Elevation: In New Mexico, generally found 2,800-7,500 ft (BISON-M 2018d).	Is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The <i>hypugaea</i> subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico, and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	Found in the state during the summer and variably winters statewide where suitable habitat occurs, with small populations occurring on grasslands (BISON-M 2018d).	<b>None.</b>  The Project Area is outside of known distribution of this species and there have been no eBird records within the vicinity (eBird 2021) and the site only contains marginal habitat for this species.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Coccyzus americanus</i>  Yellow-billed cuckoo	Most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013c). Also utilizes drier woodlands including mesquite bosques, drainages in desert scrub and desert grassland with a tree component, and Madrean evergreen woodlands in perennial, intermittent or ephemeral drainages (USFWS 2020). Western yellow-billed cuckoos may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020). Elevation: Typically below 6,600 ft (AGFD 2011c).	Is a long-distance neotropical migrant (Hughes 2020). At the species level, breeds throughout temperate North America south to Mexico and the Greater Antilles (Hughes 2020). The western DPS breeds west of the Continental Divide and the watershed boundary between the Rio Grande and Pecos River and the Chihuahuan Desert. The USFWS considers the historical breeding range to include southern British Columbia, Canada and in Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas, U.S. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014). Winters in South America, east of the Andes and typically south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia and northern Argentina (USFWS 2014).	Occurs throughout the state where suitable habitat exists and is considered rare to fairly common. Breeding areas include the San Juan, Dry Cimarron, Rio Grande, Pecos, Mora, Canadian, San Francisco, and Gila valleys (BISON-M 2018k, accessed January 2021). Is most common in the south and along major drainages (BISON-M 2018k)	<b>Unlikely.</b>  There is no riparian habitat in the Project Area preferred by this species. However, this species uses ephemeral drainages in the southwest, thus the site has some marginally suitable habitat and there have been citizen scientists detections in the vicinity of the site (eBird 2021). Given that the habitat in the site is marginal and constitutes a minor portion of the available habitat for cuckoo in New Mexico, it is unlikely for this species to occur in the Project Area, although it is possible that cuckoo may traverse the site while foraging or migrating. There is no proposed critical habitat in the Project Area.
<i>Columbina passerine</i>  Common ground dove	Inhabit in arid, open woodlands in the early stages of forest development, including pine woods, hammocks, lake shores, forest edges, coastal dunes, mesquite flats, river bottom woodlands, deserts, desert scrublands, oak scrublands, and savannas (Bowman 2020). Are also found in human landscapes, especially irrigated farm fields and residential neighborhoods.  Elevation: Sea-level to 8,200 ft in Central America (Oizeaux Birds 2021).	Ranges from southern California to Florida, primarily in the southern parts of each state, with populations occurring through Central and South America. Normally resident throughout breeding range, but vagrants north of range not uncommon. May move from interior to coastal areas; comparison of breeding and winter distributions suggest some movement southward from northern portions of range, but most movement into existing breeding areas (Bowman 2020).	Formerly was most regular in the southern part of the state at Las Cruces in the Rio Grande drainage and Carlsbad (BISON-M 2017d).	<b>Unlikely.</b>  There is potentially suitable woodland habitat for this species in the Project Area. However, there are no citizen scientist records in the vicinity (eBird 2021).

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Melanerpes uropygialis</i>  Gila woodpecker	Occurs in desert areas with large cacti or trees, dry subtropical forests, riparian woodlands and residential areas (Edwards and Schnell 2000). In Arizona, this species is most common in upland areas of Sonoran Desert with abundant saguaros, paloverde, mesquite, and ironwood. Is present, but less common in low desert areas and washes where there are few to no saguaros. Commonly nests in riparian woodlands with Fremont cottonwood, Goodding’s willow, mesquite, or sycamores. Generally tolerant of some types of human activities and utilizes residential and rural areas (Bradley 2005). They utilize similar habitat throughout the year (Edwards and Schnell 2000). Elevation: In Arizona, 150–4,800 ft (Bradley 2005). In New Mexico, 3,000-5,000 ft (BISON-M 2018f).	Non-migratory, although short-distance local movements may occur (Edwards and Schnell 2000). Found in Arizona, California, Nevada and New Mexico, U.S. and the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Durango, Jalisco, Nayarit, Sinaloa, Sonora and Zacatecas (Edwards and Schnell 2000).	Present only in extreme southwest part of the state, in Grant and west Hidalgo counties (Edwards and Schnell 2000). Primarily found in the lower Gila Valley in both Grant and Hidalgo counties, Guadalupe Canyon, San Simon Cienega, drainages of the Animas and Peloncillo Mountains, and Bitter Creek in western Grant County (BISON-M 2018f, Edwards and Schnell 2000).	<b>Unlikely.</b>  The Project Area is within the known geographic range, and there are eBird records in the vicinity near Silver City (eBird 2021). However, there is no suitable desert habitat in the site.



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Melospiza aberti</i>  Abert's towhee	<p>Occupies riparian areas with cottonwood-willow woodlands, mesquite bosque, marshes and mixed exotic-native vegetation within the lower Sonoran life zone. Prefers a dense understory (Tweit and Finch 1994). Most abundant in low-elevation riparian vegetation with cottonwood, willows and mesquite or dry washes with dense thickets. Additionally, utilizes areas with dense stands of tamarisk, patches of dense shrubs along irrigation ditches or run-off retention ponds in agricultural areas and densely vegetated suburban areas (Corman 2005a). Occurs in the same habitat year-round (Tweit and Finch 1994). In its New Mexico range, this species uses thickets of seepwillow and other riparian habitats.</p> <p>Elevation: In Arizona and neighboring states, generally below 4,300 ft (Corman 2005a).</p>	<p>Non-migratory. The core of their range is in Arizona, but also extends into adjacent portions of southeastern California, southwestern New Mexico, southeastern Nevada, and extreme southwestern Utah, U.S. Additionally, there are populations just south of the international border in Baja California and Sonora, Mexico (Corman 2005a, Tweit and Finch 1994).</p>	<p>Found along portions of the Gila River from the Arizona border to Mogollon Creek in Grant County, and at the San Simon Cienega in Hidalgo County where suitable habitat exists (BISON-M 2018a, Tweit and Finch 2020).</p>	<p><b>Unlikely.</b></p> <p>There are citizen scientist sightings of this species in nearby Tyrone (eBird 2021). However, the species is rarely detected in the general vicinity and the Project Area does not contain suitable riparian habitat. This species may occur as a vagrant in the site.</p>
<i>Vireo bellii arizonae</i>  Arizona bell's vireo	<p>Breeds in a wide variety of dense shrubby habitats, often near water, particularly in arid environments, including riparian scrub along drainages, successional riparian vegetation, brushy fields, mesquite brushlands, chaparral and young forests and woodlands (Kus et al. 2020). In New Mexico, this species characteristically occurs near riparian habitat and dense shrubland or woodland along lowland stream courses (Kus et al. 2020). In the southeast and southwest parts of the state, most nests occur in willow, seepwillow, or hackberry (Kus et al. 2020)</p> <p>Elevation: In Arizona, breeds 120–5,120 ft (Averill-Murray and Corman 2005).</p>	<p>Is a neotropical migrant (Kus et al. 2020). Breeds throughout the central and southwestern U.S. including Arizona, Arkansas, California, Colorado, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Utah, Wisconsin, and Wyoming. Additionally, breeds in northern Mexico in Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, and Zacatecas. The wintering range is less well known but includes Baja California Sur and south along the Pacific Slope from Sonora through Oaxaca, El Salvador, Honduras and Nicaragua (Kus et al. 2020). There are scattered winter records throughout the southern U.S. portion of the breeding range and in Florida (Kus et al. 2020).</p>	<p>Considered a common and widespread summer resident in southern portion of the state (Bailey 1928b, Hubbard 1978c). Known populations occur in the lower Gila Box, San Simon Cienega, and Guadalupe Canyon (BISON-M 2019a).</p>	<p><b>None.</b></p> <p>The Project Area lacks suitable foraging or nesting habitats and the site is above the elevation preferred by this species. There are no citizen scientist records of this species from the vicinity (eBird 2021).</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Vireo vicinior</i>  Gray vireo	Preferred breeding habitat includes pinyon pine-juniper woodlands, oak scrub and chaparral in arid mountain ranges and high plains (Barlow, Leckie, and Baril 2020). In Arizona and New Mexico, occurs in chaparral-juniper and dwarf conifer forests, as well as sites with Graves oak ( <i>Quercus gravesii</i> ), mixed piñon, and madrone ( <i>Arbutus</i> spp.; (Barlow, Leckie, and Baril 2020). Occasionally occurs in chaparral dominated slopes and Madrean evergreen oak woodlands with only scattered pinyon pine or junipers (Corman 2005c). Habitat used during migration is likely similar to the breeding and wintering habitats. In Arizona, wintering habitat includes lowland Sonoran desertscrub and rocky canyons in desert mountains. Elsewhere in the wintering range this species uses Chihuahuan desertscrub and lowland riparian areas with willow and cottonwood near springs or intermittent streams (Barlow, Leckie, and Baril 2020). Elevation: Typically breeds 3,500–6,800 ft (Corman 2005c), winters much lower (Barlow, Leckie, and Baril 2020).	A short-distance migrant (Barlow, Leckie, and Baril 2020). Breeds from central and southern Utah and western Colorado, south to southern Nevada, Arizona, and New Mexico, U.S. Isolated populations also breed in southern California, Baja California, western Texas, U.S. and in Mexico in northwestern Coahuila and possibly north-central Durango. Wintering range is poorly known, but this species has been reported from south-central Arizona, western Sonora, Baja California Sur and western Texas (Barlow, Leckie, and Baril 2020).	Rare summer residents of the Gila National Forest, this species occurs in New Mexico only in the warmer months. Have been recorded in central and western counties east to Pecos, western San Miguel County, and Gran Quivara National Monument, eastern Socorro County, the Silver City area, the foothills of the Magdalena, Manzanita, and Sandia mountains and in the southeast in the Guadalupe Mountains and in eastern Otero County (BISON-M 2017h).	<b>Unlikely.</b>  The Project Area is within the known distribution of this species, has potentially suitable woodland habitat, and there are eBird records within the immediate vicinity (eBird 2021). However, this species is rarely detected in New Mexico, and thus it is unlikely to occur in the site.
<i>Falco peregrinus anatum</i>  American peregrine falcon	Breeds in a wide range of open habitats (White et al. 2002). Prefer steep cliffs that overlook woodlands and riparian areas. Habitat selection is mainly driven by the abundance of prey (birds and occasionally bats). They dive from cliffs to ambush prey. Usually forages within 9 miles of the nest site, but foraging distances of 15 miles are common (Luensmann 2010). Can be found in less optimal habitats, such as small, broken cliffs or cliffs in xeric areas, when preferred habitat is not available. Will roost on tall buildings when prey is abundant (AGFD 2002a). In Arizona, this species is most often found in forested regions from pinyon pine-juniper and evergreen oaks to ponderosa pine and mixed conifer, to cold-temperate desertscrub and Sonoran desertscrub (AGFD 2002a, Burger 2005). Migratory and overwintering habitats are diverse and include similar habitats to those used during breeding and areas devoid of cliffs (White et al. 2002). Elevation: In Arizona, 400–9,000 ft (AGFD 2002a).	<i>F. peregrinus</i> occurs on every continent except Antarctica (White et al. 2002). The <i>anatum</i> subspecies is a partial migrant and breeds throughout North America south of the tundra, excluding coastal Pacific Northwest, to northern Mexico (White et al. 2002). Winter range includes portions of the breeding range where prey is abundant year-round and extends south through Central America and South America through Chile (AGFD 2002a, White et al. 2002).	They pass through the state during migration from March-May and there are isolated breeding records from throughout the state (White et al. 2002).	<b>Possible.</b>  While there is no the cliff habitat for nesting on the site, there are recent detections of peregrine falcons from in the vicinity of the Project Area (eBird 2021). It is possible that this species could pass through the site while foraging.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Haliaeetus leucocephalus</i>  Bald eagle	Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020). Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).	Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).	Are present casually to occasionally in summer, but they migrate and winter almost statewide, although there is limited breeding in New Mexico (Buehler 2020).	<b>Unlikely.</b>  The Project Area is within the range of this species and there are citizen scientists’ sightings of bald eagles within ten miles of the site (eBird 2021). However, the site does not contain large bodies of water associated with this species. While it is possible that a bald eagle may fly over the site while foraging, given the absence of preferred habitat, it is unlikely that this species will occur.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
FISH				
<i>Catostomus clarkii</i>  Desert sucker	Typically occurs in flowing pools and rapids of small to medium sized creeks, streams, and canals (AGFD 2002c, Desert Fishes Team 2004). Prefer river bottoms of rubble with sandy silt in the interstices. Live in pools as adults and move to swift runs to feed on diatoms and algae. Young stay in riffles and feed on midge larvae (AGFD 2002c). This species either avoids or cannot persist in reservoirs or lakes (Minckley and Marsh 2009). Can tolerate high water temperatures but is less tolerant of low dissolved oxygen levels than other native fish (AGFD 2002c).  Elevation: 480–8,840 ft (AGFD 2002c).	Occurs in Arizona, southeastern Nevada, west-central New Mexico and southwestern Utah, U.S. and northern Sonora, Mexico (NatureServe and Lyons 2019b).	Current range in the state includes Gila River Basin in Arizona-New Mexico, Upper Gila-Mangas, San Francisco, and Lower Colorado River watersheds (BISON-M 2018e).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Catostomus insignis</i>  Sonora sucker	Occurs in small to moderate sized streams and rivers but does not persist in impoundments (Desert Fishes Team 2004). Prefers deep, quiet waters with gravelly or rocky bottoms. Adults remain under cover during the day and move to runs and riffles at night. Young occur in runs and quiet eddies throughout the day and night (AGFD 2002d). Spawns in areas with shallow riffles (Minckley and Marsh 2009).  Elevation: 1,210–8,730 ft (AGFD 2002d).	Found in Arizona and New Mexico, U.S. and in northern Sonora, Mexico (AGFD 2002d, NatureServe and Lyons 2019a).	In New Mexico, this species is native to the Gila and San Francisco drainages (except in extreme headwaters). It was introduced unsuccessfully into the Rio Hondo drainage during the 1960s. In New Mexico, this species is currently known from Gila River drainage.	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Catostomus plebeius</i>  Rio Grande sucker	Is an obligate riverine species (Calamusso, Rinne, and Turner 2002). In a survey of several New Mexico streams they found that this species preferred pool and glide habitat but suggested that riffles may be ecologically important at certain times (Calamusso, Rinne, and Turner 2002). Adults within the Carson and Santa Fe National Forests preferred low gradient habitats with cobble and small boulder substrate (Rees and Miller 2005),  Elevation: In New Mexico, rarely if ever detected above 9,000 ft (Calamusso, Rinne, and Turner 2002).	Endemic to the Rio Grande Basin (BISON-M 2018i). This species is found in the upper Rio Grande drainage in southern Colorado and New Mexico and several locations in Mexico (Rees and Miller 2005).	Found in the Caballo, Elephant Butte Reservoir, Jemez, Lower Colorado, Mimbres, Rio Chama, Rio Grande and Pecos Basins, Rio Grande-Santa Fe, Rio Hondo, Rio San Jose, San Francisco, Upper Gila, and Upper Rio Grande watersheds (BISON-M 2018i).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Gila nigra</i> <sup>1</sup>  Headwater chub	Inhabits the middle to upper reaches of moderately-sized cool to warm water streams. Adults favor nearshore pools near swifter water with sand and gravel substrate. Young-of-the-year and juveniles use small pools with low water velocity nearshore with undercut banks (USFWS 2015).  Elevation: 4,350–6,560 ft (USFWS 2015).	Found in Arizona and New Mexico (USFWS 2015).	Is generally distributed in warm water reaches of the upper Gila River (U.S. Fish and Wildlife Service 2015) (cite).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Gila robusta</i> <sup>2</sup>  Roundtail chub	Inhabits cool to warm water streams and rivers (USFWS 2015). Typically found in largest and deepest pools of middle to large streams and is considered to be less associated with dense cover than other chub species (AGFD 2015, Minckley and Marsh 2009). Young-of-the-year favor slow, shallow water associated with vegetated shorelines (USFWS 2015). Elevation: 1,210–7,220 ft, most common between 2,000–5,000 ft (AGFD 2015, Minckley and Marsh 2009).	Note: The distribution described below reflects USFWS description of the proposed DPS and not the current understanding of the species complex. Historically from The Bill Williams, Gila, Little Colorado, Salt and Verde river drainages in Arizona and New Mexico. At the full species level: In the U.S.: the Colorado River basin in Arizona, Colorado, New Mexico, Utah and Wyoming (USFWS 2015). In Mexico: Rio Yaqui and Piaxtla in Sonora (AGFD 2015).	Found in Rio Arriba, San Juan, and New Mexico counties (BISON-M 2018i).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Oncorhynchus clarki virginalis</i>  Rio Grande cutthroat trout	Requires perennial water and various types of aquatic habitats throughout lifespan. Areas of suitable gravels that are well-oxygenated by flowing water and relatively free of fine sediment are needed for successful spawning and egg development. Trout fry need areas of slow-moving, shallow water, such as margins, backwaters, and side channels or small, low velocity pools (Pritchard and Cowley 2006). Older trout in streams primarily utilize pools, and, to a lesser extent, riffle areas, rarely being found in rapids and cascades (Young et al. 1998). Numerous studies have demonstrated deep pools to be important for cutthroat trout.  Elevation: mostly above 6,000 ft (Alves, Pattern, and Brauch 2008), with only about 1.6% of populations occurring below 8,000 ft (Alves, Pattern, and Brauch 2008)	Native to the Rio Grande and Pecos River drainages of Colorado and New Mexico (Pritchard and Cowley 2006), Behnke 2002), and currently occur in tributaries to the Rio Grande in Colorado and New Mexico; in the Carnero and Sanguache drainages in Colorado, which are geologically part of the Rio Grande system but drain into the San Luis closed basin; in tributaries to the Canadian River in Colorado and New Mexico; and in tributaries to the Pecos River in New Mexico.	Found in tributaries to the Pecos River and Rio Grande (Pritchard and Cowley 2006).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.

<sup>1</sup> Proposed threatened status withdrawn because the it did not meet the definition of a species under the Act (USFWS 2017). USFWS determined that *G. nigra* and *G. intermedia* should be subsumed into *G. robusta*.

<sup>2</sup> Proposed threatened status withdrawn because the it did not meet the definition of a species under the Act (USFWS 2017). USFWS determined that *G. nigra* and *G. intermedia* should be subsumed into *G. robusta*.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
INSECTS				
<i>Capnia caryi</i>  A stonefly	<p>Little known habitat preference for this species, although other species in the <i>Capnia</i> genus require aquatic habitat. Locations from which it has been sampled were characterized by a substrate of scattered boulders and a mixture of cobble with gravels with clear running water (Baumann and Jacobi 2002).</p> <p>Elevation: unknown but thought to use primarily high elevations (Baumann and Jacobi 2002).</p>	Newly discovered species and as such has little data on total range and distribution. The 2 creeks in which this new species was collected are located near the border between southern Arizona and New Mexico, including Iron and Mamie Creek. Mamie Creek is in Arizona at the base of Escudilla Peak, southeast of Springerville, and is part of the Little Colorado River drainage in the Apache National Forest.	Found in Iron Creek, a small tributary of the Middle Fork of the Gila River, southeast of Reserve in the Gila National Forest (Baumann and Jacobi 2002). There is little know about the distribution of this species in the state.	<b>None.</b>  The Project Area is well outside of the known range and distribution for this species.
<i>Erpetogomphus heterodon</i>  Dashed ringtail	<p>Requires clear, rocky, mountain streams and rivers. Little is known about the habitat requirements of this species, but adults of other species in the genus are most commonly found near shores of streams and rivers, but they may also be found in agricultural stubble or on tree branches near streams.</p> <p>Elevation: Unknown.</p>	Has been captured in New Mexico and Texas, but little is known about total range (Garrison 1994).	Known from Aragon, Catron and Grant Counties and has been captured on the Tularosa River just east of Aragon and the East Fork of the Gila River in Grant County (Garrison 1994).	<b>None.</b>  The Project Area does not contain suitable aquatic habitat.
<i>Euhyparapax rosea</i>  Moth (Notodontid moth)	<p>Utilize alpine and montane vegetation, desert grassland and scrub, Plains-Mesa grassland, and warm interior chaparral (BISON-M 2017j).</p> <p>Elevation: Unknown.</p>	Found in New Mexico and Arizona, with potential historical occurrences in Colorado as well (BISON-M 2017j).	Known to occur near Silver City, Grant County in southwestern New Mexico (BISON-M 2017j, USFWS 2009).	<b>Unlikely.</b>  The Project Area is adjacent to the one known, albeit not well-defined, location that this species occurs and there is potentially suitable montane habitat present. However, little is known about this species and given limited data, and the rarity of this species, it is unlikely that it will occur in the site.
<i>Lachlania dencyanna</i>  Gila mayfly	<p>Requires warm, turbid streams and rivers (BISON-M 2017i). Nymphs of this species utilize sticks and other vegetation caught in crevices among the rocks.</p> <p>Elevation: Unknown.</p>	Endemic to New Mexico (cite).	Restricted to the upper Gila River drainage (BISON-M 2017i) that does not include the lower, Arizona portion of the drainage, or any other drainage (McCafferty, Lugo-Ortiz, and Jacobi 1997).	<b>None.</b>  The Project Area does not contain suitable aquatic habitat and is outside of the known geographic range.



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
MAMMALS				
<i>Corynorhinus townsendii pallescens</i>  Pale Townsend’s big-eared bat	The <i>pallescens</i> subspecies prefers desertscrub, oak woodland, pinyon-juniper and coniferous forests. Roosts in caves, mines, and abandoned buildings with open ceilings. Does not use cracks or crevices for roosts. Forages on small moths found on leaves in trees along forested edges (AGFD 2003a). Maternity colonies are present from May through July and disperse in August (Lutch 2000). AGFD (2003a) reports the <i>pallescens</i> subspecies as foraging up to 5 miles from roost sites, however, <i>C. townsendii</i> has been reported to have a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005). Elevation: In Arizona, 550–7,520 ft (AGFD 2003a).	<i>C. townsendii</i> is found from southern British Columbia, Canada south along the Pacific Coast to central Mexico and east to the Great Plains of the U.S. (Sherwin and Piaggio 2005).	The <i>pallescens</i> subspecies occurs throughout the state (BISON-M 2017k, Piaggio, Navo, and Stihler 2009).	<b>Possible.</b>  Suitable roost sites may be available in abandoned mines in the Big Burro and Little Burro Mountains. An evaluation of abandoned mine features in the Project Area in 2021 yielded no workings suitable for roosting due to the shallow dept of the workings. However, there may be suitable foraging habitat located within the site and abandoned mine features are present in the vicinity. None were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.
<i>Euderma maculatum</i>  Spotted bat	Occurs in a wide-range of vegetation types including desertscrub, pinyon-juniper woodlands, ponderosa pine forests, mixed conifer forest, canyon bottoms, riparian areas, fields, pastures, and sub-alpine meadows. Roost in cracks and crevices of rock cliffs and in caves. They are generally solitary but may roost or hibernate in small groups. Foraging ranges may be large and up to 25 miles from their roost sites. Primarily consume moths. This species is rarely caught in nets, potentially due to rarity, high flight patterns or sensitivity to light and sound. In Arizona, this species is most commonly captured near water or along canyon rims. It is unknown if this species is migratory. In Arizona, they appear active year-round (Luce, Chambers, and Herder 2005). Elevation: In Arizona, 110–8,670 ft (AGFD 2003b).	Found in British Columbia, Canada and the U.S. states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Washington, and Wyoming. Range extends south from U.S. populations to Durango and Queretaro, Mexico (AGFD 2003b, Hammerson 2015).	Documented from Bernalillo, Catron, Cibola, Doña Ana, Eddy, Grant, Lincoln, Los Alamos, Otero, Rio Arriba, Sandoval, San Juan, Santa Fe, Valencia, and Socorro counties. In 2006, they was observed in Grant County at the following locations: near the Gila River at Lichty Farm, near Buckhorn, Big Burro Mountains, and near Santa Fe at Black Canyon Campground (BISON-M 2017l).	<b>Possible.</b>  The Project Area contains potentially suitable woodland habitat and is within the known range of this species because they have been observed in the Big Burro Mountains in vicinity of the site. None were observed during the survey of abandoned mine features on the site but they have potential to forage in the area.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Idionycteris phyllotis</i>  Allen’s big-eared bat/lappet-browed bat	Inhabits Mojave desertscrub, mesquite grassland, scrub oak, ponderosa pine, pinyon-juniper, white fir forests and riparian areas with sycamores, cottonwood or willows. Roosts in boulder piles, rock crevices, caves, abandoned mineshafts and under exfoliating bark of snags. In Arizona, have been documented foraging up to 30 miles from their roost sites (AGFD 2001, O’Farrell, Brown, and Lewis 2005).  Elevation: 1,320–9,800 ft but most common between 3,500–7,500 ft (AGFD 2001).	Occurs in southern Utah, southern Nevada, Arizona and New Mexico, U.S. (O’Farrell, Brown, and Lewis 2005). Range extends southward Mexico D.F. and Michoacán, Mexico (Arroyo-Cabral and Álvarez-Castañeda 2017).	Is one of the rarest bats in North America (O’Farrell, Brown, and Lewis 2005). Has been documented from Catron, Socorro, Grant, and Sierra counties. In 2006, this species was observed in Grant County at the following locations: Saddle Rock (Big Burro Mountains), Mimbres River (Cooney Place), and at Black Canyon Campground (Santa Fe) (BISON-M 2014).	<b>Unlikely.</b>  Suitable roosting habitat may be present in abandoned mines in the Big Burro and Little Burro Mountains, and it is possible that this species may forage in the Project Area. However, given that this species is one of the rarest bats in North America, none were observed during the bat survey of abandoned mine features on the site, it is unlikely for this species to occur in the site.
<i>Lasiurus blossevillii</i>  Western red bat	Roosts in dense foliage of riparian (e.g., cottonwood or sycamore) or woodland trees in areas with heavily shaded overstories and open understories. This species does not show a preference for tree size or species (Arroyo-Cabral and Álvarez-Castañeda 2016). Occasionally found roosting in saguaro boots and cave-like areas. Forages in the treetops and below, to within a few feet of the ground, on a variety of insects, up to 0.6 miles from their roost site (AGFD 2011b).  Elevation: 1,900–7,200 ft (AGFD 2011b).	Occurs from southern British Columbia, Canada and south through much of the western U.S., Mexico, Central America to Argentina and Chile in South America (Bolster 2005), and some offshore islands (AGFD 2011b).	Found in Catron, Doña Ana, Grant, Hidalgo, and Luna counties (BISON-M 2019e).	<b>Unlikely.</b>  The Project Area is within the known range and may contain suitable foraging, if marginal, habitat. However, given that the habitat in the site is marginal at best, this species is unlikely to occur in the Project Area and none were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Mephitis macroura milleri</i>  Hooded skunk	<p>Found in low elevation arid habitats, deciduous forests, ponderosa pine-forest, forest edges, pastures and riparian areas (Hwang and Larivière 2001). Also uses areas with human disturbance (Cuarón et al. 2016). Dens in rock crevices, burrows, or low brushy areas (Hwang and Larivière 2001). In Arizona, the <i>milleri</i> subspecies occurs at intermediate elevations in areas with rocky ledges, canyons and near streams (Hoffmeister 1986).</p> <p>Elevation: <i>M. macroura</i> typically occurs below 8,000 ft (Cuarón et al. 2016) but the <i>milleri</i> subspecies has been reported as high as 8,600 ft (Hoffmeister 1986).</p>	<p><i>M. macroura</i> occurs from southeastern Arizona, southwestern New Mexico and western Texas, U.S. Range extends south through most of Mexico, excluding the Yucatan Peninsula, Guatemala, El Salvador, Honduras to northern Nicaragua (Cuarón et al. 2016). The <i>milleri</i> subspecies occurs in the U.S. portion of the range and south through Sonora, Chihuahua, Coahuila, Sinaloa and northern Durango (Hwang and Larivière 2001).</p>	<p>Occurs in southwestern New Mexico in Catron, Grant, Hidalgo, Luna, and Sierra counties (BISON-M 2019b).</p>	<p><b>Possible.</b></p> <p>The Project Area is within the known geographic range and there is potentially suitable habitat in the site.</p>
<i>Microtus montanus arizonensis</i>  Arizona montane vole	<p>Often found in dry grasslands, sagebrush-grasslands, grassy alpine meadows, and agricultural lands. In southern parts of their range, they are restricted to high elevation habitat (Arizona Game and Fish Department 2004a).</p> <p>Elevation: Unknown but thought to be above 6,000 ft in the southern parts of range (Frey 2005).</p>	<p>Montane voles (<i>Microtus montanus</i>) are a native resident of the northwestern United States. They can be found as far north as southern British Columbia and as far south as Arizona and New Mexico. Their range extends south from British Columbia, through Washington and Oregon, and into northeastern California, as well as east into Nevada, Utah, Montana, Wyoming, and Colorado. The <i>arizonensis</i> subspecies is limited to the San Francisco watershed and White Mountains in Arizona and New Mexico (Frey 2009).</p>	<p>Is thought to be restricted to the upper San Francisco River drainage in Catron County (Frey 2005). It is known Centerfire Bog, Flanagan Spring, Romero Creek, SA Creek, and the San Francisco River at its junction with Stone Creek (BISON-M 2018b, Frey 2005).</p>	<p><b>None.</b></p> <p>The Project Area is outside of the known distribution of this species and does not contain suitable grassland habitat.</p>
<i>Sciurus arizonensis arizonensis</i>  Arizona gray squirrel	<p>Is associated with riparian areas, primarily with broadleaf riparian habitats (Frey et al. 2008), although specific habitat associations varied by elevation and locality. Tree species associated with this species include cottonwood, sycamore, walnut, and oak species. They are found primarily along perennial and intermittent water features (Frey et al. 2008).</p> <p>Elevation: Primarily below 8,200 ft (Frey et al. 2008).</p>	<p>Endemic to portions of southern Arizona, southwestern New Mexico, and extreme north-central Sonora, Mexico (Frey et al. 2008).</p>	<p>Is broadly distributed throughout the southern Mogollon Plateau region of Catron, Grant, Luna, and Sierra counties, including the San Francisco, Gila, Mimbres, and Rio Grande river drainages (BISON-M 2017a).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the known distribution of this species but does not contain suitable intermittent or perennial water features. However, there are ephemeral drainages that may provide marginally suitable habitat for this species.</p>

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Cynomys gunnisoni</i>  Gunnison’s prairie dog (prairie population)	Prairie populations of this species occupy shortgrass and midgrass prairies (USFWS 2013b). This population occupies lower elevation, xeric (dry) plains and plateaus with grass-shrub prairies.  Elevation: 4,600 to 12,000 ft (prairie populations occur at lower elevations in this range than montane populations) (USFWS 2013).	The estimated range covers 28,090,077 hectares in the Four Corners Region, including portions of New Mexico, Arizona, Colorado, and Utah (USFWS 2013b). The prairie habitat occurs in the southwestern portion of the range— in southeastern Utah, southwestern Colorado, northwestern New Mexico, and northern Arizona.	The prairie subspecies is limited to northwestern portion of the state (BISON-M 2020b).	<b>None.</b>  The Project Area is outside of the known geographic distribution and does not contain suitable grassland habitat.
<i>Cynomys gunnisoni</i>  Gunnison’s prairie dog (montane population)	Montane populations of this species occupy grass-shrub in low valleys and mountain meadows (USFWS 2013). This population occupies high-elevation, cool, and mesic (wet) plateaus, benches, and intermountain valleys. Grass-shrub vegetation in low valleys and mountain meadows bordered by steep topography dominate these habitats (USFWS 2013).  Elevation: 4,600 to 12,000 ft (prairie populations occur at lower elevations in this range than montane populations) (USFWS 2013).	The estimated range of the Gunnison’s prairie dog covers 28,090,077 hectares in the Four Corners Region, including portions of New Mexico, Arizona, Colorado, and Utah (USFWS 2013). The montane population occurs in central and southcentral Colorado and northcentral New Mexico.	The montane habitat occurs in north-central portion of the state (USFWS 2013b).	<b>None.</b>  The Project Area is outside of the known geographic distribution and does not contain suitable grassland habitat.
<b>PLANTS</b>				
<i>Adenophyllum wrightii</i> var. <i>wrightii</i>  Wright’s dogweed	Occurs on sandy or silty soils in swales and drainages in pinon-juniper woodland (NMRPTC 1999a).  Elevation: 7,000-7,200 ft (2,100-2,200 m) in New Mexico (NMRPTC 1999a).	Known from New Mexico, adjacent southeastern Arizona, and Mexico in northern Chihuahua (NMRPTC 1999a).	Found in Catron, Grant, and Sierra counties (NMRPTC 1999a). While originally only found from a few locations in the Black Range, it is now considered common within its range in the state (NMRPTC 1999a).	<b>Possible.</b>  Suitable woodland habitat is present and the Project Area is within the known geographic range of the species.
<i>Allium gooddingii</i>  Goodding’s onion	Grows on steep, rocky slopes in spruce-fir, mixed conifer forests or areas with Gambel oak tickets (Arizona Rare Plant Committee 2001, McNeal and Jacobsen 2002, Roth 2008, U.S. Forest Service and U.S. Fish and Wildlife Service 1997). Typically occurs in moist and shady bottoms of perennial to ephemeral drainages with well-developed soils (AGFD 1999, Arizona Rare Plant Committee 2001). Occasionally found in semi-open areas in edge habitats such as along streams or at the edge of clearings (AGFD 1999).  Elevation: In Arizona, 7,000–10,600 (AGFD 1999). Range-wide 6,400–11,300 ft (AGFD 1999, Roth 2008).	Occurs in southern and eastern Arizona and southwestern and south-central New Mexico, U.S. (AGFD 1999, McNeal and Jacobsen 2002, USFS 1997).	Known from McKinley, San Juan, Lincoln, and Catron counties (NMRPTC 1999b).	<b>None.</b>  The Project Area occurs outside of the known geographic distribution.

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Anticlea mogollonensis</i> (= <i>Zigadenus m.</i> )  Mogollon death camas	Organic soils in understory of upper montane and subalpine coniferous forest, often with aspen (NMRPTC 1999c).  Elevation: 8,700-10,500 ft (NMRPTC 1999c).	A narrow endemic, known only from the Mogollon Mountains in the area of White Water Baldy and adjacent peaks. Most of its range is within the northwest corner of the Gila Wilderness where it is a common and often abundant forest understory species (NMRPTC 1999c).	Known from the Mogollon Mountains in Catron County (NMRPTC 1999c), around the White Water Baldy and adjacent peaks.	<b>None.</b>  The Project Area is outside of the restricted geographic and below the elevational range of this species.
<i>Asclepias uncialis</i> ssp. <i>uncialis</i> [Note: There are no currently recognized subspecies or varieties of <i>A. uncialis</i> (TTIS 2019, accessed October 28, 2019)]  Greene milkweed	Occurs on open hills and lower slopes of mesas, canyons, and bluffs in bare, open patches of soil within shortgrass communities, other types of grassland, savanna or open coniferous woodlands (AGFD 2006a, Decker 2006). Occurs in disturbed areas, high desertscrub and open, grassy areas within Madrean evergreen and pinyon-juniper woodlands in Arizona (AGFD 2006a, Sundell 1993).  Elevation: 3,920–7,640 ft (Decker 2006).	Found in Arizona, Colorado, New Mexico, Texas and possibly Wyoming, U.S. (AGFD 2006a, Decker 2006) and Sonora, Mexico (SEINet Portal Network 2019, accessed October 29, 2019).	Populations are known from Lea, Grant, Luna, Guadalupe, Torrance, Union, Harding, San Miguel, Quay, and Lincoln counties (NMRPTC 1999d).	<b>None.</b>  The Project Area occurs outside of the known distribution of this species, and a rare plant survey in the site failed to detect this species or identify any suitable habitat ( <b>Appendix E</b> ).
<i>Astragalus humistratus</i> var. <i>crispulus</i>  Villous groundcover milkvetch	Inhabits sandy soils of volcanic origin on slopes, benches, and ledges in xeric pine forest (NMRPTC 1999e).  Elevation: 7,250-8,150 ft (NMRPTC 1999e).	Found in Arizona in Apache County and New Mexico (USDA 2021).	Occurs in Catron County (NMRPTC 1999e).	<b>None.</b>  The Project Area is outside of the known distribution of this species.
<i>Cirsium gilense</i>  Gila thistle	Occupies moist areas or mountain meadows in montane coniferous forest (NMRPTC 1999f).  Elevation 7,000-8,000 ft (NMRPTC 1999f).	Occurs in Catron County in New Mexico and adjacent White Mountains in Arizona (NMRPTC 1999f).	Known from Catron County (NMRPTC 1999f).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Crategus wootoniana</i>  Wooton’s hawthorn	Inhabits canyon bottoms and forest understory in lower montane coniferous forest (NMRPTC 1999g).  Elevation: 6,500-8,000 ft (NMRPTC 1999g).	Endemic to New Mexico (NMRPTC 1999g).	Found in Catron, Grant, and Lincoln counties in the Piños Altos and Sacramento mountains (NMRPTC 1999g).	<b>None.</b>  The Project Area occurs outside of the known distribution of this species and a rare plant survey in the site did not detect this species nor identify any suitable habitat within the area ( <b>Appendix E</b> ).

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Cypripedium parviflorum</i> <i>var. pubescens</i>  Yellow lady's-slipper	Mesic deciduous and coniferous forest, in openings, thickets, prairies, meadows, and fens (AGFD 2005b). In New Mexico, this species is sporadic in moist conifer forest (NHNM 2021c).  Elevation: 5,750-11,000 ft in New Mexico (NHNM 2021c).	Known from Newfoundland to British-Columbia, south to Georgia, Arizona, and Washington (NHNM 2021c).	Found broadly throughout the state in San Miguel, Colfax, Grant, Catron, Santa Fe, San Juan, Mora, and Los Alamos counties (NHNM 2021c).	<b>None.</b>  Project Area does not contain suitable habitat. Moreover, a rare plant survey in the Project Area did not detect this species nor identify any suitable habitat within the site ( <b>Appendix E</b> ).
<i>Erigeron hessii</i>  Hess' fleabane	Habitat includes andesitic dikes in otherwise rhyolitic rock, where it grows from bedrock cracks in open areas in upper montane to subalpine conifer forest (NMRPTC 2016a).  Elevation: 9,500-10,200 ft (NMRPTC 2016a).	A narrow endemic of the Mogollon Mountains in southwestern New Mexico (NMRPTC 2016a).	Found in southern Catron County in the Mogollon Mountains (NMRPTC 2016a). Currently only known from two populations in the vicinity of Whitewater Baldy.	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Hexalectris arizonica</i> [Note: Kennedy and Watson (2010) elevated <i>H. spicata</i> var. <i>arizonica</i> to full species status but apparently did not submit the information to ITIS (2019, accessed October 15, 2019)]  Arizona coralroot	Occupies hillsides or within canyons and drainages in shady oak woodlands (USFWS 2013a). Often occur under trees in areas with heavy leaf litter or on rocky outcrops or cliffs (USFWS 2013a). Additionally, occurs in juniper or pine woodlands (Catling and Engel 1993). This species is a myco-heterotroph and is dependent upon the presence of Sebacinaceae fungi and suitable host plants (Kennedy, Taylor, and Watson 2011).  Elevation: As low as 330 ft in Texas up to 6,560 ft in the western portions of the range (Goldman et al. 2003). Possibly occurs as high as 6,950 ft in Arizona (AGFD 2005a).	Occurs in Arizona, New Mexico and Texas, U.S. and in Coahuila, Mexico (Catling and Engel 1993, Kennedy, Taylor, and Watson 2011, Kennedy and Watson 2010).	Known from Dona Ana, Hidalgo, Otero, and Sierra counties (NMRPTC 1999j).	<b>Unlikely.</b>  The Project Area may contain suitable oak woodland habitat and they has been found in disjunct areas that encompass the site.
<i>Hieracium brevipilum</i> (= <i>H. fendleri</i> var. <i>mogollense</i> )  Mogollon hawkweed	Inhabits grassy openings in ponderosa pine forest and in mountain meadows (NMRPTC 1999k).  Elevation: 8,200-10,500 ft (NMRPTC 1999k).	Occurs in Catron County in New Mexico and Apache County in the White Mountains of Arizona (NMRPTC 1999k).	Known only from the Mogollon Mountains in Catron County (NMRPTC 1999k).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.



Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Desmodium metcalfei</i>  Metcalfé’s tick-trefoil	Occurs on rocky slopes or canyons within grassland, oak-juniper woodland, and riparian areas (AGFD 2016). Given the range of elevations at which this species occurs it is likely associated with additional vegetative communities.  Elevation: In New Mexico, 4,000-6,500 ft (NMRPTC 1999i).	Occurs in Arizona and Mexico, U.S. and Sinaloa, Mexico (AGFD 2016).	Found in Grant and Sierra counties (NMRPTC 1999i).	<b>None.</b>  They have been found in disjunct areas that encompass the Project Area (i.e., Arizona and just northeast of Silver City)(NHNM 2021a). However, a rare plant survey in the Project Area did not detect this species nor identify any suitable habitat within the site ( <b>Appendix E</b> ).
<i>Hieracium abscissum</i>  Rusby’s hawkweed	Occurs in shady areas and openings in pine, oak, pine-oak and mixed conifer forests (AGFD 2004d, Strother 2006). Additionally, occurs in disturbed areas (Strother 2006).  Elevation: range-wide between 6,560–8,530 ft (Strother 2006) but 8,000–9,300 ft in Arizona (AGFD 2004d, ARPC 2001).	Occurs in southeastern Arizona and west-central New Mexico, U.S. and southward through Mexico and Central America (ARPC 2001, Strother 2006).	Distribution in the state not well-understood but this species occurs in the Mogollon Mountains (Nature Serve 2021).	<b>None.</b>  Project Area is outside of the restricted range and is below the elevational range preferred by this species.
<i>Packera cardamine</i> (= <i>Senecio cardamine</i> )  Heartleaf groundsel	Found on steep slopes and forest understory in upper montane coniferous forest (NMRPTC 1999k).  Elevation: 8,000-10,000 ft in New Mexico (NMRPTC 1999k).	Occur in New Mexico in the Mogollon Mountains and adjacent Arizona in the White Mountains (NMRPTC 1999k).	Known from the Mogollon Mountains in Catron County (NMRPTC 1999k).	<b>None.</b>  The Project Area is outside of the restricted geographic range and is below the elevational range preferred by this species.
<i>Penstemon linarioides</i> ssp. <i>maguirei</i>  Maguire's beardtongue	Inhabits limestone cliffs in pinyon-juniper woodland (NMRPTC 1999l).  Elevation: 6,000-6,500 ft in New Mexico (NMRPTC 1999l).	Grant County in New Mexico and Greenlee County in Arizona. Found near the Gila River in both states (NMRPTC 1999l).	Known from Grant County in New Mexico, although the plant has not been seen in New Mexico for over 100 years. It may still exist in canyons of the Gila River (NMRPTC 1999l).	<b>None.</b>  Project Area is outside of the restricted geographic range and a rare plant survey in the site did not detect this species nor identify suitable habitat ( <b>Appendix E</b> ).
<i>Penstemon metcalfei</i>  Metcalfé’s penstemon	Occupies cliffs or steep, north-facing slopes in lower and upper montane coniferous forest (NMRPTC 1999m).  Elevation: 6,600-9,500 ft in New Mexico (NMRPTC 1999m).	Endemic to New Mexico (NMRPTC 1999m).	Known from the Black Range in Sierra County (NMRPTC 1999m). Currently known only from a small region of the Black Range in Trujillo and Percha Canyon (NMRPTC 1999m).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.



Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Pteryxia davidsonii</i>  Davidson's Cliff Carrot	Inhabit cool, rocky places in piñon-juniper woodland and lower montane coniferous forest (NMRPTC 1999h).  Elevation: 6,500-8,000 ft in New Mexico (NMRPTC 1999h).	New Mexico in Catron and Grant counties in the Mogollon Mountains and Pinos Altos range, as well as adjacent Arizona (NMRPTC 1999h).	The distribution in the state is poorly understood. Only known from Mogollon Mountains and Piños Altos range (NMRPTC 1999h).	<b>Unlikely.</b>  Project Area is outside of the restricted geographic range. However, while a rare plant survey in the Project Area did not detect this species, potentially suitable habitat was identified in the site ( <b>Appendix E</b> ).
<i>Scrophularia macrantha</i>  Mimbres figwort	Inhabits Piñon-juniper woodland and lower montane coniferous forest. Steep, rocky, usually north-facing igneous cliffs and talus slopes, occasionally in canyon bottoms (NMRPTC 2016b).  Elevation: 6,500-8,200 ft (NMRPTC 2016b).	Endemic to New Mexico (NMRPTC 2016b).	Known from the Mimbres Mountains, Kneeling Nun, Cook's Peak, and Railroad, Noonday, and Upper Gallinas canyons in Grant and Luna counties (NMRPTC 2016b).	<b>Unlikely.</b>  While the Project Area is outside of the known distribution of this species, it occurs in nearby mountains and there is potential habitat for this species is present at higher elevations in the Big Burro Mountains. Surveys in the Project Area did not detect this species, although potentially suitable habitat was identified ( <b>Appendix E</b> ).
<i>Stellaria porsildii</i>  Porsild's starwort	Utilize willow thickets, open meadows, roadside, forest edges and partially shaded areas with pine, Douglas fir and oak (AGFD 2004c, Morton 2005).  Elevation: Range-wide 7,000–11,810 ft (ARPC 2001, Morton 2005) but approximately 8,000–9,200 ft in Arizona (AGFD 2004c).	Occurs in Arizona and New Mexico (Morton 2005).	Found in the Piños Altos Mountains of Grant County (NMRPTC 1999n).	<b>None.</b>  The Project Area is outside of the restricted geographic range and a rare plant survey did not detect this species nor identify any suitable habitat within the site ( <b>Appendix E</b> ).
<i>Phemeranthus humilis</i> [= <i>Talinum humile</i> ]  Piños altos flame flower	Grow in shallow, rocky soil on or near outcrops (Arizona Rare Plant Committee 2001, Bair et al. 2006, Kiger 2003). Typically found on rock benches on slopes or pockets of soil overlying rock on level terrain in semi-desert grassland and oak or pinyon-juniper woodlands (AGFD 2004b, Ferguson 2002).  Elevation: Range-wide occurs as high as 5,900 ft (Ferguson 2002). In Arizona, 4,000–5,100 ft (AGFD 2004b, Arizona Rare Plant Committee 2001).	Occurs in southeastern Arizona and southwestern New Mexico, U.S. and the Mexican states of Chihuahua, Durango, and Mexico (AGFD 2004b, Bair et al. 2006, Kiger 2003).	Known from Grant and Hidalgo counties(NHNM Natural Heritage New Mexico 2021b).	<b>Unlikely.</b>  The Project Area is outside of the known geographic range because it occurs in nearby mountains the known distribution in the state encompasses the Project Area. However, a rare plant survey failed to detect this species in the site, potentially suitable habitat was identified ( <b>Appendix E</b> ).

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Trifolium longipes</i> ssp. <i>neurophyllum</i> (= <i>T. neurophyllum</i> )  Mogollon clover	Inhabit wet meadows, springs and along riparian corridors in montane coniferous forest (NMRPTC 1999o).  Elevation: 6,500-9,000 ft (NMRPTC 1999o).	Known from Catron County in New Mexico and adjacent areas in Arizona (NMRPTC 1999o).	Occur in approximately 20 sites in Catron County, near the border with Arizona (NMRPTC 1999o).	<b>None.</b>  The Project Area is outside of the restricted geographic range.
<i>Rumex orthoneurus</i>  Blumer's dock	Grows along streams, cienegas, springs, shallowly inundated areas. and other habitats with moist organic soils (AGFD 2002b, ARPC 2001, Mosyakin 2005). Most commonly found adjacent to perennial water sources within Madrean subalpine grassland meadows or Interior southwestern riparian deciduous forest. Thought to be intolerant of shading, but have been found in deep, shaded canyons at some sites (AGFD 2002b).  Elevation: 4,480–9,660 ft (AGFD 2002b).	Occurs in Arizona and New Mexico, U.S. and Sonora, Mexico (Mosyakin 2005).	Known from Grant and Hidalgo counties (SEINet Portal Network 2021).	<b>Unlikely.</b>  The Project Area is outside of the known geographic range but it occurs in nearby mountains, and the site may contain potentially suitable forested habitat.
SNAILS				
<i>Ashmunella binneyi</i>  Silver Creek woodland springsnail	Associated with subalpine montane conifer forest and lower montane forest, but the only description occurs from one collecting location in the Black Range.  Elevation: 8,000-8,500 ft (BISON-M 2018j).	Endemic to New Mexico (BISON-M 2018j).	Found in the Black Range of Grant County, New Mexico (BISON-M 2018j). Specifically, known to occur on the west side of the Black Range along a 2-mile stretch at the upper ends of Silver, Bull Top, and Spring Creek canyons (Metcalf and Smartt 1997).	<b>None.</b>  The Project Area is outside of the restricted range of this species.
<i>Ashmunella cockerelli argenticola</i>  No common name	Occur along a heavily wooded canyon floor, under a mixture of leaf litter amidst loose limestone rocks (Metcalf and Smartt 1997).  Elevation: 8,000-8,500 ft (BISON-M 2018c).	Endemic to New Mexico (BISON-M 2018c).	Known only from Silver Creek Canyon in the Black Range of Grant County, New Mexico (BISON-M 2018c).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella cockerelli cockerelli</i>  Black Range woodlandsnail	Occupies open woodland that was verging on semiarid. Observed living in the limestone talus in sheltered, undisturbed areas (Metcalf and Smartt 1997).  Elevation: 7,001-8,000 ft (BISON-M 2018c).	Endemic to New Mexico (BISON-M 2018c).	Found in Sawyer Peak in the southwestern Black Range of Grant County (BISON-M 2018c).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella cockerelli perobtusa</i>  No common name	Only known from a single location characterized by limestone (BISON-M 2018c).  Elevation: 7,001-8,000 ft (BISON-M 2018c).	Endemic to New Mexico (BISON-M 2018c).	Known from about 2 miles east of the trail from Sawyer Peak to Grand Central Mine at a slightly higher elevation than mine in southeastern Black Range of Grant County (BISON-M 2018c).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Ashmunella danielsi</i>  Whitewater Creek woodlandsnail	Occupy a wooded, north-facing slope, in igneous rock talus that was moss-covered in some places, containing damp leaf litter in interstices among the stones (Metcalf and Smartt 1997).  Elevation: 7,000-8,000 ft (BISON-M 2017m).	Endemic to New Mexico (BISON-M 2017m).	Found only in the Little Whitewater Creek Canyon and Shelton Canyon in the Mogollon Mountains of Catron County (BISON-M 2017m).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella mendax</i>  Iron Creek woodlandsnail	Utilizes areas along wooded canyons down into the Upper Sonoran-Transition Zone boundary. Although it prefers canyons at lower elevations, it is more widespread in the forested zone of higher elevations. They can bridge a variety of environmental conditions from more xeric, lower elevation, open canopy habitats with reduced vegetation to more mesic areas with higher canopy cover dominated by vegetation and litter accumulation (BISON-M 2018g).  Elevation: 5,500-9,000 ft (Metcalf and Smartt 1997).	Endemic to New Mexico (BISON-M 2018g).	Known from the Black Range in Grant and Sierra counties (Metcalf and Smartt 1997).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella tetrodon animorum</i>  No common name	<i>A. tetrodon</i> appears to be limited to deep canyons. Along creek bottoms of these narrow canyons, deciduous trees produce an abundant leaf litter where snails occur under and around stones and logs (BISON-M 2017f). Associated with accumulations of talus from igneous rocks.  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017f).	This subspecies is only known from Holden’s Spring in Black Range mountains of Sierra County (BISON-M 2017f).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella tetrodon inermis</i>  No common name	<i>A. tetrodon</i> appears to be limited to deep canyons. Along creek bottoms of these narrow canyons, deciduous trees produce an abundant leaf litter where snails occur under and around stones and logs (BISON-M 2017f).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017f).	Known only from Dry Creek Canyon in southwestern Mogollon Mountains in Catron County (BISON-M 2017f).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Ashmunella tetrodon mutator</i>  No common name	<i>A. tetrodon</i> appears to be limited to deep canyons. Found along creek bottoms of these narrow canyons, deciduous trees produce an abundant leaf litter where snails occur under and around stones and logs (BISON-M 2017f).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017f).	Known only from Dry Creek Canyon in southwestern Mogollon Mountains in Catron County (BISON-M 2017f).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.

Appendix B. USFS GNF Sensitive Species Potential to Occur

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Ashmunella tetrodon tetrodon</i>  No common name	<i>A. tetrodon</i> appears to be limited to deep canyons. Along creek bottoms of these narrow canyons, deciduous trees produce an abundant leaf litter where snails occur under and around stones and logs (BISON-M 2017f).  Elevation: 6,000-7,000 ft (BISON-M 2017f).	Endemic to New Mexico (BISON-M 2017f).	Found in Dry Creek Canyon in southwestern Mogollon Mountains in Catron County (BISON-M 2017f).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix barbata</i>  Bearded mountain snail	Inhabits creek bottoms with riparian vegetation, rocky rubble, and accumulated leaf litter (BISON-M 2017b).  Elevation: Unknown.	Occurs in Arizona and New Mexico (BISON-M 2017b).	Known from the Mogollon Mountains (Metcalf and Smartt 1997) from southwestern canyons, including Little Dry Creek Canyon northwestward to Whitewater Creek Canyon and then northeastward to Willow Creek Canyon (BISON-M 2017b).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix metcalfei acutidiscus</i>  No common name	Are strict calciphiles. Utilize areas of limestone bedrock occur discontinuously, and it appears that a situation comparable to an island archipelago exists(BISON-M 2017c). This subspecies uses bare exposed rock in canyons and on steep slopes in evergreen forest land.  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017c).	Was collected from about 0.5 miles east of Sawyer Peak in Trujillo Canyon in the Black Range of Sierra County (BISON-M 2017c).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix metcalfei concentrica</i>  No common name	Are strict calciphiles. Inhabit areas of limestone bedrock occur discontinuously, and it appears that a situation comparable to an island archipelago exists (BISON-M 2017c). This subspecies uses bare exposed rock in canyons and on steep slopes in evergreen forest land.  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017c).	Found around the head of the Silver Creek Canyon complex on the west side of Sawyer Peak and continues southward. Has been reported from the south end of the range near Grand Central Mine from the next two gulches north of the mine, and on the west side of Sawyer Peak. Occurring over such an extensive area, it appears that <i>O. m. concentrica</i> is the most widespread of the named subspecies of <i>O. metcalfei</i> in the Black Range (BISON-M 2017c).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix metcalfei metcalfei</i>  No common name	Are strict calciphiles. Inhabit areas of limestone bedrock occur discontinuously, and it appears that a situation comparable to an island archipelago exists (BISON-M 2017c). This subspecies uses bare exposed rock in canyons and on steep slopes in evergreen forest land.  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017c).	Thought that this subspecies was an inhabitant of the canyons of the upper Percha Creek system, to the north and south of Kingston in the Black Range of Sierra County (BISON-M 2017c).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Oreohelix metcalfei radiata</i>  No common name	Are strict calciphiles. In the Black Range areas of limestone bedrock occur discontinuously, and it appears that a situation comparable to an island archipelago exists (BISON-M 2017c). This subspecies uses bare exposed rock in canyons and on steep slopes in evergreen forest land.  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017c).	Occurs along the canyons of Iron and Spring Creeks, the next complex north of the Silver Creek Canyon complex in the Black Range of Grant County. Less widespread than <i>concentrica</i> although the extent of Iron Creek Canyon occupied is not known (BISON-M 2017c).	<b>None.</b>  Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix pilsbryi</i>  Mineral Creek mountainsnail	Inhabit north-facing limestone outcrops (BISON-M 2018h).  Elevation: 6,750 ft from one location (BISON-M 2018h).	Endemic to New Mexico (BISON-M 2018h).	Known from the Black Range in Sierra County in Mineral Creek Canyon (BISON-M 2018h).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Oreohelix swopei</i>  Morgan Creek mountainsnail	Inhabit steep slopes or in canyons (BISON-M 2018h).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2018h).	Known from several canyons in the northern part of the Black Range including Morgan, Diamond Creek, Turkey Run, and Black canyons (BISON-M 2018h).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.
<i>Pyrgulopsis gilae</i>  Gila springsnail	Inhabits cool springs and brooks, but a few have also been found in a nearby thermal spring. Occurs in mud, debris, and vegetation. Typical habitat is a rivulet about 3 ft wide and grown up with watercress ( <i>Nasturtium officinale</i> ) (BISON-M 2017g). Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017g).	Limited to a series of thermal springs along the Gila River in Grant County in the East and West Forks. Has also been observed along Beaver Creek, Mimbres District and in the Black Range District (BISON-M 2017g).	<b>None.</b>  Project Area is outside of the highly restricted geographic range.
<i>Pyrgulopsis thermalis</i>  New Mexico springsnail	Inhabits waters that are as warm as 38°C but is more common where temperatures are 33-35°C. Occupy substrates in areas of steep or even vertical rock, covered with thin sheets of water. Also utilizes areas of minor spring flows on algal film and crusts of lime-depositing algae. Possibly also occurs in dense grasses and sedges bordering the springs (BISON-M 2019d).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2019d).	Are restricted to a series of thermal springs along the Gila River in Grant County (BISON-M 2019d).	<b>None.</b>  The Project Area is outside of the restricted geographic range of this species.

## REFERENCES

- Alves, J.E., K.A. Pattern, and D.E. Brauch. 2008. Rangewide Status of Rio Grande Cutthroat Trout (*Oncorhynchus clarkii virginialis*): 2008. *Rio Grande Cutthroat Trout Conservation Team Report*. Fort Collins, Colorado.
- Arizmendi, M. D. C., C. I. Rodríguez-Flores, C. A. Soberanes-González, and T. S. Schulenberg. 2015. "White-Eared Hummingbird (*Hylocharis leucotis*), version 1.0." In *Neotropical Birds Online*, edited by T. S. Schulenberg. Ithaca, New York: Cornell Lab of Ornithology.
- Arizona Game and Fish Department. 1999. Goodding Onion (*Allium gooddingii*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 20, 1999. 6 pp.
- \_\_\_\_\_. 2001. Allen's Lappet-Browed Bat (*Idionycteris phyllotis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 3, 2001. 4 pp.
- \_\_\_\_\_. 2002a. American Peregrine Falcon (*Falco peregrinus anatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 3, 2002. 6 pp.
- \_\_\_\_\_. 2002b. Blumer's Dock (*Rumex orthoneurus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 4, 2002. 6 pp.
- \_\_\_\_\_. 2002c. Desert Sucker (*Catostomus* (= *Pantosteus*) *clarki*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 4, 2002. 5 pp.
- \_\_\_\_\_. 2002d. Sonora Sucker (*Catostomus insignis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 4, 2002. 5 pp.
- \_\_\_\_\_. 2003a. Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2003b. Spotted Bat (*Euderma maculatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 19, 2003. 9 pp.
- \_\_\_\_\_. 2004a. Arizona Montane Vole (*Microtus montanus arizonensis*) Draft. *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 9, 2004. 4 pp.



- \_\_\_\_\_. 2004b. Pinos Altos Flame Flower (*Talinum humile*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. May 20, 2004. 6 pp.
- \_\_\_\_\_. 2004c. Porsild's Starwort (*Stellaria porsildii*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 5 pp.
- \_\_\_\_\_. 2004d. Rusby's Hawkweed (*Hieracium rusbyi*). *Draft Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. April 8, 2004. 4 pp.
- \_\_\_\_\_. 2005a. Crested Coral Root (*Hexaletris spicata*). *Draft Unpublished abstract compiled and edited by Arizona Game and Fish Department*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2005b. Yellow lady's slipper (*Cypripedium parviflorum* var. *pubescens*) Draft. *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 20, 2005. 6 pp.
- \_\_\_\_\_. 2006a. Greene Milkweed (*Asclepias uncialis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2006b. Lowland Leopard Frog (*Lithobates yavapaiensis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 26, 2006. 10 pp.
- \_\_\_\_\_. 2011a. Bald Eagle (*Haliaeetus leucocephalus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. September 2, 2011. 9 pp.
- \_\_\_\_\_. 2011b. Western Red Bat (*Lasiurus blossevillii*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- \_\_\_\_\_. 2011c. Yellow-billed Cuckoo (*Coccyzus americanus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 31, 2011. 6 pp.
- \_\_\_\_\_. 2013. Northern Goshawk (*Accipiter gentilis*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. November 14, 2013. 8 pp.
- \_\_\_\_\_. 2015. Roundtail Chub (*Gila robusta*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 7, 2015. 7 pp.
- \_\_\_\_\_. 2016. Metcalf's Tick-trefoil (*Desmodium metcalfei*) Draft. *Unpublished Abstract Compiled and Edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. November 21, 2016. 5 pp.

- Arizona Rare Plant Committee. 2001. *Arizona Rare Plant Field Guide: A Collaboration of Agencies and Organizations*. Washington: U.S. Government Printing Office.
- Arroyo-Cabral, J., and S.T. Álvarez-Castañeda. 2016. Western Yellow Bat (*Lasiurus xanthinus*). *The IUCN Red List of Threatened Species 2017*. e.T41532A22004260.
- \_\_\_\_\_. 2017. *Idionycteris phyllotis*. *The IUCN Red List of Threatened Species 2017*. e.T10790A21990019.
- Averill-Murray, Annalaura, and Troy E. Corman. 2005. "Bell's Vireo (*Vireo bellii*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 338-339.
- Bair, Allison, Marissa Howe, Daniela Roth, Robin Taylor, Tina Ayers, and Robert W. Kiger. 2006. "Vascular Plants of Arizona: Portulacaceae.\" *Canotia* 2 (1):1-22.
- Baltosser, W. H., and P. E. Scott. 1996. "Costa's Hummingbird (*Calypte costae*), version 2.0.\" In *The Birds of North America*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Barlow, Jon C., Sheridan N. Leckie, and Colette T. Baril. 2020. "Gray Vireo (*Vireo vicinior*).\" In *Birds of the World*, edited by A.F. Poole and F.B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Baumann, R. W., and G. Z. Jacobi. 2002. "*Capnia caryi*, an Interesting New Species of Winter Stonefly from the American Southwest (Plecoptera: Capniidae).\" *Western North American Naturalist* 62 (4):484-486.
- BISON-M. 2014. "Allen's Big-Eared Bat (*Idionycteris phyllotis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017a. "Arizona Gray Squirrel (*Sciurus arizonensis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017b. "Bearded Mountainsnail (*Oreohelix barbata*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017c. "Black Range Mountainsnail (*Oreohelix metcalfei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017d. "Common Ground-dove (*Columbina passerina*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017e. "Costa's Hummingbird (*Calypte costae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017f. "Dry Creek Woodlandsnail (*Ashmunella tetradon*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017g. "Gila Springsnail (*Pyrgulopsis gila*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.

- \_\_\_\_\_. 2017h. "Gray Vireo (*Vireo vicinior*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>.
- \_\_\_\_\_. 2017i. "Mayfly (*Lachlania dencyanna*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017j. "Notodontid Moth (*Eyparapax rosea*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017k. "Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017l. "Spotted Bat (*Euderma maculatum*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017m. "Whitewater Creek Woodlandsnail (*Ashmunella danielsi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018a. "Abert's Towhee (*Melospiza aberti*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018b. "Arizona Montane Vole (*Microtus montanus*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018c. "Black Range Woodlandsnail (*Ashmunella cockerelli*).\" <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018d. "Burrowing Owl (*Athene cunicularia*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018e. "Desert Sucker (*Catostomus clarkii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018f. "Gila Woodpecker (*Melanerpes uropygialis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018g. "Iron Creek Woodlandsnail (*Ashmunella mendax*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018h. "Mineral Creek Mountainsnail (*Oreohelix pilsbryi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018i. "Rio Grande Sucker (*Catostomus plebeius*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018j. "Silver Creek Woodlandsnail (*Ashmunella binneyi*).\" <https://bison-m.org/>. Santa Fe, New Mexico.

- \_\_\_\_\_. 2018k. "Yellow-billed Cuckoo (western pop; *Coccyzus americanus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019a. "Bell's Vireo (*Vireo bellii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019b. "Hooded Skunk (*Mephitis macroura*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019c. "Lowland Leopard Frog (*Lithobates yavapaiensis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019d. "New Mexico Hot Springsnail (*Pyrgulopsis thermalis*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019e. "Western Red Bat (*Lasiurus blossevillei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020a. "Common Black Hawk (*Buteogallus anthracinus*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020b. "Gunnison's Prairie Dog (*Cynomys gunnisoni*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020c. "Northern Goshawk (*Accipiter gentilis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- Bolster, Betsy C. 2005. "Western Red Bat (*Lasiurus blossevillei*).\" Western Bat Working Group. <http://wbwg.org/western-bat-species/>.
- Bowman, R. 2020. "Common Ground Dove (*Columbina passerina*) Version 1.0.\" In *Birds of the World*, edited by A. Poole and F. B. Gill. Ithaca, New York.
- Bradley, Robert. 2005. "Gila Woodpecker (*Melanerpes uropygialis*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 275-275.
- Buehler, David A. 2020. "Bald Eagle (*Haliaeetus leucocephalus*), version 1.0.\" The Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.baleag.01>. Ithaca, New York.
- Bureau of Reclamation. 2016. Species Accounts for the Lower Colorado River Multi-Species Conservation Program. Boulder City, Nevada: Lower Colorado River Multi-Species Conservation Program. June, 2016.
- Burger, Bill. 2005. "Peregrine Falcon (*Falco peregrinus*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 156-157.

- Calamusso, Bob, John N. Rinne, and Paul R. Turner. 2002. "Distribution and Abundance of the Rio Grande Sucker in the Carson and Santa Fe National Forests, New Mexico." *The Southwestern Naturalist* 47 (2):182-186.
- Catling, P. M., and V. S. Engel. 1993. Systematics and distribution of *Hexalectris spicata* var. *arizonica* (Orchidaceae). *Lindleyana* 8: 119–125. 119–125.
- Corman, Troy E. 2005a. "Abert's Towhee (*Pipilo aberti*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 500-501.
- . 2005b. "Costa's Hummingbird (*Calypte costae*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 260-261.
- . 2005c. "Gray Vireo (*Vireo vicinior*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 340-341.
- . 2005d. "White-Eared Hummingbird (*Hylocharis leucotis*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 244-245.
- Cuarón, A. D., J. F. González-Maya, K. Helgen, F. Reid, J. Schipper, and J. W. Dragoo. 2016. *Mephitis macroura*. *The IUCN Red List of Threatened Species 2016*. e.T41634A45211135.
- Decker, Karin. 2006. *Asclepias uncialis* Greene (Wheel Milkweed): A Technical Conservation Assessment. Rocky Mountain Region: USDA Forest Service. April 24, 2006. 52 pp.
- Desert Fishes Team. 2004. Status of Unlisted Native Fishes of the Gila River Basin, with Recommendations for Management. *Report Number 2*. Tempe, Arizona: Marsh & Associates, LLC. August 31, 2004.
- eBird. 2021. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- Edwards, Holly H., and Gary D. Schnell. 2000. Gila Woodpecker (*Melanerpes uropygialis*), version 2.0. *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Ferguson, David J. 2002. *Phemeranthus humilis* (Pinos Altos fame flower). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plant Technical Council.
- Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. 2018. "eBird Status and Trends." Cornell Lab of Ornithology. <https://ebird.org/science/status-and-trends>. Ithaca, New York.



- Frey, J.K., M.T. Hill, B.L. Christman, J.C. Truett, and S.O. MacDonald. 2008. "Distribution and Habitat of the Arizona Gray Squirrel (*Sciurus arizonensis*) in New Mexico." *The Southwestern Naturalist* 53 (2):248-256.
- Frey, Jennifer. 2005. Status assessment of the Arizona montane vole (*Microtus montanus arizonensis*) in New Mexico. *Submitted to Conservation Services Division New Mexico Department of Game and Fish*. Las Cruces, New Mexico. January 13, 2005.
- Garrison, R.W. 1994. "A Revision of the New World Genus *Erpetogomphus* Hagen in Selys (Odonata: Gomphidae)." *Tijdschrift voor Entomologie* 137.
- Goldman, D. H., Ronald A. Coleman, L. K. Magrath, and P.M. Catling. 2003. "Orchidaceae." In *Flora of North America North of Mexico*, edited by Flora of North America Editorial Committee. New York and Oxford: Oxford University Press. 20+. 26 603-605.
- Hammerson, G. 2015. "Spotted Bat (*Enderma maculatum*)."  
<https://explorer.natureserve.org/>.
- Hoffmeister, Donald F. 1986. *Mammals of Arizona*: The University of Arizona Press and The Arizona Game and Fish Department.
- Hughes, Janice M. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*), version 1.0." In *The Birds of the World [online]*, edited by P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Hwang, Y.T., and S. Larivière. 2001. "Mephitis macroura." *Mammalian Species* 686:1-3.
- Integrated Taxonomic Information System. 2019. "Integrated Taxonomic Information System online database." <http://www.itis.gov>.
- Kennedy, A. H., D. L. Taylor, and L. E. Watson. 2011. "Mycorrhizal Specificity in the Fully Mycoheterotrophic *Hexalectris* Raf. (Orchidaceae: Epidendroideae)." *Molecular Ecology* 20 (6):1303-16.
- Kennedy, Aaron H. , and Linda Watson. 2010. "Species Delineations and Phylogenetic Relationships with the Fully Myco-Heterotrophic *Hexalectris* (Orchidaceae)." *Systematic Botany* 35 (1):64-76.
- Kiger, Robert W. 2003. "*Phemeranthus humilis*." In *Flora of North America Editorial Committee, eds. 1993+ Flora of North America North of Mexico*. New York and Oxford. 20+ vols. Vol. 4 Volume 4, p. 492.
- Klute, D. S., L. W. Ayers, M. T. Green, W. H. Howe, S. L. Jones, J. A. Shaffer, S. R. Sheffield, and T. S. Zimmerman. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States. *Biological Technical Publication FWS/BTP-R6001-2003*: U.S. Fish and Wildlife Service. June 2003.
- Kus, Barbara, Steven L. Hopp, R. Roy Johnson, and Bryan T. Brown. 2020. "Bell's Vireo (*Vireo bellii*), version 1.0." In *Birds of the World*, edited by A. F. Poole. Ithaca, New York: Cornell Lab of Ornithology.



- Luce, B., C. Chambers, and M. Herder. 2005. "Western Bat Species *Euderma maculatum* (Spotted Bat)." Western Bat Working Group. <http://wbwg.org/western-bat-species/>
- Luensmann, Peggy. 2010. "*Falco peregrinus*. In: Fire Effects Information System, [Online]." U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <https://www.fs.fed.us/database/feis/animals/bird/fape/all.html>.
- Lutch, Debbie. 2000. Tonto National Forest Threatened, Endangered and Sensitive (TES) Species 2000 Draft Abstracts. U.S. Forest Service. July 5, 2000.
- Martin, Jennifer L. 2005. "Burrowing Owl (*Athene cunicularia*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 222-223.
- McCafferty, W. P., C. R. Lugo-Ortiz, and G. Z. Jacobi. 1997. "Mayfly Fauna of New Mexico." *The Great Basin Naturalist* 57 (4):283-314.
- McNeal, Dale W., and T. D. Jacobsen. 2002. "*Allium gooddingii* Ownbey." In *Flora of North America North of Mexico*, edited by Flora of North America Editorial Committee. 20+. 26 Volume 26, p. 245.
- Metcalf, Artie L., and R.A. Smartt. 1997. "Land Snails of New Mexico." *Bulletin of New Mexico Museum of Natural History and Science*, 10:1-145.
- Minckley, W. L., and P.C. Marsh. 2009. *Inland Fishes of the Greater Southwest - Chronicle of a Vanishing Biota*. Tucson, Arizona: University of Arizona Press.
- Morton, John K. 2005. "*Stellaria porsildii*." In *Flora of North America Editorial Committee, eds. 1993+ Flora of North America North of Mexico*. New York and Oxford. 20+ vols. Vol. 5 Volume 5, p. 112.
- Mosyakin, Sergei L. 2005. "*Rumex orthoneurus*." In *Flora of North America Editorial Committee, eds. 1993+ Flora of North America North of Mexico*. New York and Oxford. 20+ vols. Vol. 5 Volume 5, p. 516.
- Natural Heritage New Mexico. 2021a. "Metcalf's Tick-Trefoil (*Desmodium metcalfei*)." <https://nhnm.unm.edu/bcd/species/449869>.
- \_\_\_\_\_. 2021b. Pinos Altos Flameflower (*Phemeranthus humilis*).
- \_\_\_\_\_. 2021c. "Yellow Lady's-Slipper (*Cypripedium parviflorum* var. *pubescens*)." <https://nhnm.unm.edu/bcd/species/464860>.
- Nature Serve. 2021. "Rusby's Hawkweed (*Hieracium rusbyi*)." [https://explorer.natureserve.org/Taxon/ELEMENT\\_GLOBAL.2.161745/Hieracium\\_rusbyi](https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.161745/Hieracium_rusbyi).
- NatureServe, and T. J. Lyons. 2019a. "*Catostomus insignis* (Sonora Sucker)." *The IUCN Red List of Threatened Species* 2019:e.T191236A129657033.

- \_\_\_\_\_. 2019b. "*Pantosteus clarkii* (Desert Sucker)." *The IUCN Red List of Threatened Species* 2019:e.T62193A129656831.
- New Mexico Rare Plant Technical Council. 1999a. "*Adenophyllum wrightii* var. *wrightii* (Wrights Dogweed)." New Mexico Rare Plants Home Page. <https://nmrareplants.unm.edu/>. Albuquerque, New Mexico.
- \_\_\_\_\_. 1999b. "*Allium goddingii* (Goodding's Onion)." New Mexico Rare Plants (online). <https://nmrareplants.unm.edu/>. Albuquerque, New Mexico.
- \_\_\_\_\_. 1999c. "*Anticela mogollonesis* (Mogollon Death Camas)." New Mexico Rare Plants (online). <https://nmrareplants.unm.edu/node/10>. Albuquerque, New Mexico.
- \_\_\_\_\_. 1999d. *Asclepias uncialis* (Greene Milkweed). *New Mexico Rare Plants (online)*. Albuquerque, New Mexico.
- \_\_\_\_\_. 1999e. *Astragalus humistratus* var. *crispulus* (Villous Groundcover Milkvetch). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999f. *Cirsium gilense* (Gila Thistle). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999g. *Crataegus wootoniana* (Wooton's Hawthorn). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999h. *Cymopterus davidsonii* (Davidson's Cliff Carrot). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999i. *Desmodium metcalfei* (Metcalf's ticktrefoil). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999j. *Hexalectris arizonica* (Arizona Crested Coralroot). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999k. *Hieracium brevipilum* (Mogollon Hawkweed). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999l. *Penstemon linarioides* ssp. *maguirei* (Maguire's Beardtongue). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999m. "*Penstemon metcalfei* (Metcalf's Penstemon)." <https://nmrareplants.unm.edu/node/136>. Albuquerque, New Mexico.
- \_\_\_\_\_. 1999n. *Stellaria porsildii* (Porsild's Starwort). *New Mexico Rare Plants (online)*.
- \_\_\_\_\_. 1999o. *Trifolium longipes* var. *neurophyllum* (Mogollon cCover, White Mountain Clover). *New Mexico Rare Plants (online)*.
- New Mexico Rare Plants Technical Council. 2016a. *Erigeron bessii* (Hess' fleabane). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2016b. Mimbres Figwort (*Scrophularia macrantha*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.

- O'Farrell, Michael J., Patricia Brown, and Lyle Lewis. 2005. "Idionycteris phyllotis." Western Bat Working Group. <http://wbwg.org/western-bat-species>.
- Ogonowski, Mark S. , and Courtney J. Conway. 2009. "Migratory Decisions in Birds: Extent of Genetic versus Environmental Control." *Oecologia* 2009 (161):199-207.
- Oiseaux Birds. 2021. "Common Ground-Dove (*Columbina passerina*)."  
<http://www.oiseaux-birds.com/card-common-ground-dove.html>.
- Piaggio, Antoinette, Kirk W. Navo, and Craig W. Stihler. 2009. "Intraspecific Comparison of Population Structure, Genetic Diversity, and Dispersal Among Three Subspecies of Townsend's Big-Eared Bats, *Corynorhinus townsendii townsendii*, *C. t. pallascens*, and the Endangered *C. t. virginianus*." *Conservation Genetics* 10:143-159.
- Poulin, Ray L, Danielle Todd, E A Haug, B A Millsap, and M S Martell. 2011. "Burrowing Owl (*Athene cunicularia*), version 2.0." In *The Birds of North America Online*, edited by A. F. Poole. Ithaca, New York: The Cornell Lab of Ornithology.
- Pritchard, Victoria L., and David E. Cowley. 2006. Rio Grande Cutthroat Trout (*Oncorhynchus clarkii virginalis*): A Technical Conservation Assessment. *Prepared for USDA Forest Service, Rocky Mountain Region*,.
- Rees, David E., and William J. Miller. 2005. Rio Grande Sucker (*Catostomus plebeius*): A Technical Conservation Assessment. *Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project*,. Fort Collins, Colorado: Miller Ecological Consultants, Inc., May 16.
- Rorabaugh, Jim. 2008. "Tarahumara Frog *Lithobates tarahumarae*." Online Field Guide to the Reptiles and Amphibians of Arizona. T.C. Brennan. <http://www.reptilesandamphibians.org/Turtle-Amphibs-Subpages/h-l-tarahumarae.html>.
- Roth, Daniela. 2008. Species Account for *Allium gooddingii*. Window Rock, Arizona: Navajo Natural Heritage Program. May 15, 2008. 29-30.
- Sadoti, Giancarlo. 2010. "Common Black-Hawk (*Buteogallus anthracinus*)."  
In *Raptors of New Mexico*, edited by Jean-Luc E. Cartron. Albuquerque, New Mexico: University of New Mexico Press. 213-225.
- Schnell, J. H. 2020. "Common Black Hawk (*Buteogallus anthracinus*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- SEINet Portal Network. 2019. <http://swbiodiversity.org/seinet/index.php>. SEINet Portal Network.
- \_\_\_\_\_. 2021. "<http://swbiodiversity.org/seinet/index.php>." SEINet Portal Network.
- Sherwin, Rick, and Antoinette Piaggio. 2005. "Townsend's Big-Eared Bat (*Corynorhinus townsendii*)."  
Western Bat Working Group. <http://wbwg.org/western-bat-species/>.

- Squires, John R., and Richard T. Reynolds. 1997. "Northern Goshawk (*Accipiter gentilis*), version 2.0." In *The Birds of North America Online*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Strother, John L. 2006. "*Hieracium abscissum*." In *Flora of North America North of Mexico*, edited by Flora of North America Editorial Committee. 20+. 19 Volume 19, p. 293.
- Sundell, Eric. 1993. "Asclepiadaceae Milkweed Family." *Journal for the Arizona-Nevada Academy of Science* 27 (2):169-187.
- Tierra Environmental Consultants, LLC. 2010. Little Rock Mine – Determination of NEPA Adequacy Analysis. Tempe, Arizona: Tierra Environmental Consultants, LLC. September 8, 2010.
- Twit, R. C., and D. M. Finch. 1994. "Abert's Towhee (*Melospiza aberti*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020. *Abert's Towhee (Melospiza aberti) Version 1.0, Birds of the World*. Ithaca, New York: Cornell Lab of Ornithology.
- U.S. Department of Agriculture. 2021. "Groundcover Milkvetch (*Astragalus humistratus* var. *crispulus*)."  
<https://plants.usda.gov/home/plantProfile?symbol=ASHUC>.
- U.S. Fish and Wildlife Service. 2009. Endangered and Threatened Wildlife and Plants; Partial 90-Day Finding on a Petition to List 475 Species in the Southwestern United States as Threatened or Endangered with Critical Habitat. U.S. Fish and Wildlife Service. December 16, 2009. *Federal Register*, 74 (240):66866-66905.
- \_\_\_\_\_. 2013a. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List Coleman's Coralroot as an Endangered or Threatened Species. U.S. Fish and Wildlife Service. December 19, 2013. *Federal Register*, 75 (244):76795-76807.
- \_\_\_\_\_. 2013b. Endangered and threatened wildlife and plants; 12-month finding on a petition to list the Gunnison's prairie dog as an endangered or threatened species. *Federal Register*, 78 (220):68660-68685.
- \_\_\_\_\_. 2013c. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. U.S. Department of Interior. October 3, 2013. *Federal Register*, 78 (192):61622-61666.
- \_\_\_\_\_. 2014. 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. U.S. Department of Interior. October 3, 2014. *Federal Register*, 79 (192):59992-60038.

- \_\_\_\_\_. 2015. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and a Distinct Population Segment of the Roundtail Chub; Proposed Rule. U.S. Department of the Interior. *Federal Register*, 80 (194):60754-60783.
- \_\_\_\_\_. 2017. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and Roundtail Chub Distinct Population Segment: Proposed Rule; Withdrawal. U.S. Department of the Interior. *Federal Register*, 82 (66):16981-16988.
- \_\_\_\_\_. 2020. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule. U.S. Department of Interior. February 27, 2020. *Federal Register*, 85 (39):11458-11594.
- U.S. Forest Service, and U.S. Fish and Wildlife Service. 1997. Goodding's Onion (*Allium gooddingii*) Conservation Assessment and Strategy. Southwest Region: U.S. Department of Agriculture and U.S. Department of the Interior.
- White, Clayton M., Nancy J. Clum, Tom J. Cade, and W. Grainger Hunt. 2002. "Peregrine Falcon (*Falco peregrinus*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Wise-Gervais, Cathryn. 2005. "Northern Goshawk (*Accipiter gentilis*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 134-135.
- Young, Michael K., Kevin A. Meyer, Daniel J. Isaak, and Richard A. Wilkison. 1998. "Habitat Selection and Movement by Individual Cutthroat Trout in the Absence of Competitors." *Journal of Freshwater Ecology* 13 (4):371-381.

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## **APPENDIX C**

### **BLM Sensitive Species List for the Las Cruces District Office**



Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<b>Amphibians</b>													
<i>Anaxyrus (Bufo) microscaphus</i>	Southwestern (Arizona) toad	None	None	Potential	Verified	Verified	None	None	G3G4	S3	Under Review	SGCN	<b>BLM Sensitive</b>
<i>Lithobates (Rana) pipiens</i>	Northern leopard frog	Verified	Verified	Verified	Verified	None	None	None	G5	S3	None	SGCN	<b>BLM Sensitive</b>
<b>Amphibians - Watch</b>													
<i>Craugastor (Eleutherodactylus) augusti latrans</i>	Eastern barking frog	None	None	None	None	Verified	Verified	Verified	G5T4	S2S3	None	SGCN	<b>Watch</b>
<i>Gastrophryne olivacea</i>	Western narrowmouth toad	None	Potential	None	None	Verified	None	Verified	G5	S1	None	Endangered, SGCN	<b>Watch</b>
<i>Lithobates (Rana) blairi</i>	Plains leopard frog	Verified	Verified	None	None	Verified	Verified	Verified	G5	S4	Former FWS Species	SGCN	<b>Watch</b>
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	None	None	None	Potential	Potential	None	None	G4	S1	None	SCGN	<b>Watch *New*</b>
<b>Arthropods</b>													
<i>Danaus plexippus plexippus</i>	Monarch Butterfly	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SNR	Under Review	None	<b>BLM Sensitive *New*</b>
<i>Lytta mirifica</i>	Anthony Blister Beetle	None	None	None	None	Verified	None	None	G2	SH	Former Category 2	Former (2006)	<b>BLM Sensitive</b>
<i>Ochlodes yuma anasazi</i>	Yuma Skipper	None	Verified	None	None	None	None	None	G5	SNR	None	None	<b>BLM Sensitive</b>
<b>Arthropods - Watch</b>													
<i>Bombus occidentalis</i>	Western Bumble Bee	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SNR	None	None	<b>Watch *New*</b>
<i>Deronectes (Stictotarsus)</i>	Bonita Diving Beetle	None	None	None	None	None	Potential	None	G2	SNR	Former Category 2	Former (2006)	<b>Watch *New*</b>
<b>Birds</b>													
<i>Aimophila boterii</i>	Botteri's Sparrow	None	None	None	None	Verified	None	None	G4	S1B,S1N	None	SGCN	<b>BLM Sensitive *New*</b>
<i>Ammodramus bairdii</i>	Baird's Sparrow	None	None	None	None	Verified	None	None	G4	S1N	None	Threatened	<b>BLM Sensitive</b>
<i>Ammodramus savannarum</i>	Arizona Grasshopper	None	None	None	None	Verified	None	None	G5TU	S1B,S1N	None	Endangered	<b>BLM Sensitive</b>
<i>Athene cunicularia</i>	Western Burrowing Owl	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4T4	S3	None	SGCN	<b>BLM Sensitive</b>
<i>Anthus spragueii</i>	Sprague's Pipit	None	None	None	Potential	Verified	Verified	Verified	G3G4	S2N	None	SGCN	<b>BLM Sensitive</b>
<i>Antrostomus arizonae</i>	Mexican Whip-poor-will	Potential	Verified	Verified	Verified	Verified	Potential	Potential	GNR	SNR	None	SGCN	<b>BLM Sensitive *New*</b>
<i>Calcarius mccownii</i>	McCown's Longspur	None	Potential	None	Potential	Verified	Verified	Verified	G4	S3N	None	SGCN	<b>BLM Sensitive *New*</b>
<i>Calcarius ornatus</i>	Chestnut-collared Longspur	Potential	Verified	None	Verified	Verified	Verified	Verified	G5	S3N	None	SGCN	<b>BLM Sensitive</b>
<i>Gymnorhinus</i>	Pinyon Jay	Verified	Verified	Verified	Verified	Verified	Verified	Potential	G3	S2S3	None	SGCN	<b>BLM Sensitive</b>
<i>Toxostoma bendirei</i>	Bendire's Thrasher	Verified	Potential	Verified	Verified	Verified	Potential	None	G4	S3B,S3N	None	SGCN	<b>BLM Sensitive</b>

Plant Species Data

<i>Species</i>	<b>Common Name</b>	<b>Farmington</b>	<b>Taos</b>	<b>Rio Puerco</b>	<b>Socorro</b>	<b>Las Cruces</b>	<b>Roswell</b>	<b>Carlsbad</b>	<b>NatureServe Global rank</b>	<b>NHNM State rank</b>	<b>FWS Status</b>	<b>NM Status</b>	<b>BLM Status</b>
<i>Plants</i>													
<i>Abronia bigelovii</i>	Sand verbena, Galisteo		Potential	Verified					G3	S2	None	Species of Concern	BLM SENSITIVE
<i>Acarospora clauzadeana</i>	Lichen, acarospora clauzadeana						Verified		G1G2	S1	Petitioned/ negative 90 day finding	None	BLM SENSITIVE
<i>Agastache pringlei</i> var. <i>verticillata</i>	Giant hyssop, Organ Mountains					Verified			G3G4T2	S2	None	Species of Concern	BLM SENSITIVE *New*
<i>Aliciella formosa</i>	Gilia, Aztec	Verified							G2	S2	Petitioned/ negative 90 day finding	Endangered	BLM SENSITIVE
<i>Amsonia fugatei</i>	Amsonia, Fugate's				Verified				G2	S2	None	Species of Concern	BLM SENSITIVE
<i>Amsonia tharpii</i>	Bluestar, Tharp's							Verified	G1	S1	Petitioned/ positive 90 day finding	Endangered	BLM SENSITIVE
<i>Anulocaulis leiosolenus</i> var. <i>howardii</i>	Ringstem, Howard's gyp					Verified			G2T1	S1	None	Species of Concern	BLM SENSITIVE
<i>Aquilegia chrysantha</i> var. <i>chaplinei</i>	Columbine, Chapline's					Verified		Verified	G4T2	S2	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Asclepias sanjuanensis</i>	Milkweed, San Juan	Verified							G2G3	S2S3	None	Species of Concern	BLM SENSITIVE
<i>Astragalus cobrensis</i> var. <i>maguirei</i>	Milkvetch, coppermine					Verified			G4T1	S1	None	Species of Concern	BLM SENSITIVE
<i>Astragalus Gypsodes</i>	Milkvetch, Gypsum							Verified	G2	S2	None	Species of Concern	BLM SENSITIVE
<i>Astragalus Knightii</i>	Milkvetch, Knight's			Verified					G2	S2	None	Species of Concern	BLM SENSITIVE
<i>Astragalus Ripleyi</i>	Milkvetch, Ripley		Verified	Potential					G3	S3?	None	Species of Concern	BLM SENSITIVE
<i>Boechera zephyra</i>	Wind Mountain Rockcress					Verified		Potential	G1	S1	None	None	BLM SENSITIVE *New*
<i>Castilleja organorum</i>	Paintbrush, Organ Mountains					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE *New*
<i>Cirsium wrightii</i>	Thistle, wright's Marsh				Potential	Potential	Potential	Potential	G2	S2	Candidate	Endangered	BLM SENSITIVE
<i>Coryphantha robustispina</i> ssp. <i>scheeri</i>	Cactus, scheer's beehive					Verified		Verified	G4T3	S2	None	Endangered	BLM SENSITIVE *New*
<i>Cymopterus spellenbergii</i>	Taos springparsley		Verified						G2	S2	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Dermatophyllum guadalupense</i>	Mescalbean, Guadalupe					Verified		Verified	G1T1	S1	Petitioned/ negative 90 day finding	Species of Concern	BLM SENSITIVE
<i>Erigeron acomanus</i>	Fleabane, Acoma	Potential		Verified					G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
<i>Eriogonum lachnogynum var.colobum</i>	Wildbuckwheat, clipped	Potential	Verified	Potential					G4?T2	S2	None	Species of Concern	BLM SENSITIVE
<i>Escobaria duncanii</i>	Cactus, Duncan's Pincushion					Verified			G3T1T2	S1	None	Endangered	BLM SENSITIVE
<i>Escobaria villardii</i>	Cactus, Villard's Pincushion					Verified			G2Q	S2	None	Endangered	BLM SENSITIVE
<i>Hymenoxys ambigens var. Neomexicana</i>	Bitterweed, New Mexico					Verified			G3?T2	S2	None	Species of Concern	BLM SENSITIVE *New*
<i>Justicia wrightii</i>	Water- Willow, Wright's							Verified	G2	S1	None	Species of Concern	BLM SENSITIVE *New*
<i>Lepidospartum burgessii</i>	Scalebroom, gypsum					Verified			G2	S1	None	Endangered	BLM SENSITIVE
<i>Linum allredii</i>	Flax, Allred's							Verified	G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
<i>Mentzelia conspicua</i>	Blazingstar, Rio Chama		Verified						G2	S2	None	Species of Concern	BLM SENSITIVE *New*

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Mentzelia humilus</i> var. <i>Guadalupensis</i>	Stickleaf, Guadalupe					Verified			G4T1T2	S1S2	None	Species of Concern	BLM SENSITIVE
<i>Mentzelia sivinskii</i>	Sivinski's BlazingstaR	Verified							G3	S3	None	Species of Concern	BLM SENSITIVE *New*
<i>Mentzelia todiltoensis</i>	Stickleaf,Todilito		Potential	Verified	Potential				G1?Q	S3	None	Species of Concern	BLM SENSITIVE *New*
<i>Nerisyrenia hypercorax</i>	Greggia, Crow Flat					Verified			G1G2	S1S2	None	Species of Concern	BLM SENSITIVE
<i>Opuntia Arenaria</i>	Pricklypear, Sand					Verified			G2	S2	None	Endangered	BLM SENSITIVE
<i>Opuntia x viridiflora</i>	Cholla, Santa Fe		Verified						G1Q	S1	None	Endangered	BLM SENSITIVE
<i>Paronychia wilkinsonii</i>	Nailwort, Wilkinson's					Verified			G2	S1	None	Species of Concern	BLM SENSITIVE *New*
<i>Pediomelum pentaphyllum</i>	Scurfpea, Chihuahua					Verified			G1G2	S1	Petitioned/ positive 90 day finding	Endangered	BLM SENSITIVE
<i>Peniocereus greggii</i> var <i>greggii</i>	Cereus, Night-Blooming					Verified			G3G4T2	S3	None	Endangered	BLM SENSITIVE
<i>Penstemon alamosensis</i>	Beardtongue, Alamo					Verified			G3	S3	None	Species of Concern	BLM SENSITIVE

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Penstemon cardinalis</i> ssp. <i>regalis</i>	Penstemon, Guadalupe							Verified	G3T2T3	S2	None	Species of Concern	BLM SENSITIVE
<i>Perityle Cernua</i>	Cliff Daisy, Nodding					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE
<i>Physaria newberryi</i> var. <i>yesicola</i>	Twinpod, Yeso			Verified	Potential				G3G4T2	S2	None	Species of Concern	BLM SENSITIVE *New*
<i>Proatriple x pleiantha</i>	Saltbush, Mancos	Verified							G3	S3?	None	Species of Concern	BLM SENSITIVE
<i>Puccinellia Parishii</i>	Alkaligrass, Parish's	Potential		Verified	Potential	Verified			G2G3	S1	None	Endangered	BLM SENSITIVE
<i>Sclerocactus cloverae</i>	Cactus, Clover's	Verified		Potential					G3T3	S3	None	None	BLM SENSITIVE *New*
<i>Sclerocactus cloverae</i> ssp. <i>brackii</i>	Cactus, Brack's Hardwall	Verified		Potential					G3T1	S2	None	Endangered	BLM SENSITIVE
<i>Scrophularia laevis</i>	Figwort, Organ Mountain					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE *New*
<i>Scrophularia macrantha</i>	Figwort, Mimbres					Verified			G2	S2	None	Species of Concern	BLM SENSITIVE
<i>Sibara grisea</i>	Sibara, Gray; Thelypody, Texas					Verified			G3	S3?	None	Species of Concern	BLM SENSITIVE



Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Spermolepis organensis</i>	Scaleseed, Organ Mountains					Verified			G1	S1	None	Species of Concern	BLM SENSITIVE *New*
<i>Streptanthus sparsiflorus</i>	Jewelflower, Sparseflower							Verified	G2Q	S2	Petitioned/ negative 90 day finding	Species of Concern	BLM SENSITIVE
<i>Townsendia gypsophila</i>	Townsend Daisy, Gypsum			Verified					G2	S2	None	Species of Concern	BLM SENSITIVE
Plants - Watch													
<i>Adenophyllum wrightii</i> var. <i>Wrightii</i>	Dogweed, Wright's					Verified			G1?	SNR,S1	Petitioned/ negative 90 day finding	None	WATCH
<i>Agalinis calycina</i>	False Foxglove, Leoncita						Potential	Potential	G1	S1	Petitioned/ negative 90 day finding	None	WATCH
<i>Agastache cana</i>	Giant Hyssop, Grayish-White					Verified			G4	S3	None	Species of Concern	WATCH
<i>Anulocaulis leiosolenus</i> var. <i>gypsogenus</i>	Ringstem, Pecos Gyp						Verified	Verified	G4	S4	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Arida blepharophylla</i>	Aster, Gypsum Hotspring					Potential			G1	SH	Petitioned/ negative 90 day finding	Species of Concern	WATCH
<i>Asclepias uncialis</i> ssp. <i>ruthiae</i>	Milkweed, Ruth's	Potential							GNR	S1	None	None	WATCH
<i>Astragalus accumbens</i>	Milkvetch, Zuni			Verified					G3	S3	None	Species of Concern	WATCH
<i>Astragalus castetteri</i>	Milkvetch, Castetter's					Verified			G3	S3	None	Species of Concern	WATCH
<i>Astragalus cliffordii</i>	Milkvetch, Clifford's	Potential							GNR	S1	None	Species of Concern	WATCH
<i>Astragalus cyaneus</i>	Milkvetch, Cyanic		Verified	Potential					G4	S4	None	Species of Concern	WATCH
<i>Astragalus feensis</i>	Milkvetch, Santa Fe			Verified		Verified			G3	S3	None	Species of Concern	WATCH
<i>Astragalus heilii</i>	Milkvetch, Heil's	Potential							G1?	S1	None	Species of Concern	WATCH
<i>Astragalus humistratus</i> var. <i>crispulus</i>	Milkvetch, Villous Groundcover				Potential				G4G5T3?	S2	None	None	WATCH
<i>Astragalus kerrii</i>	Milkvetch, Kerr's						Potential		G2	S2	None	Species of Concern	WATCH
<i>Astragalus micromerius</i>	Milkvetch, Chaco	Potential		Potential					G3	S2S3	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Astragalus missouriensis</i> var. <i>humistratus</i>	Milkvetch, Pagosa	Potential	Potential						G5T1	S1	None	None	WATCH
<i>Astragalus monumentalis</i> var. <i>cottamii</i>	Milkvetch, Cottam's	Verified							G4T4	S3	None	Species of Concern	WATCH
<i>Astragalus naturitensis</i>	Milkvetch, Naturita	Potential							G2G3	S2	None	Species of Concern	WATCH
<i>Astragalus neomexicanus</i>	Milkvetch, New Mexico						Potential		G3	S3	None	Species of Concern	WATCH
<i>Astragalus nutriosensis</i>	Milkvetch, Apache				Verified				G3?	SNR	None	None	WATCH *New*
<i>Astragalus oocalycis</i>	Milkvetch, Arboles	Verified							G4	S3	None	Species of Concern	WATCH
<i>Astragalus puniceus</i> var. <i>gertrudis</i>	Milkvetch, Taos	Potential	Verified						G4T3?Q	S3?	None	Species of Concern	WATCH
<i>Astragalus siliceus</i>	Milkvetch, Flint Mountains		Verified						G3	S3	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Astragalus waterfallii</i>	Milkvetch, Waterfall's					Verified		Verified	G3?	S2	None	None	WATCH *New*
<i>Astragalus wittmannii</i>	Milkvetch, One-Flowered		Potential						G3	S3	None	Species of Concern	WATCH
<i>Atriplex griffithsii</i>	Saltbush, Griffith's					Verified			G2G3	S2	None	Species of Concern	WATCH
<i>Castilleja ornata</i>	Paintbrush, Swale					Potential			G1	S1	Petitioned/ positive 90 day finding	Species of Concern	WATCH
<i>Castilleja tomentosa</i>	Hairy Indian Paintbrush					Potential			G1Q	S1	None	None	WATCH *New*
<i>Chaetopappa hersheyi</i>	Leastdaisy, Guadalupe							Verified	G3	S3	None	Species of Concern	WATCH
<i>Cleome multicaulis</i>	Spiderflower, Slender		Potential			Potential			G2G3	SH	None	Endangered	WATCH
<i>Cuscuta warneri</i>	Dodder, Warner's					Potential	Potential		GH	S1	None	Species of Concern	WATCH
<i>Dalea scariosa</i>	Prairie Clover, La Jolla			Potential	Potential				G4	S3	None	Species of Concern	WATCH
<i>Delphinium robustum</i>	Larkspur, Robust		Potential						G2G3	S2	None	Species of Concern	WATCH
<i>Draba smithii</i>	Whitlowgrass, Smith's		Potential						G2	S1	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Ericameria nauseosa</i> ssp. <i>nauseosa</i> var. <i>texensis</i>	Rabbitbrush, Guadalupe					Verified		Potential	G5T2	S2	None	Species of Concern	WATCH
<i>Erigeron bistiensis</i>	Fleabane, Bisti	Verified							G1	S1	Petitioned/ negative 90 day finding	None	WATCH
<i>Eriogonum aliquantum</i>	Wild Buckwheat, Cimarron		Potential						G3	S3	None	Species of Concern	WATCH
<i>Eriogonum lachnogynum</i> var. <i>sarhiae</i>	Buckwheat, Sarah's	Potential							G4?T1	S1	None	Species of Concern	WATCH
<i>Escobaria guadalupensis</i>	Cactus, Guadalupe Pincushion							Potential	G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
<i>Escobaria organensis</i>	Cactus, Organ Mountains Pincushion					Verified			G2	S2	None	Endangered	WATCH
<i>Euphorbia rayturneri</i>	Spurge, Ray Turner's					Verified			G1	S1	None	None	WATCH
<i>Fissidens littlei</i>	Fissidens Moss, Little's					Potential			G1?	S1	Petitioned/ negative 90 day finding	None	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	NatureServe Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Grindelia arizonica</i> var. <i>neomexicana</i>	Gumweed, New Mexico					Potential			G4T3?	SNR	None	Species of Concern	WATCH
<i>Hedeoma apiculata</i>	Pennyroyal, Mckittrick							Verified	G3	S3	None	Species of Concern	WATCH
<i>Helianthus arizonensis</i>	Sunflower, Arizona				Potential				G2G4	SNR	None	Species of Concern	WATCH
<i>Helianthus neglectus</i>	Sunflower, Neglected							Potential	G2Q	SNR	None	None	WATCH
<i>Hexalectris nitida</i>	Coralroot, Shining					Potential		Potential	G3	S1	None	Endangered	WATCH
<i>Hexalectris revoluta</i>	Coralroot, Chisos Mtn					Potential		Potential	G1	S1	Petitioned/ positive 90 day finding	None	WATCH
<i>Hexalectris spicata</i> var. <i>arizonica</i>	Coralroot, Arizona					Potential		Potential	G5T2T4	S2	None	Endangered	WATCH
<i>Hymenoxys vaseyi</i>	Bitterweed, Vasey's					Verified			G2	S2	None	Species of Concern	WATCH
<i>Limosella pubiflora</i>	Mudwort, Chiricahua					Potential			G1Q	S1	None	Species of Concern	WATCH
<i>Mentzelia filifolia</i>	Threadleaf Blazingstar	Potential							G3	S1?	None	Species of Concern	WATCH *New*



Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Mentzelia springeri</i>	Blazingstar, Springer's		Potential	Potential					G3	S3	None	Species of Concern	WATCH
<i>Nama xylopodum</i>	Nama, Cliff					Verified		Verified	G4?	S4?	None	Species of Concern	WATCH
<i>Oenothera organensis</i>	Evening Primrose, Organ Mountains					Verified			G2	S2	None	Species of Concern	WATCH
<i>Packera spellenbergii</i>	Groundsel, Spellenberg's		Potential						G2	S2	None	Species of Concern	WATCH
<i>Panicum mohavense</i>	Panicum, Mohave				Potential	Potential			G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
<i>Perityle quinqueflora</i>	Rockdaisy, Five-Flowered					Potential		Potential	G4	S3	None	Species of Concern	WATCH
<i>Perityle staurophylla</i> var. <i>staurophylla</i>	Rockdaisy, New Mexico					Verified			G4T3T4	S3	None	Species of Concern	WATCH
<i>Phacelia cloudcroftensis</i>	Cloudcroft Phacelia					Potential			G1	S1	None	Species of Concern	WATCH *New*
<i>Phacelia serrata</i>	Phacelia, Cinder			Potential					G3	S2	None	Species of Concern	WATCH
<i>Phacelia sivinskii</i>	Scorpionweed, Sivinski's			Verified	Verified	Verified			G3	S3	None	Species of Concern	WATCH

Plant Species Data

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<i>Phemeranthus humilis</i>	Flameflower, Pinos Altos					Potential			G2	S2	None	Species of Concern	WATCH
<i>Phlox caryophylla</i>	Phlox, Pagosa	Potential	Potential						G4	S2	None	Species of Concern	WATCH
<i>Physaria navajoensis</i>	Bladderpod, Navajo	Potential							G2	S1	Petitioned/ positive 90 day finding	Species of Concern	WATCH
<i>Physaria pruinosa</i>	Bladderpod, Pagosa Springs	Potential	Potential						G2	S1	None	Species of Concern	WATCH
<i>Polygala rimulicola</i> var. <i>Rimulicola</i>	Milkwort, Guadalupe							Verified	G3T3	S2	None	Species of Concern	WATCH
<i>Sclerocactus papyracanthus</i>	Cactus, Grama Grass	Potential	Verified	Verified	Potential	Verified	Potential		G4	S4	None	None	WATCH (downlisted)
<i>Senecio Cliffordii</i>	Groundsel, Clifford's	Potential							GNR	S2	None	Species of Concern	WATCH
<i>Senecio Warnockii</i>	Ragwort, Warnock's					Verified		Verified	G3Q	S2	Species of Concern	Species of Concern	WATCH *New*
<i>Sicyos glaber</i>	Cucumber, Smooth Bur					Verified			G3	S1S2	None	Species of Concern	WATCH *New*
<i>Silene Plankii</i>	Catchfly, Plank's				Verified	Potential			G2	S2	None	Species of Concern	WATCH
<i>Silene Thurberi</i>	Campion, Thurber's					Potential			G4	S3?	None	Species of Concern	WATCH

Plant Species Data

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Silene Wrightii</i>	Catchfly, Wright's				Potential	Verified			G3	S2	None	Species of Concern	WATCH
<i>Stellaria porsildii</i>	Starwort, Porsild's					Potential			G1	S1	Petitioned/ negative 90 day finding	Species of Concern	WATCH
<i>Talinum brachypodum</i>	Fameflower, Laguna			Potential	Potential				GNRQ	S1	None	Species of Concern	WATCH
<i>Valeriana texana</i>	Valerian, Guadalupe							Verified	G3	S3	None	Species of Concern	WATCH
<i>Viola calcicola</i>	Limestone Violet					Potential		Verified	G3	S3	None	Species of Concern	WATCH *New*

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Tympanuchus pallidicinctus</i>	Lesser Prairie-chicken	None	None	None	None	None	Verified	Verified	G3	S2B,S2N	Under Review	SGCN	BLM Sensitive
<i>Vireo bellii arizonae</i>	Bell's Vireo	None	Verified	None	Verified	Verified	Verified	Verified	G5	S2B,S3N	None	Threatened SGCN	BLM Sensitive
<i>Vermivora virginiae</i>	Virginia's Warbler	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3B,S4N	None	SGCN	BLM Sensitive *New*
Birds - Watch													
<i>Aphelocoma woodhouseii</i>	Woodhouse's Scrub- Jay	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S5B, S5N	None	None	Watch *New*
<i>Aquila chrysaetos</i>	Golden Eagle	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	SB3, S4N	None	None	Watch
<i>Baeolophus ridgwayi</i>	Juniper Titmouse	Verified	Verified	Verified	Verified	Verified	Potential	Potential	G5	S4B	None	SGCN	Watch *New*
<i>Botaurus lentiginosus</i>	American Bittern	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S2	None	SGCN	Watch
<i>Buteogallus anthracinus</i>	Common Black-Hawk	Potential	Potential	Verified	Verified	Verified	Verified	Verified	G4G5	S2B,S3N	None	Threatened SGCN	Watch
<i>Callipepla squamata</i>	Scaled Quail	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3	None	None	Watch *New*
<i>Camptostoma imberbe</i>	Northern Beardless-	None	None	None	None	Verified	None	None	G5	S1B,S1N	None	Endangered	Watch
<i>Carpodacus cassinii</i>	Cassin's Finch	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S3B,S5N	None	SGCN	Watch
<i>Charadrius montanus</i>	Mountain Plover	Verified	Verified	Verified	Verified	None	None	None	G3	S2B,S4N	None	SGCN	Watch
<i>Columbina passerina</i>	Common Ground Dove	None	None	None	Potential	Verified	Potential	Verified	G5	S1B,S1N	None	Endangered	Watch
<i>Falco peregrinus</i>	Peregrine Falcon								G4T4	S2B, S3N	Delisted in 1999	SGCN	Watch *New*
<i>Lanius ludovicianus</i>	Loggerhead Shrike	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3	None	SGCN	Watch
<i>Melanerpes lewis</i>	Lewis's Woodpecker	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3B,S3N	None	SGCN	Watch *New*
<i>Meleagris gallopavo mexicana</i>	Gould's Wild Turkey	None	None	None	None	Verified	None	None	G5T3	S2B S2N	None	Threatened SGCN	Watch
<i>Micrathene whitneyi</i>	Elf Owl	None	None	Verified	Verified	Verified	None	None	G5	S3B,S3N	None	SGCN	Watch
<i>Numenius americanus</i>	Long- billed Curlew	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	SB3, S4N	None	SGCN	Watch
<i>Oreoscoptes montanus</i>	Sage Thrasher	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G4	S3B,S4N	None	None	Watch
<i>Passerina ciris</i>	Painted Bunting	None	None	None	None	Verified	Potential	Verified	G5	S4B,S4N	None	None	Watch
<i>Psiloscops flammeolus</i>	Flammulated Owl								G4	S3B, S3N	None	SGCN	Watch *New*
<i>Setophaga graciae</i>	Grace's Warbler	Verified	Verified	Verified	Verified	Verified	Verified	None	G5	S3B, S4N	None	SGCN	Watch *New*
<i>Setophaga nigrescens</i>	Black-throated Gray	Verified	Verified	Verified	Verified	Verified	Verified	None	G5	S3B,S4N	None	SGCN	Watch *New*
<i>Spizella atrogularis evura</i>	Black-chinned Sparrow	None	None	Verified	Verified	Verified	Verified	Verified	G5	S3B,S3N	None	SGCN	Watch

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Vermivora luciae</i>	Lucy's Warbler	None	None	None	Verified	Verified	None	None	G5	S3B,S4N	None	SGCN	Watch
<i>Vireo vicinior</i>	Gray Vireo	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G5	S4B S3N	None	Threatened SGCN	Watch
Crustaceans													
<i>Eulimnadia follisimilis</i>	Clam Shrimp	None	None	None	Verified	None	Verified	None	GNR	SNR	None	SGCN	BLM Sensitive
<i>Phallocryptus sublettei</i>	Salt Playa (Sublette's) Fairy Shrimp	None	None	None	None	Verified	None	None	G2	SNR	None	SGCN	BLM Sensitive
<i>Streptocephalus moorei</i>	Moore's Fairy Shrimp	None	None	None	None	Verified	None	None	G1	SNR	None	SGCN	BLM Sensitive
<i>Streptocephalus</i>	Bowman's Fairy Shrimp	None	None	None	None	Verified	None	None	G1	SNR	None	SGCN	BLM Sensitive
Crustaceans - Watch													
<i>Eocyzicus concavus</i>	Sway-backed Clam Shrimp	None	None	None	None	None	Potential	None	G1G3Q	SNR	None	SGCN	Watch *New*
<i>Lepidurus lemmoni</i>	Lynch's Tadpole	None	None	None	None	Verified	None	None	G4	SNR	None	SGCN	Watch *New*
<i>Thamnocephalus mexicanus</i>	Mexican Beavertail	None	None	None	None	Potential	None	None	G3	SNR	None	SGCN	Watch *New*
Fish													
<i>Astyanax mexicanus</i>	Mexican Tetra	None	None	None	None	None	Verified	Verified	G5	S2	None	SGCN	BLM Sensitive
<i>Catostomus clarkii</i>	Desert Sucker	None	None	None	Potential	Verified	None	None	G3G4	S2	Former species of concern	SGCN	BLM Sensitive
<i>Catostomus insignis</i>	Sonora Sucker	None	None	None	Potential	Verified	None	None	G3G4	S2	Former species of concern	SGCN	BLM Sensitive
<i>Catostomus plebeius</i>	Rio Grande Sucker	None	Verified	Potential	Potential	Verified	Potential	Potential	G3G4	S2	None	SGCN	BLM Sensitive
<i>Cycleptus elongatus</i>	Blue Sucker	None	None	None	None	None	Potential	Verified	G3G4	S1	None	Endangered SGCN	BLM Sensitive
<i>Cyprinodon pecosensis</i>	Pecos Pupfish	None	None	None	None	None	Verified	Verified	G2	S1	Former species of concern	SGCN	BLM Sensitive
<i>Etheostoma lepidum</i>	Greenthroat Darter	None	None	None	None	None	Verified	Verified	G3G4	S2	Former species of concern	Threatened SGCN	BLM Sensitive
<i>Gila pandora</i>	Rio Grande Chub	None	Verified	Potential	Potential	Potential	Verified	Verified	G3	S3	None	SGCN	BLM Sensitive
<i>Gila robusta</i>	Roundtail Chub	Potential	Potential	Potential	Potential	Verified	None	None	G3	S2	None	Endangered SGCN	BLM Sensitive
<i>Macrhybopsis tetranema</i>	Peppered Chub	None	Potential	None	None	None	None	None	G1	S1	Former species of concern	SGCN	BLM Sensitive
<i>Moxostoma congestum</i>	Gray Redhorse	None	None	None	None	None	None	Verified	G4	S1	Former species of concern	Endangered SGCN	BLM Sensitive
<i>Percina macrolepida</i>	Bigscale Logperch	None	Introduced	None	None	None	Verified	Verified	G5	S2	None	Threatened SGCN	BLM Sensitive
<i>Phenacobius mirabilis</i>	Suckermouth Minnow	None	Verified	None	None	None	Verified	None	G5	S2	None	SGCN	BLM Sensitive

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<b>Fish - Watch</b>													
<i>Agosia chrysogaster</i>	Longfin Dace	None	None	None	Potential	Verified	Verified	None	G4	S3S4	Former FWS Species of Concern	None	Watch *New*
<i>Ictiobus bubalus</i>	Smallmouth Buffalo	None	None	None	Potential	Verified	Verified	Verified	G5	S3S4	None	None	Watch *New*
<i>Catostomus discobolus discobolus</i>	Bluehead Sucker	Verified	None	None	None	None	None	None	G4T4	S2	None	None	Watch *New*
<i>Catostomus latipinnis</i>	Flannelmouth Sucker	Verified	Potential	None	None	Potential	None	None	G3G4	S1	Former Category 2 Candidate	None	Watch *New*
<i>Ictalurus lupus</i>	Headwater Catfish	None	None	None	None	None	Verified	Verified	G3	S1	Former species of concern	None	Watch *New*
<i>Macrhybopsis aestivalis</i>	Speckled Chub	None	Potential	None	None	None	Verified	Verified	G3G4	S2	None	None	Watch *New*
<i>Notropis jemezanus</i>	Rio Grande Shiner	None	None	None	Potential	None	Verified	Verified	G3	S2	Former species of concern	None	Watch *New*
<i>Oncorhynchus clarki virginalis</i>	Rio Grande Cutthroat Trout	None	Potential	Potential	Potential	Potential	Potential	None	G5	S2	Former Candidate	None	Watch *New*
<b>Mammals</b>													
<i>Choeronycteris mexicana</i>	Mexican long-tongued bat	None	None	None	None	Verified	None	Potential	G3G4	S2S3	None	SGCN	BLM Sensitive
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	Verified	Verified	Verified	Verified	Verified	Verified	Verified	G3G4T3T4	S3S4	None	SGCN	BLM Sensitive
<i>Cynomys gunnisoni</i>	Gunnison's prairie dog	Verified	Verified	Verified	Verified	None	None	None	G5	S2	None	SGCN	BLM Sensitive
<i>Cynomys ludovicianus</i>	Black-tailed prairie dog	None	Verified	Potential	Potential	Verified	Verified	Verified	G4	S2	None	SGCN	BLM Sensitive
<i>Euderma maculatum</i>	Spotted bat	Verified	Verified	Verified	Verified	Verified	Verified	Potential	G4	S3	None	Threatened, SGCN	BLM Sensitive
<i>Lasiurus xanthinus</i>	Western yellow bat	None	None	None	None	Verified	None	None	G5	S1	None	Threatened, SGCN	BLM Sensitive
<i>Leptonycteris yerbabuenae</i>	Lesser long-nosed bat	None	None	None	None	Verified	None	None	G3	S3	Delisted 2018	Threatened, SGCN	BLM Sensitive
<i>Lepus callotis</i>	White-sided jack rabbit	None	None	None	None	Verified	None	None	G4T3	S1	None	Threatened,	BLM Sensitive
<i>Sorex arizonae</i>	Arizona shrew	None	None	None	None	Verified	None	None	G3	S1	None	Endangered	BLM Sensitive *New*
<b>Mammals - Watch</b>													
<i>Cratogeomys castanops</i>	Yellow-faced pocket	None	Verified	Verified	Verified	Verified	Verified	Verified	G5	S2	None	None	Watch
<i>Cryptotis parva</i>	Least shrew	None	Potential	None	None	None	Verified	Verified	G5	S2	None	Threatened,	Watch *New*
<i>Idionycteris phyllotis</i>	Allen's lappet-browed	None	None	Potential	Verified	Verified	None	None	G4	S3	None	None	Watch *New*
<i>Lasiurus blossevillii</i>	Western red bat	None	None	None	Verified	Verified	Potential	None	G4	S3	None	None	Watch *New*



Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Naturese rve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Lepus townsendii</i>	White-tailed jack rabbit	Potential	Verified	None	None	None	None	None	G5	S3	None	None	Watch
<i>Nasua narica</i>	White-nosed coati	None	None	None	Verified	Verified	None	None	G5	S2	None	None	Watch *New*
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed	None	None	None	None	Verified	None	Verified	G4	S1	None	None	Watch
<i>Ovis canadensis mexicana</i>	Desert bighorn sheep	None	None	None	Verified	Verified	None	None	G3	S1	None	Threatened	Watch
<i>Reithrodontomys fulvescens canus</i>	Fulvous harvest mouse	None	None	None	None	Verified	None	None	G5	S1	None	None	Watch
<i>Sigmodon ochrognathus</i>	Yellow-nosed cotton rat	None	None	None	None	Verified	None	None	G4	S2	None	None	Watch
<i>Thomomys umbrinus</i>	Southern pocket	None	None	None	Potential	Verified	None	None	G5T2	S2	None	Threatened,	Watch *New*
Mollusks													
<i>Ashmunella hebardii</i>	Hacheta Grande Woodlandsnail	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	BLM Sensitive *New*
<i>Ashmunella macromphala</i>	Cooke's Peak	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	BLM Sensitive *New*
<i>Gastrocopta dalliana dalliana</i>	Shortneck Snaggletooth Snail	None	None	None	None	Potential	None	None	G2G4	S3S4	None	SGCN	BLM Sensitive *New*
<i>Holospira crosseii</i>	Cross Holospira Snail	None	None	None	None	Verified	None	None	G2	S1	None	SGCN	BLM Sensitive *New*
<i>Holospira metcalfi</i>	Metcalf Holospira Snail	None	None	None	None	Verified	None	None	G1	S1	None	SGCN	BLM Sensitive *New*
<i>Pyrgulopsis pecosensis</i>	Pecos Springsnail	None	None	None	None	None	None	Potential	G1	S1	None	SGCN	BLM Sensitive *New*
<i>Radiocentrum ferrissi</i>	Fringed Mountainsnail	None	None	None	None	Potential	None	None	G1	S1	None	SGCN	BLM Sensitive *New*
<i>Sonorella hachitana</i>	New Mexico Talussnail	None	None	None	None	Verified	None	None	G2	S2	None	SGCN	BLM Sensitive *New*
<i>Sonorella hachitana flora</i>	New Mexico Talussnail	None	None	None	None	Verified	None	None	G2T1	S1	None	SGCN	BLM Sensitive *New*
<i>Sonorella todseni</i>	Doña Ana Talussnail	None	None	None	None	Verified	None	None	G1	S1	Former Category 2	SGCN	BLM Sensitive *New*
Mollusks -Watch													
<i>Ashmunella amblya cornudasensis</i>	Woodlandsnail	None	None	None	None	Potential	None	None	G3T3	S3	None	SGCN	Watch *New*
<i>Holospira animasensis</i>	Animas Mountains Holospira Snail	None	None	None	None	Potential	None	None	G1G2	S1	None	SGCN	Watch *New*
Reptiles													
<i>Aspidoscelis dixonii</i>	Gray-checked Whiptail	None	None	None	None	Verified	None	None	G3G4	S1	None	Endangered SGCN	BLM Sensitive

Species	Common Name	Farmington	Taos	Rio Puerco	Socorro	Las Cruces	Roswell	Carlsbad	Natureserve Global rank	NHNM State rank	FWS Status	NM Status	BLM Status
<i>Heloderma suspectum</i>	Gila Monster	None	None	None	None	Verified	None	None	G4	S2	None	Endangered, SGCN	BLM Sensitive
<i>Pseudemys gorzugi</i>	Western River (Rio Grande) Cooter	None	None	None	None	None	Verified	Verified	G3G4	S2	Under Review	Threatened, SGCN	BLM Sensitive
<i>Sceloporus arenicolus</i>	Dunes Sagebrush Lizard	None	None	None	None	None	Verified	Verified	G2G3	S2	Formerly proposed, withdrawn following	Endangered SGCN	BLM Sensitive
<i>Sistrurus tergeminus</i>	Desert massasauga	None	None	Verified	Verified	Verified	Verified	Verified	G3G4T3T4	S3	Under Review	SGCN	BLM Sensitive *New*
<i>Trachemys gaigeae</i>	Big Bend Slider	None	None	None	Verified	Verified	None	None	G3	S2	None	SGCN	BLM Sensitive
Reptiles - Watch													
<i>Aspidoscelis stictogramma</i>	Giant Spotted Whiptail	None	None	None	None	Verified	None	None	G4	S1	None	Threatened, SGCN	Watch
<i>Crotalus cerberus</i>	Arizona black rattlesnake	None	None	None	Verified	Verified	None	None	G5	SNR	None	SGCN	Watch *New*
<i>Crotalus lepidus lepidus</i>	Mottled Rock Rattlesnake	None	None	None	None	Verified	Potential	Verified	G5T4T5	S2	None	Threatened, SGCN	Watch
<i>Lampropeltis alterna</i>	Gray-banded Kingsnake	None	None	None	None	None	None	Verified	G5	S1	None	Endangered, SGCN	Watch
<i>Sceloporus slevini</i>	Slevin's Bunchgrass Lizard	None	None	None	None	Verified	None	None	G4	S1	None	Threatened, SGCN	Watch

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## **APPENDIX D**

### **BISON-M Results for Grant County**

## All Species Grant

<u>Taxonomic Group</u>	<u># Species</u>	<u>Taxonomic Group</u>	<u># Species</u>
Amphibians	15	Birds	325
Coleoptera; beetles	16	Crustaceans	3
Ephemeroptera; mayflies	39	Fish	32
Hymenoptera; ants, bees, wasps	4	Lepidoptera; moths and butterflies	187
Mammals	97	Misc. Arachnids	4
Molluscs	49	Odonata; dragonflies	67
Orthoptera; grasshoppers & crickets	55	Plecoptera; stoneflies	1
Reptiles	63	Spiders	22
Tricoptera; caddisflies	4		

**TOTAL SPECIES: 983**

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Black-tailed Jackrabbit</a>	Lepus californicus					<a href="#">View</a>
<a href="#">Desert Cottontail Rabbit</a>	Sylvilagus audubonii					<a href="#">View</a>
<a href="#">Eastern Cottontail Rabbit</a>	Sylvilagus floridanus holzneri					No Photo
<a href="#">Crawford's Desert Shrew</a>	Notiosorex crawfordi					<a href="#">View</a>
<a href="#">Big Free-tailed Bat</a>	Nyctinomops macrotis					No Photo
<a href="#">Brazilian Free-tailed Bat</a>	Tadarida brasiliensis					<a href="#">View</a>
<a href="#">Lesser Long-nosed Bat</a>	Leptonycteris yerbabuenae	T			Y	<a href="#">View</a>
<a href="#">Hoary Bat</a>	Aeorestes cinereus					No Photo
<a href="#">Pallid Bat</a>	Antrozous pallidus					<a href="#">View</a>
<a href="#">Pale Townsend's Big-eared Bat</a>	Corynorhinus townsendii				Y	<a href="#">View</a>
<a href="#">Big Brown Bat</a>	Eptesicus fuscus					No Photo
<a href="#">Spotted Bat</a>	Euderma maculatum	T			Y	<a href="#">View</a>
<a href="#">Allen's Big-eared Bat</a>	Idionycteris phyllotis					<a href="#">View</a>
<a href="#">Silver-haired Bat</a>	Lasionycteris noctivagans					No Photo
<a href="#">Western Red Bat</a>	Lasiurus blossevillii					<a href="#">View</a>
<a href="#">Eastern Red Bat</a>	Lasiurus borealis					No Photo
<a href="#">Southwestern Myotis</a>	Myotis auriculus					No Photo
<a href="#">California Myotis</a>	Myotis californicus					No Photo
<a href="#">Western Small-footed Myotis</a>	Myotis dilolabrum					<a href="#">View</a>
<a href="#">Long-eared Myotis</a>	Myotis evotis					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Southwestern Little Brown Myotis</a>	Myotis occultus					No Photo
<a href="#">Fringed Myotis</a>	Myotis thysanodes					No Photo
<a href="#">Cave Myotis</a>	Myotis velifer					No Photo
<a href="#">Long-legged Myotis</a>	Myotis volans					<a href="#">View</a>
<a href="#">Yuma Myotis</a>	Myotis yumanensis					<a href="#">View</a>
<a href="#">Evening Bat</a>	Nycticeius humeralis					No Photo
<a href="#">Canyon Bat</a>	Parastrellus hesperus					<a href="#">View</a>
<a href="#">Coyote</a>	Canis latrans					<a href="#">View</a>
<a href="#">Mexican Gray Wolf</a>	Canis lupus baileyi	E	E		Y	<a href="#">View</a>
<a href="#">Common Gray Fox</a>	Urocyon cinereoargenteus					<a href="#">View</a>
<a href="#">Kit Fox</a>	Vulpes macrotis					<a href="#">View</a>
<a href="#">Bobcat</a>	Lynx rufus					<a href="#">View</a>
<a href="#">Mountain Lion</a>	Puma concolor					<a href="#">View</a>
<a href="#">Common Hog-nosed Skunk</a>	Conepatus leuconotus					<a href="#">View</a>
<a href="#">Hooded Skunk</a>	Mephitis macroura					<a href="#">View</a>
<a href="#">Striped Skunk</a>	Mephitis mephitis					<a href="#">View</a>
<a href="#">Western Spotted Skunk</a>	Spilogale gracilis					<a href="#">View</a>
<a href="#">Long-tailed Weasel</a>	Mustela frenata					<a href="#">View</a>
<a href="#">American Badger</a>	Taxidea taxus					<a href="#">View</a>
<a href="#">Ringtail</a>	Bassariscus astutus					<a href="#">View</a>
<a href="#">White-nosed Coati</a>	Nasua narica					<a href="#">View</a>
<a href="#">Common Raccoon</a>	Procyon lotor					<a href="#">View</a>
<a href="#">Black Bear</a>	Ursus americanus					<a href="#">View</a>
<a href="#">Chihuahuan Pronghorn</a>	Antilocapra americana mexicana					No Photo
<a href="#">Rocky Mtn. Bighorn Sheep</a>	Ovis canadensis canadensis					<a href="#">View</a>
<a href="#">Desert Bighorn Sheep (delisted pops)</a>	Ovis canadensis mexicana					<a href="#">View</a>
<a href="#">Elk</a>	Cervus canadensis nelsoni					<a href="#">View</a>
<a href="#">Mule Deer</a>	Odocoileus hemionus					<a href="#">View</a>
<a href="#">Coues' White-tailed Deer</a>	Odocoileus virginianus couesi					<a href="#">View</a>
<a href="#">Collared Peccary</a>	Peccari tajacu sonoriensis; angulatus					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">American Beaver</a>	Castor canadensis					<a href="#">View</a>
<a href="#">Northern Pygmy Mouse</a>	Baiomys taylori					No Photo
<a href="#">Long-tailed Vole</a>	Microtus longicaudus longicaudus; alticola; baileyi; mordax					No Photo
<a href="#">Mogollon Vole</a>	Microtus mogollonensis guadalupensis; mogollonensis					No Photo
<a href="#">White-throated Woodrat</a>	Neotoma albigula					<a href="#">View</a>
<a href="#">Mexican Woodrat</a>	Neotoma mexicana mexicana; inopinata; pinetorum; scopulorum					No Photo
<a href="#">Southern Plains Woodrat</a>	Neotoma micropus canescens					No Photo
<a href="#">Stephen's Woodrat</a>	Neotoma stephensi					No Photo
<a href="#">Chihuahua Grasshopper Mouse</a>	Onychomys arenicola arenicola					No Photo
<a href="#">Northern Grasshopper Mouse</a>	Onychomys leucogaster					No Photo
<a href="#">Southern Grasshopper Mouse</a>	Onychomys torridus					No Photo
<a href="#">Brush Mouse</a>	Peromyscus boylii					No Photo
<a href="#">Cactus Mouse</a>	Peromyscus eremicus anthonyi; eremicus					<a href="#">View</a>
<a href="#">Osgood's Mouse</a>	Peromyscus gratus					No Photo
<a href="#">White-footed Mouse</a>	Peromyscus leucopus					<a href="#">View</a>
<a href="#">Deer Mouse</a>	Peromyscus maniculatus					No Photo
<a href="#">Northern Rock Mouse</a>	Peromyscus nasutus					No Photo
<a href="#">Pinyon Mouse</a>	Peromyscus truei					No Photo
<a href="#">Tawny-bellied Cotton Rat</a>	Sigmodon fulviventris minimus					No Photo
<a href="#">Hispid Cotton Rat</a>	Sigmodon hispidus berlandieri; confinis; texianus					<a href="#">View</a>
<a href="#">Yellow-nosed Cotton Rat</a>	Sigmodon ochrognathus					No Photo
<a href="#">Western Harvest Mouse</a>	Reithrodontomys megalotis megalotis; aztecus					No Photo
<a href="#">Plains Harvest Mouse</a>	Reithrodontomys montanus					No Photo
<a href="#">Common Porcupine</a>	Erethizon dorsatum					<a href="#">View</a>



## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Botta's Pocket Gopher</a>	Thomomys bottae actuosus; alienus; aureus; collis; connectens; cultellus; fulvus; guadalupensis; lachuguilla; mearnsi; morulus; opulentus; paguatae; pectoralis; peramplus; pervagus; planorum; rufidulus; ruidosae; tol					No Photo
<a href="#">Bailey's Pocket Mouse</a>	Chaetodipus baileyi					No Photo
<a href="#">Chihuahuan Pocket Mouse</a>	Chaetodipus eremicus					No Photo
<a href="#">Hispid Pocket Mouse</a>	Chaetodipus hispidus					No Photo
<a href="#">Rock Pocket Mouse</a>	Chaetodipus intermedius intermedius; crititus; phasma; umbrosus					No Photo
<a href="#">Desert Pocket Mouse</a>	Chaetodipus penicillatus					No Photo
<a href="#">Merriam's Kangaroo Rat</a>	Dipodomys merriami					<a href="#">View</a>
<a href="#">Ord's Kangaroo Rat</a>	Dipodomys ordii					No Photo
<a href="#">Banner-tailed Kangaroo Rat</a>	Dipodomys spectabilis baileyi; clarenci; spectabilis					No Photo
<a href="#">Arizona Banner-tailed Kangaroo Rat</a>	Dipodomys spectabilis perblandus; spectabilis					No Photo
<a href="#">Silky Pocket Mouse</a>	Perognathus flavus flavus; hopiensis					No Photo
<a href="#">House Mouse</a>	Mus musculus					<a href="#">View</a>
<a href="#">Harris' Antelope Squirrel</a>	Ammospermophilus harrisi					No Photo
<a href="#">Golden-mantled Ground Squirrel</a>	Callospermophilus lateralis					<a href="#">View</a>
<a href="#">Black-tailed Prairie Dog</a>	Cynomys ludovicianus ludovicianus				Y	<a href="#">View</a>
<a href="#">Rock Squirrel</a>	Otospermophilus variegatus grammurus					<a href="#">View</a>
<a href="#">Abert's Squirrel</a>	Sciurus aberti aberti; chuscensis; ferreus					<a href="#">View</a>
<a href="#">Arizona Gray Squirrel</a>	Sciurus arizonensis arizonensis					<a href="#">View</a>
<a href="#">Gray-collared Chipmunk</a>	Neotamias cinereicollis cinereicollis					No Photo
<a href="#">Cliff Chipmunk</a>	Neotamias dorsalis					<a href="#">View</a>
<a href="#">Red Squirrel</a>	Tamiasciurus fremonti					No Photo
<a href="#">Red Squirrel</a>	Tamiasciurus hudsonicus lychnuchus; mogollonensis					<a href="#">View</a>
<a href="#">Spotted Ground Squirrel</a>	Xerospermophilus spilosoma					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Black-bellied Whistling Duck</a>	Dendrocygna autumnalis					<a href="#">View</a>
<a href="#">Snow Goose</a>	Anser caerulescens					<a href="#">View</a>
<a href="#">Canada Goose</a>	Branta canadensis					<a href="#">View</a>
<a href="#">Wood Duck</a>	Aix sponsa					<a href="#">View</a>
<a href="#">Northern Shoveler Duck</a>	Spatula clypeata					<a href="#">View</a>
<a href="#">Cinnamon Teal Duck</a>	Spatula cyanoptera					<a href="#">View</a>
<a href="#">Blue-winged Teal Duck</a>	Spatula discors					<a href="#">View</a>
<a href="#">American Wigeon Duck</a>	Mareca americana					<a href="#">View</a>
<a href="#">Gadwall Duck</a>	Mareca strepera					<a href="#">View</a>
<a href="#">Mallard Duck</a>	Anas platyrhynchos					<a href="#">View</a>
<a href="#">Mexican Duck</a>	Anas diazi					No Photo
<a href="#">Northern Pintail</a>	Anas acuta					<a href="#">View</a>
<a href="#">Green-winged Teal Duck</a>	Anas crecca					<a href="#">View</a>
<a href="#">Canvasback Duck</a>	Aythya valisineria					<a href="#">View</a>
<a href="#">Ring-necked Duck</a>	Aythya collaris					<a href="#">View</a>
<a href="#">Bufflehead Duck</a>	Bucephala albeola					<a href="#">View</a>
<a href="#">Common Goldeneye Duck</a>	Bucephala clangula					<a href="#">View</a>
<a href="#">Hooded Merganser Duck</a>	Lophodytes cucullatus					<a href="#">View</a>
<a href="#">Common Merganser Duck</a>	Mergus merganser					<a href="#">View</a>
<a href="#">Scaled Quail</a>	Callipepla squamata					<a href="#">View</a>
<a href="#">Gambel's Quail</a>	Callipepla gambelii					<a href="#">View</a>
<a href="#">Montezuma Quail</a>	Cyrtonyx montezumae					<a href="#">View</a>
<a href="#">Wild Turkey</a>	Meleagris gallopavo merriami; intermedia; silvestris					<a href="#">View</a>
<a href="#">Dusky Grouse</a>	Dendragapus obscurus					<a href="#">View</a>
<a href="#">Ring-necked Pheasant</a>	Phasianus colchicus					<a href="#">View</a>
<a href="#">Pied-billed Grebe</a>	Podilymbus podiceps					<a href="#">View</a>
<a href="#">Horned Grebe</a>	Podiceps auritus					No Photo
<a href="#">Eared Grebe</a>	Podiceps nigricollis				Y	<a href="#">View</a>
<a href="#">Western Grebe</a>	Aechmophorus occidentalis					<a href="#">View</a>
<a href="#">Band-tailed Pigeon</a>	Patagioenas fasciata					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Eurasian Collared-Dove</a>	Streptopelia decaocto					<a href="#">View</a>
<a href="#">Inca Dove</a>	Columbina inca					<a href="#">View</a>
<a href="#">Common Ground Dove</a>	Columbina passerina	E			Y	<a href="#">View</a>
<a href="#">White-winged Dove</a>	Zenaida asiatica					<a href="#">View</a>
<a href="#">Mourning Dove</a>	Zenaida macroura					<a href="#">View</a>
<a href="#">Greater Roadrunner</a>	Geococcyx californianus					<a href="#">View</a>
<a href="#">Yellow-billed Cuckoo (western pop)</a>	Coccyzus americanus occidentalis		T		Y	<a href="#">View</a>
<a href="#">Lesser Nighthawk</a>	Chordeiles acutipennis					<a href="#">View</a>
<a href="#">Common Nighthawk</a>	Chordeiles minor				Y	<a href="#">View</a>
<a href="#">Common Poorwill</a>	Phalaenoptilus nuttalli					No Photo
<a href="#">Buff-collared Nightjar</a>	Antrostomus ridgwayi	E				No Photo
<a href="#">Eastern Whip-poor-will</a>	Antrostomus vociferus					No Photo
<a href="#">Mexican Whip-poor-will</a>	Antrostomus arizonae				Y	<a href="#">View</a>
<a href="#">Black Swift</a>	Cypseloides niger				Y	<a href="#">View</a>
<a href="#">Chimney Swift</a>	Chaetura pelagica					No Photo
<a href="#">White-throated Swift</a>	Aeronautes saxatalis					<a href="#">View</a>
<a href="#">Rivoli's Hummingbird</a>	Eugenes fulgens					<a href="#">View</a>
<a href="#">Blue-throated Mountain-gem</a>	Lampornis demenciae					<a href="#">View</a>
<a href="#">Lucifer Hummingbird</a>	Calothorax lucifer	T			Y	<a href="#">View</a>
<a href="#">Black-chinned Hummingbird</a>	Archilochus alexandri					<a href="#">View</a>
<a href="#">Anna's Hummingbird</a>	Calypte anna					<a href="#">View</a>
<a href="#">Costa's Hummingbird</a>	Calypte costae	T			Y	<a href="#">View</a>
<a href="#">Calliope Hummingbird</a>	Selasphorus calliope					<a href="#">View</a>
<a href="#">Rufous Hummingbird</a>	Selasphorus rufus					<a href="#">View</a>
<a href="#">Allen's Hummingbird</a>	Selasphorus sasin					<a href="#">View</a>
<a href="#">Broad-tailed Hummingbird</a>	Selasphorus platycercus					<a href="#">View</a>
<a href="#">Broad-billed Hummingbird</a>	Cynanthus latirostris	T			Y	<a href="#">View</a>
<a href="#">White-eared Hummingbird</a>	Basilinna leucotis	T				<a href="#">View</a>
<a href="#">Virginia Rail</a>	Rallus limicola					<a href="#">View</a>
<a href="#">Sora</a>	Porzana carolina					<a href="#">View</a>
<a href="#">Common Gallinule</a>	Gallinula galeata					<a href="#">View</a>

## All Species Grant

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<a href="#">American Coot</a>	Fulica americana					<a href="#">View</a>
<a href="#">Sandhill Crane</a>	Antigone canadensis					<a href="#">View</a>
<a href="#">American Avocet</a>	Recurvirostra americana					<a href="#">View</a>
<a href="#">Killdeer</a>	Charadrius vociferus					<a href="#">View</a>
<a href="#">Mountain Plover</a>	Charadrius montanus				Y	<a href="#">View</a>
<a href="#">Long-billed Curlew</a>	Numenius americanus				Y	<a href="#">View</a>
<a href="#">Baird's Sandpiper</a>	Calidris bairdii					<a href="#">View</a>
<a href="#">Western Sandpiper</a>	Calidris mauri					<a href="#">View</a>
<a href="#">Short-billed Dowitcher</a>	Limnodromus griseus					<a href="#">View</a>
<a href="#">Wilson's Snipe</a>	Gallinago delicata					<a href="#">View</a>
<a href="#">Spotted Sandpiper</a>	Actitis macularius					<a href="#">View</a>
<a href="#">Solitary Sandpiper</a>	Tringa solitaria					<a href="#">View</a>
<a href="#">Willet</a>	Tringa semipalmata					<a href="#">View</a>
<a href="#">Greater Yellowlegs</a>	Tringa melanoleuca					<a href="#">View</a>
<a href="#">Wilson's Phalarope</a>	Phalaropus tricolor					<a href="#">View</a>
<a href="#">Red-necked Phalarope</a>	Phalaropus lobatus					No Photo
<a href="#">Mew Gull</a>	Larus canus					No Photo
<a href="#">Neotropic Cormorant</a>	Phalacrocorax brasilianus	T			Y	<a href="#">View</a>
<a href="#">Double-crested Cormorant</a>	Phalacrocorax auritus					<a href="#">View</a>
<a href="#">American White Pelican</a>	Pelecanus erythrorhynchos					<a href="#">View</a>
<a href="#">Brown Pelican</a>	Pelecanus occidentalis	E				<a href="#">View</a>
<a href="#">American Bittern</a>	Botaurus lentiginosus				Y	<a href="#">View</a>
<a href="#">Great Blue Heron</a>	Ardea herodias					<a href="#">View</a>
<a href="#">Great Egret</a>	Ardea alba					<a href="#">View</a>
<a href="#">Snowy Egret</a>	Egretta thula					<a href="#">View</a>
<a href="#">Cattle Egret</a>	Bubulcus ibis					<a href="#">View</a>
<a href="#">Green Heron</a>	Butorides virescens					<a href="#">View</a>
<a href="#">Black-crowned Night-Heron</a>	Nycticorax nycticorax					<a href="#">View</a>
<a href="#">White-faced Ibis</a>	Plegadis chihi					<a href="#">View</a>
<a href="#">Turkey Vulture</a>	Cathartes aura					<a href="#">View</a>
<a href="#">Osprey</a>	Pandion haliaetus					<a href="#">View</a>

## All Species Grant

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<a href="#">Golden Eagle</a>	Aquila chrysaetos					<a href="#">View</a>
<a href="#">Northern Harrier</a>	Circus hudsonius					<a href="#">View</a>
<a href="#">Sharp-shinned Hawk</a>	Accipiter striatus					<a href="#">View</a>
<a href="#">Cooper's Hawk</a>	Accipiter cooperii					<a href="#">View</a>
<a href="#">Northern Goshawk</a>	Accipiter gentilis					<a href="#">View</a>
<a href="#">Bald Eagle</a>	Haliaeetus leucocephalus	T			Y	<a href="#">View</a>
<a href="#">Mississippi Kite</a>	Ictinia mississippiensis					<a href="#">View</a>
<a href="#">Common Black Hawk</a>	Buteogallus anthracinus	T			Y	<a href="#">View</a>
<a href="#">Harris's Hawk</a>	Parabuteo unicinctus					<a href="#">View</a>
<a href="#">Gray Hawk</a>	Buteo plagiatus					<a href="#">View</a>
<a href="#">Broad-winged Hawk</a>	Buteo platypterus					<a href="#">View</a>
<a href="#">Swainson's Hawk</a>	Buteo swainsoni					<a href="#">View</a>
<a href="#">Zone-tailed Hawk</a>	Buteo albonotatus					<a href="#">View</a>
<a href="#">Red-tailed Hawk</a>	Buteo jamaicensis					<a href="#">View</a>
<a href="#">Ferruginous Hawk</a>	Buteo regalis					<a href="#">View</a>
<a href="#">Barn Owl</a>	Tyto alba					<a href="#">View</a>
<a href="#">Flammulated Owl</a>	Psilosops flammeolus				Y	<a href="#">View</a>
<a href="#">Western Screech-Owl</a>	Megascops kennicottii					<a href="#">View</a>
<a href="#">Great Horned Owl</a>	Bubo virginianus					<a href="#">View</a>
<a href="#">Northern Pygmy Owl</a>	Glaucidium gnoma					<a href="#">View</a>
<a href="#">Elf Owl</a>	Micrathene whitleyi				Y	<a href="#">View</a>
<a href="#">Burrowing Owl</a>	Athene cunicularia				Y	<a href="#">View</a>
<a href="#">Mexican Spotted Owl</a>	Strix occidentalis lucida		T	Y	Y	<a href="#">View</a>
<a href="#">Long-eared Owl</a>	Asio otus					<a href="#">View</a>
<a href="#">Short-eared Owl</a>	Asio flammeus					<a href="#">View</a>
<a href="#">Northern Saw-whet Owl</a>	Aegolius acadicus					<a href="#">View</a>
<a href="#">Elegant Trogon</a>	Trogon elegans	E			Y	<a href="#">View</a>
<a href="#">Belted Kingfisher</a>	Megasceryle alcyon					<a href="#">View</a>
<a href="#">Green Kingfisher</a>	Chloroceryle americana					<a href="#">View</a>
<a href="#">Lewis's Woodpecker</a>	Melanerpes lewis				Y	<a href="#">View</a>
<a href="#">Acorn Woodpecker</a>	Melanerpes formicivorus					<a href="#">View</a>

## All Species Grant

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<a href="#">Gila Woodpecker</a>	Melanerpes uropygialis	T			Y	<a href="#">View</a>
<a href="#">Williamson's Sapsucker</a>	Sphyrapicus thyroideus				Y	<a href="#">View</a>
<a href="#">Yellow-bellied Sapsucker</a>	Sphyrapicus varius					<a href="#">View</a>
<a href="#">Red-naped Sapsucker</a>	Sphyrapicus nuchalis					<a href="#">View</a>
<a href="#">American Three-toed Woodpecker</a>	Picoides dorsalis					No Photo
<a href="#">Downy Woodpecker</a>	Dryobates pubescens					<a href="#">View</a>
<a href="#">Ladder-backed Woodpecker</a>	Dryobates scalaris					<a href="#">View</a>
<a href="#">Hairy Woodpecker</a>	Dryobates villosus					<a href="#">View</a>
<a href="#">Northern Flicker</a>	Colaptes auratus					<a href="#">View</a>
<a href="#">American Kestrel</a>	Falco sparverius					<a href="#">View</a>
<a href="#">Merlin</a>	Falco columbarius					<a href="#">View</a>
<a href="#">Aplomado Falcon</a>	Falco femoralis	E	E		Y	<a href="#">View</a>
<a href="#">Peregrine Falcon</a>	Falco peregrinus	T			Y	<a href="#">View</a>
<a href="#">Arctic Peregrine Falcon</a>	Falco peregrinus tundrius					No Photo
<a href="#">Prairie Falcon</a>	Falco mexicanus					<a href="#">View</a>
<a href="#">Northern Beardless-Tyrannulet</a>	Campostoma imberbe	E			Y	<a href="#">View</a>
<a href="#">Dusky-capped Flycatcher</a>	Myiarchus tuberculifer					<a href="#">View</a>
<a href="#">Ash-throated Flycatcher</a>	Myiarchus cinerascens					<a href="#">View</a>
<a href="#">Brown-crested Flycatcher</a>	Myiarchus tyrannulus					<a href="#">View</a>
<a href="#">Cassin's Kingbird</a>	Tyrannus vociferans					<a href="#">View</a>
<a href="#">Thick-billed Kingbird</a>	Tyrannus crassirostris	E			Y	<a href="#">View</a>
<a href="#">Western Kingbird</a>	Tyrannus verticalis					<a href="#">View</a>
<a href="#">Scissor-tailed Flycatcher</a>	Tyrannus forficatus					<a href="#">View</a>
<a href="#">Olive-sided Flycatcher</a>	Contopus cooperi				Y	<a href="#">View</a>
<a href="#">Greater Pewee</a>	Contopus pertinax					<a href="#">View</a>
<a href="#">Western Wood Pewee</a>	Contopus sordidulus					<a href="#">View</a>
<a href="#">Willow Flycatcher</a>	Empidonax traillii brewsteri; adastus					<a href="#">View</a>
<a href="#">Southwestern Willow Flycatcher</a>	Empidonax traillii extimus	E	E	Y	Y	<a href="#">View</a>
<a href="#">Hammond's Flycatcher</a>	Empidonax hammondi					<a href="#">View</a>
<a href="#">Gray Flycatcher</a>	Empidonax wrightii					<a href="#">View</a>

## All Species Grant

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<a href="#">Dusky Flycatcher</a>	Empidonax oberholseri					<a href="#">View</a>
<a href="#">Cordilleran Flycatcher</a>	Empidonax occidentalis					<a href="#">View</a>
<a href="#">Buff-breasted Flycatcher</a>	Empidonax fulvifrons					<a href="#">View</a>
<a href="#">Black Phoebe</a>	Sayornis nigricans					<a href="#">View</a>
<a href="#">Eastern Phoebe</a>	Sayornis phoebe					<a href="#">View</a>
<a href="#">Say's Phoebe</a>	Sayornis saya					<a href="#">View</a>
<a href="#">Vermilion Flycatcher</a>	Pyrocephalus rubinus					<a href="#">View</a>
<a href="#">Loggerhead Shrike</a>	Lanius ludovicianus				Y	<a href="#">View</a>
<a href="#">White-eyed Vireo</a>	Vireo griseus					<a href="#">View</a>
<a href="#">Bell's Vireo</a>	Vireo bellii	T			Y	<a href="#">View</a>
<a href="#">Gray Vireo</a>	Vireo vicinior	T			Y	<a href="#">View</a>
<a href="#">Hutton's Vireo</a>	Vireo huttoni					<a href="#">View</a>
<a href="#">Yellow-throated Vireo</a>	Vireo flavifrons					<a href="#">View</a>
<a href="#">Cassin's Vireo</a>	Vireo cassinii					<a href="#">View</a>
<a href="#">Blue-headed Vireo</a>	Vireo solitarius					<a href="#">View</a>
<a href="#">Plumbeous Vireo</a>	Vireo plumbeus					<a href="#">View</a>
<a href="#">Warbling Vireo</a>	Vireo gilvus					<a href="#">View</a>
<a href="#">Red-eyed Vireo</a>	Vireo olivaceus					<a href="#">View</a>
<a href="#">Pinyon Jay</a>	Gymnorhinus cyanocephalus				Y	<a href="#">View</a>
<a href="#">Steller's Jay</a>	Cyanocitta stelleri					<a href="#">View</a>
<a href="#">Blue Jay</a>	Cyanocitta cristata					<a href="#">View</a>
<a href="#">Woodhouse's Scrub Jay</a>	Aphelocoma woodhouseii					<a href="#">View</a>
<a href="#">Mexican Jay</a>	Aphelocoma woolweberi					<a href="#">View</a>
<a href="#">American Crow</a>	Corvus brachyrhynchos					<a href="#">View</a>
<a href="#">Chihuahuan Raven</a>	Corvus cryptoleucus					<a href="#">View</a>
<a href="#">Common Raven</a>	Corvus corax					<a href="#">View</a>
<a href="#">Bank Swallow</a>	Riparia riparia				Y	<a href="#">View</a>
<a href="#">Tree Swallow</a>	Tachycineta bicolor					<a href="#">View</a>
<a href="#">Violet-green Swallow</a>	Tachycineta thalassina					<a href="#">View</a>
<a href="#">Northern Rough-winged Swallow</a>	Stelgidopteryx serripennis					<a href="#">View</a>
<a href="#">Purple Martin</a>	Progne subis					<a href="#">View</a>



## All Species Grant

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<a href="#">Barn Swallow</a>	Hirundo rustica					<a href="#">View</a>
<a href="#">Cliff Swallow</a>	Petrochelidon pyrrhonota					<a href="#">View</a>
<a href="#">Mountain Chickadee</a>	Poecile gambeli					<a href="#">View</a>
<a href="#">Bridled Titmouse</a>	Baeolophus wollweberi					<a href="#">View</a>
<a href="#">Juniper Titmouse</a>	Baeolophus ridgwayi				Y	<a href="#">View</a>
<a href="#">Verdin</a>	Auriparus flaviceps					<a href="#">View</a>
<a href="#">Bushtit</a>	Psaltiriparus minimus					<a href="#">View</a>
<a href="#">Red-breasted Nuthatch</a>	Sitta canadensis					<a href="#">View</a>
<a href="#">White-breasted Nuthatch</a>	Sitta carolinensis					<a href="#">View</a>
<a href="#">Pygmy Nuthatch</a>	Sitta pygmaea				Y	<a href="#">View</a>
<a href="#">Brown Creeper</a>	Certhia americana					<a href="#">View</a>
<a href="#">Rock Wren</a>	Salpinctes obsoletus					<a href="#">View</a>
<a href="#">Canyon Wren</a>	Catherpes mexicanus					<a href="#">View</a>
<a href="#">House Wren</a>	Troglodytes aedon					<a href="#">View</a>
<a href="#">Winter Wren</a>	Troglodytes hemialis					No Photo
<a href="#">Marsh Wren</a>	Cistothorus palustris					<a href="#">View</a>
<a href="#">Carolina Wren</a>	Thryothorus ludovicianus					<a href="#">View</a>
<a href="#">Bewick's Wren</a>	Thryomanes bewickii					<a href="#">View</a>
<a href="#">Cactus Wren</a>	Campylorhynchus brunneicapillus					<a href="#">View</a>
<a href="#">Blue-gray Gnatcatcher</a>	Poliophtila caerulea					<a href="#">View</a>
<a href="#">Black-tailed Gnatcatcher</a>	Poliophtila melanura					<a href="#">View</a>
<a href="#">Ruby-crowned Kinglet</a>	Regulus calendula					<a href="#">View</a>
<a href="#">Eastern Bluebird</a>	Sialia sialis					<a href="#">View</a>
<a href="#">Western Bluebird</a>	Sialia mexicana				Y	<a href="#">View</a>
<a href="#">Mountain Bluebird</a>	Sialia currucoides				Y	<a href="#">View</a>
<a href="#">Townsend's Solitaire</a>	Myadestes townsendi					<a href="#">View</a>
<a href="#">Swainson's Thrush</a>	Catharus ustulatus					<a href="#">View</a>
<a href="#">Hermit Thrush</a>	Catharus guttatus					<a href="#">View</a>
<a href="#">American Robin</a>	Turdus migratorius					<a href="#">View</a>
<a href="#">Gray Catbird</a>	Dumetella carolinensis					<a href="#">View</a>
<a href="#">Curve-billed Thrasher</a>	Toxostoma curvirostre					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Brown Thrasher</a>	Toxostoma rufum					<a href="#">View</a>
<a href="#">Bendire's Thrasher</a>	Toxostoma bendirei				Y	<a href="#">View</a>
<a href="#">Crissal Thrasher</a>	Toxostoma crissale					<a href="#">View</a>
<a href="#">Sage Thrasher</a>	Oreoscoptes montanus					<a href="#">View</a>
<a href="#">Northern Mockingbird</a>	Mimus polyglottos					<a href="#">View</a>
<a href="#">European Starling</a>	Sturnus vulgaris					<a href="#">View</a>
<a href="#">Cedar Waxwing</a>	Bombycilla cedrorum					<a href="#">View</a>
<a href="#">Phainopepla</a>	Phainopepla nitens					<a href="#">View</a>
<a href="#">Olive Warbler</a>	Peucedramus taeniatus					<a href="#">View</a>
<a href="#">House Sparrow</a>	Passer domesticus					<a href="#">View</a>
<a href="#">American Pipit</a>	Anthus rubescens					<a href="#">View</a>
<a href="#">Sprague's Pipit</a>	Anthus spragueii				Y	<a href="#">View</a>
<a href="#">Evening Grosbeak</a>	Coccothraustes vespertinus				Y	<a href="#">View</a>
<a href="#">House Finch</a>	Haemorhous mexicanus					<a href="#">View</a>
<a href="#">Cassin's Finch</a>	Haemorhous cassinii				Y	<a href="#">View</a>
<a href="#">Red Crossbill</a>	Loxia curvirostra					<a href="#">View</a>
<a href="#">Pine Siskin</a>	Spinus pinus					<a href="#">View</a>
<a href="#">Lesser Goldfinch</a>	Spinus psaltria					<a href="#">View</a>
<a href="#">Lawrence's Goldfinch</a>	Spinus lawrencei					<a href="#">View</a>
<a href="#">American Goldfinch</a>	Spinus tristis					<a href="#">View</a>
<a href="#">Chestnut-collared Longspur</a>	Calcarius ornatus				Y	<a href="#">View</a>
<a href="#">Botteri's Sparrow</a>	Peucaea botterii				Y	<a href="#">View</a>
<a href="#">Cassin's Sparrow</a>	Peucaea cassinii				Y	<a href="#">View</a>
<a href="#">Grasshopper Sparrow</a>	Ammodramus savannarum perpallidus					<a href="#">View</a>
<a href="#">Black-throated Sparrow</a>	Amphispiza bilineata					<a href="#">View</a>
<a href="#">Lark Sparrow</a>	Chondestes grammacus					<a href="#">View</a>
<a href="#">Lark Bunting</a>	Calamospiza melanocorys					<a href="#">View</a>
<a href="#">Chipping Sparrow</a>	Spizella passerina					<a href="#">View</a>
<a href="#">Clay-colored Sparrow</a>	Spizella pallida					<a href="#">View</a>
<a href="#">Black-chinned Sparrow</a>	Spizella atrogularis				Y	<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Brewer's Sparrow</a>	Spizella breweri					<a href="#">View</a>
<a href="#">Worthen's Sparrow</a>	Spizella wortheni					No Photo
<a href="#">Fox Sparrow</a>	Passerella iliaca					<a href="#">View</a>
<a href="#">Dark-eyed Junco</a>	Junco hyemalis					<a href="#">View</a>
<a href="#">Yellow-eyed Junco</a>	Junco phaeonotus	T			Y	<a href="#">View</a>
<a href="#">White-crowned Sparrow</a>	Zonotrichia leucophrys					<a href="#">View</a>
<a href="#">Golden-crowned Sparrow</a>	Zonotrichia atricapilla					<a href="#">View</a>
<a href="#">Harris's Sparrow</a>	Zonotrichia querula					<a href="#">View</a>
<a href="#">White-throated Sparrow</a>	Zonotrichia albicollis					<a href="#">View</a>
<a href="#">Sagebrush Sparrow</a>	Artemisiospiza nevadensis				Y	<a href="#">View</a>
<a href="#">Vesper Sparrow</a>	Pooecetes gramineus				Y	<a href="#">View</a>
<a href="#">Baird's Sparrow</a>	Centronyx bairdii	T			Y	<a href="#">View</a>
<a href="#">Savannah Sparrow</a>	Passerculus sandwichensis nevadensis; anthinus					<a href="#">View</a>
<a href="#">Song Sparrow</a>	Melospiza melodia					<a href="#">View</a>
<a href="#">Lincoln's Sparrow</a>	Melospiza lincolnii					<a href="#">View</a>
<a href="#">Swamp Sparrow</a>	Melospiza georgiana					<a href="#">View</a>
<a href="#">Canyon Towhee</a>	Melospiza fusca					<a href="#">View</a>
<a href="#">Abert's Towhee</a>	Melospiza aberti	T			Y	<a href="#">View</a>
<a href="#">Rufous-crowned Sparrow</a>	Aimophila ruficeps					<a href="#">View</a>
<a href="#">Green-tailed Towhee</a>	Pipilo chlorurus					<a href="#">View</a>
<a href="#">Spotted Towhee</a>	Pipilo maculatus					<a href="#">View</a>
<a href="#">Yellow-breasted Chat</a>	Icteria virens					<a href="#">View</a>
<a href="#">Yellow-headed Blackbird</a>	Xanthocephalus xanthocephalus					<a href="#">View</a>
<a href="#">Bobolink</a>	Dolichonyx oryzivorus					No Photo
<a href="#">Eastern Meadowlark</a>	Sturnella magna					<a href="#">View</a>
<a href="#">Western Meadowlark</a>	Sturnella neglecta					<a href="#">View</a>
<a href="#">Orchard Oriole</a>	Icterus spurius					<a href="#">View</a>
<a href="#">Hooded Oriole</a>	Icterus cucullatus					<a href="#">View</a>
<a href="#">Bullock's Oriole</a>	Icterus bullockii					<a href="#">View</a>
<a href="#">Baltimore Oriole</a>	Icterus galbula					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Scott's Oriole</a>	Icterus parisorum					<a href="#">View</a>
<a href="#">Red-winged Blackbird</a>	Agelaius phoeniceus					<a href="#">View</a>
<a href="#">Bronzed Cowbird</a>	Molothrus aeneus					<a href="#">View</a>
<a href="#">Brown-headed Cowbird</a>	Molothrus ater					<a href="#">View</a>
<a href="#">Brewer's Blackbird</a>	Euphagus cyanocephalus					<a href="#">View</a>
<a href="#">Common Grackle</a>	Quiscalus quiscula					<a href="#">View</a>
<a href="#">Great-tailed Grackle</a>	Quiscalus mexicanus					<a href="#">View</a>
<a href="#">Ovenbird</a>	Seiurus aurocapilla					No Photo
<a href="#">Northern Waterthrush</a>	Parkesia noveboracensis					<a href="#">View</a>
<a href="#">Black-and-white Warbler</a>	Mniotilta varia					<a href="#">View</a>
<a href="#">Prothonotary Warbler</a>	Protonotaria citrea					No Photo
<a href="#">Tennessee Warbler</a>	Leiothlypis peregrina					No Photo
<a href="#">Orange-crowned Warbler</a>	Leiothlypis celata					<a href="#">View</a>
<a href="#">Lucy's Warbler</a>	Leiothlypis ludae				Y	<a href="#">View</a>
<a href="#">Nashville Warbler</a>	Leiothlypis ruficapilla					<a href="#">View</a>
<a href="#">Virginia's Warbler</a>	Leiothlypis virginiae				Y	<a href="#">View</a>
<a href="#">Macgillivray's Warbler</a>	Geothlypis tolmiei					<a href="#">View</a>
<a href="#">Common Yellowthroat</a>	Geothlypis trichas					<a href="#">View</a>
<a href="#">Hooded Warbler</a>	Setophaga citrina					<a href="#">View</a>
<a href="#">American Redstart</a>	Setophaga ruticilla					<a href="#">View</a>
<a href="#">Northern Parula</a>	Setophaga americana					No Photo
<a href="#">Magnolia Warbler</a>	Setophaga magnolia					<a href="#">View</a>
<a href="#">Bay-breasted Warbler</a>	Setophaga castanea					No Photo
<a href="#">Yellow Warbler</a>	Setophaga petechia					<a href="#">View</a>
<a href="#">Chestnut-sided Warbler</a>	Setophaga pensylvanica					No Photo
<a href="#">Blackpoll Warbler</a>	Setophaga striata					No Photo
<a href="#">Black-throated Blue Warbler</a>	Setophaga caerulescens					<a href="#">View</a>
<a href="#">Palm Warbler</a>	Setophaga palmarum					<a href="#">View</a>
<a href="#">Yellow-rumped Warbler</a>	Setophaga coronata					<a href="#">View</a>
<a href="#">Grace's Warbler</a>	Setophaga graciae				Y	<a href="#">View</a>
<a href="#">Black-throated Gray Warbler</a>	Setophaga nigrescens				Y	<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Townsend's Warbler</a>	Setophaga townsendi					<a href="#">View</a>
<a href="#">Hermit Warbler</a>	Setophaga occidentalis					<a href="#">View</a>
<a href="#">Black-throated Green Warbler</a>	Setophaga virens					<a href="#">View</a>
<a href="#">Wilson's Warbler</a>	Cardellina pusilla					<a href="#">View</a>
<a href="#">Red-faced Warbler</a>	Cardellina rubrifrons				Y	<a href="#">View</a>
<a href="#">Painted Redstart</a>	Myioborus pictus				Y	<a href="#">View</a>
<a href="#">Hepatic Tanager</a>	Piranga flava					<a href="#">View</a>
<a href="#">Summer Tanager</a>	Piranga rubra					<a href="#">View</a>
<a href="#">Western Tanager</a>	Piranga ludoviciana					<a href="#">View</a>
<a href="#">Northern Cardinal</a>	Cardinalis cardinalis					<a href="#">View</a>
<a href="#">Pyrrhuloxia</a>	Cardinalis sinuatus					<a href="#">View</a>
<a href="#">Rose-breasted Grosbeak</a>	Pheucticus ludovicianus					<a href="#">View</a>
<a href="#">Black-headed Grosbeak</a>	Pheucticus melanocephalus					<a href="#">View</a>
<a href="#">Blue Grosbeak</a>	Passerina caerulea					<a href="#">View</a>
<a href="#">Lazuli Bunting</a>	Passerina amoena					<a href="#">View</a>
<a href="#">Indigo Bunting</a>	Passerina cyanea					<a href="#">View</a>
<a href="#">Varied Bunting</a>	Passerina versicolor	T			Y	<a href="#">View</a>
<a href="#">Painted Bunting</a>	Passerina ciris					<a href="#">View</a>
<a href="#">Dickcissel</a>	Spiza americana					<a href="#">View</a>
<a href="#">Ornate Box Turtle</a>	Terrapene ornata					<a href="#">View</a>
<a href="#">Sonoran Mud Turtle</a>	Kinosternon sonoriense sonoriense				Y	<a href="#">View</a>
<a href="#">Spiny Softshell Turtle</a>	Apalone spinifera					<a href="#">View</a>
<a href="#">Eastern Collared Lizard</a>	Crotaphytus collaris					<a href="#">View</a>
<a href="#">Long-nosed Leopard Lizard</a>	Gambelia wislizenii					<a href="#">View</a>
<a href="#">Common Lesser Earless Lizard</a>	Holbrookia maculata maculata; bunkerii; ruthveni					<a href="#">View</a>
<a href="#">Texas Horned Lizard</a>	Phrynosoma cornutum					<a href="#">View</a>
<a href="#">Hernandez's Short-horned Lizard</a>	Phrynosoma hernandesi					<a href="#">View</a>
<a href="#">Round-tailed Horned Lizard</a>	Phrynosoma modestum					<a href="#">View</a>
<a href="#">Twin-spotted Spiny Lizard</a>	Sceloporus bimaculosus					<a href="#">View</a>
<a href="#">Clark's Spiny Lizard</a>	Sceloporus darkii					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Greater Earless Lizard</a>	Cophosaurus texanus					<a href="#">View</a>
<a href="#">Southwestern Fence Lizard</a>	Sceloporus cowlesi					<a href="#">View</a>
<a href="#">Yarrow's Spiny Lizard</a>	Sceloporus jarrovi					<a href="#">View</a>
<a href="#">Crevice Spiny Lizard</a>	Sceloporus poinsettii					<a href="#">View</a>
<a href="#">Northern Tree Lizard</a>	Urosaurus ornatus					<a href="#">View</a>
<a href="#">Common Side-blotched Lizard</a>	Uta stansburiana					<a href="#">View</a>
<a href="#">Western Banded Gecko</a>	Coleonyx variegatus					<a href="#">View</a>
<a href="#">Chihuahuan Spotted Whiptail</a>	Aspidoscelis exsanguis					<a href="#">View</a>
<a href="#">Plains Striped Whiptail</a>	Aspidoscelis inornata llanuras					<a href="#">View</a>
<a href="#">Marbled Whiptail</a>	Aspidoscelis marmorata					<a href="#">View</a>
<a href="#">New Mexico Whiptail</a>	Aspidoscelis neomexicana					<a href="#">View</a>
<a href="#">Sonoran Spotted Whiptail</a>	Aspidoscelis sonora					<a href="#">View</a>
<a href="#">Desert Grassland Whiptail</a>	Aspidoscelis uniparens					No Photo
<a href="#">Plateau Striped Whiptail</a>	Aspidoscelis velox					<a href="#">View</a>
<a href="#">Many-lined Skink</a>	Plestiodon multivirgatus					<a href="#">View</a>
<a href="#">Great Plains Skink</a>	Plestiodon obsoletus					<a href="#">View</a>
<a href="#">Madrean Alligator Lizard</a>	Elgaria kingii					<a href="#">View</a>
<a href="#">Reticulate Gila Monster</a>	Heloderma suspectum suspectum	E			Y	<a href="#">View</a>
<a href="#">Texas Blind Snake</a>	Rena dissecta					<a href="#">View</a>
<a href="#">Western Blind Snake</a>	Rena humilis					<a href="#">View</a>
<a href="#">Glossy Snake</a>	Arizona elegans					<a href="#">View</a>
<a href="#">Coachwhip</a>	Coluber flagellum					<a href="#">View</a>
<a href="#">Desert Striped Whipsnake</a>	Coluber taeniatus					<a href="#">View</a>
<a href="#">Ringneck Snake</a>	Diadophis punctatus					<a href="#">View</a>
<a href="#">Western Hooknose Snake</a>	Gyalopion canum					<a href="#">View</a>
<a href="#">Mexican Hog-nosed Snake</a>	Heterodon kennerlyi					No Photo
<a href="#">Chihuahuan Nightsnake</a>	Hypsiglena jani					<a href="#">View</a>
<a href="#">Milk Snake</a>	Lampropeltis gentilis					<a href="#">View</a>
<a href="#">Pyro Mountain Kingsnake</a>	Lampropeltis pyromelana					<a href="#">View</a>
<a href="#">Desert Kingsnake</a>	Lampropeltis splendida					<a href="#">View</a>
<a href="#">Smooth Greensnake</a>	Opheodrys vernalis					<a href="#">View</a>

## All Species Grant

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<a href="#">Gophersnake</a>	Pituophis catenifer					<a href="#">View</a>
<a href="#">Texas Long-nosed Snake</a>	Rhinocheilus lecontei					<a href="#">View</a>
<a href="#">Mountain Patchnose Snake</a>	Salvadora grahamiae					<a href="#">View</a>
<a href="#">Big Bend Patchnose Snake</a>	Salvadora hexalepis deserticola					<a href="#">View</a>
<a href="#">Ground Snake</a>	Sonora semiannulata					<a href="#">View</a>
<a href="#">Plains Black-headed Snake</a>	Tantilla nigriceps					<a href="#">View</a>
<a href="#">Smith's Black-headed Snake</a>	Tantilla hobartsmithi					<a href="#">View</a>
<a href="#">Black-necked Gartersnake</a>	Thamnophis cyrtopsis					<a href="#">View</a>
<a href="#">Wandering Gartersnake</a>	Thamnophis elegans					<a href="#">View</a>
<a href="#">Mexican Gartersnake</a>	Thamnophis eques	E	T		Y	<a href="#">View</a>
<a href="#">Marcy's Checkered Gartersnake</a>	Thamnophis marcianus					<a href="#">View</a>
<a href="#">Narrow-headed Gartersnake</a>	Thamnophis rufipunctatus	T	T		Y	<a href="#">View</a>
<a href="#">Sonoran Lyresnake</a>	Trimorphodon lambda					<a href="#">View</a>
<a href="#">Texas Lyresnake</a>	Trimorphodon wilkinsonii					No Photo
<a href="#">Western Coral Snake</a>	Micruroides euryxanthus					<a href="#">View</a>
<a href="#">Western Diamond-backed Rattlesnake</a>	Crotalus atrox					<a href="#">View</a>
<a href="#">Arizona Black Rattlesnake</a>	Crotalus cerberus				Y	<a href="#">View</a>
<a href="#">Banded Rock Rattlesnake</a>	Crotalus lepidus klauberi				Y	<a href="#">View</a>
<a href="#">Western Black-tailed Rattlesnake</a>	Crotalus molossus					<a href="#">View</a>
<a href="#">Eastern Black-tailed Rattlesnake</a>	Crotalus ornatus					No Photo
<a href="#">Prairie Rattlesnake</a>	Crotalus viridis					<a href="#">View</a>
<a href="#">Tiger Salamander</a>	Ambystoma mavortium mavortium; nebulosum					<a href="#">View</a>
<a href="#">Plains Spadefoot</a>	Spea bombifrons					<a href="#">View</a>
<a href="#">New Mexico Spadefoot</a>	Spea multiplicata					<a href="#">View</a>
<a href="#">Great Plains Toad</a>	Anaxyrus cognatus					<a href="#">View</a>
<a href="#">Western Green Toad</a>	Anaxyrus debilis					<a href="#">View</a>
<a href="#">Arizona Toad</a>	Anaxyrus microscaphus				Y	<a href="#">View</a>
<a href="#">Red-spotted Toad</a>	Anaxyrus punctatus					<a href="#">View</a>
<a href="#">Woodhouse's Toad</a>	Anaxyrus woodhousii					<a href="#">View</a>
<a href="#">Canyon Treefrog</a>	Hyla arenicolor					<a href="#">View</a>



## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Arizona Treefrog</a>	Hyla wrightorum				Y	<a href="#">View</a>
<a href="#">Boreal Chorus Frog</a>	Pseudacris maculata				Y	<a href="#">View</a>
<a href="#">Bullfrog</a>	Lithobates catesbeianus					<a href="#">View</a>
<a href="#">Chiricahua Leopard Frog</a>	Lithobates chiricahuensis		T	Y	Y	<a href="#">View</a>
<a href="#">Lowland Leopard Frog</a>	Lithobates yavapaiensis	E			Y	<a href="#">View</a>
<a href="#">Couch's Spadefoot</a>	Scaphiopus couchii					<a href="#">View</a>
<a href="#">Longfin Dace</a>	Agosia chrysogaster					No Photo
<a href="#">Grass Carp</a>	Ctenopharyngodon idella					No Photo
<a href="#">Red Shiner</a>	Cyprinella lutrensis					<a href="#">View</a>
<a href="#">Common Carp</a>	Cyprinus carpio					<a href="#">View</a>
<a href="#">Gila Chub</a>	Gila intermedia	E	E	Y	Y	<a href="#">View</a>
<a href="#">Headwater Chub</a>	Gila nigra				Y	No Photo
<a href="#">Chihuahua Chub</a>	Gila nigrescens	E	T		Y	No Photo
<a href="#">Roundtail Chub (lower Colorado River populations)</a>	Gila robusta	E			Y	<a href="#">View</a>
<a href="#">Spikedace</a>	Meda fulgida	E	E	Y	Y	No Photo
<a href="#">Fathead Minnow</a>	Pimephales promelas					<a href="#">View</a>
<a href="#">Loach Minnow</a>	Rhinichthys cobitis	E	E	Y	Y	No Photo
<a href="#">Speckled Dace (Gila pop.)</a>	Rhinichthys osculus					No Photo
<a href="#">Speckled Dace (Non-Gila pop.)</a>	Rhinichthys osculus					No Photo
<a href="#">Desert Sucker</a>	Catostomus clarkii				Y	No Photo
<a href="#">Sonora Sucker</a>	Catostomus insignis				Y	<a href="#">View</a>
<a href="#">Rio Grande Sucker</a>	Catostomus plebeius				Y	<a href="#">View</a>
<a href="#">Black Bullhead</a>	Ameiurus melas					<a href="#">View</a>
<a href="#">Yellow Bullhead</a>	Ameiurus natalis					<a href="#">View</a>
<a href="#">Channel Catfish</a>	Ictalurus punctatus					<a href="#">View</a>
<a href="#">Flathead Catfish</a>	Pylodictis olivaris					<a href="#">View</a>
<a href="#">Gila Trout</a>	Oncorhynchus gilae	T	T		Y	<a href="#">View</a>
<a href="#">Rainbow Trout</a>	Oncorhynchus mykiss					<a href="#">View</a>
<a href="#">Kokanee Salmon</a>	Oncorhynchus nerka					<a href="#">View</a>
<a href="#">Brown Trout</a>	Salmo trutta					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Western mosquitofish</a>	Gambusia affinis					No Photo
<a href="#">Gila Topminnow</a>	Poeciliopsis occidentalis occidentalis	T	E		Y	<a href="#">View</a>
<a href="#">Green Sunfish</a>	Lepomis cyanellus					<a href="#">View</a>
<a href="#">Bluegill</a>	Lepomis macrochirus					<a href="#">View</a>
<a href="#">Longear Sunfish</a>	Lepomis megalotis					<a href="#">View</a>
<a href="#">Smallmouth Bass</a>	Micropterus dolomieu					<a href="#">View</a>
<a href="#">Largemouth Bass</a>	Micropterus salmoides					<a href="#">View</a>
<a href="#">White Crappie</a>	Pomoxis annularis					<a href="#">View</a>
<a href="#">Decollate Snail</a>	Rumina decollata					<a href="#">View</a>
<a href="#">Forest Disc Snail</a>	Discus whitleyi					No Photo
<a href="#">Mexican Coil Snail</a>	Helicodiscus eigenmani					No Photo
<a href="#">Smooth Coil Snail</a>	Helicodiscus singleyanus					No Photo
<a href="#">Bearded Mountainsnail</a>	Oreohelix barbata					No Photo
<a href="#">Pinos Altos Mountainsnail</a>	Oreohelix confragosa					No Photo
<a href="#">Black Range Mountainsnail</a>	Oreohelix metcalfei concentrica					No Photo
<a href="#">Black Range Mountainsnail</a>	Oreohelix metcalfei radiata					No Photo
<a href="#">Socorro Mountainsnail</a>	Oreohelix neomexicana					No Photo
<a href="#">Subalpine Mountainsnail</a>	Oreohelix subrudis					No Photo
<a href="#">Morgan Creek Mountainsnail</a>	Oreohelix swopei					No Photo
<a href="#">Metcalf Holospira Snail</a>	Holospira metcalfi				Y	No Photo
<a href="#">Blunt Ambersnail</a>	Oxyloma retusum					No Photo
<a href="#">Whitewashed Rabdotus Snail</a>	Rabdotus durangoanus					No Photo
<a href="#">Sluice Snaggletooth Snail</a>	Gastrocopta ashmuni					No Photo
<a href="#">Crested Snaggletooth Snail</a>	Gastrocopta cristata					No Photo
<a href="#">Slim Snaggletooth Snail</a>	Gastrocopta pellucida					No Photo
<a href="#">Montane Snaggletooth Snail</a>	Gastrocopta pilsbryana					No Photo
<a href="#">Sonoran Snaggletooth Snail</a>	Gastrocopta prototypus					No Photo
<a href="#">Cross Snaggletooth Snail</a>	Gastrocopta quadridens					No Photo
<a href="#">White-lipped Dagger Snail</a>	Pupoides albilabris					No Photo
<a href="#">Rocky Mtn. Column Snail</a>	Pupilla blandi					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Vertigo Snail</a>	Vertigo arizonensis					No Photo
<a href="#">Vertigo Snail</a>	Vertigo concinnula					No Photo
<a href="#">Glossy Pillar Snail</a>	Cionella lubrica					No Photo
<a href="#">Silky Vallonia Snail</a>	Vallonia cyclophorella					No Photo
<a href="#">Multirib Vallonia Snail</a>	Vallonia gracilicosta					No Photo
<a href="#">Thin-lipped Vallonia Snail</a>	Vallonia perspectiva					No Photo
<a href="#">Lovely Vallonia Snail</a>	Vallonia pulchella					No Photo
<a href="#">False Marsh Slug</a>	Deroceras heterura				Y	No Photo
<a href="#">Yellow Gardenslug Snail</a>	Limax flavus					No Photo
<a href="#">Western Glass Snail</a>	Vitrina pellucida					No Photo
<a href="#">Carved Glyph Snail</a>	Glyphyalina indentata					No Photo
<a href="#">Minute Gem Snail</a>	Hawaiiia minuscula					No Photo
<a href="#">Median Striate Snail</a>	Striatura meridionalis					No Photo
<a href="#">Quick Gloss Snail</a>	Zonitoides arboreus					No Photo
<a href="#">Brown Hive Snail</a>	Euconulus fulvus					No Photo
<a href="#">Brown Gardensnail</a>	Helix aspersa					<a href="#">View</a>
<a href="#">Silver Creek Woodlandsnail</a>	Ashmunella binneyi				Y	No Photo
<a href="#">Black Range Woodlandsnail</a>	Ashmunella cockerelli argenticola					No Photo
<a href="#">Black Range Woodlandsnail</a>	Ashmunella cockerelli cockerelli					No Photo
<a href="#">Black Range Woodlandsnail</a>	Ashmunella cockerelli perobtusa					No Photo
<a href="#">Iron Creek Woodlandsnail</a>	Ashmunella mendax					No Photo
<a href="#">Mogollon Woodlandsnail</a>	Ashmunella mogollonensis					No Photo
<a href="#">Spruce Snail</a>	Microphysula ingersolli					No Photo
<a href="#">Southwestern Fringed-snail</a>	Thysanophora hornii					No Photo
<a href="#">Pewter Physa Snail</a>	Physa acuta					No Photo
<a href="#">Gila Springsnail</a>	Pyrgulopsis gilae	T			Y	No Photo
<a href="#">New Mexico Hot Springsnail</a>	Pyrgulopsis thermalis	T			Y	No Photo
<a href="#">Beavertail Fairy Shrimp</a>	Thamnocephalus platyurus				Y	<a href="#">View</a>
<a href="#">Tiger Beetle</a>	Cicindela debilis					No Photo
<a href="#">Tiger Beetle</a>	Cicindela hemorrhagica					No Photo
<a href="#">Tiger Beetle</a>	Cicindela hornii					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Tiger Beetle</a>	Cicindela lemniscata					No Photo
<a href="#">Tiger Beetle</a>	Cicindela marutha					No Photo
<a href="#">Tiger Beetle</a>	Cicindela nigrocoerulea					No Photo
<a href="#">Tiger Beetle</a>	Cicindela obsoleta obsoleta; santaclarae					No Photo
<a href="#">Tiger Beetle</a>	Cicindela ocellata					No Photo
<a href="#">Tiger Beetle</a>	Cicindela oregona					No Photo
<a href="#">Tiger Beetle</a>	Cicindela pulchra					No Photo
<a href="#">Tiger Beetle</a>	Cicindela punctulata					No Photo
<a href="#">Tiger Beetle</a>	Cicindela sedecimpunctata					No Photo
<a href="#">Tiger Beetle</a>	Cicindela sperata					No Photo
<a href="#">Tiger Beetle</a>	Cicindela tenuisignata					No Photo
<a href="#">Tiger Beetle</a>	Tetracha carolina					No Photo
<a href="#">Beetle</a>	Calitys scabra					No Photo
<a href="#">Andrenid Bee</a>	Andrena mimbresensis					No Photo
<a href="#">Andrenid Bee</a>	Andrena neffi					No Photo
<a href="#">Andrenid Bee</a>	Arena vogleri					No Photo
<a href="#">American Bumble Bee</a>	Bombus pensylvanicus					No Photo
<a href="#">Moth</a>	Syssphinx hubbardi					No Photo
<a href="#">Moth</a>	Automeris cecrops					No Photo
<a href="#">Moth</a>	Coloradia doris					No Photo
<a href="#">Moth</a>	Coloradia luskii					<a href="#">View</a>
<a href="#">Pandora Moth</a>	Coloradia pandora					<a href="#">View</a>
<a href="#">Moth</a>	Hemileuca tricolor					No Photo
<a href="#">Polyphemus Moth</a>	Antheraea polyphemus					<a href="#">View</a>
<a href="#">Columbia Silkworm</a>	Hyalophora columbia					<a href="#">View</a>
<a href="#">Moth</a>	Manduca florestan					No Photo
<a href="#">Five Spotted Hawk Moth</a>	Manduca quinquemaculata					<a href="#">View</a>
<a href="#">Moth</a>	Pachysphinx occidentalis					<a href="#">View</a>
<a href="#">Small-eyed Sphinx Moth</a>	Paonias myops					No Photo
<a href="#">Moth</a>	Sagenosoma elsa					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">One-eyed Sphinx Moth</a>	Smerinthus cerisyi					<a href="#">View</a>
<a href="#">Moth</a>	Sphinx asella					No Photo
<a href="#">Great Ash Moth</a>	Sphinx chersis					<a href="#">View</a>
<a href="#">Moth</a>	Sphinx dollii					<a href="#">View</a>
<a href="#">Moth</a>	Sphinx istar					No Photo
<a href="#">Moth</a>	Sphinx separata					No Photo
<a href="#">Alope Sphinx Moth</a>	Erinnyis alope					No Photo
<a href="#">Achemon Sphinx Moth</a>	Eumorpha achemon					No Photo
<a href="#">Snowberry Clearwing Moth</a>	Hemaris diffinis					No Photo
<a href="#">White-lined Sphinx Moth</a>	Hyles lineata					<a href="#">View</a>
<a href="#">Juanita Sphinx Moth</a>	Proserpinus juanita					No Photo
<a href="#">Dull Firetip Skipper</a>	Pyrrhopyge araxes					No Photo
<a href="#">Carolina Sphinx Moth</a>	Mandura sexta					No Photo
<a href="#">Golden-Banded Skipper</a>	Autochton cellus					No Photo
<a href="#">Common Streaky Skipper</a>	Celotes nesus					No Photo
<a href="#">Caicus Skipper</a>	Cogia caicus					No Photo
<a href="#">Arizona Silver-Spotted Skipper</a>	Epargyreus clarus huachuca					No Photo
<a href="#">Afranius Duskywing Skipper</a>	Erynnis afranius					No Photo
<a href="#">Sleepy Duskywing Skipper</a>	Erynnis brizo					<a href="#">View</a>
<a href="#">Funereal Duskywing Skipper</a>	Erynnis funeralis					<a href="#">View</a>
<a href="#">Dreamy Duskywing Skipper</a>	Erynnis icelus					<a href="#">View</a>
<a href="#">Meridian Duskywing Skipper</a>	Erynnis meridianus					No Photo
<a href="#">Pacuvius Duskywing Skipper</a>	Erynnis pacuvius					No Photo
<a href="#">Persius Duskywing Skipper</a>	Erynnis persius					No Photo
<a href="#">Rocky Mtn Duskywing Skipper</a>	Erynnis telemachus					<a href="#">View</a>
<a href="#">Mournful Duskywing Skipper</a>	Erynnis tristis					No Photo
<a href="#">SalTBush Sootywing Skipper</a>	Hesperopsis alpheus					No Photo
<a href="#">Common Sootywing Skipper</a>	Pholisora catullus					<a href="#">View</a>
<a href="#">White Checkered Skipper</a>	Pyrgus albescens					<a href="#">View</a>
<a href="#">Common Checkered Skipper</a>	Pyrgus communis					<a href="#">View</a>
<a href="#">Golden-headed Scallopwing Skipper</a>	Staphylus ceos					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGF</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Arizona Powdered Skipper</a>	Systasea zampa					No Photo
<a href="#">Mexican Cloudwing Skipper</a>	Thorybes mexicanus					No Photo
<a href="#">Northern Cloudwing Skipper</a>	Thorybes pylades					<a href="#">View</a>
<a href="#">Short-Tailed Skipper</a>	Zestusa dorus					No Photo
<a href="#">Russet Skipperling Skipper</a>	Piruna pirus					<a href="#">View</a>
<a href="#">Four-potted Skipperling Skipper</a>	Piruna polingii					No Photo
<a href="#">Bronze Roadside Skipper</a>	Amblyscirtes aenus					No Photo
<a href="#">Cassus Roadside Skipper</a>	Amblyscirtes cassus					No Photo
<a href="#">Dotted Roadside Skipper</a>	Amblyscirtes eos					No Photo
<a href="#">Large Roadside Skipper</a>	Amblyscirtes exoteria					No Photo
<a href="#">Slaty Roadside Skipper</a>	Amblyscirtes nereus					No Photo
<a href="#">Oslar's Roadside Skipper</a>	Amblyscirtes oslari					No Photo
<a href="#">Orange-headed Roadside Skipper</a>	Amblyscirtes phylace					No Photo
<a href="#">Simius Roadside Skipper</a>	Amblyscirtes simius					No Photo
<a href="#">Texas Roadside Skipper</a>	Amblyscirtes texanae					No Photo
<a href="#">Tropical Least Skipper</a>	Ancyloxypha arene					No Photo
<a href="#">Sachem Skipper</a>	Atalopedes campestris					<a href="#">View</a>
<a href="#">Deva Skipper</a>	Atrytonopsis deva					No Photo
<a href="#">Moon-marked Skipper</a>	Atrytonopsis lunus					No Photo
<a href="#">White-barred Skipper</a>	Atrytonopsis pittacus					No Photo
<a href="#">Python Skipper</a>	Atrytonopsis python					No Photo
<a href="#">Viereck's Skipper</a>	Atrytonopsis vierecki					No Photo
<a href="#">Orange Skipperling Skipper</a>	Copaeodes aurantiacus					<a href="#">View</a>
<a href="#">Kiowa Dun Skipper</a>	Euphyes vestris					<a href="#">View</a>
<a href="#">Susan's Skipper</a>	Hesperia comma susanae					No Photo
<a href="#">Pahaska Skipper</a>	Hesperia pahaska pahaska					No Photo
<a href="#">Lasus Skipper</a>	Hesperia uncas lasus					No Photo
<a href="#">Uncas Skipper</a>	Hesperia uncas uncas					No Photo
<a href="#">Green Skipper</a>	Hesperia viridis					<a href="#">View</a>
<a href="#">Apache Skipper</a>	Hesperia woodgatei					No Photo
<a href="#">Fiery Skipper</a>	Hylephila phlyeus					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Edwards' Skipperling Skipper</a>	Oarisma edwardsii					No Photo
<a href="#">Garita Skipperling Skipper</a>	Oarisma garita					<a href="#">View</a>
<a href="#">Snow's Skipper</a>	Paratrytone snowi					No Photo
<a href="#">Taxiles Skipper</a>	Poanes taxiles					<a href="#">View</a>
<a href="#">Morrison's Skipper</a>	Stinga morrisoni					No Photo
<a href="#">Arizona Giant Skipper</a>	Agathymus aryxna					No Photo
<a href="#">Orange Giant Skipper</a>	Agathymus neumoegeni neumoegeni					No Photo
<a href="#">Navajo Yucca Borer Skipper</a>	Megathymus coloradensis navajo					No Photo
<a href="#">Rhesus Skipper</a>	Yvretta rhesus					No Photo
<a href="#">Pipevine Swallowtail Butterfly</a>	Battus philenor					<a href="#">View</a>
<a href="#">Carus Skipper</a>	Yvretta carus					No Photo
<a href="#">Baird's Swallowtail Butterfly</a>	Papilio bairdii					No Photo
<a href="#">Black Swallowtail Butterfly</a>	Papilio polyxenes asterius					<a href="#">View</a>
<a href="#">Giant Swallowtail Butterfly</a>	Heracles cressphontes					<a href="#">View</a>
<a href="#">Pima Orangetip Butterfly</a>	Anthocharis pima					No Photo
<a href="#">Ingham's Orangetip Butterfly</a>	Anthocharis sara					<a href="#">View</a>
<a href="#">Arizona Tiger Swallowtail Butterfly</a>	Pterourus rutulus arizonensis					No Photo
<a href="#">Two-Tailed Swallowtail Butterfly</a>	Pterourus multicaudatus					<a href="#">View</a>
<a href="#">Southern Marble Butterfly</a>	Euchloe hyantis					No Photo
<a href="#">Pine White Butterfly</a>	Neophasia menapia					<a href="#">View</a>
<a href="#">Cabbage White Butterfly</a>	Pieris rapae					<a href="#">View</a>
<a href="#">Checkered White Butterfly</a>	Pontia protodice					<a href="#">View</a>
<a href="#">Spring White Butterfly</a>	Pontia sisymbrii elivata					No Photo
<a href="#">Apache Sulphur Butterfly</a>	Colias alexandra apache					No Photo
<a href="#">Orange Sulphur Butterfly</a>	Colias eurytheme					<a href="#">View</a>
<a href="#">Western Common Sulphur Butterfly</a>	Colias philodice					<a href="#">View</a>
<a href="#">Mexican Yellow Butterfly</a>	Eurema mexicanum					No Photo
<a href="#">Sleepy Orange Butterfly</a>	Eurema nicippe					<a href="#">View</a>
<a href="#">Tailed Orange Butterfly</a>	Eurema proterpia					No Photo
<a href="#">Dainty Sulphur Butterfly</a>	Nathalis iole					<a href="#">View</a>



## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Cloudless Sulphur Butterfly</a>	Phoebis sennae					<a href="#">View</a>
<a href="#">Southern Dogface Butterfly</a>	Zerene cesonia					<a href="#">View</a>
<a href="#">Colorado Hairstreak Butterfly</a>	Hypaurotis crysalus					<a href="#">View</a>
<a href="#">Great Purple Hairstreak Butterfly</a>	Atlides halesus					<a href="#">View</a>
<a href="#">Apama Hairstreak Butterfly</a>	Callophrys affinis apama					No Photo
<a href="#">Arizona Hairstreak Butterfly</a>	Erora quaderna					No Photo
<a href="#">Annette's Elfin Butterfly</a>	Incisalia augustinus annetteae					No Photo
<a href="#">Western Pine Elfin Butterfly</a>	Incisalia eryphon					No Photo
<a href="#">Juniper Hairstreak Butterfly</a>	Mitoura siva					<a href="#">View</a>
<a href="#">Thicket Hairstreak Butterfly</a>	Mitoura spinetorum					No Photo
<a href="#">Oslar's Hairstreak Butterfly</a>	Phaeostrymon alcestis oslari					No Photo
<a href="#">Frank's Common Hairstreak Butterfly</a>	Strymon melinus					<a href="#">View</a>
<a href="#">Xami Hairstreak Butterfly</a>	Xamia xami					No Photo
<a href="#">Arizona Blue Butterfly</a>	Celastrina ladon cinerea					No Photo
<a href="#">Spring Azure Butterfly</a>	Celastrina ladon gozora					<a href="#">View</a>
<a href="#">Square-spotted Blue Butterfly</a>	Euphilotes battoides centralis					<a href="#">View</a>
<a href="#">Rita Blue Butterfly</a>	Euphilotes rita rita					<a href="#">View</a>
<a href="#">Western Tailed Blue Butterfly</a>	Everes amyntula					<a href="#">View</a>
<a href="#">Eastern Tailed Blue Butterfly</a>	Everes comyntas					<a href="#">View</a>
<a href="#">Arizona Silvery Blue Butterfly</a>	Glaucopsyche lygdamus arizonensis					No Photo
<a href="#">Ceraunus Blue Butterfly</a>	Hemiargus ceraunus					No Photo
<a href="#">Reakirt's Blue Butterfly</a>	Hemiargus isola					<a href="#">View</a>
<a href="#">Marine Blue Butterfly</a>	Leptotes marina					<a href="#">View</a>
<a href="#">Melissa Blue Butterfly</a>	Lycaeides melissa					<a href="#">View</a>
<a href="#">Texas Blue Butterfly</a>	Plebejus acmon					<a href="#">View</a>
<a href="#">Buchholz's Blue Butterfly</a>	Plebejus icarioides buchholzi					No Photo
<a href="#">Lycea Blue Butterfly</a>	Plebejus icarioides lycea					<a href="#">View</a>
<a href="#">Mexican Metalmark Butterfly</a>	Apodemia mormo mejicana					No Photo
<a href="#">Nais Metalmark Butterfly</a>	Apodemia nais					No Photo
<a href="#">Leda Hairstreak Butterfly</a>	Ministrymon leda					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Palmer's Metalmark Butterfly</a>	Apodemia palmerii					No Photo
<a href="#">Ilavia Hairstreak Butterfly</a>	Fixsenia ilavia					No Photo
<a href="#">Western Pygmy Blue Butterfly</a>	Brephidum exile					<a href="#">View</a>
<a href="#">Fatal Metalmark Butterfly</a>	Calephelis nemesis					<a href="#">View</a>
<a href="#">Southern Snout Butterfly</a>	Libytheana bachmanii					No Photo
<a href="#">Milbert's Tortoise Shell Butterfly</a>	Aglais milberti					<a href="#">View</a>
<a href="#">Buckeye Butterfly</a>	Junonia coenia					<a href="#">View</a>
<a href="#">Dark Buckeye Butterfly</a>	Junonia nigrosuffusa					<a href="#">View</a>
<a href="#">Mourning Cloak Butterfly</a>	Nymphalis antiopa					<a href="#">View</a>
<a href="#">California Tortoise Shell Butterfly</a>	Nymphalis californica					<a href="#">View</a>
<a href="#">Hoary Comma Butterfly</a>	Polygonia gracilis					<a href="#">View</a>
<a href="#">Question Mark Butterfly</a>	Polygonia interrogationis					<a href="#">View</a>
<a href="#">Satyr Anglewing Butterfly</a>	Polygonia satyrus					No Photo
<a href="#">West Coast Lady Butterfly</a>	Vanessa annabella					<a href="#">View</a>
<a href="#">Red Admiral Butterfly</a>	Vanessa atalanta					<a href="#">View</a>
<a href="#">Painted Lady Butterfly</a>	Vanessa cardui					<a href="#">View</a>
<a href="#">American Lady Butterfly</a>	Vanessa virginiensis					<a href="#">View</a>
<a href="#">Variegated Fritillary Butterfly</a>	Euptoieta claudia					<a href="#">View</a>
<a href="#">Nausicaa Fritillary Butterfly</a>	Speyeria hesperis nausicaa					No Photo
<a href="#">Mtn Silverspot Butterfly</a>	Speyeria nokomis nitocris					No Photo
<a href="#">Crocale Patch Butterfly</a>	Chlosyne lacinia					<a href="#">View</a>
<a href="#">Dymas Checkerspot Butterfly</a>	Dymasia dymas					No Photo
<a href="#">Mylitta Crescent Butterfly</a>	Phyciodes mylitta					<a href="#">View</a>
<a href="#">Painted Crescent Butterfly</a>	Phyciodes pictus					<a href="#">View</a>
<a href="#">Camillus Crescent Butterfly</a>	Phyciodes pulchella					<a href="#">View</a>
<a href="#">Pearl Crescent Butterfly</a>	Phyciodes tharos Type A					<a href="#">View</a>
<a href="#">Vesta Crescent Butterfly</a>	Phyciodes vesta					<a href="#">View</a>
<a href="#">Montane Penstemon Checkerspot Butterfly</a>	Poladryas minuta arachne					No Photo
<a href="#">Perse Checkerspot Butterfly</a>	Texola elada perse					No Photo
<a href="#">Fulvia Checkerspot Butterfly</a>	Thessalia fulvia					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Thekla Checkerspot Butterfly</a>	Thessalia theona thekla					No Photo
<a href="#">Arizona Sister Butterfly</a>	Adelpha bredowii					<a href="#">View</a>
<a href="#">Hackberry Butterfly</a>	Asterocampa celtis montis					No Photo
<a href="#">Texan Emperor Butterfly</a>	Asterocampa dyton					No Photo
<a href="#">Chermock's Satyr Butterfly</a>	Cercyonis meadii mexicana					No Photo
<a href="#">Common Wood-Nymph Butterfly</a>	Cercyonis pegala					<a href="#">View</a>
<a href="#">Canyonland Satyr Butterfly</a>	Cyllopsis pertepida dorothea					No Photo
<a href="#">Arizona Blackamoor Butterfly</a>	Gyrocheilus patrobas					No Photo
<a href="#">Arizona Red Satyr Butterfly</a>	Megisto rubricata cheneyorum					No Photo
<a href="#">Striated Queen Butterfly</a>	Danaus gilippus					<a href="#">View</a>
<a href="#">Monarch Butterfly</a>	Danaus plexippus					<a href="#">View</a>
<a href="#">Gulf Fritillary Butterfly</a>	Agraulis vanillae					<a href="#">View</a>
<a href="#">Notodontid Moth</a>	Eyparpax rosea					No Photo
<a href="#">Notodontid Moth</a>	Oligocentria ddelicata					No Photo
<a href="#">Tiger Moth</a>	Alexicles aaspersa					No Photo
<a href="#">SW Pearly Checkerspot Butterfly</a>	Charidryas acastus sabina					No Photo
<a href="#">Texan Crescent Butterfly</a>	Anthanassa texana					<a href="#">View</a>
<a href="#">Hermosa Checkerspot Butterfly</a>	Occidryas anicia hermosa					No Photo
<a href="#">Arizona Admiral Butterfly</a>	Limenitis arthemis					<a href="#">View</a>
<a href="#">Obsolete Viceroy Butterfly</a>	Limenitis archippus obsoleta					No Photo
<a href="#">Narrow-banded Admiral Butterfly</a>	Limenitis weidemeyerii angustifascia					No Photo
<a href="#">Arizona Viceroy</a>	Limenitis archippus obsoleta					No Photo
<a href="#">Great Spreadwing</a>	Archilestes grandis					<a href="#">View</a>
<a href="#">Plateau Spreadwing</a>	Lestes alacer					<a href="#">View</a>
<a href="#">American Rubyspot</a>	Hetaerina americana					<a href="#">View</a>
<a href="#">Canyon Rubyspot</a>	Hetaerina vulnerata					<a href="#">View</a>
<a href="#">Violet Dancer</a>	Argia fumipennis					<a href="#">View</a>
<a href="#">Lavender Dancer</a>	Argia hinei					No Photo
<a href="#">Sooty Dancer</a>	Argia lugens					<a href="#">View</a>
<a href="#">Powdered Dancer</a>	Argia moesta					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Apache Dancer</a>	Argia munda					No Photo
<a href="#">Aztec Dancer</a>	Argia nahuana					<a href="#">View</a>
<a href="#">Amethyst Dancer</a>	Argia pallens					<a href="#">View</a>
<a href="#">Springwater Dancer</a>	Argia plana					<a href="#">View</a>
<a href="#">Blue-ringed Dancer</a>	Argia sedula					<a href="#">View</a>
<a href="#">Tezpi Dancer</a>	Argia tezpi					No Photo
<a href="#">Tonto Dancer</a>	Argia tonto					No Photo
<a href="#">Dusky Dancer</a>	Argia translata					No Photo
<a href="#">Vivid Dancer</a>	Argia vivida					<a href="#">View</a>
<a href="#">Northern Bluet</a>	Enallagma annexum					<a href="#">View</a>
<a href="#">Double-striped Bluet</a>	Enallagma basidens					No Photo
<a href="#">Boreal Bluet</a>	Enallagma boreale					No Photo
<a href="#">Tule Bluet</a>	Enallagma carunculatum					<a href="#">View</a>
<a href="#">Familiar Bluet</a>	Enallagma civile					<a href="#">View</a>
<a href="#">Arroyo Bluet</a>	Enallagma praevarum					No Photo
<a href="#">Painted Damselfly</a>	Hesperagrion heterodoxum					<a href="#">View</a>
<a href="#">Desert Forktail</a>	Ischnura barberi					No Photo
<a href="#">Pacific Forktail</a>	Ischnura cervula					<a href="#">View</a>
<a href="#">Plains Forktail</a>	Ischnura damula					<a href="#">View</a>
<a href="#">Mexican Forktail</a>	Ischnura demorsa					<a href="#">View</a>
<a href="#">Black-fronted Forktail</a>	Ischnura denticollis					No Photo
<a href="#">Desert Firetail</a>	Telebasis salva					<a href="#">View</a>
<a href="#">Persephone's Darner</a>	Aeshna persephone					No Photo
<a href="#">Common Green Darner</a>	Anax junius					<a href="#">View</a>
<a href="#">Giant Darner</a>	Anax walsinghami					No Photo
<a href="#">Riffle Darner</a>	Oploniaeschna armata					No Photo
<a href="#">Arroyo Darner</a>	Rhionaeschna dugesi					No Photo
<a href="#">Blue-eyed Darner</a>	Rhionaeschna multicolor					<a href="#">View</a>
<a href="#">White-belted Ringtail</a>	Erpetogomphus compositus					<a href="#">View</a>
<a href="#">Dashed Ringtail</a>	Erpetogomphus heterodon					<a href="#">View</a>
<a href="#">Serpent Ringtail</a>	Erpetogomphus lampropeltis					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Columbia Clubtail</a>	Gomphurus lynnae					No Photo
<a href="#">Arizona Snaketail</a>	Ophiogomphus aarizonicus					No Photo
<a href="#">Five-striped Leaftail</a>	Phyllogomphoides albrighti					No Photo
<a href="#">Gray Sanddragon</a>	Progomphus borealis					<a href="#">View</a>
<a href="#">Russet-tipped Clubtail</a>	Stylurus plagiatu					No Photo
<a href="#">Apache Spiketail</a>	Cordulegaster diadema					No Photo
<a href="#">Pale-faced Clubskimmer</a>	Brechmorhoga mendax					<a href="#">View</a>
<a href="#">Checkered Setwing</a>	Dythemis fugax					<a href="#">View</a>
<a href="#">Western Pondhawk</a>	Erythemis collocata					No Photo
<a href="#">Great Pondhawk</a>	Erythemis vesiculosa					No Photo
<a href="#">Plateau Dragonlet</a>	Erythrodiplax basifusca					<a href="#">View</a>
<a href="#">Widow skimmer</a>	Libellula luctuosa					<a href="#">View</a>
<a href="#">Hoary Skimmer</a>	Libellula nodisticta					No Photo
<a href="#">Flame Skimmer</a>	Libellula saturata					<a href="#">View</a>
<a href="#">Roseate Skimmer</a>	Orthemis ferruginea					<a href="#">View</a>
<a href="#">Blue Dasher</a>	Pachydiplax longipennis					<a href="#">View</a>
<a href="#">Red Rock Skimmer</a>	Paltothemis lineatipes					No Photo
<a href="#">Wandering Glider</a>	Pantala flavescens					<a href="#">View</a>
<a href="#">Spot-winged Glider</a>	Pantala hymenaea					<a href="#">View</a>
<a href="#">Mexican Amberwing</a>	Perithemis intensa					<a href="#">View</a>
<a href="#">Eastern Amberwing</a>	Perithemis tenera					<a href="#">View</a>
<a href="#">Common Whitetail</a>	Plathemis lydia					<a href="#">View</a>
<a href="#">Desert Whitetail</a>	Plathemis subornata					<a href="#">View</a>
<a href="#">Filigree Skimmer</a>	Pseudoleon superbus					No Photo
<a href="#">Variegated meadowhawk</a>	Sympetrum corruptum					<a href="#">View</a>
<a href="#">Cardinal Meadowhawk</a>	Sympetrum illotum					No Photo
<a href="#">Black Saddlebags</a>	Tamea lacerata					<a href="#">View</a>
<a href="#">Red Saddlebags</a>	Tamea onusta					<a href="#">View</a>
<a href="#">Lubber Grasshopper</a>	Brachystola magna					<a href="#">View</a>
<a href="#">Chihuahua Toad Hopper Grasshopper</a>	Phrynotettix tsivavensis					No Photo
<a href="#">Horse Lubber Grasshopper</a>	Taeniopoda eques					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Green Fool Grasshopper</a>	Acrolophitus hirtipes					No Photo
<a href="#">White Whiskers Grasshopper</a>	Ageneotettix deorum					No Photo
<a href="#">Striped Slant-Faced Grasshopper</a>	Amphitornus coloradus					No Photo
<a href="#">Elliott Grasshopper</a>	Aulocara elliotti					No Photo
<a href="#">White Cross Grasshopper</a>	Aulocara femoratum					No Photo
<a href="#">Cream Grasshopper</a>	Cibolacris parviceps					No Photo
<a href="#">Spotted Wing Grasshopper</a>	Cordillacris occipitalis					No Photo
<a href="#">Velvet-Striped Grasshopper</a>	Eritettix simplex					No Photo
<a href="#">Rufous Grasshopper</a>	Heliaula rufa					No Photo
<a href="#">Pecos Clicker Grasshopper</a>	Ligurotettix planum					No Photo
<a href="#">Obscure Grasshopper</a>	Opeia obscura					No Photo
<a href="#">Wyoming Toothpick Grasshopper</a>	Paropomala wyomingensis					No Photo
<a href="#">Brown Spotted Range Grasshopper</a>	Psoloessa delicatula					No Photo
<a href="#">Grasshopper</a>	Psoloessa texana					No Photo
<a href="#">Slant-Faced Grasshopper</a>	Syrbula montezuma					No Photo
<a href="#">Speckled Rangeland Grasshopper</a>	Arphia conspersa					No Photo
<a href="#">Red-Winged Grasshopper</a>	Arphia pseudonietana					No Photo
<a href="#">Ridged Grasshopper</a>	Conozoa carinata					No Photo
<a href="#">Grasshopper</a>	Derotmema laticinctum					No Photo
<a href="#">Carolina Grasshopper</a>	Dissosteira carolina					No Photo
<a href="#">Three-Banded Range Grasshopper</a>	Hadrotettix trifasciatus					No Photo
<a href="#">Arroyo Grasshopper</a>	Heliastus benjamini					No Photo
<a href="#">Grasshopper</a>	Hippopedon capito					No Photo
<a href="#">Blue-Winged Grasshopper</a>	Leprus intermedius					No Photo
<a href="#">Mottled Sand Grasshopper</a>	Spharagemon collare					No Photo
<a href="#">Finned Grasshopper</a>	Trachyrhachys aspera					No Photo
<a href="#">Crowned Grasshopper</a>	Trachyrhachys coronata					No Photo
<a href="#">Blue-Winged Grasshopper</a>	Trimerotropis cyaneipennis					No Photo
<a href="#">Black-Winged Grasshopper</a>	Trimerotropis melanoptera					No Photo
<a href="#">Grasshopper</a>	Trimerotropis modesta					No Photo
<a href="#">Pallid-Winged Grasshopper</a>	Trimerotropis pallidipennis					<a href="#">View</a>

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Barren Land Grasshopper</a>	Trimerotropis pristinaria					No Photo
<a href="#">Great Crested Grasshopper</a>	Tropidolophus formosus					No Photo
<a href="#">Red Shanks Grasshopper</a>	Xanthippus corallipes					No Photo
<a href="#">Green Bird Grasshopper</a>	Schistocerca alutacea shoshone					No Photo
<a href="#">Fuzzy Olive-Green Grasshopper</a>	Campylacantha olivacea					No Photo
<a href="#">Painted Grasshopper</a>	Dactylotum bicolor					No Photo
<a href="#">Green Streak Grasshopper</a>	Hesperotettix viridis					No Photo
<a href="#">Arid Land's Spur-Throat Grasshopper</a>	Melanoplus aridis					No Photo
<a href="#">Two-Striped Grasshopper</a>	Melanoplus bivittatus					No Photo
<a href="#">Differential Grasshopper</a>	Melanoplus differentialis					No Photo
<a href="#">Red-Legged Grasshopper</a>	Melanoplus femurrubrum					No Photo
<a href="#">Yellow Spur-Throat Grasshopper</a>	Melanoplus flavidus					No Photo
<a href="#">Grasshopper</a>	Melanoplus franciscanus					No Photo
<a href="#">Gladston's Spur-Throat Grasshopper</a>	Melanoplus gladstoni					No Photo
<a href="#">Grasshopper</a>	Melanoplus lakinus					No Photo
<a href="#">Flabellate Grasshopper</a>	Melanoplus occidentalis					No Photo
<a href="#">Packard's Grasshopper</a>	Melanoplus packardi					No Photo
<a href="#">Lesser Migratory Grasshopper</a>	Melanoplus sanguinipes					No Photo
<a href="#">Large-Headed Grasshopper</a>	Phoetaliotes nebrascensis					No Photo
<a href="#">Huachuca Grasshopper</a>	Conalcea huachucana					No Photo
<a href="#">Platte Range Grasshopper</a>	Mestobregna plattei					No Photo
<a href="#">Stonefly</a>	Taenionema jacobii					No Photo
<a href="#">A Caddisfly</a>	Hydroptila arctia					No Photo
<a href="#">A Caddisfly</a>	Hydroptila denza					No Photo
<a href="#">A Caddisfly</a>	Ochrotrichia stylata					No Photo
<a href="#">A Caddisfly</a>	Zumatrichia notosa					No Photo
<a href="#">Mayfly</a>	Ameletus doddsianus					No Photo
<a href="#">Mayfly</a>	Acentrella insignificans					No Photo
<a href="#">Mayfly</a>	Baetis celestis					No Photo
<a href="#">Mayfly</a>	Baetis magnus					No Photo
<a href="#">Mayfly</a>	Baetis notos					No Photo



## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>USFWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Mayfly</a>	Baetis tricaudatus					No Photo
<a href="#">Mayfly</a>	Baetodes deficiens					No Photo
<a href="#">Mayfly</a>	Baetodes edmundsi					No Photo
<a href="#">Mayfly</a>	Callibaetis pictus					No Photo
<a href="#">Mayfly</a>	Camelobaetidium musseri					No Photo
<a href="#">Mayfly</a>	Camelobaetidium warreni					No Photo
<a href="#">Mayfly</a>	Cloeodes macrolamellus					No Photo
<a href="#">Mayfly</a>	Fallceon quilleri					No Photo
<a href="#">Mayfly</a>	Epeorus margarita					No Photo
<a href="#">Mayfly</a>	Heptagenia solitaria					No Photo
<a href="#">Mayfly</a>	Leucrocuta petersi					No Photo
<a href="#">Mayfly</a>	Nixe criddlei					No Photo
<a href="#">Mayfly</a>	Nixe simplicoides					No Photo
<a href="#">Mayfly</a>	Rhithrogena plana					No Photo
<a href="#">Mayfly</a>	Rhithrogena robusta					No Photo
<a href="#">Mayfly</a>	Rhithrogena undulata					No Photo
<a href="#">Mayfly</a>	Isonychia intermedia					No Photo
<a href="#">Mayfly</a>	Choroterpes inornata					No Photo
<a href="#">Mayfly</a>	Neochoroterpes kossi					No Photo
<a href="#">Mayfly</a>	Paraleptophlebia debilis					No Photo
<a href="#">Mayfly</a>	Thraulodes brunneus					No Photo
<a href="#">Mayfly</a>	Thraulodes gonzalesi					No Photo
<a href="#">Mayfly</a>	Thraulodes speciosus					No Photo
<a href="#">Mayfly</a>	Traverella albertana					No Photo
<a href="#">Mayfly</a>	Lachlania dencyannae					No Photo
<a href="#">Mayfly</a>	Siphonurus occidentalis					No Photo
<a href="#">Mayfly</a>	Caenis bajaensis					No Photo
<a href="#">Mayfly</a>	Ephemerella altana					No Photo
<a href="#">Mayfly</a>	Ephemerella inermis					No Photo
<a href="#">Mayfly</a>	Serratella micheneri					No Photo
<a href="#">Mayfly</a>	Leptohyphes apache					No Photo

## All Species Grant

<u>Common Name</u>	<u>Scientific Name</u>	<u>NMGE</u>	<u>US FWS</u>	<u>Critical Habitat</u>	<u>SGON</u>	<u>Photo</u>
<a href="#">Mayfly</a>	Tricorythodes condylus					No Photo
<a href="#">Mayfly</a>	Tricorythodes dimorphus					No Photo
<a href="#">Mayfly</a>	Tricorythodes explicatus					No Photo
<a href="#">Tarantula</a>	Aphonopelma marxi					<a href="#">View</a>
<a href="#">Spider</a>	Oecobius putus					No Photo
<a href="#">Spider</a>	Physocyclus enaulus					No Photo
<a href="#">Spider</a>	Psilochorus imitatus					No Photo
<a href="#">Comb-Footed Spider</a>	Theridion neomexicanum					No Photo
<a href="#">Spider</a>	Eperigone eschatologica					No Photo
<a href="#">Spider</a>	Eridantes sp.					No Photo
<a href="#">Spider</a>	Islandiana mimbres					No Photo
<a href="#">Spider</a>	Meioneta sp. 4					No Photo
<a href="#">Spider</a>	Spirembolus pallidus					No Photo
<a href="#">Spider</a>	Tennesseellum formicun					No Photo
<a href="#">Spider</a>	Cochlembolus sp.					No Photo
<a href="#">Spider</a>	Erigone sp. 1					No Photo
<a href="#">Spider</a>	Allocosa mokiensis					No Photo
<a href="#">Spider</a>	Allocosa morelosiana					No Photo
<a href="#">Spider</a>	Alopecosa kochi					No Photo
<a href="#">Burrowing Wolf Spider</a>	Geolycosa raphealana					No Photo
<a href="#">Spider</a>	Hesperocosa unica					No Photo
<a href="#">Spider</a>	Hogna coloradensis					No Photo
<a href="#">Thin-legged Wolf Spider</a>	Pardosa sternalis					No Photo
<a href="#">Spider</a>	Varacosa gosiuta					No Photo
<a href="#">Vinegaroon</a>	Mastigoproctus giganteus					<a href="#">View</a>
<a href="#">Pseudoscorpion</a>	Hysterochelifer proprius					No Photo
<a href="#">Pseudoscorpion</a>	Levichelifer fulvopalpus					No Photo
<a href="#">Pseudoscorpion</a>	Lustrochernes grossus					No Photo
<a href="#">Pirate Spider</a>	Mimetus hesperus					No Photo
<a href="#">Scud</a>	Hyaella azteca					No Photo
<a href="#">Northern Crayfish</a>	Orconectes virilis					<a href="#">View</a>

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## **APPENDIX E**

### **Little Rock Rare Plant Survey**



## **Little Rock Rare Plant Survey**

Prepared for:  
WestLand Resources

Prepared by:  
GeoSystems Analysis  
Albuquerque, NM  
[www.gsanalysis.com](http://www.gsanalysis.com)

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## **INTRODUCTION**

GeoSystems Analysis, Inc. (GSA) conducted a rare plant survey within Freeport McMoRan, Inc. Tyrone Inc. (Tyrone), Bureau of Land Management, and Forest Service land in Grant County, NM. The survey was conducted within the Little Rock Site (or “site” in this report) proposed for Tyrone Mine expansion with a total area of about 557-acres. The Little Rock Mine lies approximately 12 miles southwest of Silver City, NM and approximately 1 mile west of Tyrone Mine, a map showing the location of the sites is provided as Figure 1. Fieldwork was completed during early October 2020 and no rare plant species were encountered.

The Continental Divide lies within a couple thousand feet south of the site. According to Environmental Protection Agency Eco-Regions delineations, the survey location falls within a band of Madrean Lower Montane Woodlands that serves as a transition zone between the Chihuahuan Desert and Montane Coniferous Forest Eco-Regions. Depending on the slope, aspect, and elevation, the site exhibits characteristics of two biotic community types, as classified by Brown (1994). Predominantly, Little Rock is classified as Madrean Evergreen Woodland, characterized by the prevalence of alligator juniper (*Juniperus deppeana*), piñon pine (*Pinus edulis*) and oak (*Quercus* spp.), with ponderosa pine (*Pinus ponderosa*) inhabiting microhabitats present within canyons, north-facing slopes and slightly higher elevations. Lower elevations and south-facing slopes are more characteristic of Interior Chaparral, dominated by shrub live oak (*Quercus turbinella*), mountain mahogany (*Cercocarpus montanus*), manzanita (*Arctostaphylos pungens*) and sotol (*Dasylirion wheeleri*).

Elevations within the site range from approximately 5,700 to 6,200 feet. According to the Natural Resources Conservation Service (NRCS) digital soil data (SSURGO), soils within Little Rock are predominantly comprised of rock outcrop types: Santa Fe-Rock outcrop complex, 20 to 45% slopes (55.8% of the total site area); Gaddes-Santa Fe-Rock outcrop complex, 15 to 45% slopes (0.5% of the site); and Lithic Haploborolls, loamy, mixed warm, 1 to 15 % slopes (2% of the site) and Lithic Haplustalfs, loamy-skeletal, mixed, mesic-lithic [10.2% of the site]. These soil types all comprise alluvial fans, hillslopes, terraces and mountain slopes and are all made from mixed alluvium and/or colluvium derived from igneous, metamorphic and sedimentary rock. The rock outcrop types are representative of most of the site, with the steeper mountain slopes, hillslopes and terraces surrounding the main pit with slopes ranging from 15 to 45%. The Haploborolls and Haplustalfs are associated with a gentler sloped ponderosa pine-dominated area southwest of the main pit and adjacent to a previous tailing reclamation area that was mapped as Pits-Dumps association, extremely steep (7.1%). This reclamation site was previously disturbed and had no habitat for any rare plants and thus was not surveyed.

Also, per the NRCS, the remaining soils are a mix of loam associations: Lonti gravelly loam, 15 to 35% slopes (11.9% of the site); Lonti gravelly clay loam, 0 to 8% slopes (2.2%); Manzano loam, 1 to 3% slopes (0.5%); Paymaster gravelly sandy loam, 3 to 15% slopes (9.2%) and Santana loamy sand, 15 to 25% slopes (2.5%). Lonti and Santana soil types comprise pediments and hill slopes and are derived from mixed alluvium and/or colluvium derived from igneous, metamorphic, and sedimentary rock. These soils are associated with gentler sloped hillsides with interior chaparral association. Manzano and Paymaster soils types are associated with valley floors, drainageways, intermittent streams, flood plains and alluvial fans and are made of mixed alluvium and/or residuum weathered from sandstone and shale. These soils are found in the drainages of Whitewater Canyon, California Gulch, and Deadman Canyons. A riparian corridor is also associated with the upper reaches of Deadman and Whitewater canyons and California Gulch.

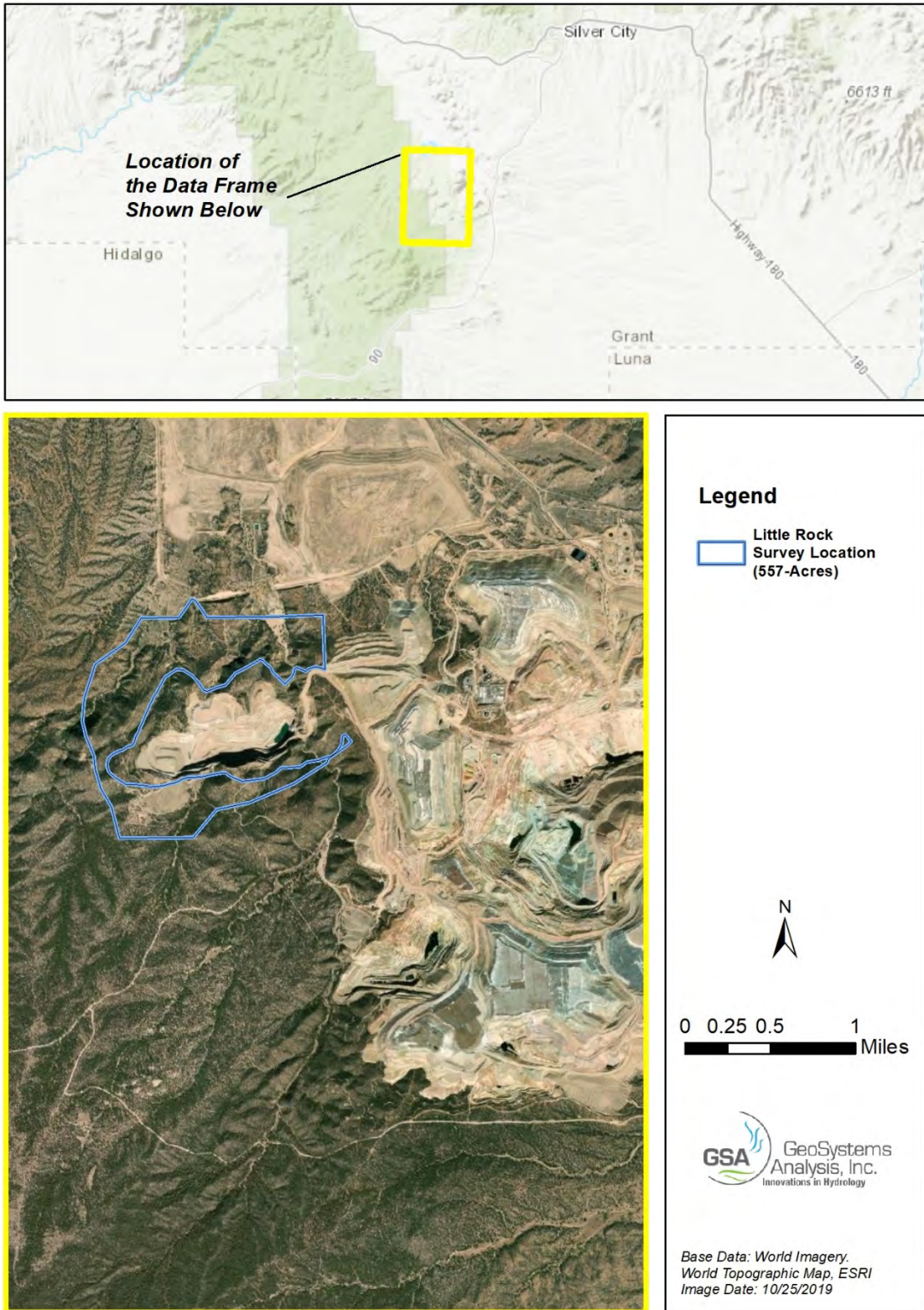


FIGURE 1. PROJECT AREA MAP



## **METHODS**

The Emma-Oak Grove site was surveyed on October 5, 6, and 7, 2020. The survey was completed within a predetermined boundary provided to GeoSystems Analysis. Prior to fieldwork, evenly spaced transect lines were plotted across the site in ArcGIS Desktop to serve as a transect orientation guide during the field survey. The electronic map was exported into a position enabled .pdf file, so the field botanists could plot their location in relation to the evenly spaced transects while on site. As previously noted, the pre-plotted transects were only meant to serve as an “orientation guide” with recognition that the actual survey intensity would be adjusted during implementation based on the distribution of suitable habitat, surveyor safety, and assurance that the survey needed to be completed within the time allocated. Due to rugged, uneven, and often steep terrain, slippage concerns, it was not possible to traverse the site along each of the pace transects. Instead, the field botanists maintained an even 30 meter spacing, as possible, while also following topographic contours but transects ultimately ended up being spaced 10 to 50 meters apart, except for some steep canyon slopes that were too dangerous to safely traverse which created occasional 100 to 200 meter gaps. In areas where potential habitat for any rare plant species was present, but slopes were too steep to access, binoculars were utilized to scan for the presence of a specific rare plant epithet. A representative photo of most survey transects was taken and Global Positioning System (GPS) tracks were logged to confirm and document survey coverage.

Species lists developed and managed by the New Mexico Rare Plant Technical Council (<https://nmrareplants.unm.edu/>) provide a well-organized, expertly vetted, and regularly updated list of “rare” species known to occur within a particular county in NM. The NMRPTC lists taxa that are either narrowly endemic to a specific geographic feature (e.g., mountain range; geologic outcrop) or subset area of a phytogeographic region (e.g., southern Rocky Mountains, northern Chihuahuan desert); NMRPTC listed species can be locally abundant within a narrow range or more widespread but numerically rare. NMRPTC designates a species as “rare” when a particular epithet meets the following criteria (per NMRPTC; <https://nmrareplants.unm.edu/about>):

- *Species lists developed and managed by the New Mexico Rare Plant Technical Council (<https://nmrareplants.unm.edu/>) provide a well-organized, expertly vetted, and regularly updated list of “rare” species known to occur within a particular county in NM. More specifically, NMRPTC designates a species as “rare” when a particular epithet meets the following criteria: Critically Imperiled Species are those ranked G1 globally and/or S1 statewide by Natural Heritage New Mexico and NatureServe.*
- *Imperiled Species are those ranked G2 globally and/or S2 statewide by Natural Heritage New Mexico and NatureServe.*
- *Vulnerable Species are those ranked G3 globally, and/or S3 statewide by Natural Heritage New Mexico and NatureServe.*
- *Threatened or Endangered Species are those that are federally listed and protected under the U.S. Endangered Species Act (ESA) by the U.S. Fish and Wildlife Service.*
- *State Endangered Plants are those listed as Endangered by the State of New Mexico and are protected under state law.*
- *Navajo Nation Endangered Species are those listed by the Navajo Nation as threatened, endangered or candidates for listing and are protected by the Navajo Nation Endangered Species Act.*
- *Sensitive Species or Species of Concern are not necessarily included on the above lists, but may be included on lists of Sensitive Species by the U.S. Fish & Wildlife Service, the Division, the Navajo Nation, the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), and other tribes and pueblos. Only the BLM and the USFS provide some protective measures for sensitive species and species of concern, including policies and guidelines.*

- *Endemic Species are those whose entire distribution is restricted to a relatively small geographic region. These species occur nowhere else in the world and are often, but not necessarily, vulnerable to extinction.*
- Rare Species typically have small numbers of individuals worldwide, narrow geographic ranges, and/or few localized populations, making them more vulnerable to extinction than common species. These include all plants reviewed and listed by the New Mexico Rare Plant Technical Council.

According to NMRPTC, there are a total of 22 rare plant species known to occur in Grant County. The species have varying sensitivity status as indicated on Table 1. As indicated in the Results section of this report, no rare plant species were detected during the survey. If a rare plant species would have been suspected or confirmed, the observation location would have been marked as a point or area with the GPS, depending on the number of individual plants within the population. Additionally, phenology, vigor, soil type, landform, slope, and aspect would have also been recorded as supplemental site attributes associated with the observed rare plant species. However, as presented in the results section of this report, no rare plant species were encountered during the survey. As transects were traversed, a list of all species encountered was logged, and general abundance noted in a field book. Thus, presence of noxious and/or other invasive, non-native plant species was also ancillary recorded and noted (if observed), along with a comprehensive plant species list for all plant species observed during the survey. If an unknown species was encountered that appeared to be in the same genus as a rare plant, the plant was collected and identified to species to determine the specific epithet.

The primary field data collection elements included:

- Logged GPS tracks of coarse survey grid
- Digital photographs – representative photos of transect grids
- List of species encountered during the survey
- Location of rare plant species, if encountered:
  - Population details, number, extent, vigor, phenology
  - Assessment of potentially suitable habitat for rare species
  - Observer name
  - Notes of threats and/or disturbance
  - Aspect, elevation and landform
  - Soil type and associated plants
  - Representative digital photographs of each found population

TABLE 1. RARE PLANT SPECIES KNOWN TO OCCUR IN GRANT COUNTY, NM (NMRPTC) NOTE: R = RARE ACCORDING TO NMRPTC "RARITY CRITERIA", S1 AND G1 = CRITICALLY IMPERILED, S2 AND G2 = IMPERILED, S3 AND G3 = VULNERABLE, T = INTRASPECIFIC TAXA, ? = QUESTIONABLE TAXONOMY, SNR = STATE RANK NOT YET ASSESSED, SH = POSSIBLY EXTIRPATED (HISTORICAL)

Scientific Name	NMRPTC	FWS	State of NM	USFS	BLM	Navajo Nation	State Rank	Global Rank
<i>Agastache cana</i>	R						S3	G3
<i>Agastache mearnsii</i>	D						S2	G3
<i>Asclepias uncialis</i>	D			SEN				G3G4T2T3

Scientific Name	NMRPTC	FWS	State of NM	USFS	BLM	Navajo Nation	State Rank	Global Rank
<i>Brickellia chenopodina</i>	R						SNR	GHQ
<i>Carex amplifolia</i>							S1	G4
<i>Crataegus wootoniana</i>	R			SEN			S2	G2
<i>Cymopterus davidsonii</i>	R						S2	G2
<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	D		E	SEN		GP 4	S2?	G5T5
<i>Desmodium metcalfei</i>	R			SEN			S1	G3?
<i>Draba mogollonica</i>	R						S3	G3
<i>Euphorbia rayturneri</i>	R						S1	G1
<i>Grindelia arizonica</i> var. <i>neomexicana</i>	R						SNR	G4T3?
<i>Grindelia decumbens</i> var. <i>subincisa</i>							S3?	G4T3?
<i>Peniocereus greggii</i>	R		E		SEN		S3	G3G4T3
<i>Penstemon linarioides</i> ssp. <i>maguirei</i>	R			SEN			SH	G5T1
<i>Peritoma multicaulis</i>	R		E				SH	G2G3
<i>Phemeranthus humilis</i>	R			SEN			S2	G2
<i>Puccinellia parishii</i>	R		E	SEN	SEN	GP 4	S1	G2G3
<i>Scrophularia macrantha</i>	R			SEN	SEN		S2	G2
<i>Silene thurberi</i>	R						S3?	G4
<i>Silene wrightii</i>	R						S2	G2
<i>Stellaria porsildii</i>	R			SEN			S1	G1

## **RESULTS**

No rare plant species were encountered during the survey; however, potential habitat was present for six species, habitats for these species are listed below and specific areas with potential habitat within the site are shown on Figure 2.

1. Mogollon whitlowgrass (*Draba mogollonica*) grows in cool, moist northern slopes of mountains, ravines and canyons on volcanic rocks and soil in montane forests at elevations ranging from 5,000 to 9,000 ft. (NMRPTC 1999).
2. Grayish-white giant hyssop (*Agastache cana*) grows in crevices and bases of granite cliffs and in canyons with small-leaved oaks in the upper edge of desert and lower edge of piñon-juniper at 4,600 to 5,900-ft. (NMRPTC 1999).
3. Davidson's cliff carrot (*Cymopterus davidsonii*) grows in cool, rocky places in piñon-juniper woodland and lower montane coniferous forest at 6,500 to 8,000 ft. (NMRPTC 1999). Note that elevations at this site rise to approximately 6,200 ft.
4. Mimbres figwort (*Scrophularia macrantha*) grows in steep and rocky, usually north-facing, igneous cliffs and talus slopes, and occasionally in canyon bottoms in piñon-juniper woodland and lower montane coniferous forest at 6,500 to 8,200 ft. (NMRPTC 1999). Note that elevations at this site rise to approximately 6,200 ft.
5. Wright's campion (*Silene wrightii*) grows in cliffs and rocky outcrops in montane and subalpine conifer forest at 6,800 to 8,000 ft. (NMRPTC 1999). Note that elevations at this site rise to approximately 6,200 ft.
6. Pinos altos fame flower (*Pterisanthus huihuilis*) grows in shallow, gravelly clay soil over rhyolite on rocky benches in sloping terrain. It occurs in Madrean grassland, oak woodland and pinon-juniper woodland, often associated with beargrass (*Nolina macrocarpa*), and Parry's agave (*Agave parryi*) (NMRPTC 1999).

Habitat within California Gulch, and Deadman Canyon (Figure 2) are consistent with habitat for these five species but as stated in other sections of this report, no rare plant species were detected during the survey. One species in one of these genera were identified. Bill Williams Mountain giant hyssop (*Agastache pallidiflora*) was identified in the project site. This species is differentiated by having flowers less than 20 mm long, less than twice the length of the calyx, and it was determined that species within this genus belong to the species *A. pallida*. No other species within any of these genera were present in the survey area.

Potentially suitable Pinos altos fame flower (*Pterisanthus huihuilis*) habitat was found on the small ridge above Whitewater Canyon in the northwest corner of the site. Maguire's beardtongue (*Penstemon linarioides* subsp. *maguirei*) grows on limestone cliffs in pinon-juniper woodland at elevations between 6,000 and 6,500 ft. It has only been collected once in New Mexico in canyons near the Gila River in 1880 (NMRPTC, 1999). This type of habitat was not present in the project area. *Penstemon* specimens present at the site had linear leaves, and not oblanceolate leaves, and were determined to be the more common toadflax beardtongue (*Penstemon linarioides* subsp. *linarioides*).

A total of 127 species were encountered at the site (Table 2). The overstory of the site is dominated by gray oak (*Quercus grisea*), Emory oak (*Quercus emoryi*), alligator juniper (*Juniperus deppeana*), and piñon pine (*Pinus edulis*), with ponderosa pine (*Pinus ponderosa*) dominant in some canyons. Shrub live oak (*Quercus turbinella*), Catclaw mimosa (*Mimosa aculeatacarpa*), mountain mahogany (*Cercocarpus montanus*), California brickellbush (*Brickellia californica*), rubber rabbitbrush (*Ericameria nauseosa*), Wright's buckwheat (*Eriogonum wrightii*) and Wright's silktassel (*Garrya wrightii*) are common species found in the shrub layer with varying dominance. Purple threeawn (*Aristida purpurea*), blue grama (*Bouteloua gracilis*), squirreltail (*Elymus elymoides*), bullgrass (*Muhlenbergia emersleyi*), Carruth's sagewort (*Artemisia carruthii*), and wirestem buckwheat (*Eriogonum pharnaceoides*) are the dominant species in the herbaceous layer. No state or federally listed noxious weeds were detected during the survey.



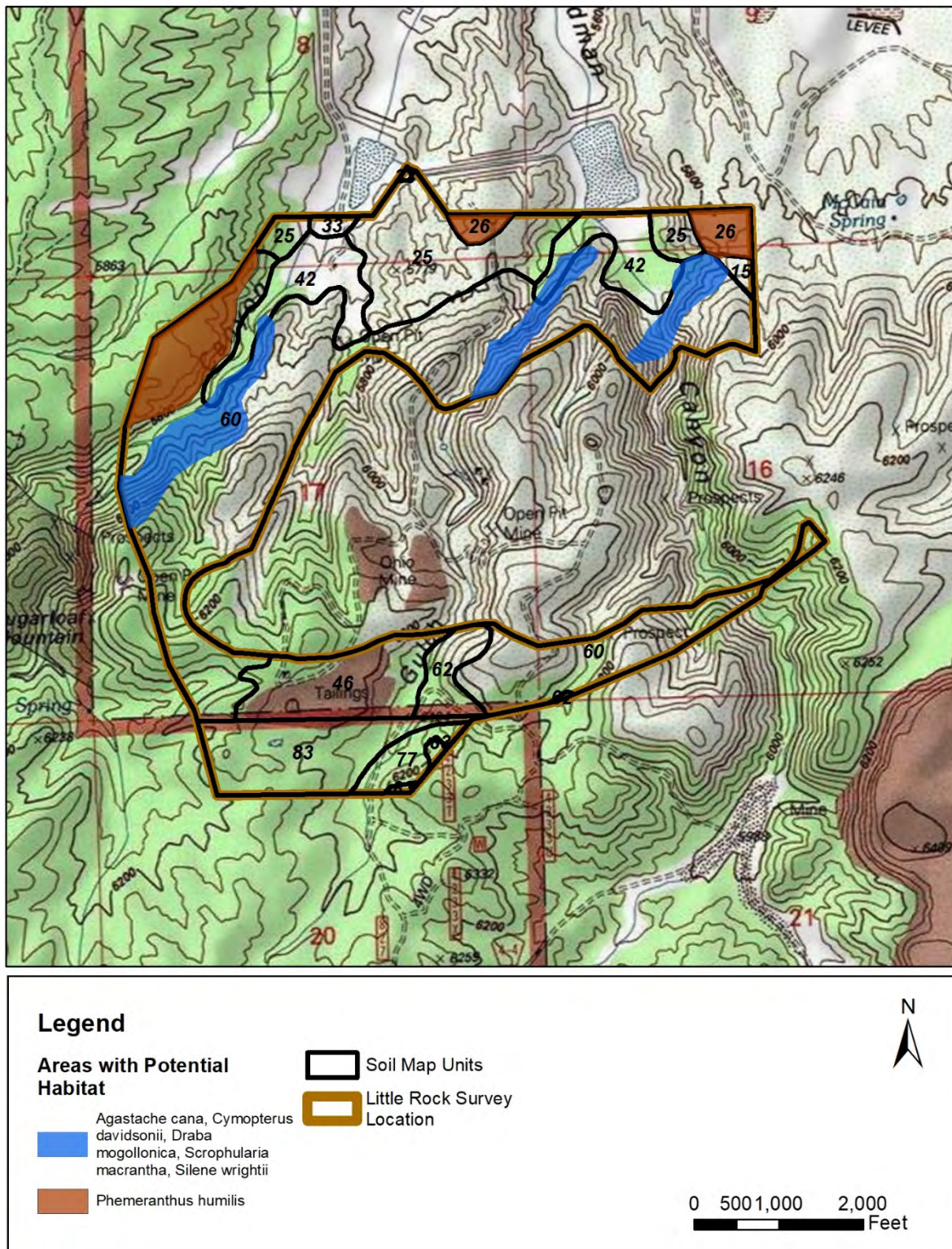


FIGURE 2. MAP SHOWING LOCATIONS WITH HABITAT POTENTIAL FOR VARIOUS PLANT SPECIES

TABLE 2. PLANT SPECIES OBSERVED AT THE SITE SORTED BY LIFEFORM. RELATIVE ABUNDANCE AS FOLLOWS, A=ABUNDANT, C=COMMON, U=UNCOMMON, S=SPARSE

Scientific Name	Common Name	Relative Abundance
<b>Trees</b>		
<i>Acer negundo</i>	box elder	S
<i>Celtis reticulata</i>	netleaf hackberry	S
<i>Fraxinus cuspidata</i>	fragrant ash	S
<i>Juglans major</i>	Arizona walnut	S
<i>Juniperus deppeana</i>	alligator juniper	C
<i>Pinus edulis</i>	piñon pine	C
<i>Pinus ponderosa</i>	ponderosa pine	U
<i>Prosopis glandulosa</i>	honey mesquite	S
<i>Prunus serotina</i>	chokecherry	S
<i>Quercus arizonica</i>	Arizona oak	S
<i>Quercus emoryi</i>	Emory oak	C
<i>Quercus grisea</i>	gray oak	A
<b>Shrubs</b>		
<i>Ageratina herbacea</i>	fragrant snakeroot	S
<i>Amorpha fruticosa</i>	indigobush	S
<i>Arctostaphylos pungens</i>	manzanita	S
<i>Baccharis pteronioides</i>	yerba de pismo	U
<i>Baccharis sarothroides</i>	desert broom	U
<i>Baccharis bigelovii</i>	Bigelow's false willow	S
<i>Brickellia californica</i>	California brickell bush	C
<i>Cercocarpus montanus</i>	Mountain mahogany	C
<i>Clematis drummondii</i>	Drummond's clematis	S
<i>Coryphantha vivipara</i>	Arizona spiny star	S
<i>Cylindropuntia spinosior</i>	cane cholla	U
<i>Dasylerion wheeleri</i>	sotol	U
<i>Echinocereus coccineus</i>	claret-cup cactus	U
<i>Echinocereus fendleri</i>	Fendler hedgehog cactus	U
<i>Ericameria nauseosa</i>	rubber rabbitbrush	C
<i>Eriogonum wrightii</i>	Wright's buckwheat	C
<i>Fallugia paradoxa</i>	Apache plume	U
<i>Garrya wrightii</i>	Wright's silktassel	C
<i>Gutierrezia sarothrae</i>	broom snakeweed	A
<i>Isocoma tenuisecta</i>	burroweed	U
<i>Lycium pallidum</i>	pale wolfberry	S

Scientific Name	Common Name	Relative Abundance
<i>Lonicera albiflora</i>	western white honeysuckle	S
<i>Mammillaria grahamii</i>	Graham pincushion cactus	S
<i>Mimosa biuncifera</i>	catclaw mimosa	A
<i>Nolina microcarpa</i>	beargrass	U
<i>Opuntia chlorotica</i>	pancake pricklypear	U
<i>Opuntia phaeacantha</i>	tulip pricklypear	C
<i>Quercus turbinella</i>	shrub live oak	C
<i>Rhus trilobata</i>	three-leaf sumac	C
<i>Rosa woodsii</i>	Wood's rose	U
<i>Vitis arizonica</i>	canyon grape	S
<i>Yucca bacata</i>	banana yucca	U
<i>Yucca elata</i>	soaptree yucca	S
<b>Forbs</b>		
<i>Achillea millefolium</i>	common yarrow	C
<i>Acmispon</i> (syn.= <i>Lotus</i> ) <i>wrightii</i>	Wright's deervetch	U
<i>Agastache pallidiflora</i>	Bill Williams Mountain giant hyssop	S
<i>Amauriopsis dissecta</i>	ragleaf bahia	U
<i>Argemone pleiacantha</i>	southwestern pricklypoppy	U
<i>Artemisia carruthii</i>	Carruth's sagebrush	A
<i>Artemisia ludoviciana</i>	silver sagewort	U
<i>Astragalus mollossimus</i>	woolly locoweed	S
<i>Baileya multiradiata</i>	desert marigold	S
<i>Bouchera</i> sp.	rockcress	U
<i>Brickellia brachyphylla</i>	plumed brickellbush	S
<i>Brickellia eupatorioides</i>	false boneset	U
<i>Brickellia floribunda</i>	Chihuahuan brickellbush	C
<i>Brickellia grandiflora</i>	tassel-flower brickellbush	S
<i>Brickellia lemmonii</i>	Lemmon's brickellbush	S
<i>Chenopodium fremontii</i>	Fremont's goosefoot	C
<i>Cirsium neomexicanum</i>	New Mexico thistle	C
<i>Conyza canadensis</i>	Arizona spiny star	U
<i>Croton texensis</i>	doveweed	U
<i>Cryptantha cinerea</i>	James' cryptantha	U
<i>Cryptantha crassisejala</i>	thicksepal cryptantha	U
<i>Datura wrightii</i>	sacred datura	U
<i>Descurainia pinnata</i>	western tansy-mustard	U
<i>Dieteria asteroides</i>	fall tansy-aster	C
<i>Draba cuneifolia</i>	spring whitlow-grass	S
<i>Erigeron flagellaris</i>	trailing fleabane	U



Scientific Name	Common Name	Relative Abundance
<i>Erigeron neomexicanus</i>	New Mexico fleabane	S
<i>Eriogonum jamesii</i>	James' buckwheat	C
<i>Eriogonum pharnaceoides</i>	wirestem buckwheat	A
<i>Eriogonum polycladon</i>	sorrel buckwheat	U
<i>Erysimum capitatum</i>	western wallflower	S
<i>Euphorbia albomarginata</i>	whitemargin spurge	S
<i>Evolvulus sericeus</i>	silver dwarf morningglory	U
<i>Froelichia arizonica</i>	Arizona snakecotton	S
<i>Gaillardia pulchella</i>	Indian blanket	S
<i>Galium</i> sp.	bedstraw	S
<i>Galium wrightii</i>	Wright's bedstraw	S
<i>Geranium lentum</i>	Mogollon geranium	S
<i>Glandularia bipinnatifida</i>	Dakota mock vervain	U
<i>Hedeoma nana</i>	mock-pennyroyal	S
<i>Hedeoma oblongifolia</i>	oblongleaf false pennyroyal	S
<i>Helianthus annuus</i>	common sunflower	U
<i>Houstonia wrightii</i>	pygmy bluet	S
<i>Hymenopappus filifolius</i>	fineleaf hymenopappus	U
<i>Hymenothrix wrightii</i>	Wright's thimblehead	C
<i>Lappula occidentalis</i>	flatspine stickseed	U
<i>Lepidium</i> sp.	pepperweed	U
<i>Machaeranthera tanacetifolia</i>	tanseyleaf tansyaster	C
<i>Mentzelia procera</i>	blazingstar	U
<i>Mirabilis linearis</i>	narrow-leaf four-o' clock	U
<i>Monarda pectinata</i>	plains beebalm	S
<i>Noccaea fendleri</i>	alpine pennycress	S
<i>Packera neomexicana</i>	New Mexico groundsel	U
<i>Penstemon linarioides</i>	toadflax beardtongue	U
<i>Penstemon</i> sp.	beardtongue	S
<i>Phaseolus maculatus</i>	spotted bean	S
<i>Pseudognaphalium stramineum</i>	cottonbatting plant	S
<i>Salsola tragus</i>	Russian thistle	U
<i>Solidago</i> sp.	goldenrod	C
<i>Sphaeralcea fendleri</i>	Fendler's globemallow	U
<i>Sphaeralcea grossularifolia</i>	gooseberryleaf globemallow	U
<i>Stephanomeria pauciflora</i>	brownplume wirelettuce	U
<i>Thalictrum fendleri</i>	Fendler's meadow rue	S
<i>Tragia ramosa</i>	noseburn	S
<i>Verbascum thapsus</i>	common mullein	U

Scientific Name	Common Name	Relative Abundance
<i>Xanthisma gracile</i>	grass-leaf sleepy daisy	C
<b>Graminoids (grasses and grass-like plants)</b>		
<i>Aristida adscensionis</i>	sixweeks threeawn	C
<i>Aristida purpurea</i>	purple threeawn	C
<i>Aristida ternipes</i>	spidergrass	U
<i>Bouteloua curtipendula</i>	sideoats grama	U
<i>Bouteloua eriopoda</i>	black grama	C
<i>Bouteloua gracilis</i>	blue grama	A
<i>Bouteloua hirsuta</i>	hairy grama	C
<i>Cyperus sphaerolepis</i>	Rusby's flatsedge	U
<i>Elymus elymoides</i>	squirreltail	C
<i>Eragrostis curvula</i>	weeping lovegrass	U
<i>Festuca arizonica</i>	Arizona fescue	C
<i>Lycurus setosus</i>	wolftail	C
<i>Muhlenbergia emersleyi</i>	bullgrass	A
<i>Muhlenbergia longiligula</i>	long-tongue muhly	C
<i>Muhlenbergia pauciflora</i>	New Mexico muhly	S
<i>Schizachyrium scoparium</i>	little bluestem	U
Relative Abundance: A=Abundant; C=Common; U=Uncommon; S=Sparse		

## CONCLUSIONS

A total of 127 plant species were observed during an early October 2020 survey at the Little Rock site. No rare plants were detected during the survey; however, potential suitable habitat was observed for six species: *Agastache cana*, *Cymopterus davidsonii*, *Draba mogollonica*, *Scrophularia macrantha*, and *Silene Wrightii*. All potential suitable habitat was surveyed, and we did not detect any rare species. However, precipitation during the spring and summer of 2020 (including monsoons) was substantially below average near the site and throughout the Southwestern U.S. Plant diversity and abundance was also below average.

## REFERENCES

- Brown, David E. 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. University of Utah Press. Salt Lake City, Utah
- New Mexico Rare Plant Technical Council (NMRPTC). 1999. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. <https://nmrareplants.unm.edu> (Latest update: 13 Nov 2020)

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## **APPENDIX F**

**BLM Las Cruces  
District Office  
Potential to Occur  
Determinations**

Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
P L A N T S				
<i>Agastache pringlei</i> var. <i>verticillata</i>  Organ Mountains giant hyssop	Humus-covered igneous talus and boulders at protected bases of steep cliffs in woodlands of Douglas fir, yellow pine, and Gambel oak (NMRPTC 1999).  Elevation: 5,900-7,500 ft (NMRPTC 1999).	Endemic to New Mexico (NMRPTC 1999).	Restricted to the Organ Mountains in Doña Ana County (NMRPTC 1999).	<b>None</b> The Project Area is outside of the known, restricted range of this species and lacks the appropriate talus/boulder and woodland habitat.
<i>Anulocaulis leiosolenus</i> var. <i>howardii</i>  Howard's gyp ringstem	Open gypsum outcrops of the Yeso Formation, with limestone cobble (NMRPTC 1999e).  Elevation: 4,400-4,800 ft (NMRPTC 1999e).	Endemic to New Mexico (NMRPTC 1999e).	Known only from a single gypsum outcrop on the lower western slope of the Guadalupe Mountains in Otero County (NMRPTC 1999e).	<b>None.</b> The Project Area is outside of the known and restricted distribution of this species.
<i>Aquilegia chrysantha</i> var. <i>chaplinei</i>  Chapline's columbine	Remote canyons with limestone seeps and springs in the montane scrub or riparian canyon bottoms (NMRPTC 2007).  Elevation: 4,700-5,500 ft (NMRPTC 2007).	Found in New Mexico and Texas (NMRPTC 2007).	Known from Eddy and Otero counties, Guadalupe and southern Sacramento mountains (NMRPTC 2007).	<b>None.</b> The Project Area lack of suitable habitat and is outside the known geographic range.
<i>Astragalus cobrensis</i> var. <i>maguirei</i>  Coppermine milkvetch	Dry creek beds, banks, canyon sides, generally dry, open slopes with oaks, juniper, and pine (AGFD 1999b).  Elevation: 5,500-7,000 ft (AGFD 1999b).	New Mexico and Arizona, from the Chiricahua and Peloncillo mountains (Cochise County) (AGFD 1999b).	Occurs in the Peloncillo Mountains in Hidalgo County (Bleakly 1999).	<b>None.</b> The Project Area is outside the known geographic range of this species.
<i>Boechera zephyra</i>  Wild mountain rockcress	Found on rocky slopes of varying geology (either syenite, limestone, or basaltic scoria), primarily in the upper margins of Chihuahuan desertscrub, occasionally in juniper savannah or oak-juniper woodlands (NMRPTC 2016b).  Elevation: 4,429-6,069 ft (NatureServe 2021c).	Known from the southern portion of New Mexico and barely entering Texas (NMRPTC 2016b).	Known from Doña Ana, Eddy, and Otero counties, in the Guadalupe, Cornudas, Hueco, and Sierra de las Uvas mountains (NMRPTC 2016b).	<b>None.</b> The Project Area is located well outside of the known distribution of this species; the closest known occurrences are in the Sierra de las Uvas and Hueco and Hueco mountains, approximately 50 km and 70 km away, respectively.
<i>Castilleja organorum</i>  Organ Mountains paintbrush	Open to partly shady montane slopes and rocky canyons in pinyon-juniper woodland or lower montane coniferous forest (NMRPTC 1999).  Elevation: 7,000-8,000 ft. (NMRPTC 1999).	Endemic to New Mexico (NMRPTC 1999).	Found in the higher elevations of the Organ Mountains in Doña Ana County (NMRPTC 1999).	<b>None.</b> The Project Area is outside of the known, highly restricted geographic and elevational range of this species.

## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Cirsium wrightii</i> Wright's marsh thistle	Inhabit wet, alkaline soils in spring seeps and marshy edges of streams and ponds (Roth 2019).  Elevation: 3,450-8,500 ft (NMRPTC 2017).	Found in New Mexico in Eddy, Chaves, Guadalupe, Otero, and Socorro counties; Presidio County in Texas; and from Chihuahua, Mexico (Nesom 2018, Sanchez-Escalante 2018, Sivinski 2012).	Limited to several disjunct populations in the southcentral portion of the state (NMRPTC 2017) including the San Mateo Mountains of Socorro County, Lincoln National Forest of Chaves and Otero County, near Carlsbad in Eddy County, and Roswell in Chaves County.	<b>Unlikely.</b>  While the Project Area is outside of the known distribution of this species, there is potentially suitable habitat for this species at Sugarloaf Spring. Moreover, the detections of this species are so disjunct across southern New Mexico that it is unclear what the current occupied distribution of this species.
<i>Coryphantha robustispina</i> ssp. <i>scheeri</i> Scheer's beehive cactus	Occurs sparsely throughout calcareous, loamy soils in desert grassland and Chihuahuan desertscrub, usually in slightly-sloping to nearly level gravelly or silty soils on or surrounding limestone or gypsum benches, hills, and bajadas (NMRPTC 1999).  Elevation: 2,900-3,600 ft (NMRPTC 1999).	Found in Eddy and Chaves counties of New Mexico, south throughout Texas and into Chihuahua, Mexico (Baker and Butterworth 2013).	Known from the extreme southern Chaves County and southwards through Eddy County to Mexico (Baker and Butterworth 2013).	<b>None.</b>  The Project Area is well outside of the known geographic range of this species.
<i>Escobaria duncanii</i> Duncan's pincushion cactus	Inhabits cracks in limestone and limy shale in broken terrain in Chihuahuan desertscrub. Can be found on almost barren rocky slopes (NMRPTC 1998a).  Elevation: In New Mexico, 5,100 ft (NMRPTC 1998a).	Occur in New Mexico, from central Sierra County; Texas, from Brewster and Presidio counties; and adjacent Mexico, from Coahuila and Chihuahua (NMRPTC 1998a).	Only known from one location in central Sierra County in the Mud Springs Mountains (NMRPTC 1998a).	<b>None.</b>  The Project Area lacks suitable habitat of Chihuahuan desertscrub and is outside the known geographic range.
<i>Escobaria villardii</i> Villard's pincushion cactus	Loamy soils of desert grassland with Chihuahuan desertscrub on broad limestone benches in mountainous terrain (NMRPTC 2006).  Elevation: 4,500-6,500 ft (NMRPTC 2006).	Endemic to New Mexico (NMRPTC 2006).	Occurs in Otero and Doña Ana counties; west slope of the Sacramento Mountains and northern Franklin Mountains (NMRPTC 2006).	<b>None.</b>  The Project Area is well outside of the reported geographic range of this species (i.e., Otero and Doña Ana counties).
<i>Dermatophyllum guadalupense</i> Guadalupe mesalbean	Outcrops of pink, limy, slightly gypseous, fine-grained sandstone in Chihuahuan desertscrub and juniper savanna (NMRPTC 2012).  Elevation: 5,200-6,700 ft (NMRPTC 2012).	Isolated locations from New Mexico in Otero and Eddy counties, and from adjacent Culberson County, Texas (NMRPTC 2012).	Found in the Brokeoff Mountains of Otero County and Upper Dog Canyon area of the Guadalupe Mountains in Eddy County (NMRPTC 2012).	<b>None.</b>  The Project Area lack of suitable habitat of juniper savannas and is outside the geographic range that is the limited to Otero and Eddy counties.

## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Hymenoxys ambigens</i> var. <i>neomexicana</i>  New Mexico bitterweed	Inhabit rocky to sandy granitic soils on open canyon floors or slopes; oak woodland, Apache pine forests, or along intermittent stream sides vegetated with Arizona cypress, Arizona walnut, and Arizona sycamore (NMRPTC 1999).  Elevation: 5,400-7,250 ft (NMRPTC 1999).	Endemic to southwestern New Mexico (NMRPTC 1999).	Known from a small number of localities, all within an 18-mile area in the Peloncillo and Animas mountains in Hidalgo County (NMRPTC 1999).	<b>None.</b>  The Project Area is located well outside of the known geographic and elevational range of this species.
<i>Lepidospartum burgessii</i>  Gypsum scalebroom	Occur on stabilized gypsum dunes with Chihuahuan desertscrub and arid grasslands (NMRPTC 1999d).  Elevation: 3,500-3,700 ft (NMRPTC 1999d).	Occurs from Otero County in New Mexico, and adjacent areas in Hudspeth County, Texas (NMRPTC 1999d).	Occurs only in the Alkali Lakes in southern Otero County (NMRPTC 1999d).	<b>None.</b>  The Project Area is outside the known and restricted range and lacks appropriate habitat of gypsum dunes.
<i>Mentzelia humilis</i> var. <i>guadalupensis</i>  Guadalupe stickleaf	Found in open gypsum outcrops of the Yeso Formation, with limestone cobble (NMRPTC 1999c).  Elevation: 4,400-5,100 ft (NMRPTC 1999c)	Endemic to New Mexico (NMRPTC 1999c).	Only known from one population on the west slope of the Guadalupe Mountains in southeastern Otero County (NMRPTC 1999c).	<b>None.</b>  The Project Area is outside the known and restricted range and lacks appropriate habitat of gypsum outcrops of the Yeso Formation.
<i>Nerisyrenia hypercorax</i>  Crow flat greggia	Occurs on sparsely vegetated exposures of gypseous clay of the Yeso Formation. Within this habitat, it is usually most abundant in and along the edges of deeply incised ravines (NMRPTC 2015).  Elevation: 4,260-5,250 ft (NMRPTC 2015).	Endemic to New Mexico (NMRPTC 2015).	Found in Chaves County and Otero County, along the west base of the Guadalupe Mountains (NMRPTC 2015).	<b>None.</b>  The Project Area lacks appropriate habitat of gypseous clay and is outside the limited geographic range.
<i>Opuntia arenaria</i>  Sand pricklypear	Utilize sandy areas, particularly semi-stabilized sand dunes among open Chihuahuan desertscrub; often with honey mesquite and a sparse cover of grasses (NMRPTC 1998b).  Elevation: 3,800-4,300 ft (NMRPTC 1998b).	Found in New Mexico, Texas in El Paso County, and Mexico, in Chihuahua, south to near Samalayuca (NMRPTC 1998b).	Known from southern Doña Ana, Luna, and Socorro counties (NMRPTC 1998b).	<b>None.</b>  The Project Area has no suitable habitat of dunes and lies outside the reported elevation and geographic range of this species.
<i>Paronychia wilkinsonii</i>  Wilkinson's nailwort	Occur on gravelly limestone (NMRPTC 2014).  Elevation: 3,940-5,250 ft (NMRPTC 2014).	Known from New Mexico (Otero County), Texas (Brewster County), Mexico in Chihuahua (near Ciudad Chihuahua, Sierra de Hechiceros, and Sierra de los Organos), and northern Coahuila (Serranías del Burro and near El Tule) (NMRPTC 2014).	One known population is located approximately 1,312 ft east to west, east of the Tanner Ranch on the western bajada of the Guadalupe Mountains (NMRPTC 2014).	<b>None.</b>  The Project Area is located outside of the known restricted geographic range of this species and lacks suitable habitat of limestone geologic substrate.

## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Pediomelum pentaphyllum</i> Chihuahua scurfpea	Desert grassland or desertscrub among creosote bush or mesquite in sandy or gravelly loam soils (USFWS Sartor and Gori 2012, 2018c).  Elevation: 4,400-6,600 ft (USFWS 2018c).	Range includes New Mexico (Hidalgo County); adjacent Arizona (Cochise and Graham counties); possibly Texas (Presidio County); and Mexico (Chihuahua), south to about Ciudad Chihuahua (USFWS 2018c).	Found in Hidalgo County (Sartor and Gori 2012).	<b>None.</b>  The Project is outside the limited geographic range of Hidalgo County.
<i>Peniocereus greggii</i> var <i>greggii</i> Night-blooming cereus	Mostly in sandy to silty gravelly soils in gently broken to level terrain in desert grassland or Chihuahuan desertscrub. Typically found growing up through and supported by shrubs, especially creosote and honey mesquite (NMRPTC 1998c).  Elevation: 3,000-5,000 ft (NMRPTC 1998c).	Known from New Mexico, Texas (mostly in the Big Bend Region), and Mexico (Chihuahua) (NMRPTC 1998c).	Occur in Doña Ana, Grant, Hidalgo, and Luna counties. In Grant County, there are records from the Little Hatched Mountains (at the extreme south end of county) (NMRPTC 1998c).	<b>None.</b>  The Project Area lacks appropriate habitat of grassland or desertscrub, is outside the known geographic range in the Little Hatched Mountains and was not observed during rare plant survey of the site and appropriate habitat was not noted during the field investigation ( <b>Appendix E</b> ).
<i>Penstemon alamosensis</i> Alamo beardtongue	Inhabits sheltered rocky areas, canyon sides and bottoms, on limestone substrates (NMRPTC 1999a).  Elevation: 4,300-5,300 ft (NMRPTC 1999a).	Range includes several counties in New Mexico and from the Hueco Mountains in El Paso County, Texas (NMRPTC 1999a).	Doña Ana, Lincoln, and Otero counties, specifically on the west escarpment of the Sacramento Mountains and east side of San Andres Mountains (NMRPTC 1999a).	<b>None.</b>  The Project Area is outside of the known geographic range of this species.
<i>Perityle cernua</i> Nodding cliff daisy	Located on igneous cliffs, primarily on rhyolite, occasionally on andesite (NMRPTC 1999f).  Elevation: 5,000-8,800 ft (NMRPTC 1999f).	Endemic to New Mexico (NMRPTC 1999f).	Only known from the Organ Mountains in Doña Ana County (NMRPTC 1999f).	<b>None.</b>  The Project Area is outside of the known restricted geographic range.
<i>Puccinellia parishii</i> Parish's alkaligrass	Found in alkaline springs, seeps, and seasonally wet areas that occur at the heads of drainages or on gentle slopes. Requires continuously damp soils during its late winter to spring growing period (NMRPTC 1999g).  Elevation: 2,600-7,200 ft (NMRPTC 1999g).	Occur in New Mexico, California, Arizona, and Colorado (NMRPTC 1999g).	Known from Catron, Cibola, Grant, Hidalgo, McKinley, Sandoval, and San Juan counties (NMRPTC 1999g).	<b>None.</b>  The Project Area is within the known distribution of this species. However, Sugarloaf spring in the Project Area is not an alkali spring and a rare plant survey of the site did not detect this species, nor was any suitable habitat identified ( <b>Appendix E</b> ).
<i>Scrophularia laevis</i> Organ Mountains figwort	Occupies moist canyons on quartz monzonite substrate in pinyon-juniper woodland and Rocky Mountain montane coniferous forest (NMRPTC 1999).  Elevation: 6,880-8,530 ft (NMRPTC 1999).	Endemic to New Mexico (NatureServe 2021a).	Northern portion of Organ Mountains in Doña Ana County (NMRPTC 1999).	<b>None.</b>  The Project Area is located outside of the known, restricted distribution of this species, and does not contain suitable habitat of pinyon-juniper or coniferous forests.



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Scrophularia macrantha</i>  Mimbres figwort	Inhabits Piñon-juniper woodland and lower montane coniferous forest. Steep, rocky, usually north-facing igneous cliffs and talus slopes, occasionally in canyon bottoms (NMRPTC 2016a).  Elevation: 6,500-8,200 ft (NMRPTC 2016a).	Endemic to New Mexico (NMRPTC 2016a).	Known from the Mimbres Mountains, Kneeling Nun, Cook's Peak, and Railroad, Noonday, and Upper Gallinas canyons in Grant and Luna counties (NMRPTC 2016a).	<b>Unlikely.</b>  While the Project Area is outside of the known distribution of this species, it occurs in nearby mountains and there is potential habitat for this species is present at higher elevations in the Big Burro Mountains. Surveys in the Project Area did not detect this species, although potentially suitable habitat was identified ( <b>Appendix E</b> ).
<i>Sibara grisea</i>  Gray sibara (Texas thelypody)	Found in crevices and at the bases of limestone cliffs in interior chaparral and piñon-juniper woodland communities (NMRPTC 1999b).  Elevation: 4,500-6,000 ft (NMRPTC 1999b).	Known from New Mexico and Texas (NMRPTC 1999b).	Found in Chaves, Eddy, and Otero counties (NMRPTC 1999b).	<b>None.</b>  The Project Area occurs well outside of the known geographic range.
<i>Spermolepis organensis</i>  Organ Mountains scaleseed	Occurs on sandy and gravelly soils derived from quartz monzonite (NMRPTC 1999).  Elevation: 4,600-5,400 ft (NMRPTC 1999).	Endemic to New Mexico (NMRPTC 1999).	Found in northeastern bajada of the Organ Mountains. Was named in 2012, based on a single specimen collected in 1995. Searches around the type locality by multiple botanists in 2013, 2014, and 2015 yielded no detections. In 2016, additional individuals were located along band of habitat extending from 2.5 to 4.5 miles northwest of the type locality (NMRPTC 1999).	<b>None.</b>  The Project Area is located outside of the known geographic range.
<b>R E P T I L E S</b>				
<i>Sistrurus tergeminus</i> [= <i>catenatus</i> ] <i>edwardsii</i> <sup>1</sup>  Desert massasauga	Inhabit shortgrass prairie, sandsage grasslands, shinnery oak habitats, Chihuahuan desertscrub with rocky habitat, and, less frequently, in sand dune habitats (USFWS 2012). In New Mexico, this species tends to avoid rocky habitat (BISON-M 2020a).  Elevation: 4,400–5,079 ft (AGFD 2001, Beauchamp and Calvert 2015).	Occurs in Arizona, Colorado, New Mexico and Texas, U.S. and the Mexican states of Coahuila and Nuevo León (Davidson 2017, USFWS 2012).	Found in the southeastern part of the state in isolated populations in the middle and lower Rio Grande Valley (USFWS 2012).	<b>Unlikely.</b>  The Project Area is within the range of this species. However, the site occurs outside of the known elevation range.

<sup>1</sup> Positive 90-day finding (USFWS 2012).

## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Aspidoscelis dixonii</i>  Gray-checked whiptail	Utilize desert scrub regions of Creosote Bush flats with little undergrowth and sandy to gravelly soils (BISON-M 2018e).  Elevation: Approximately 4,301 feet (based on population in Antelope Pass) (BISON-M 2018e).	Small and discrete populations in New Mexico and Presidio County, Texas (BISON-M 2018e, Scudday 1973).	Known only from Hidalgo County at Antelope Pass of the Peloncillo Mountain (BISON-M 2018e).	<b>None.</b>  The Project Area is outside the highly restricted range of this species.
<i>Heloderma suspectum</i>  Gila monster	Found in desert and mesquite-grassland, but also pine- oak forest, tropical deciduous forest, and thorn forest. It is usually located in rocky foothill regions and avoids open flats. It typically inhabits the lower slopes of mountains and nearby outwash plains, especially in canyons and arroyos where water is at least periodically present (Beck 2009). In some areas, they also frequent irrigated farmlands that adjoin those habitat types. Cover in such areas often includes boulders, rock crevices, downed vegetation, and litter (AGFD 2013b).  Elevation: 3,800-6,400 ft (Beck 2009).	Occupies the southern areas of Utah, Nevada, California, and New Mexico. The most southern population lives in the Sonoran desert of Mexico near the towns of Alamos Guayamas and Ortiz (AGFD 2013b, Beck 2009).	Peripheral in the state, reaching the eastern edge of its range in the southwest, where it is known from Hidalgo, Grant, Luna and perhaps Doña Ana counties (BISON-M 2018i). Most common at the Redrock Wildlife Area on the Gila River west of the Big Burro Mountains (BISON-M 2018i).	<b>Unlikely.</b>  The Project Area contains suitable habitat but is near the eastern limit of its known geographic range.
<i>Trachemys gaigeae</i>  Big Bend slider	Inhabits perennial rivers and higher order streams within the Chihuahuan Desert that are subject to extreme fluctuations in flow. In New Mexico, this species may also use ponds, marshes, and canals up to a mile from a river (BISON-M 2018b).  Elevation: 4,100-5,000 ft (BISON-M 2018b).	Occurs in the Rio Grande drainage from south-central New Mexico downstream to western Texas and northwestern Coahuila, the Rio Conchos in Mexico from southern Chihuahua downstream to the confluence with the Rio Grande, and the Rio Nazas closed basin of Durango and Coahuila, Mexico (BISON-M 2018b).	Populations occur in the Rio Grande from Bosque del Apache National Wildlife Refuge, Socorro County downstream to at least the Brewster-Terrell county line (BISON-M 2018b).	<b>None.</b>  The Project Area lack suitable aquatic habitat and there are no perennial streams or rivers within the site.

Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
AMPHIBIANS				
<i>Anaxyrus microscaphus</i>  Southwestern (Arizona) toad	Habitat includes rocky stream courses in the pine-oak zone (e.g., Arizona, New Mexico), stream courses bordered by willows and cottonwoods, irrigation ditches, flooded/irrigated fields, and reservoirs (BISON-M 2018a).  Elevation: 6,200-8,900 ft (AGFD 2013a).	Arizona, California, New Mexico, Nevada, Utah, and Mexico (BISON-M 2018a).	Restricted to the Gila, Mimbres, and San Francisco watersheds in the Gila Region of the Mogollon Rim, with disjunct populations in the San Mateo Mountains and the Black Range, approximately 40 miles east and southeast, respectively, of the Gila Region (BISON-M 2018a).	<b>None.</b>  The Project Area lack suitable aquatic habitat and is at or below the known elevation range.
M A M M A L S				
<i>Leptonycteris curasoae yerbabuenae</i> [Note: This taxa has been elevated to full species status as <i>L. yerbabuenae</i> (ITIS 2019, accessed December 2, 2019)]. <sup>2</sup>  Lesser long-nosed bat	Occurs in thornscrub or Sonoran desertscrub and through semi-desert grasslands and into oak woodlands or deciduous forest where columnar cacti and agaves are present (AGFD 2011b, Medellín 2016). Roosts in caves, abandoned mines, vegetation and occasionally old buildings (AGFD 2011b, USFWS 2018b). Forages at night on nectar and pollen of columnar cacti and agaves (AGFD 2011b, USFWS 2018b). In some portions of its range, fruits of cacti are commonly consumed. Additionally, this species readily finds and utilizes hummingbird feeders. Sometimes bypass foraging areas close to roost sites in favor of distant areas and have been documented travelling greater than 40 miles from known roosts.  Elevation: Range-wide, reported as high as 8,530 ft but is typically found below 5,905 ft (Medellín 2016).	In the U.S.: southern Arizona and extreme southwestern New Mexico. Outside the U.S.: south from the U.S. border through Mexico (including Baja), Guatemala, El Salvador, and Honduras (NatureServe 2020, accessed May 7, 2020). Note that USFWS (2018b) indicates that the range outside of the U.S. only extends as far south as southern Mexico.	Southwestern portions of the state in the Animas and Peloncillo mountains of Hidalgo County (Cole and Wilson 2006, Richardson 2007, USFWS 2016).	<b>None.</b>  The Project Area is outside of the known range, distribution, and lacks suitable roosting and foraging habitat. They were not observed during bat surveys of abandoned mine features on the site.
<i>Lasiurus xanthinus</i>  Western yellow bat	In the U.S., have been found in riparian woodlands in arid regions; they also occur in oak or pinyon-juniper woodland and urban/suburban areas (AGFD 2011c). Preferentially roost in trees, often among the dead fronds of fan palms in the southern U.S.; sometimes they roost in hackberry, sycamore, cottonwood, giant dagger yucca, vines, or other sites (Adams 2003).  Elevation: Below 6,560 ft in Arizona (AGFD 2011c).	Range encompasses the southwestern United States (southern California, southern Nevada, Arizona, and extreme southwestern New Mexico, southwestern Texas), western Mexico (including Baja California), and the Mexican Plateau; the species is a permanent resident in the United States, where it may be extending its range (AGFD Adams 2003, 2011c).	Known from extreme southwestern part of the state in Hidalgo County (BISON-M 2019g).	<b>Unlikely.</b>  The Project Area is outside of the known distribution of this species, although some suitable habitat of large trees near riparian woodlands may be present. None were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.

<sup>2</sup> Delisted due to recovery (USFWS 2018a).

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Choeronycteris mexicana</i>  Mexican long-tongued bat	<p>Uses a wide range of habitats, including desert shrublands, deep mountain canyons with dense riparian vegetation, montane oak-conifer woodlands and forests, and tropical deciduous forests. In daytime, they roost in caves, rock fissures, old mines, and rarely buildings, often in relatively mesic areas near food sources. Typically found in relatively exposed sites in shallow caves or near entrances of more extensive structures (Arroyo-Cabrelas et al. 1987, Cryan and Bogan 2003). Pregnant females and females with young roost in rock fissures, caves, mine tunnels, and rarely buildings. In New Mexico and Arizona, often roost in shallow caves in hilly country with piñon-juniper woodlands, Madrean evergreen woodlands or semi-desert grasslands where species of agave are present (Cryan and Bogan 2013). In New Mexico from July through late August, early September (BISON-M 2018f).</p> <p>Elevation: In New Mexico, roosts found from 3,200-6,100 ft (BISON-M 2018f).</p>	<p>Extends from southwestern United States southward through Mexico to El Salvador and Honduras (Adams 2003). In the U.S., they can be found in southern Arizona and southwestern New Mexico, scattered locations in western and southern Texas (Santa Ana National Wildlife Refuge, Hidalgo County; Laguna Atascosa National Wildlife Refuge, Cameron County; Midland and Hays County). Has rare of irregular occurrences in southern California and northern Arizona (Cryan and Bogan 2013).</p>	<p>Found in the Peloncillo and Guadalupe mountains in Hidalgo County (BISON-M 2018f).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is outside of the known distribution of this species, and this species is only irregularly detected in extreme southwestern New Mexico in Hidalgo County. There is potentially suitable woodland habitat present. While unlikely, this species may occur in the Project Area as a vagrant, especially because little is known about the distribution of this species.</p>

Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Corynorhinus townsendii pallescens</i></p> <p>Pale Townsend's big-eared bat</p>	<p>The <i>pallescens</i> subspecies prefers desertscrub, oak woodland, pinyon-juniper and coniferous forests. Roosts in caves, mines, and abandoned buildings with open ceilings. Does not use cracks or crevices for roosts. Forages on small moths found on leaves in trees along forested edges (AGFD 2003a). Maternity colonies are present from May through July and disperse in August (Lutch 2000). AGFD (2003a) reports the <i>pallescens</i> subspecies as foraging up to 5 miles from roost sites, however, <i>C. townsendii</i> has been reported to have a large home range and foraging distances (up to 93 miles) (Sherwin and Piaggio 2005).</p> <p>Elevation: In Arizona, 550–7,520 ft (AGFD 2003a).</p>	<p><i>C. townsendii</i> is found from southern British Columbia, Canada south along the Pacific Coast to central Mexico and east to the Great Plains of the U.S. (Sherwin and Piaggio 2005).</p>	<p>The <i>pallescens</i> subspecies occurs throughout the state (BISON-M 2017i, Piaggio, Navo, and Stihler 2009).</p>	<p><b>Possible.</b></p> <p>Suitable roost sites may be available in abandoned mines in the Big Burro and Little Burro Mountains. An evaluation of abandoned mine features in the Project Area in 2021 yielded no workings suitable for roosting due to the shallow dept of the workings. However, there may be suitable foraging habitat located within the site and abandoned mine features are present in the vicinity.</p>
<p><i>Euderma maculatum</i></p> <p>Spotted bat</p>	<p>Occurs in a wide-range of vegetation types including desertscrub, pinyon-juniper woodlands, ponderosa pine forests, mixed conifer forest, canyon bottoms, riparian areas, fields, pastures, and sub-alpine meadows. Roost in cracks and crevices of rock cliffs and in caves. They are generally solitary but may roost or hibernate in small groups. Foraging ranges may be large and up to 25 miles from their roost sites. Primarily consume moths. This species is rarely caught in nets, potentially due to rarity, high flight patterns or sensitivity to light and sound. In Arizona, this species is most commonly captured near water or along canyon rims. It is unknown if this species is migratory. In Arizona, they appear active year-round (Luce, Chambers, and Herder 2005).</p> <p>Elevation: In Arizona, 110–8,670 ft (AGFD 2003b).</p>	<p>Found in British Columbia, Canada and the U.S. states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Washington, and Wyoming. Range extends south from U.S. populations to Durango and Queretaro, Mexico (AGFD 2003b, Hammerson 2015).</p>	<p>Documented from Bernalillo, Catron, Cibola, Doña Ana, Eddy, Grant, Lincoln, Los Alamos, Otero, Rio Arriba, Sandoval, San Juan, Santa Fe, Valencia, and Socorro counties. In 2006, they was observed in Grant County at the following locations: near the Gila River at Lichty Farm, near Buckhorn, Big Burro Mountains, and near Santa Fe at Black Canyon Campground (BISON-M 2017j).</p>	<p><b>Possible.</b></p> <p>The Project Area contains potentially suitable woodland habitat and is within the known range of this species because they have been observed in the Big Burro Mountains in vicinity of the site. None were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Sorex arizonae</i>  Arizona shrew	<p>While the habitat of this species is poorly known, they are usually found in riparian areas with heavy ground cover and dense vegetation; usually close to surface water (AGFD 1999a). Have been found in areas with pines, walnuts, oaks, maples and Douglas fir in rocky canyons or in patches of Equisetum (Hoffmeister 1986). They forage on arthropods, earthworms, slugs, and similar invertebrates (AGFD 1999a).</p> <p>Elevation: 5,168–9,187 ft (AGFD 1999a).</p>	<p>Occurs in southeastern Arizona and extreme southwestern New Mexico, U.S. and Chihuahua, Mexico (Woodman, Matson, and Castro-Arellano 2016).</p>	<p>Only known from the Animas Mountains, where it has been verified at four sites (NMDGF 2018).</p>	<p><b>None.</b></p> <p>The Project Area is outside of the known, restricted geographic range of this species and lacks suitable forested habitat.</p>
<i>Cynomys ludovicianus</i>  Black-tailed prairie dog	<p>Inhabitants of shortgrass plains, Sacaton grassland, sycamore, cottonwood, and rabbitbrush riparian habitats. Most abundant in mixed grass prairie and short grass prairie. Colonies have often been reported in marginal habitat, such as open woodland and in the southwestern part of New Mexico in semidesert conditions (NRCS 2004).</p> <p>Elevation: below 7,800 ft, usually below 6,000 ft (NRCS 2004).</p>	<p>Primarily a Great Plains species, originally occurring from extreme southern Saskatchewan (Frenchman River Valley) and Montana south through the western and central Great Plains to the desert grasslands of western Texas, New Mexico, southeastern Arizona, northeastern Sonora, and northern Chihuahua (NatureServe 2021d) As a result of eradication efforts, they were extirpated in southeastern Arizona, southwestern New Mexico, and locally in many other areas throughout the range. Reintroduction efforts began at the Las Cienegas National Conservation Area in southern Arizona in 2008 (NatureServe 2021d).</p>	<p>Historic range was in the eastern and southwestern two-thirds of the state. Current distribution appears to be scattered in remnant populations in 54 percent of the counties that had historical records (BISON-M 2019e).</p>	<p><b>None.</b></p> <p>The Project Area does not have suitable grassland habitat for this species and occurs outside the known geographic range.</p>
<i>Lepus callotis</i>  White-sided jack rabbit	<p>Obligate of grasslands. Typical of plains-mesa grasslands. Dependent on well-developed, pure grasslands that have low shrub density and level terrain (BISON-M 2021).</p> <p>Elevation: 2,150-8,530 ft (NatureServe 2021e).</p>	<p>Occur in extreme southwestern New Mexico southward on the Mexican Plateau to Jalisco (NatureServe 2021e).</p>	<p>Found only in extreme southern Hidalgo County, where confirmed only from the Animas and South Playas valleys. May be extirpated from Playas valley (BISON-M 2021).</p>	<p><b>None.</b></p> <p>The Project Area does not contain suitable grassland habitat for this species and is outside the known geographic range.</p>



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
B I R D S				
<i>Vermivora virginiae</i>  Virginia's warbler	Commonly breed and are transient in pinyon-juniper woodlands, ponderosa pine forest, ponderosa-oak forest, mixed conifer forest, and spruce-fir forest. Breeding habitat shows a strong association with steep draws, drainages, or slopes with oak or other shrubby vegetation. Often utilize lower elevation woodland and shrubland during migration (BISON-M 2020c).  Elevation: <6,000-9,000 ft (BISON-M 2020c).	Large range, estimated globally at 1,081,080 square miles. Native to the Bahamas, Guatemala, Belize, Turks and Caicos Islands, and North America (eBird 2020b). In North America, known from New Mexico and Arizona with historical records from Colorado, Texas and Utah (BISON-M 2020c).	Breeds in mountains in northern portion of state, along Mogollon Rim in southwest, and locally at scattered other locations in central and west parts of the state, but more widespread in southwest ranges than previously described, occurring in Magdalena and Caballo Mountains., throughout Black Range, and in any appropriate habitat in Gila Wilderness (BISON-M 2020c).	<b>Possible.</b>  The Project Area is within the known range of this species and contains suitable woodland habitat, especially habitat for migration. This species has been observed somewhat frequently in the vicinity of the site (eBird 2021).
<i>Rhynchophanes mccownii</i> [recently changed from <i>Calcarius mcconnii</i> ]  McCown's longspur	Primarily found in grassland habitat. During migration and in winter, the species utilizes similar short, open habitat as well as agricultural fields and dry lake beds (With 2010)  Elevation: 2,800-5,500 ft (BISON-M 2020b).	Breeds and winters extensively in North America (BISON-M 2020b). Range extends from southern Alberta and Saskatchewan, southward through much of Montana, Wyoming, Colorado, New Mexico, and Texas, to northern Durango, Mexico (With 2010).	Winters in the southeast and southwest, with observations of migrants and transients elsewhere throughout the state (BISON-M 2020b).	<b>Unlikely.</b>  The Project Area is within the geographic range of this species but lacks suitable grassland and is at the upper limits of the known elevation range. However, this species has also been detected, albeit infrequently, in the vicinity of the Project Area (eBird 2021).
<i>Calcarius ornatus</i>  Chestnut-collared longspur	Typical breeding habitat is arid short- to mixed-grass prairie with flat to rolling topography in northern Great Plains and Canadian prairies. Often more abundant in areas that have been recently grazed, mowed, or burned(Bleho et al. 2015). Generally avoids undisturbed habitat. Limited information on habitat preferences during migration but prefers native grassland during migration through Kansas. Winters in southern Great Plains and Chihuahuan Desert of southwest U.S. and Mexico (Bleho et al. 2015).  Elevation: 2,800-7,500 ft (BISON-M 2017b).	Northern limits of breeding range include se. Alberta to northern edge of grasslands east of Rockies, Montana and throughout most of North Dakota. Winter range includes northern Arizona, north-central New Mexico, Colorado, Oklahoma, and extends through northwest Texas to north Mexico in deserts of northern Sonora and on Central Plateau from Chihuahua and Coahuila south to Zacatecas, Aguascalientes, and San Luis Potosí (Bleho et al. 2015).	Northcentral part of the state throughout east, and south of Santa Fe in the west (Bleho et al. 2015).	<b>None.</b>  The Project Area is within the range of this specie but lacks suitable grassland habitat and there are no eBird records in the vicinity (eBird 2021).



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Gymnorhinus cyanocephalus</i>  Piñon jay	Breeds in upper Sonoran and lower transition zone habitat types in foothills and mid-elevations throughout its range. Pinyon–juniper woodland is used most extensively, but flocks may also breed in sagebrush ( <i>Artemesia</i> spp.), scrub oak ( <i>Quercus</i> spp.) and chaparral communities. In parts of its range (central Arizona, southern California), it inhabits ponderosa and Jeffrey pine ( <i>Pinus jeffreyi</i> ) woodlands. In New Mexico, year-round home ranges can include various vegetation types, mainly pinyon pine woodland, dense pinyon-juniper woodland, sagebrush shrubland and ponderosa pine. However, elevation juniper woodlands, savanna and grasslands are used more commonly in the nonbreeding season (Johnson and Balda 2020).  Elevation: 4,000-11,000 ft (Johnson and Balda 2020).	Found across much of the intermountain west and southwest, including Oregon, California, Nevada, Utah, Montana, Wyoming, South Dakota, Nebraska, Colorado, Oklahoma, and New Mexico (Johnson and Balda 2020).	Known in portions of the eastern plains (south to Mogollon and Sacramento highlands) (BISON-M 2018h).	<b>Possible.</b>  The Project Area is within the geographic range, contains suitable woodland habitat, and may be traversed by this species during migration. This species has also been detected in the vicinity of the site (eBird 2021).
<i>Antrostomus arizonae</i>  Mexican whip-poor-will	Prefers pine-oak woodland in mountains of Arizona and New Mexico. Some preference for densely wooded or forested canyons. Also occupies humid to semiarid pine and pine-oak forest in other parts of its range. Thought to use similar habitats during migration, but not well known (Cink, Pyle, and Patten 2017).  Elevation: 5,480-6,500 ft (Cink, Pyle, and Patten 2017).	Breed in the southern portions of Arizona, California, Nevada, New Mexico, and west Texas. Winter primarily south of the Mexican border (Cink, Pyle, and Patten 2017).	Known from Mogollon, Guadalupe, Sacramento, and Black mountains (BISON-M 2018g).	<b>Possible.</b>  The Project Area contains appropriate woodland habitat, is within the known range, and there are eBird records in the vicinity (eBird 2021)..
<i>Peucaea botterii arizonae</i> or <i>Aimophila boterii</i>  Arizona Botteri's sparrow	The <i>arizonae</i> subspecies inhabits areas with tall, dense stands of grass, upland mesquite grassland and oak woodlands (Webb and Bock 2012). Sacaton grassland is the preferred habitat in New Mexico (BISON-M 2017a).  Elevation: In Arizona, occurs from 3,450-5,000 ft (Webb and Bock 2012).	Primarily non-migratory but northern most populations withdraw southward after breeding (Webb and Bock 2012). The <i>arizonae</i> subspecies breeds in Arizona and southwestern New Mexico, U.S. and Chihuahua, Durango and Sonora, Mexico. The winter range is poorly known but may include Chihuahua and Sonora (Webb and Bock 2012).	Surveys through 2000 identified the Animas Valley as the only known locale capable of supporting a significant population of Botteri’s sparrow in the state, with about 25 territories each year from 1996-1999 (BISON-M 2017a). However, may occur irregularly in other portions of extreme southwestern part of the state (BISON-M 2017a).	<b>Unlikely.</b>  The Project Area is outside of core range of this species. However, there have been irregular detections of this species in the general vicinity of the Project Area (eBird 2020a). While unlikely, it is possible that a vagrant may appear in the site.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Centronyx bairdii</i> [recently changed from <i>Ammodramus bairdii</i> ]  Baird's sparrow	Utilizes prairie habitats. Winters in areas of dense and expansive grasslands, with only a minor shrub component (Green et al. 2020). In southern New Mexico, this species prefers areas with denser grass cover than surrounding areas (Green et al. 2020).  Elevation: 3,900-6,570 ft (Kauphusman 2019).	Nests in the Dakotas, Montana, and Minnesota, as well as the Canadian provinces of Alberta, Manitoba, and Saskatchewan. Winters primarily in northern Mexico, although some may be found in southern Texas, New Mexico, and Arizona (Green et al. 2020).	Migrates in the eastern and extreme southern areas of the state, where it is considered rare to uncommon (BISON-M 2019b).	<b>None.</b>  The Project Area lacks suitable prairie habitat, is considered rare to uncommon, and they have only been detected irregularly in southwestern portion of the state by citizen scientists (eBird 2021).
<i>Ammodramus savannarum</i>  Arizona grasshopper sparrow	Generally prefer moderately open grasslands and prairies with patchy bare ground; selects different components of vegetation, depending on grassland ecosystem (Vickery 1996, 2020). Primary breeding habitat is Chihuahuan desert grasslands, in moderately open/short, dense grasslands with patchy bare ground. This species avoids areas with extensive shrub cover (Vickery 1996, 2020). In New Mexico, habitat is limited to well-developed grasslands (typically lacking woody vegetation), generally with blue grama. Habitat appears to coincide with that of the white-sided jackrabbit (BISON-M 2019a).  Elevation: Not well known, but generally below 5,500 ft (Vickery 2020).	Breeds in parts of southeast Arizona, southwest New Mexico, and northern Sonora. Also breeds locally in southcentral Canada, east to all but southeast and southernmost Texas (Vickery 2020). In winter, some remain in the U.S., while others migrate to central Mexico and possibly south into Central America.	Found only in the southern Animas Valley and western Playas Valley; both on the privately owned Gray Ranch in Hidalgo County (BISON-M 2019a, USGS 2021).	<b>None.</b>  The Project Area is outside the core distribution of this species and there have been citizen scientist detections, albeit rarely, in the vicinity of the site (eBird 2021). However, the Project Area lacks appropriate grassland habitat and is above the known elevation range of this species.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Athene cunicularia</i>  Western burrowing owl	Inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In Arizona, this species most commonly breeds in grazed grasslands and open disturbed areas such as the edges of agricultural fields, fallow fields, bladed areas, irrigation embankments, airports and golf courses. Also breeds in sparsely vegetated Sonoran or cold-temperate desertscrub (Martin 2005). Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011).  Elevation: In New Mexico, generally found 2,800-7,500 ft (BISON-M 2018c).	A partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The <i>hypugaea</i> subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico, and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).	Summers and variably winters statewide where suitable habitat occurs, with small populations occurring on grasslands (BISON-M 2018c).	<b>None.</b>  Project Area is outside of known distribution of this species and there have been no eBird records within the vicinity (eBird 2021) and the site only contains marginal habitat for this species.
<i>Anthus spragueii</i>  Sprague's pipit	Prefer dry, open grasslands with mid-height vegetation. Areas with shrubs, even at low densities, are avoided for breeding. Upland mixed-grass prairies and meadows often near lakes. Generally avoids over-grazed pastures (BISON-M 2018l).  Elevation: 2,800-5,500 ft (BISON-M 2018l).	Breeds in the northern Great Plains. Winters from southern Arizona, southern New Mexico, Texas, southern Oklahoma, Arkansas, Mississippi, and southern Louisiana south into northern Mexico to Michoacán, Puebla, and Veracruz (Davis, Robbins, and Dale 2014).	Winters in southern part of the state (Davis, Robbins, and Dale 2014). Occurs sporadically during winter in southern desert grasslands, primarily in the lower Pecos River Valley, Otero Mesa, and the Animas Valley (BISON-M 2018l).	<b>None.</b>  There is no suitable grassland habitat in the Project Area, the site occurs above the elevational range preferred by this species, and there are no eBird records in the vicinity (eBird 2021).

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Vireo bellii</i></p> <p>Bell’s vireo</p>	<p>Breeds in a wide variety of dense shrubby habitats, often near water, particularly in arid environments, including riparian scrub along drainages, successional riparian vegetation, brushy fields, mesquite brushlands, chaparral and young forests and woodlands (Kus et al. 2020). In New Mexico, this species characteristically occurs near riparian habitat and dense shrubland or woodland along lowland stream courses (Kus et al. 2020). In the southeast and southwest parts of the state, most nests occur in willow, seepwillow, or hackberry (Kus et al. 2020)</p> <p>Elevation: In Arizona, breeds 120–5,120 ft (Averill-Murray and Corman 2005).</p>	<p>Is a neotropical migrant (Kus et al. 2020). Breeds throughout the central and southwestern U.S. including Arizona, Arkansas, California, Colorado, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Utah, Wisconsin, and Wyoming. Additionally, breeds in northern Mexico in Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, and Zacatecas. The wintering range is less well known but includes Baja California Sur and south along the Pacific Slope from Sonora through Oaxaca, El Salvador, Honduras and Nicaragua (Kus et al. 2020). There are scattered winter records throughout the southern U.S. portion of the breeding range and in Florida (Kus et al. 2020).</p>	<p>Considered a common and widespread summer resident in southern portion of the state (Bailey 1928b, Hubbard 1978c). Known populations occur in the lower Gila Box, San Simon Cienega, and Guadalupe Canyon (BISON-M 2019c).</p>	<p><b>None.</b></p> <p>Lack of suitable foraging or nesting habitat within the Project Area, and the site is above the elevation preferred by this species. There are no citizen scientist records of this species from the vicinity (eBird 2021).</p>
<p><i>Toxostoma bendirei</i></p> <p>Bendire’s thrasher</p>	<p>In southern New Mexico, this species breeds in degraded desert grassland areas and desertscrub with various xerophytic shrub species, but little grass. In central New Mexico, this species is more commonly associated with cholla stands. This species is rare and very local in shrubland/woodland (BISON-M 2019d).</p> <p>Elevation: 2,800-5,500 ft (BISON-M 2019d).</p>	<p>Breeds across the southwest, from southeastern California and southern Nevada to the eastern third of New Mexico, From southern Utah and Colorado south into Sonora and Chihuahua, and along the Pacific slope of Mexico to Sinaloa (BISON-M 2019d).</p>	<p>Occurs in scattered locations throughout the central and western portions of the state (BISON-M 2019d, England and Laundehslayer 1993).</p>	<p><b>Unlikely.</b></p> <p>There is no suitable desertscrub habitat for this species in the Project Area, although there eBird records of this species in the vicinity (eBird 2021).</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Haliaeetus leucocephalus</i>  Bald eagle	<p>Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020).</p> <p>Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).</p>	<p>Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).</p>	<p>Are present casually to occasionally in summer, but they migrate and winter almost statewide, although there is limited breeding in the state (Buehler 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the range of this species and there are citizen scientists’ sightings of bald eagles within ten miles (eBird 2021). However, the site does not contain large bodies of water associated with this species. While it is possible that a bald eagle may fly over the site while foraging, given the absence of preferred habitat, it is unlikely that this species will occur.</p>
<b>CRUSTACEANS</b>				
<i>Phalocryptus sublettei</i>  Salt Playa (Sublette’s) fairy shrimp	<p>Utilizes saline playa lakes ranging from a few meters to a kilometer in diameter; usually very shallow with depth of water a function of rainfall, humidity, and basin structure; dry during summer and filling with fall rains (Rogers 2003).</p> <p>Elevation: Unknown.</p>	<p>Range includes New Mexico and Texas. In Texas, this species occurs in Lynn, Terry, Gaines, and Hudspeth counties, primarily northwestern Texas highlands (Jass and Klausmeier 2000). In New Mexico, Otero County at Crow Flats (next to Hudspeth Co., Texas) (Rogers 2003).</p>	<p>Found only at Crow Flats of Otero County (BISON-M 2018m).</p>	<p><b>None.</b></p> <p>The Project Area lack suitable aquatic habitat and is outside the known restricted geographic range of this species.</p>
<i>Streptocephalus moorei</i>  Moore’s fairy shrimp	<p>Aquatic species found in ephemeral manmade and natural catchments (NatureServe 2021f). Can be considered a resident of the Chihuahuan Desert where it occurs in warm water depressional basins, pit tanks dug into alkali playas, dirt stock tanks, and temporary ponds and pools. They are not found in flowing water (NatureServe 2021f).</p> <p>Elevation: 3,000-5,000 ft (NatureServe 2021f).</p>	<p>Widely separated populations in New Mexico and Chihuahua, Mexico (Maeda-Martinez, Rogers, and Worthington 2005).</p>	<p>Four populations have been found in the state; one each from stock tanks in Luna and Sierra counties (Maeda-Martinez, Rogers, and Worthington 2005) one from Isaack Lake (Doña Ana County), and one from a roadside playa in Doña Ana County (BISON-M 2017h).</p>	<p><b>None.</b></p> <p>The Project Area is outside the restricted geographic range of this species.</p>
<i>Streptocephalus thomasbowmani</i>  Bowman’s fairy shrimp	<p>Occurs in turbid, warm water temporary playas (BISON-M 2015a).</p> <p>Elevation: Unknown.</p>	<p>Endemic to New Mexico (Maeda-Martinez, Obregon-Barboza, and Prieto-Salazar 2005).</p>	<p>Known only from 10 miles west of Lordsburg in Hidalgo County (BISON-M 2015a, Maeda-Martinez, Obregon-Barboza, and Prieto-Salazar 2005).</p>	<p><b>None.</b></p> <p>The Project Area is outside the highly restricted geographic range of this species.</p>

## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<b>MOLLUSKS</b>				
<i>Ashmunella hebardei</i>  Hacheta Grande woodlandsnail	Occur under loose stone on the northwestern side of an arid mountain of volcanic origin. Found at the base of cliffs in an area of pinyon pines. Most commonly found at base of limestone outcrops beneath large rock fragments and rubble piles where litter-soil mold collects (Lang 2005).  Elevation: 6,800-7,200 ft (NatureServe 2021a).	Endemic to New Mexico (Lang 2005).	Restricted to the Hachita Grande area of the Big Hatchet Mountains in Hidalgo County (BISON-M 2017f).	<b>None.</b>  The Project Area is outside the highly restricted geographic range of this species.
<i>Ashmunella macromphala</i>  Cooke's peak snail	Inhabits a north-facing slope on the edge of rock slides where bordered by oaks; and under rocks and the debris that accumulates between the rocks (Vagvolgyi 1974).  Elevation: Approximately 6,880 ft (Vagvolgyi 1974).	Endemic to New Mexico (BISON-M 2017d).	Known only from two rockslides approximately 1,312 ft apart on Cooke's Peak in Luna County (NatureServe 2021b). Also, a single isolated population in OK Canyon (recent shell but no live snail) (BISON-M 2017c).	<b>None.</b>  The Project Area is outside the highly restricted geographic range of this species.
<i>Gastrocopta dalliana dalliana</i>  Shortneck snaggletooth snail	Habitat is not well understood, although has been found in wooded rocky areas along mountain canyons (Metcalf and Smartt 1997) (Metcalf and Smartt, 1997).  Elevation: 5,900 ft (Metcalf and Smartt, 1997).	Endemic to New Mexico (BISON-M 2019f).	Previously known from a wooded section of Indian Creek Canyon on north flank of Animas Peak in Hidalgo County (Metcalf and Smartt, 1997), but collected in 1995-6 in Indian Creek Canyon and the northeast slope of Animas Peak. Additional population to the south in San Luis Mountains and east in Big Hatchet Mountains of Hidalgo County (BISON-M 2019f).	<b>None.</b>  The Project Area is outside the highly restricted geographic range of this species.
<i>Holospira crosseii</i>  Cross holospira snail	Little is known about the habitat requirements of this species, although it has been found on limestone escarpments on steep, rocky hillsides (BISON-M 2015b).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2015b).	Known only from the Big Hatchet Mountains in Hidalgo County, including Thompson Canyon, and one record from Hacheta Grande Mountain in Grant County (BISON-M 2015b)	<b>None.</b>  The Project Area is outside the highly restricted geographic range of this species.
<i>Holospira metcalfi</i>  Metcalf holospira snail	Obligate inhabitant of limestone (Thompson 1974).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017g).	Only known from the Little Hatchet Mountains of Hidalgo County (BISON-M 2017g).	<b>None.</b>  The Project Area is outside the highly restricted geographic range of this species.



## Appendix F. BLM LCDO Potential to Occur Determinations (BLM 2018)

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Radiocentrum ferrissi</i> Fringed mountainsnail	Little known about the habitat for this species, although was collected from Big Hatchet Mountains (BISON-M 2018d).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2018d).	Limited information on the distribution of this species, although it is known from the Big Hatchet Mountains (BISON-M 2018d).	<b>None.</b> The Project Area is outside the highly restricted geographic range of this species.
<i>Sonorella hachitana</i> New Mexico talussnail	Rocky slopes on high elevation mountain ranges (BISON-M 2016a).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2016a).	This species has only been found at 15 closely spaced in the Big Hatchet Mountains in Hidalgo County ((BISON-M 2016a).	<b>None.</b> The Project Area is outside the highly restricted geographic range of this species.
<i>Sonorella hachitana flora</i> New Mexico talussnail	Location collected in Lang Canyon was on a talus slope (Lang and Gilbertson 2010). Xerophytic shrubs ( <i>Quercus emoryi</i> , <i>Garrya wrightii</i> , <i>Acacia greggii</i> ), woody monocots ( <i>Dasyllirion wheeleri</i> , <i>Nolina microcarpus</i> , <i>Agave lechuguilla</i> , <i>Yucca</i> spp.), and Cactaceae ( <i>Ferocactus</i> spp. and <i>Opuntia</i> spp.) dominate moderate slopes surrounding the type locality (Lang and Gilbertson 2010).  Elevation: 6,120 ft (Lang and Gilbertson 2010).	Endemic to New Mexico (Lang and Gilbertson 2010).	Known only from Lang Canyon in the San Luis Mountains of Hidalgo County (BISON-M 2016b).	<b>None.</b> The Project Area is outside the highly restricted geographic range of this species.
<i>Sonorella todseni</i> Doña Ana talussnail	Inhabits igneous rock talus with a sparse cover of live oaks and other xeric-adapted shrubs mostly on a north-facing mountain slope (BISON-M 2017e, Metcalf and Smartt 1997). Dominant vegetation consisted of desertscrub and grassland plant species.  Elevation: Approximately 5,760 ft (Metcalf and Smartt 1997).	Endemic to New Mexico (BISON-M 2017e).	All known populations occur on the north slope and a small site on the south slope of the Doña Ana Mountains in Doña Ana County (BISON-M 2017e, Lang and Gilbertson 2010, Metcalf and Smartt 1997).	<b>None.</b> The Project Area is outside the highly restricted geographic range of this species.



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
ARTHROPODS				
<i>Danaus plexippus plexippus</i> <sup>3</sup>  Monarch butterfly	<p>Caterpillars feed exclusively on plants in the subfamily Asclepiadoideae (milkweed) and adults forage for nectar on a wide variety of flowers. Can be found wherever milkweed occurs. Overwintering populations use the leaves, branches, and trunks of large trees within forested groves. In California, both native tree species and eucalyptus trees are utilized (Jepsen et al. 2015).</p> <p>Elevation: Breeding at all elevations in Arizona (Morris, Kline, and Morris 2015) overwintering between 9,500 to 10,800 ft in Mexico (U. S. Fish and Wildlife Service 2020).</p>	<p><i>D. plexippus</i> occurs in North America, Central America, the Caribbean south to South America, Hawaii, Australia, some Pacific Islands, parts of Asia, Africa, and southern Europe. Populations outside of the Americas may be non-native (Zhan et al. 2014). Most populations of the <i>plexippus</i> subspecies are migratory and breed in southern-most portions of all Canadian provinces except Newfoundland and Labrador, the conterminous U.S. states and the Mexican states of Baja California, Chihuahua, Coahuila, Nuevo León, Sonora, and Tamaulipas. The wintering range of migratory populations includes coastal California and southern Florida, U.S. and the Mexican states of Baja California, Mexico and Michoacán (Jepsen et al. 2015).</p>	<p>Seasonal resident in all counties of the state (BISON-M 2015c, Cary and Holland 1992). Known in the Jemez and Organ mountains (BISON-M 2015c).</p>	<p><b>Possible.</b></p> <p>The Project Area is within the range of this species and may contain flowering plants providing suitable foraging habitat.</p>
<i>Lytta mirifica</i>  Anthony blister beetle	<p>Utilize sand dunes and occurring on flowers and foliage of various plants in Chihuahuan Desert (BISON-M 2009).</p> <p>Elevation: Unknown.</p>	<p>New Mexico, Texas, and potentially into Mexico (BISON-M 2009).</p>	<p>Primarily known from extreme southcentral part of the state in Doña Ana County (BISON-M 2009).</p>	<p><b>None.</b></p> <p>The Project Area is outside the highly restricted geographic range of this species.</p>

<sup>3</sup> Positive 90-day finding (USFWS 2014).

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
FISH				
<i>Catostomus clarkii</i>  Desert sucker	Typically occurs in flowing pools and rapids of small to medium sized creeks, streams, and canals (AGFD 2002, Desert Fishes Team 2004). Prefer river bottoms of rubble with sandy silt in the interstices. Live in pools as adults and move to swift runs to feed on diatoms and algae. Young stay in riffles and feed on midge larvae (AGFD 2002). They either avoid or cannot persist in reservoirs or lakes (Minckley and Marsh 2009). Can tolerate high water temperatures but is less tolerant of low dissolved oxygen levels than other native fish (AGFD 2002).  Elevation: 480–8,840 ft (AGFD 2002).	Occurs in Arizona, southeastern Nevada, west-central New Mexico and southwestern Utah, U.S. and northern Sonora, Mexico (NatureServe and Lyons 2019).	Current range within the Lower Colorado River drainage and the Gila River Basin in Arizona-New Mexico, including Aravaipa Creek. Found in the lower Colorado River downstream of the Grand Canyon, and in the Bill Williams, Salt, Gila, and San Francisco river drainages (AGFD 2002).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Catostomus plebeius</i>  Rio Grande sucker	Is an obligate riverine species (Calamusso, Rinne, and Turner 2002). In a survey of several New Mexico streams, Calamusso (1996) found that this species preferred pool and glide habitat but suggested that riffles may be ecologically important at certain times. Adult suckers within the Carson and Santa Fe national forests of New Mexico preferred low gradient habitats with cobble and small boulder substrate (Rees and Miller 2005).  Elevation: In New Mexico, rarely if ever above 9,000 ft (Calamusso, Rinne, and Turner 2002).	Endemic to the Rio Grande Basin (Rees and Miller 2005). Found in the upper Rio Grande drainage in southern Colorado and New Mexico and several locations in Mexico (Rees and Miller 2005)	Found only in the Rio Grande Basin in the state (BISON-M 2018k).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Gila robusta</i> <sup>4</sup>  Roundtail chub	Inhabits cool to warm water streams and rivers (USFWS 2015). Typically found in largest and deepest pools of middle to large streams and is considered to be less associated with dense cover than other chub species (AGFD 2015, Minckley and Marsh 2009). Young-of-the-year favor slow, shallow water associated with vegetated shorelines (USFWS 2015).  Elevation: 1,210–7,220 ft, most common between 2,000–5,000 ft (AGFD 2015, Minckley and Marsh 2009).	Note: The distribution described below reflects USFWS description of the proposed DPS and not the current understanding of the species complex. Historically from The Bill Williams, Gila, Little Colorado, Salt and Verde river drainages in Arizona and New Mexico. At the full species level: In the U.S.: the Colorado River basin in Arizona, Colorado, New Mexico, Utah and Wyoming (USFWS 2015). In Mexico: Rio Yaqui and Piaxtla in Sonora (AGFD 2015).	Found in Rio Arriba, San Juan, and New Mexico counties (BISON-M 2018k).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.
<i>Gila pandora</i>  Rio Grande chub	Most common in flowing pools of headwaters, creeks, and small rivers, often near inflow of riffles and in association with cover such as undercut banks, aquatic vegetation, and plant debris. Also occurs in impoundments (BISON-M 2018j).  Elevation: below 11,385 ft (Fuller 2021).	Formerly widespread in creeks of the upper Rio Grande and Pecos watersheds in New Mexico and the Rio Grande and San Luis basin in southern Colorado, with an isolated population in the Davis Mountains, Texas in the Pecos River system (Fuller 2021). Possibly extirpated from the mainstem Rio Grande and is now only found in tributary streams. An isolated population occurs in Dome Lake on the Gunnison National Forest in Colorado (Fuller 2021).	Occurs in the Upper Rio Grande and Pecos Rivers system and also has been introduced into the headwaters of Canadian River (Red River drainage) in the state (BISON-M 2018j).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.

<sup>4</sup> Proposed threatened status withdrawn because the it did not meet the definition of a species under the Act (USFWS 2017). USFWS determined that *G. nigra* and *G. intermedia* should be subsumed into *G. robusta*.

## REFERENCES

- Adams, Rick A. 2003. *Bats of the Rocky Mountain West: Natual History, Ecology, and Conservation*. Boulder, Colorado: University Press of Colorado.
- Arizona Game and Fish Department. 1999a. Arizona Shrew (*Sorex arizonae*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 5 pp.
- \_\_\_\_\_. 1999b. Coppermine Milkvetch (*Astragalus cobrensis* var. *maguirei*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 3.
- \_\_\_\_\_. 2001. Desert Massasauga (*Sistrurus tergeminus edwardsi*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. August 24, 2001. 6 pp.
- \_\_\_\_\_. 2002. Desert Sucker (*Catostomus* (= *Pantosteus*) *clarki*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 4, 2002. 5 pp.
- \_\_\_\_\_. 2003a. Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2003b. Spotted Bat (*Euderma maculatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 19, 2003. 9 pp.
- \_\_\_\_\_. 2011a. Bald Eagle (*Haliaeetus leucocephalus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. September 2, 2011. 9 pp.
- \_\_\_\_\_. 2011b. Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 9 pp.
- \_\_\_\_\_. 2011c. Western Yellow Bat (*Lasiurus xanthinus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 13 2011. 6 pp.
- \_\_\_\_\_. 2013a. Arizona Toad (*Anaxyrus microscaphus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. November 8, 2013. 5 pp.
- \_\_\_\_\_. 2013b. Gila Monster (*Heloderma suspectum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 4.

- \_\_\_\_\_. 2015. Roundtail Chub (*Gila robusta*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 7, 2015. 7 pp.
- Arroyo-Cabral, Joaquín, Robert R. Hollander, and J. Knox Jones, Jr. . 1987. "Choeronycteris mexicana." *Mammalian Species* (291):1-5.
- Averill-Murray, Annalaura, and Troy E. Corman. 2005. "Bell's Vireo (*Vireo bellii*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 338-339.
- Baker, Marc A., and Charles A. Butterworth. 2013. "Geographic distribution and taxonomic circumscription of populations with *Coryphantha* section *Robustispina* (Cactaceae)." *American Journal of Botany* 100 (5):984-997.
- Beauchamp, James, and Ben Calvert. 2015. "Geographic Distribution: *Sistrurus tergeminus edwardsii* (Desert Massasauga)." *Herpetological Review* 46 (4):576-577.
- Beck, Daniel D. 2009. *Biology of Gila Monsters and Beaded Lizards*. First edition ed. Berkeley, California: University of California Press.
- BISON-M. 2009. "Anthony Blister Beetle (*Lytta mirifica*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2015a. Bowman's Fairy Shrimp (*Streptocephalus thomasbowmani*). Santa Fe, New Mexico: Biota Information System of New Mexico [BISON-M].
- \_\_\_\_\_. 2015b. "Cross Holospira Snail (*Holospira [= Bostrichocentrum] crossei*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2015c. "Monarch Butterfly (*Danaus plexippus*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2016a. "New Mexico Talussnail (Big Hatchet Mtns.) (*Sonorella hachitana*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2016b. "New Mexico Talussnail (Florida Mtns.) (*Sonorella hachitana flora*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017a. "Botteri's Sparrow (*Peucaea Botteri*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017b. "Chestnut-collared Longspur (*Calcarius ornatus*)." Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017c. "Cook's Peak Woodlandsnail (*Asmunella macromphala*)." Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.

- \_\_\_\_\_. 2017d. "Cooke's Peak Woodlandsnail (*Ashmunella macromphala*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017e. "Dona Ana Talussnail (*Sonorella todsoni*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017f. "Hacheta Grande Woodlandsnail (*Ashmunella hebardii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017g. "Metcalf Holospira Snail (*Holospira [= Bostrichocentrum] metcalfi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017h. "Moore's Fairy Shrimp (*Streptocephalus moorei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017i. "Pale Townsend's Big-eared Bat (*Corynorhinus townsendii pallascens*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017j. "Spotted Bat (*Euderma maculatum*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018a. "Arizona Toad (*Anaxyrus microscaphus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018b. "Big Bend Slider (*Trachemys gaigeae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018c. "Burrowing Owl (*Athene cunicularia*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018d. "Fringed Mountainsnail (*Radiocentrum ferrissi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018e. "Gray-checked Whiptail (*Aspidoscelis dixonii*).\" Biotic Information System of New Mexico (BISON-M). <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018f. "Mexican Long-Tongued Bat (*Choeronycteris mexicana*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018g. "Mexican Whip-poor-will (*Antrostomus arizonae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018h. "Pinyon Jay (*Gymnorhinus cyanocephalus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018i. "Reticulate Gila Monster (*Heloderma suspectum suspectum*).\" Biotic Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.



- \_\_\_\_\_. 2018j. "Rio Grande Chub (*Gila pandora*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018k. "Rio Grande Sucker (*Catostomus plebeius*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018l. "Sprague's Pipit (*Anthus spragueii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018m. "Sublette's Fairy Shrimp (*Phallocryptis sublettei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019a. "Arizona Grasshopper Sparrow (*Ammodramus savannarum*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019b. "Baird's Sparrow (*Centronyx bairdii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019c. "Bell's Vireo (*Vireo bellii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019d. "Bendire's Thrasher (*Toxostoma bendirei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019e. "Black-tailed Prairie Dog (*Cynomys ludovicianus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019f. "Shortneck Snaggletooth Snail (*Gastrocopta [= Immersidens] dalliana dalliana*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019g. "Western Yellow Bat (*Dasypterus xanthinus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020a. "Desert Massasauga (*Sistrurus tergeminus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020b. "McCown's Longspur (*Rhynchophanes mccownii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020c. "Virginia's Warbler (*Leiothlypis virginiae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2021. "White-sided Jackrabbit (*Lepus callotis*).\" Biotic Information System of New Mexico (BISON-M). <https://bison-m.org/>. Santa Fe, New Mexico.
- Bleakly, David. 1999. Maguire's milkvetch (*Astragalus cobrensis* var. *maguirei*). *New Mexico Rare Plant List*. Albuquerque, New Mexico: New Mexico Rare Plant Technical Council.



- Bleho, Barbara, Kevin Ellison, Dorothy P. Hill, and Lorne K. Gould. 2015. Chestnut-collared Longspur (*Calcarius ornatus*). *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: The Cornell Lab of Ornithology.
- Buehler, David A. 2020. "Bald Eagle (*Haliaeetus leucocephalus*), version 1.0." The Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.baleag.01>. Ithaca, New York.
- Calamusso, Bob, John N. Rinne, and Paul R. Turner. 2002. "Distribution and Abundance of the Rio Grande Sucker in the Carson and Santa Fe National Forests, New Mexico." *The Southwestern Naturalist* 47 (2):182-186.
- Cary, Steven J., and Richard Holland. 1992. "New Mexico butterflies: checklist, distribution and conservation." *Journal of Research on the Lepidoptera* 31 (1-2):57-82.
- Cink, Calvin L., Peter Pyle, and Michael A. Patten. 2017. Mexican Whip-poor-will (*Antrostomus arizonae*). *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: The Cornell Lab of Ornithology.
- Cole, F. Russell, and Don E. Wilson. 2006. "*Leptonycteris yerbabuenae*." *Mammalian Species* 797:1-7.
- Cryan, Paul, and Michael A. Bogan. 2003. "Recurrence of Mexican Long-tongued Bats (*Choeronycteris mexicana*) at Historical Sites in Arizona and New Mexico." *Western North American Naturalist* 63 (3):314 - 319.
- Cryan, Paul M., and Michael A. Bogan. 2013. "Recurrence of Mexican Long-tongued Bats (*Choeronycteris mexicana*) at Historical Sites in Arizona and New Mexico." *Western North American Naturalist* 63 (3):314-319.
- Davidson, A. 2017. Desert Massasauga (*Sistrurus tergeminus edwardsii*). *NatureServe Explorer*. December 30, 2017.
- Davis, Stephen K., Mark B. Robbins, and Brenda C. Dale. 2014. Sprague's Pipit (*Anthus spragueii*). *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.
- Desert Fishes Team. 2004. Status of Unlisted Native Fishes of the Gila River Basin, with Recommendations for Management. *Report Number 2*. Tempe, Arizona: Marsh & Associates, LLC. August 31, 2004.
- eBird. 2020a. "Botteri's Sparrow (*Peucaea botterii*) Species Map." Cornell Lab of Ornithology. <https://ebird.org/home>. Ithaca, New York.
- \_\_\_\_\_. 2020b. Virginia's Warbler (*Leiothlypis virginiae*) Species Map. *eBird website*. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2021. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.

- England, A. Sidney, and W. F. Laundehslayer. 1993. "Bendire's Thrasher (*Toxostoma bendirei*), version 2.0." In *The Birds of North America Online*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. 2018. "eBird Status and Trends." Cornell Lab of Ornithology. <https://ebird.org/science/status-and-trends>. Ithaca, New York.
- Fuller, P. 2021. Rio Grande Chub (*Gila pandora*) (Cope, 1872). *Nonindigenous Aquatic Species Database*. Gainesville, Florida: U.S. Geological Survey.
- Green, M. T., P. E. Lowther, S. L. Jones, S. K. Davis, and B. C. Dale. 2020. "Baird's Sparrow (*Centronyx bairdii*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Hammerson, G. 2015. "Spotted Bat (*Enderma maculatum*). " <https://explorer.natureserve.org/>.
- Hoffmeister, Donald F. 1986. *Mammals of Arizona*: The University of Arizona Press and The Arizona Game and Fish Department.
- Integrated Taxonomic Information System. 2019. "Integrated Taxonomic Information System online database." <http://www.itis.gov>.
- Jass, J., and B. Klausmeier. 2000. "Atlas and Bibliography of the First State and County Records for Anostracans (Crustacea: Branchiopoda) of the Contiguous United States." *Milwaukee Public Museum Contributions in Biology and Geology*, 94:158 pp.
- Jepsen, S., D. F. Schweitzer, B. Young, N. Sears, M. Ormes, and S. H. Black. 2015. Conservation Status and Ecology of Monarchs in the United States. Arlington, Virginia and Portland, Oregon: NatureServe and Xerces Society for Invertebrate Conservation. 36 pp.
- Johnson, K., and Russell P. Balda. 2020. "Pinyon Jay (*Gymnorhinus cyanocephalus*). " In *Birds of the World*, edited by P. Rodewald and B. K. Keeney. Ithaca, New York: Cornell Lab of Ornithology.
- Kauphusman, J. 2019. "Baird's Sparrow *Ammodramus bairdii* (On-line)." Animal Diversity Web. [https://animaldiversity.org/accounts/Ammodramus\\_bairdii/](https://animaldiversity.org/accounts/Ammodramus_bairdii/).
- Klute, D. S., L. W. Ayers, M. T. Green, W. H. Howe, S. L. Jones, J. A. Shaffer, S. R. Sheffield, and T. S. Zimmerman. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States. *Biological Technical Publication FWS/BTP-R6001-2003*: U.S. Fish and Wildlife Service. June 2003.
- Kus, Barbara, Steven L. Hopp, R. Roy Johnson, and Bryan T. Brown. 2020. "Bell's Vireo (*Vireo bellii*), version 1.0." In *Birds of the World*, edited by A. F. Poole. Ithaca, New York: Cornell Lab of Ornithology.
- Lang, B.K. 2005. Taxonomic Assessment of *Ashmunella hebardii* and *Ashmunella mearnsii* of the Big Hatchet Mountains, New Mexico. *Completion of Report E-57(1-2) submitted to the Division of Federal*

- Aid*, U.S. Fish and Wildlife Service,. Albuquerque, New Mexico: New Mexico Department of Game and Fish.
- Lang, Brian K., and Lance H. Gilbertson. 2010. "A New Species of *Sonorella* (Gastropoda: Pulmonata: Helminthoglyptidae) From Southwestern New Mexico, With a Revision of the Subspecies of *Sonorella hachitana* (Dall)." *Proceedings of the Biological Society of Washington* 123 (1):62-71.
- Luce, B., C. Chambers, and M. Herder. 2005. "Western Bat Species *Euderma maculatum* (Spotted Bat)." Western Bat Working Group. <http://wbwg.org/western-bat-species/>
- Lutch, Debbie. 2000. Tonto National Forest Threatened, Endangered and Sensitive (TES) Species 2000 Draft Abstracts. U.S. Forest Service. July 5, 2000.
- Maeda-Martinez, A.M., A.M.H. Obregon-Barboza, and M.A. Prieto-Salazar. 2005. "Two New Fairy Shrimp of the Genus *Streptocephalus* (Branchiopoda: Anostraca) from North America." *Journal of Crustacean Biology* 25 (4):537-546.
- Maeda-Martinez, A.M., D.C. Rogers, and R.D. Worthington. 2005. "First Records of the Fairy Shrimp *Streptocephalus moorei* (Branchiopoda: Anostraca) from the United States." *Journal of Crustacean Biology* 25 (4):547-550.
- Martin, Jennifer L. 2005. "Burrowing Owl (*Athene cunicularia*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 222-223.
- Medellín, R. 2016. "*Leptonycteris yerbabuenae* (Lesser Long-nosed Bat)." *The IUCN Red List of Threatened Species*.e.T136659A21988965.
- Metcalf, Artie L., and R.A. Smartt. 1997. "Land Snails of New Mexico." *Bulletin of New Mexico Museum of Natural History and Science*, 10:1-145.
- Minckley, W. L., and P.C. Marsh. 2009. *Inland Fishes of the Greater Southwest - Chronicle of a Vanishing Biota*. Tucson, Arizona: University of Arizona Press.
- Morris, Gail M., Christopher Kline, and Scott Morris. 2015. "Status of *Danaus Plexippus* Population in Arizona." *Journal of the Lepidopterists' Society* 69 (2):1-17.
- Natural Resources Conservation Service. 2004. Black-tailed Prairie Dog (*Cynomys ludovicianus*). *Fish and Wildlife Habitat Managment Leaflet*. April.
- NatureServe. 2020. "NatureServe Explorer [web application] *Leptonycteris yerbabuenae* Lesser Long-nosed Bat." <https://explorer.natureserve.org/>. Arlington, Virginia.
- \_\_\_\_\_. 2021a. "NatureServe Explorer [web application] *Ashmunella bebardei* Hacheta Grande Woodlandsnail." <https://explorer.natureserve.org/>. Arlington, Virginia.
- \_\_\_\_\_. 2021b. "NatureServe Explorer [web application] *Ashmunella macromphala* Cook's Peak Woodlandsnail ". <https://explorer.natureserve.org/>. Arlington, Virginia.

- \_\_\_\_\_. 2021c. "NatureServe Explorer [web application] *Boechea zephyra* Wild Mountain Rockcress ". <https://explorer.natureserve.org/>. Arlington, Virginia.
- \_\_\_\_\_. 2021d. "NatureServe Explorer [web application] *Cynomys ludovicianus* Black-tailed Prairie Dog ". <https://explorer.natureserve.org/>. Arlington, Virginia.
- \_\_\_\_\_. 2021e. "NatureServe Explorer [web application] *Lepus callotis* White-sided Jackrabbit." <https://explorer.natureserve.org/>. Arlington, Virginia.
- \_\_\_\_\_. 2021f. "NatureServe Explorer [web application] *Steptocephalus moorei* Spinythumb Fairy Shrimp ". <https://explorer.natureserve.org/>. Arlington, Virginia.
- NatureServe, and T. J. Lyons. 2019. "*Pantosteus clarkii* (Desert Sucker)." *The IUCN Red List of Threatened Species* 2019:e.T62193A129656831.
- Nesom, G.L. 2018. "*Cirsium wrightii* (Asteracea) in the Texas Flora." *Phytoneuron*, 63:1-6.
- New Mexico Department of Game and Fish. 2018. Threatened and Endangered Species of New Mexico 2018 Biennial Review. Santa Fe, New Mexico: Wildlife Management and Fisheries Management Divisions. October 5, 2018.
- New Mexico Rare Plant Technical Council. 1999. New Mexico Rare Plants Home Page. *New Mexico Rare Plants*. Albuquerque, New Mexico: (Latest update: 21 May 2020).
- New Mexico Rare Plants Technical Council. 1998a. Duncan's Pincushion Cactus (*Escobaria duncanii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1998b. Dune Pricklypear, Sand Pricklypear, Sandbur Cactus (*Opuntia arenaria*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1998c. Night-Blooming Cereus (*Peniocereus greggii* var. *greggii*). *New Mexico Rare Plants List*. Albuquerque, New Mexico: New Mexico Rare Plant Technical Council.
- \_\_\_\_\_. 1999a. Alamo beardtongue (*Penstemon alamosensis*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1999b. Gray Sibara (*Sibara grisea*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1999c. Guadalupe Stickleaf (*Mentzelia humilis* var. *guadalupensis*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1999d. Gypsum Scalebroom, Burgess' Scale Broom (*Lepidospartum burgessii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1999e. Howard's Gyp Ringstem (*Anulocaulis leiosolenus* var. *howardii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.

- \_\_\_\_\_. 1999f. Nodding Cliff Daisy (*Perityle cernua*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 1999g. *Puccinellia parishii* (Parish's alkali grass). *New Mexico Rare Plants List*. Albuquerque, New Mexico: New Mexico Rare Plant Technical Council.
- \_\_\_\_\_. 2006. Villard's Pincushion Cactus (*Escobaria villardii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2007. Chapline's Columbine (*Aquilegia chaplinei*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2012. Guadalupe Mescal Bean (*Dermatophyllum guadalupense*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2014. Wilkinson's Nailwort (*Paronychia wilkinsonii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2015. Crow Flats Fan-Mustard (*Nerisyrenia hypercorax*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2016a. Mimbres Figwort (*Scrophularia macrantha*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2016b. Wind Mountain Rockcress (*Boechera zephyra*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- \_\_\_\_\_. 2017. Wright's Marsh Thistle (*Cirsium wrightii*). *New Mexico Rare Plants*. Albuquerque, New Mexico: New Mexico Rare Plants Technical Council.
- Ogonowski, Mark S. , and Courtney J. Conway. 2009. "Migratory Decisions in Birds: Extent of Genetic versus Environmental Control." *Oecologia* 2009 (161):199-207.
- Piaggio, Antoinette, Kirk W. Navo, and Craig W. Stihler. 2009. "Intraspecific Comparison of Population Structure, Genetic Diversity, and Dispersal Among Three Subspecies of Townsend's Big-Eared Bats, *Corynorhinus townsendii townsendii*, *C. t. pallescens*, and the Endangered *C. t. virginianus*." *Conservation Genetics* 10:143-159.
- Poulin, Ray L, Danielle Todd, E A Haug, B A Millsap, and M S Martell. 2011. "Burrowing Owl (*Athene cunicularia*), version 2.0." In *The Birds of North America Online*, edited by A. F. Poole. Ithaca, New York: The Cornell Lab of Ornithology.
- Rees, David E., and William J. Miller. 2005. Rio Grande Sucker (*Catostomus plebeius*): A Technical Conservation Assessment. *Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project*,. Fort Collins, Colorado: Miller Ecological Consultants, Inc., May 16.
- Richardson, Scott. 2007. Final 5-Year Review Summary and Evaluation for the Lesser Long-Nosed Bat. Phoenix, Arizona: U.S. Fish and Wildlife Service Arizona Ecological Services Field Office. 43 pp.



- Rogers, D.C. 2003. "Revisions of the Thamnocephalid genus *Phallocryptus* (Crustacea: Brachiopoda; Anostraca)." *Zootaxa*, 257:1-14.
- Roth, Daniela. 2019. Wright's Marsh Thistle (*Cirsium wrightii*) 2017-2019 Monitoring Report Blue Hole Cienega Nature Preserve Santa Rosa New Mexico. *Prepared for the U.S. Fish and Wildlife Service Region 2*. Santa Fe, New Mexico: NM Energy, Minerals, & Natural Resources Department.
- Sanchez-Escalante, J.J. 2018. *Cirsium*. Email to Bob Sivinski on the occurrence of *Cirsium wrightii* at Casa Grandes Mexico. October 16.
- Sartor, Karla, and Dave Gori. 2012. Chihuahua Scurfpea (*Pediomelum pentaphyllum*) Arizona and New Mexico Habitat Characterization. The Nature Conservancy in New Mexico. August 2012. 36 pp.
- Scudday, James F. 1973. "A New Species of Lizard of the *Cnemidophorus tesselatus* Group From Texas." *Journal of Herpetology*, 7 (4):363-371.
- Sherwin, Rick, and Antoinette Piaggio. 2005. "Townsend's Big-Eared Bat (*Corynorhinus townsendii*)."  
Western Bat Working Group. <http://wbwg.org/western-bat-species/>.
- Sivinski, R.C. 2012. *Cirsium wrightii*- Wright's Marsh Thistle: A 2021 Population Assessment. *Unpublished Report Prepared for EMNRD-Forestry Division RCS Southwest*. Santa Fe, New Mexico.
- Thompson, Fred G. 1974. "A Xeric Snail from New Mexico." *The Southwestern Naturalist*, 19 (1):53-56.
- U. S. Fish and Wildlife Service. 2020. Monarch (*Danaus plexippus*) Species Status Assessment Report, version 2.1. 96 pp + appendices.
- U.S. Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List Desert Massasauga as Endangered or Threatened and To Designate Critical Habitat. August 9, 2012. *Federal Register*, 77 47583-47587.
- \_\_\_\_\_. 2014. Endangered and Threatened Wildlife and Plants; 90-Day Findings on Two Petitions. *Federal Register*, 79 78775-78778.
- \_\_\_\_\_. 2015. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and a Distinct Population Segment of the Roundtail Chub; Proposed Rule. U.S. Department of the Interior. *Federal Register*, 80 (194):60754-60783.
- \_\_\_\_\_. 2016. Species Status Assessment for the Lesser Long-Nosed Bat (*Leptonycteris yerbabuenae*). Phoenix, Arizona: Arizona Ecological Services Office. December, 2016. 96 pp.
- \_\_\_\_\_. 2017. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and Roundtail Chub Distinct Population Segment: Proposed Rule; Withdrawal. U.S. Department of the Interior. *Federal Register*, 82 (66):16981-16988.

- \_\_\_\_\_. 2018a. Endangered and Threatened Wildlife and Plants; Removal of the Lesser Long-nosed Bat from the Federal List of Endangered and Threatened Wildlife; Final Rule. U.S. Fish and Wildlife Service. April 18, 2018. *Federal Register*, 83 (75):17093 - 17110.
- \_\_\_\_\_. 2018b. Species Status Assessment for the Lesser Long-Nosed Bat (*Leptonycteris yerbabuenae*). Phoenix, Arizona: Arizona Ecological Services Office. April 2018.
- \_\_\_\_\_. 2018c. Species Status Assessment Report for *Pediomelum pentaphyllum* (Chihuahua scurfpea). *Version 1.0*, New Mexico Ecological Services Field Office. Albuquerque, New Mexico. April 2018. 94 pp.
- U.S. Geological Survey. 2021. "Status and Breeding Ecology of the Arizona Grasshopper Sparrow."
- Vagvolgyi, J. 1974. "Eight New Ashmunellas from the Southwestern United States (Pulmonata: Polygyridae)." *Proc. Bio. Soc. Wash.* 87:139-166.
- Vickery, Peter D. 1996. "Grasshopper Sparrow (*Ammodramus savannarum*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020. "Grasshopper Sparrow (*Ammodramus savannarum*)." In *Birds of the World*, edited by A. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Webb, Elizabeth A., and Carl E. Bock. 2012. Botteri's Sparrow (*Peucaea botterii*). *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: The Cornell Lab of Ornithology.
- With, Kimberly A. 2010. McCown's Longspur (*Rhynchophanes mccownii*) version 2.0. *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.
- Woodman, N., J. Matson, and I. Castro-Arellano. 2016. *Sorex arizonae* (errata version published in 2017). *The IUCN Red List of Threatened Species 2016*. e.T20396A115158374.
- Zhan, Shuai, Wei Zhang, Kristjan Niitepõld, Jeremy Hsu, Juan Fernández Haeger, Myron P. Zalucki, Sonia Altizer, Jacobus C. de Roode, Steven M. Reppert, and Marcus R. Kronforst. 2014. "The Genetics of Monarch Butterfly Migration and Warning Colouration." *Nature* 514 (7522):317-321.



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## **APPENDIX G**

### **NMDGF Threatened and Endangered Species Potential to Occur Determinations**

Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
A M P H I B I A N S				
<i>Lithobates yavapaiensis</i>  Lowland leopard frog	Occur in a variety of perennial to near perennial waters in desert grasslands to pinyon juniper biotic communities (AGFD 2006). Inhabits large rivers, streams, canals, cienegas, cattle tanks or other aquatic features (Rorabaugh 2008). Can survive in semi-permanent aquatic systems by retreating into deep mud cracks, mammal burrows, or rock fissures, but large pools are required for adult survival and reproductive efforts (Bureau of Reclamation 2016).  Elevation: In Arizona, from 480–6,200 ft (AGFD 2006).	Historic range included Arizona, California, Nevada, New Mexico, U.S. and extreme northeastern Baja California, northern Sonora, and possibly northwestern Chihuahua, Mexico (AGFD 2006, Bureau of Reclamation 2016). Current range is restricted to southern Arizona and adjacent portions of Sonora (Bureau of Reclamation 2016).	Is thought to be extremely rare and likely extirpated in the state. A 1995 survey of 72 potential locations in the state, including six historical sites that had not been surveyed in the past 10 years, resulted in no observations. Populations are now believed to be extirpated or occurring in very low numbers (BISON-M 2019c).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area, and this species is likely extirpated from the state.
B I R D S				
<i>Melospiza aberti</i>  Abert’s towhee	Occupies riparian areas with cottonwood-willow woodlands, mesquite bosque, marshes and mixed exotic-native vegetation within the lower Sonoran life zone. Prefers a dense understory (Tweit and Finch 1994). Most abundant in low-elevation riparian vegetation with cottonwood, willows and mesquite or dry washes with dense thickets. Additionally, utilizes areas with dense stands of tamarisk, patches of dense shrubs along irrigation ditches or run-off retention ponds in agricultural areas and densely vegetated suburban areas (Corman 2005a). Occurs in the same habitat year-round (Tweit and Finch 1994). In its New Mexico range, this species uses thickets of seepwillow and other riparian habitats.  Elevation: In Arizona and neighboring states, generally below 4,300 ft (Corman 2005a).	Non-migratory. The core of their range is in Arizona, but also extends into adjacent portions of southeastern California, southwestern New Mexico, southeastern Nevada, and extreme southwestern Utah, U.S. Additionally, there are populations just south of the international border in Baja California and Sonora, Mexico (Corman 2005a, Tweit and Finch 1994).	Found along portions of the Gila River from the Arizona border to Mogollon Creek in Grant County, and at the San Simon Cienega in Hidalgo County where suitable habitat exists (BISON-M 2018a, Tweit and Finch 2020).	<b>Unlikely.</b>  There are citizen scientist sightings of this species in nearby Tyrone (eBird 2021). However, the species is rarely detected in the general vicinity and the Project Area does not contain suitable riparian habitat. This species may occur i as a vagrant.

Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Haliaeetus leucocephalus</i>  Bald eagle	<p>Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020).</p> <p>Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).</p>	<p>Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).</p>	<p>Are present casually to occasionally in summer, but they migrate and winter almost statewide, although there is limited breeding in the state (Buehler 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the range of this species and there are citizen scientists’ sightings of bald eagles within ten miles of the site (eBird 2021). However, the site does not contain large bodies of water associated with this species. While it is possible that a bald eagle may fly over the site while foraging, given the absence of preferred habitat, it is unlikely that this species will occur.</p>
<i>Centronyx bairdii</i> [recently changed from <i>Ammodramus bairdii</i> ]  Baird’s sparrow	<p>Utilizes prairie habitats. Winters in areas of dense and expansive grasslands, with only a minor shrub component (Green et al. 2020). In southern New Mexico, this species prefers areas with denser grass cover than surrounding areas (BISON-M 2019a).</p> <p>Elevation: 3,900-6,570 ft (BISON-M 2019a).</p>	<p>Nests in the Dakotas, Montana, and Minnesota, as well as the Canadian provinces of Alberta, Manitoba, and Saskatchewan. Winters primarily in northern Mexico, although some may be found in southern Texas, New Mexico, and Arizona (BISON-M 2019a, Green et al. 2020).</p>	<p>Species migrates in the eastern and extreme southern areas of the state, where it is considered rare to uncommon (BISON-M 2019a, Green et al. 2020).</p>	<p><b>None.</b></p> <p>The Project Area lack of suitable habitat, this species is considered rare to uncommon in the state, and has only been detected irregularly in southwestern New Mexico (eBird 2021).</p>

## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Vireo bellii</i>  Bell's vireo	<p>Breeds in a wide variety of dense shrubby habitats, often near water, particularly in arid environments, including riparian scrub along drainages, successional riparian vegetation, brushy fields, mesquite brushlands, chaparral and young forests and woodlands (Kus et al. 2020). In New Mexico, they characteristically occurs near riparian habitat and dense shrubland or woodland along lowland stream courses (Kus et al. 2020). In the southeast and southwest parts of the state, most nests occur in willow, seepwillow, or hackberry (Kus et al. 2020)</p> <p>Elevation: In Arizona, breeds 120–5,120 ft (Averill-Murray and Corman 2005).</p>	<p>A neotropical migrant (Kus et al. 2020). Breeds throughout the central and southwestern U.S. including Arizona, Arkansas, California, Colorado, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Utah, Wisconsin, and Wyoming. Additionally, breeds in northern Mexico in Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, and Zacatecas. The wintering range is less well known but includes Baja California Sur and south along the Pacific Slope from Sonora through Oaxaca, El Salvador, Honduras and Nicaragua (Kus et al. 2020). There are scattered winter records throughout the southern U.S. portion of the breeding range and in Florida (Kus et al. 2020).</p>	<p>Considered a common and widespread summer resident in southern parts of the state (Bailey 1928b, Hubbard 1978c). They are known populations in the lower Gila Box, San Simon Cienega, and Guadalupe Canyon.</p>	<p><b>None.</b></p> <p>Lack of suitable foraging or nesting habitat within the Project Area, and the Project Area is above the elevation preferred by this species. There are no citizen scientist records of this species from the vicinity of the Project Area (eBird 2021).</p>
<i>Cynanthus latirostris</i>  Broad-billed hummingbird	<p>Utilizes a wide variety of habitats across its range including riparian forest, thorn forest, tropical deciduous forest, pine-oak forest and successional or disturbed habitats (Powers and Wethington 2020). In New Mexico, occurs along drainages with riparian habitat (Powers and Wethington 2020). Additionally, uses densely vegetated washes with mesquite, netleaf hackberry, juniper or oaks, parks and residential areas (Corman 2005b). There is no information on habitat use during migration. Winters in habitats outside of the U.S. (Powers and Wethington 1999).</p> <p>Elevation: Range-wide 490–9,840 ft (Powers and Wethington 2020). In Guadeloupe Canyon, New Mexico, breeds at approximately 4,480 ft (Powers and Wethington 2020).</p>	<p>A partial migrant, with the northern most populations withdrawing southward (Powers and Wethington 1999). Breeds in southeastern Arizona, extreme southwestern New Mexico and rarely in southwestern Texas, U.S. Range extends southward into Mexico in eastern Sonora, western Chihuahua, Sinaloa, extreme western Durango, Nayarit, west Zacatecas, Aguascalientes, Jalisco, Guanajuato, Querétaro, Hidalgo, Colima, Michoacán, México D. F., northern Guerrero, northern Puebla, extreme western Vera Cruz, Oaxaca, extreme southwestern Chiapas, San Luis Potosí, extreme western Tamaulipas, and extreme southern Nuevo León (Powers and Wethington 1999). During the winter, most individuals leave the U.S., northern Sonora and Nuevo León (Corman 2005b, Powers and Wethington 1999).</p>	<p>Dependent on riparian habitat in extreme southwest portion of the state in the Peloncillo and Guadeloupe Mountains in Hidalgo County (Powers and Wethington 1999). Have also been vagrant sightings of this species in Hidalgo, Doña Ana, and Sierra counties (BISON-M 2020a).</p>	<p><b>Unlikely.</b></p> <p>The Project Area does not contain the suitable forested habitat and is outside of the known breeding distribution. However, has been detected in the vicinity of the Project Area, although very rarely (eBird 2021).</p>

## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Antrostomus</i> [=<i>Caprimulgus</i>] <i>ridgwayi</i></p> <p>Buff-collared nightjar</p>	<p>Prefers arid and densely vegetated areas and is often found in ravines, washes or rocky canyons (Bowers and Dunning 1997). Buff-collared nightjars do not build nests and instead lay eggs directly on the ground (Bowers and Dunning 1997). There is no information about habitat use during migration and this species winters in habitats outside of the U.S. (Bowers and Dunning 1997).</p> <p>Elevation: Across range, has been detected from sea-level to 7,870 ft (Bowers and Dunning 2020).</p>	<p>Migratory behavior of this species is poorly understood, but it is a suspected partial migrant with the northern most populations likely migratory (Bowers and Dunning 1997). Breeding range includes southeastern Arizona and extreme southwestern New Mexico, U.S. Breeding range extends southward into Mexico through eastern Sonora, western Chihuahua, Sinaloa, western Durango, south on the Pacific Slope to Oaxaca, northern Guerrero, Morelos, central Chiapas, and central Vera Cruz. Additional breeding populations occur in central Guatemala, west-central Honduras, and possibly central Nicaragua. Winter range is similar to the breeding range except the northern most populations withdraw from the US, north and central Sonora, Chihuahua and Durango (Bowers and Dunning 1997).</p>	<p>Detected in extreme southwestern portion of the state in of Hidalgo and Doña Ana counties (BISON-M 2017c).</p>	<p><b>None.</b></p> <p>The Project Area is outside of the known distribution of this species and there have been no citizen scientist records of this species in the vicinity (eBird 2021).</p>
<p><i>Buteogallus</i> <i>anthracinus</i></p> <p>Common black hawk</p>	<p>Is associated with swamps, marshes, flooded forests, coastal plains, mangroves, and riparian areas with perennial water. In the southwestern U.S. they are an obligate riparian species (Schnell 2020). In Arizona, this species occurs along perennial and intermittent streams with perennial pools in drainages with sycamores, Arizona alder, Fremont cottonwood, Arizona cypress, Arizona walnut, Goodding's willow, velvet ash, velvet mesquite or tamarisk. Hunts for arthropods and small vertebrates including fish, frogs, snakes, and lizards from streamside perches. High branches, rock ledges, sandbars or streamside rocks are used as foraging perches (Schnell 2020). U.S. populations are migratory and winter in Mexico or further south (Schnell 2020). Migratory habitat is insufficiently known, but this species is generally believed to follow riparian corridors (Sadoti 2010).</p> <p>Elevation: In Arizona, 1,800–7,000 ft (Averill-Murray and Corman 2005).</p>	<p>A partial migrant. Migratory breeding populations in extreme southern Utah and Nevada, Arizona, New Mexico and western Texas in the U.S. and eastern Sonora, western Chihuahua, western Durango, and eastern Nayarit. Resident from Sinaloa and Tamaulipas and south, primarily along the coasts to Ecuador, Columbia, and Venezuela in northern South America. Occasional individuals have been reported overwintering in southern Arizona (Schnell 2020).</p>	<p>Found along the Gila, San Francisco, and Mimbres rivers in the southwest quadrant of the state, as well as along the Rio Hondo in the southeast. It occasionally nests along the Rio Grande as far north as Albuquerque, and in the Canadian River and Upper Pecos drainages. (AGFD 2013a, Averill-Murray and Corman 2005).</p>	<p><b>Unlikely.</b></p> <p>While there is no suitable habitat in the Project Area, there have been citizen scientist detections of this species within 10 miles of the Project Area (eBird 2021). As there are ephemeral water features in the Project Area, it is possible that this species may fly over the site while foraging or migrating, although this is very unlikely.</p>

Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Columbina passerine</i>  Common ground dove	Inhabit arid, open woodlands in the early stages of forest development, including pine woods, hammocks, lake shores, forest edges, coastal dunes, mesquite flats, river bottom woodlands, deserts, desert scrublands, oak scrublands, and savannas (Bowman 2020). Also found in human landscapes, especially irrigated farm fields and residential neighborhoods.  Elevation: 1,000 to 6,000 ft in New Mexico (BISON-M 2017d).	Ranges from southern California to southern Florida, with populations occurring through Central and South America. Normally resident throughout breeding range, but vagrants north of range not uncommon. May move from interior to coastal areas; comparison of breeding and winter distributions suggest some movement southward from northern portions of range, but most movement into existing breeding areas (Bowman 2020).	Formerly was most regularly found in the southern part of the state at Las Cruces in the Rio Grande drainage and near Carlsbad (BISON-M 2017d).	<b>Unlikely.</b>  There is potentially suitable habitat in the Project Area but there are no eBird records in the vicinity (eBird 2021).
<i>Calypte costae</i>  Costa’s hummingbird	Breeds in Sonoran and Mojave desertscrub, coastal scrub, chaparral and tropical deciduous forest (Baltosser and Scott 1996). In Arizona, this hummingbird occurs in upland desertscrub, desert washes and in riparian vegetation associated with springs or intermittent streams (Corman 2005c). During migration, this species uses xeric habitats but also is known to travel along drainages, which may be more mesic than habitats used during breeding (Baltosser and Scott 1996). Arizona populations may travel westward to summer in chaparral and costal scrub of California and Baja California (Baltosser and Scott 1996).  Elevation: In Arizona, typically 100–4,700 ft, but occasionally up to 7,800 ft (Corman 2005c).	A partial migrant (Baltosser and Scott 1996). Migratory breeding populations occur in east-central California, southern Nevada, Arizona and extreme southwestern New Mexico and Sonora, Mexico. Resident breeding populations occur in southern California, southwestern Arizona and in Baja California, Baja California Sur and northwestern Sonora, Mexico. Wintering populations occur in southern Sonora, Sinaloa and Nayarit (Baltosser and Scott 1996).	Uncommon and sporadic breeder in the southwest and south-central mountains, and is most commonly found in Guadalupe Canyon and in side canyons along the lower Gila River from Cliff south (BISON-M 2017e).	<b>Unlikely.</b>  There is marginally suitable habitat of ephemeral washed in the Project Area, and there have been citizen scientist detections of this species within 10 miles of the site (eBird 2021). It is possible that this species may fly over the site while foraging or migrating.

Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Trogon elegans</i>  Elegant trogon	<p>Most common tropical deciduous forest (Williams 2011) but uses a wide variety of habitats including semi-arid pine-oak woodland, xeroriparian areas in thornscrub, thorn forest, pine and pine-oak forests, riparian woodlands, montane rainforest and plantations (Kunzmann, Hall, and Johnson 1998). Habitat use in New Mexico is poorly known, but in Arizona, this species breeds in canyons with large sycamores and Madrean pine-oak woodlands and, less frequently, in lower elevation canyons with sycamores and adjacent slopes with scattered oaks, pinyon pine or juniper (Corman 2005d). There is no information on migration habitat (Kunzmann, Hall, and Johnson 1998, Williams 2011).</p> <p>Elevation: Range not well known in New Mexico. In Arizona, typically 3,400–6,800 ft (AGFD 2014) but have been observed above 7,000 ft (Corman 2005d).</p>	<p>A partial migrant, with only the northern most populations withdrawing southward (Kunzmann, Hall, and Johnson 1998, Williams 2011). Breeds from southeastern Arizona and southwestern New Mexico, U.S. south through Mexico from Sonora and Chihuahua along the Pacific Slope and from Tamaulipas and Nuevo León to southern Oaxaca. Additionally, occurs in southeastern Guatemala, El Salvador, western Honduras, Nicaragua and northwestern Costa Rica (Kunzmann, Hall, and Johnson 1998). During the winter, U.S. and northern Sonora populations withdraw southwards (Williams 2011).</p>	<p>Scattered records in Guadalupe Canyon and is also described as rare in the Peloncillo and Animas mountains (BISON-M 2017f, Kunzmann et al. 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is outside of the known current distribution of this species, although there is one historical record of this species from 1986 in the Big Burro Mountains (eBird 2021). Given the rarity of this species in the state, it is unlikely this species will occur in the site.</p>
<i>Melanerpes uropygialis</i>  Gila woodpecker	<p>Occurs in desert areas with large cacti or trees, dry subtropical forests, riparian woodlands and residential areas (Edwards and Schnell 2000). In Arizona, this species is most common in upland areas of Sonoran Desert with abundant saguaros, paloverde, mesquite, and ironwood. Is present, but less common in low desert areas and washes where there are few to no saguaros. Commonly nests in riparian woodlands with Fremont cottonwood, Goodding’s willow, mesquite, or sycamores. Generally tolerant of some types of human activities and utilizes residential and rural areas (Bradley 2005). They utilize similar habitat throughout the year (Edwards and Schnell 2000).</p> <p>Elevation: In Arizona, 150–4,800 ft (Bradley 2005). In New Mexico, 3,000-5,000 ft (BISON-M 2018d).</p>	<p>Non-migratory, although short-distance local movements may occur (Edwards and Schnell 2000). Found in Arizona, California, Nevada and New Mexico, U.S. and the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Durango, Jalisco, Nayarit, Sinaloa, Sonora and Zacatecas (Edwards and Schnell 2000).</p>	<p>Present only in extreme southwest part of the state, in Grant and west Hidalgo counties (Edwards and Schnell 2000). Primarily found in the lower Gila Valley in both Grant and Hidalgo counties, Guadalupe Canyon, San Simon Cienega, drainages of the Animas and Peloncillo Mountains, and Bitter Creek in western Grant County (BISON-M 2018d, Edwards and Schnell 2000).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the known geographic range, and there are eBird records in the vicinity near Silver City (eBird 2021). However, there is no suitable desert habitat in the site.</p>



## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Vireo vicinior</i></p> <p>Gray vireo</p>	<p>Preferred breeding habitat includes pinyon pine-juniper woodlands, oak scrub and chaparral in arid mountain ranges and high plains (Barlow, Leckie, and Baril 2020). In Arizona and New Mexico, occurs in chaparral-juniper and dwarf conifer forests, as well as sites with Graves oak (<i>Quercus gravesii</i>), mixed piñon, and madrone (<i>Arbutus</i> spp.; (Barlow, Leckie, and Baril 2020). Occasionally occurs in chaparral dominated slopes and Madrean evergreen oak woodlands with only scattered pinyon pine or junipers (Corman 2005e). Habitat used during migration is likely similar to the breeding and wintering habitats. In Arizona, wintering habitat includes lowland Sonoran desertscrub and rocky canyons in desert mountains. Elsewhere in the wintering range this species uses Chihuahuan desertscrub and lowland riparian areas with willow and cottonwood near springs or intermittent streams (Barlow, Leckie, and Baril 2020).</p> <p>Elevation: Typically breeds 3,500–6,800 ft (Corman 2005e), winters much lower (Barlow, Leckie, and Baril 2020).</p>	<p>A short-distance migrant (Barlow, Leckie, and Baril 2020). Breeds from central and southern Utah and western Colorado, south to southern Nevada, Arizona, and New Mexico, U.S. Isolated populations also breed in southern California, Baja California, western Texas, U.S. and in Mexico in northwestern Coahuila and possibly north-central Durango. Wintering range is poorly known, but this species has been reported from south-central Arizona, western Sonora, Baja California Sur and western Texas (Barlow, Leckie, and Baril 2020).</p>	<p>Rare summer residents of the Gila National Forest and only in the state during the warmer months. Has been recorded in central and western counties east to Pecos, western San Miguel County, and Gran Quivara National Monument, eastern Socorro County, the Silver City area, the foothills of the Magdalena, Manzanita, and Sandia mountains and in the southeast in the Guadalupe Mountains and in eastern Otero County (BISON-M 2017h).</p>	<p>Unlikely.</p> <p>The Project Area is within the known distribution of this species, has potentially suitable woodland habitat, and there are eBird records within the immediate vicinity (eBird 2021). However, this species is rarely detected in New Mexico, and thus it is unlikely to occur in the Project Area.</p>
<p><i>Calothorax lucifer</i></p> <p>Lucifer hummingbird</p>	<p>Range-wide, this species primarily occurs in arid habitats including desertscrub, densely vegetated dry washes, lava fields, volcanic hills, rocky slopes but occasionally uses deciduous riparian woodland (Scott 1994). Little is known about habitat use in New Mexico. There is no information on migratory habitat and this species winters outside of the U.S. (Scott 1994). However, individuals have been reported from feeding stations in drainages dominated by sycamores, Madrean evergreen oak woodlands or pine-oak forest during the presumably post-breeding period (Corman 2005f).</p> <p>Elevation: Range-wide 2,625–7,220 ft (Scott 1994).</p>	<p>Migratory behavior is poorly understood, but this species is likely primarily migratory (Scott 1994). There are sparse breeding populations in southeastern Arizona, extreme southwestern New Mexico and the Big Bend region of Texas, U.S. The breeding range extends along the Sierra Madre Occidental and Oriental in northeastern Sonora, Chihuahua, Durango, Coahuila and Nuevo Leon to the Central Plateau and possibly as far south as Puebla (Scott 1994). Winters in central and southwestern Mexico in Jalisco, Guanajuato, Querétaro, Guerrero, Oaxaca, Colima, Michoacán and Morelos (Scott 1994).</p>	<p>A rare breeder and sparse visitor to the mountain ranges in the southwestern portion of the state including Post Office Canyon in the Peloncillo Mountains. Has also been recorded in the Peloncillos at Clanton Canyon and Skeleton Canyon (BISON-M 2018e).</p>	<p>Unlikely.</p> <p>While the Project Area may contain some marginally suitable woodland habitat, it is a rare vagrant to New Mexico, and has only been detected in the vicinity of the Project Area twice in the past 35 years, both times in Silver City (eBird 2021). Given the rarity of this species in New Mexico, it is unlikely to occur in the site.</p>

Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Anaxyrus microscaphus</i>  Brown pelican	<p>Primarily warm coastal marine and estuarine environments year-round. Generally rare inland, but regular post-breeding visitor to inland waters in the southwestern U.S. (Shields 2020) Very little is known about the habitat use of this species in New Mexico.</p> <p>Elevation: Unknown for New Mexico.</p>	<p>Pacific coast from southern California south to central Mexico (including Gulf of California), Honduras, Costa Rica, Panama, Galápagos Islands, Colombia, and southern Ecuador. On the Atlantic, this species is found in the Gulf of Mexico, and Caribbean coasts from Maryland south around Florida and west to southern Texas; from southern Veracruz, Mexico, east to northern Honduras. Also found in the Bahamas, Greater and Lesser Antilles, Trinidad and Tobago, Venezuela, and Colombia. Also inland at Lake Okeechobee, Florida and Salton Sea, California (Shields 2020)</p>	<p>Rare post-breeding vagrant to water bodies across the state (BISON-M 2017b).</p>	<p><b>None.</b></p> <p>There is no suitable inland water habitat in the Project Area.</p>
<i>Phalacrocorax brasilianus</i>  Neotropic cormorant	<p>Inhabits a wide variety of wetlands in fresh, brackish, or saltwater. In coastal areas, this species remains close to the shore in sheltered bays, inlets, estuaries, lagoons, rock outcrops, and islands. Inland, occupies broad slow-flowing rivers, mountain streams, lakes, marshes, swamps, and reservoirs. Habitat requirements include water deep enough for diving and elevated perches in trees and shrubs (Telfair II and Morrison 2020)</p> <p>Elevation: across range, found from sea-level to 16,400 ft in the Andes (Telfair II and Morrison 2020).</p>	<p>Breeding resident throughout lowland South America and Aruba. Largely resident in Central America to northwestern Mexico, and north to Gulf Coast of United States from Texas to Louisiana, with inland breeding colonies established in Louisiana, Mississippi Delta, southern Florida, southwestern Arkansas, southeastern and north-central Oklahoma, central Kansas, eastern South Dakota, southern New Mexico, south-central Arizona, and southern, eastern, north-central, and western Texas (Telfair II and Morrison 2020). Nonbreeding range is similar to breeding range (Telfair II and Morrison 2020)</p>	<p>Found throughout the state in areas with suitably large bodies of water (BISON-M 2018f).</p>	<p><b>None.</b></p> <p>The Project Area does not contain suitable foraging or breeding habitat of large water bodies.</p>
<i>Falco femoralis septentrionalis</i>  Northern aplomado falcon	<p>Within the U.S., this species uses coastal prairies, desert grasslands, oak woodlands and riparian gallery forest (Keddy-Hector, Pyle, and Pattern 2017). Historically occurred in relatively flat and open habitats (USFWS 2014b). Builds nests in large trees, cliffs, utility poles, artificial platforms or on the ground when elevated nest sites are not available (Keddy-Hector, Pyle, and Pattern 2017). Is expected to use similar habitat year-round (Keddy-Hector, Pyle, and Pattern 2017).</p> <p>Elevation: In southwestern U.S., most common from 3,300–4,900 ft (AGFD 2001c).</p>	<p>Mostly non-migratory, although local nomadic movement may occur (Keddy-Hector, Pyle, and Pattern 2017). The <i>septentrionalis</i> subspecies occurs in New Mexico and Texas, U.S. and the Mexican states of Chihuahua, northwestern Chiapas, western Campeche, Oaxaca, San Luis Potosi, Tabasco, and Vera Cruz (USFWS 2014b). Before reintroductions in Texas, the last known breeding of this species in the U.S. occurred in New Mexico in 1952. Current populations are primarily in Mexico, with isolated populations in southern Texas and from northern Chihuahua to southern New Mexico.</p>	<p>Occasional in the southern portion of the state; rare and local, mainly in grassland-shrubland areas at lower elevations (BISON-M 2017a).</p>	<p><b>None.</b></p> <p>The Project Area contains marginally suitable habitat of oak woodlands but is at a higher elevation range. This species is considered very rare in New Mexico and there have been no recent sightings of this species (detections occurred over 20 years ago) (eBird 2021).</p>

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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Camptostoma imberbe</i>  Northern beardless tyrannulet	<p>Occurs in arid to semi-humid brushy areas, thickets and forest edges, commonly along streams and dry washes (Tenney 2000). In New Mexico, irregular and uncommon in lowland riparian woodland and adjacent scrub (Tenney 2000). Also uses mesquite bosque and intermittent foothill drainages or dry washes with mesquite and netleaf hackberry (Corman 2005g). Migration habitat use is poorly known but has been reported in areas with desertscrub. Wintering habitat is similar to breeding habitat and includes lowland riparian woodland and adjacent habitats, chaparral and mesquite (Tenney 2000).</p> <p>Elevation: Poorly known for New Mexico. In Arizona, breeds 1,920–4,600 ft (Corman 2005g).</p>	<p>A partial migrant, with northern-most populations being short-distance migrants (Tenney 2000). Breeds locally in southcentral and southeastern Arizona, extreme southwestern New Mexico and in south Texas along the Rio Grande Valley. Range extends southward from U.S. populations through Mexico to Guatemala, although is absent from western Sonora, northwestern Sinaloa, the north Central Plateau, and the highlands of southeastern Chiapas. Also occurs in El Salvador, Honduras, Nicaragua and Costa Rica (Tenney 2000). Winter range is the same as the breeding range with only a portion of the populations in the northern-most extent of the range withdrawing (Tenney 2000).</p>	<p>Breeds irregularly in Guadalupe Canyon in extreme southwest Hidalgo County. Occasionally may occur in the Animas Mountains and north into southern Grant County (BISON-M 2017i)</p>	<p><b>None.</b></p> <p>The Project Area is outside of the known geographic range and is an irregular and rare visitor to the state.</p>
<i>Falco peregrinus anatum</i>  American peregrine falcon	<p>Breeds in a wide range of open habitats (White et al. 2002). Prefer steep cliffs that overlook woodlands and riparian areas. Habitat selection is mainly driven by the abundance of prey (birds and occasionally bats). They dive from cliffs to ambush prey. Usually forages within 9 miles of the nest site, but foraging distances of 15 miles are common (Luensmann 2010). Can be found in less optimal habitats, such as small, broken cliffs or cliffs in xeric areas, when preferred habitat is not available. Will roost on tall buildings when prey is abundant (AGFD 2002a). In Arizona, this species is most often found in forested regions from pinyon pine-juniper and evergreen oaks to ponderosa pine and mixed conifer, to cold-temperate desertscrub and Sonoran desertscrub (AGFD 2002a, Burger 2005). Migratory and overwintering habitats are diverse and include similar habitats to those used during breeding and areas devoid of cliffs (White et al. 2002).</p> <p>Elevation: In Arizona, 400–9,000 ft (AGFD 2002a).</p>	<p><i>F. peregrinus</i> occurs on every continent except Antarctica (White et al. 2002). The <i>anatum</i> subspecies is a partial migrant and breeds throughout North America south of the tundra, excluding coastal Pacific Northwest, to northern Mexico (White et al. 2002). Winter range includes portions of the breeding range where prey is abundant year-round and extends south through Central America and South America through Chile (AGFD 2002a, White et al. 2002).</p>	<p>They pPass through the state during migration from March-May and there are isolated breeding records throughout the state (White et al. 2002).</p>	<p><b>Possible.</b></p> <p>While there is no the cliff habitat for nesting on the site, there are recent detections of peregrine falcons from in the vicinity of the Project Area (eBird 2021). It is possible that this species could pass through the site while foraging.</p>

## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Empidonax traillii</i> <i>extimus</i></p> <p>Southwestern willow flycatcher</p>	<p>Breeds in successional stands of dense riparian vegetation composed of trees and shrubs along rivers or lakes (AGFD 2002b, USFWS 2013a). Migrates along riparian habitats, including those with shorter or more sparse vegetation or smaller patches than would be suitable for nesting (USFWS 2013a). They are a long-distance neotropical migrant and winters in habitats outside of the U.S. (Sedgwick 2020).</p> <p>Elevation: In Arizona, 75–9,180 ft (AGFD 2002b).</p>	<p>They are a long-distance neotropical migrant (Sedgwick 2020). Breeds in Arizona, California, Colorado, New Mexico, Nevada, Texas and Utah, U.S. Winters in southern Mexico and south to northern South America (USFWS Sedgwick 2020, 2013a).</p>	<p>Populations occur along the Rio Grande and Gila River drainages, with much smaller populations at isolated locales in the San Juan, upper Canadian, Zuni, San Francisco, Mimbres, and Pecos river drainages (NMDGF 2018). Historical breeding records are also known from the Canadian, Chama, San Francisco, San Juan, and Zuni River drainages. Species occurs widely throughout the state during migration (BISON-M 2018i).</p>	<p><b>None.</b></p> <p>There is no suitable riparian habitat with dense riparian vegetation in the Project Area and there are no eBird detection records are limited to perennial waterways with tracts of riparian vegetation in New Mexico (eBird 2021).</p> <p>There is no designated critical habitat in the Project Area.</p>
<p><i>Tyrannus crassirostris</i></p> <p>Thick-billed kingbird</p>	<p>Prefers low elevation gallery forest and edge habitats in tropical deciduous forest. The gallery forest may be surrounded by subtropical thorn scrub, desertscrub or oak woodland (Lowther, Pyle, and Patten 2020). Habitat use in New Mexico is poorly understood, but in Arizona, breeds in broad drainages at the edges of riparian woodland with large sycamores or cottonwoods. Also uses areas with tall cottonwoods around manmade ponds. Frequently forages in adjacent brushy areas (Corman 2005h) including oak-pine woodland or mesquite grassland (AGFD 2010). Winters in habitats outside of the U.S. Migratory habitat is unknown but is expected to be similar to that used for breeding (Lowther, Pyle, and Patten 2020).</p> <p>Elevation: Range-wide, occurs below 6,070 ft (Lowther, Pyle, and Patten 2020).</p>	<p>A partial migrant with only the northernmost populations withdrawing southward (Lowther, Pyle, and Patten 2020). Breeds from southeastern Arizona and extreme southwestern New Mexico, U.S. and south along the Pacific Slope of Mexico from eastern Sonora and western Chihuahua to Guerrero, México D.F., Morelos, southern Puebla, and central Oaxaca. Winters from southeastern Sonora, through the remainder of the breeding range to southwestern Chiapas. Rarely found as far south as Guatemala (Lowther, Pyle, and Patten 2020).</p>	<p>Occurs in Hidalgo County in extreme southwestern New Mexico, including Antelope Wells and the foothills of the Animas Mountains (BISON-M 2017l, Lowther, Pyle, and Patten 2020).</p>	<p><b>None.</b></p> <p>There is no suitable tropical forest habitat in the Project Area and this species an uncommon visitor to the state.</p>

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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Hylocharis leucotis</i></p> <p>White-eared hummingbird</p>	<p>Breeds in pine, pine-oak and mixed conifer forests particularly in edge habitats or clearings (Arizmendi et al. 2015). In Arizona, this species occurs in forested mountain canyons and in shrubby, previously burned or otherwise disturbed areas. These habitats may include broadleaf or coniferous trees such as Arizona sycamore, bigtooth maple, Gambel's or Madrean evergreen oak, pines, Douglas Fir or locust (Corman 2005j). Arizona populations winter in habitats outside of the U.S. (Arizmendi et al. 2015).</p> <p>Elevation: In Arizona, 4,900–8,400 ft (Corman 2005j). In New Mexico, 5,000-7,000 ft (BISON-M 2020b).</p>	<p>Is a partial migrant, with the northern most populations withdrawing southward (Arizmendi et al. 2015). Breeds from southeastern Arizona, U.S. and southward through highlands of Mexico, Guatemala, El Salvador, Honduras and Nicaragua (Arizmendi et al. 2015, Corman 2005j). May also breed in portions of New Mexico and Texas (Arizmendi et al. 2015). During the winter, this species withdraws from the U.S. and Sonora, Chihuahua and Nuevo León, Mexico (Arizmendi et al. 2015).</p>	<p>Verified only as migrants in the state and was found summering in the Animas Mountains in the mid-1970s. Subsequently, it was reported from two sites in the Peloncillo Mountains. In 1993, at least four individuals were at two sites in the Piños Altos Mountains, and individuals were reported from two sites in the Sangre de Cristo Mountains (BISON-M 2020b, eBird 2021).</p>	<p><b>Unlikely.</b></p> <p>There is some potentially suitable forested habitat in the Project Area, it was detected in the Piños Altos Mountains. However, these detections occurred in the early 1990's (eBird 2021). Given the rarity in the state, it is highly unlikely to occur in the site.</p>
<p><i>Passerina versicolor</i></p> <p>Varied bunting</p>	<p>Range-wide, they breed in densely vegetated areas with desertscrub, thornscrub, scrubby woodlands, forest edges, and overgrown clearings (Groschupf and Thompson 2020). Habitat use in New Mexico is poorly described. However, in Arizona, most breeding records are from arid slopes adjacent to drainages with mesquite and netleaf hackberry and from areas with dense Sonoran desertscrub (Corman 2005i). During migration habitat use is similar to that used for breeding (Groschupf and Thompson 2020). They winter in habitats outside of the U.S. (Groschupf and Thompson 2020).</p> <p>Elevation: In Arizona, breeds between 1,350–5,100 ft (Corman 2005i). In New Mexico, 3,000-5,000 ft (BISON-M 2017m).</p>	<p>Is a partial migrant (Groschupf and Thompson 2020). Breeding range includes south-central and southeastern Arizona, southern New Mexico and southern Texas, U.S. The range extends southward to northern Michoacán, Mexico and locally in Guatemala. During the winter, northern populations withdraw southward and this species can be found in Mexico from southern Sonora on the Pacific Slope, Guanajuato in the interior and northern Tamaulipas and eastern Nuevo León on the Atlantic Slope and southward through the breeding range (Groschupf and Thompson 2020). There is some evidence that they may be expanding northward into Arizona and New Mexico (Groschupf and Thompson 2020).</p>	<p>Occurs in southern part of the state near the Carlsbad Caverns in Hidalgo County and the Guadalupe Mountains. Vagrants have also been detected in west-central portions of the state (BISON-M 2017m, Groschupf and Thompson 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is outside of the known geographic range, the site may contain marginally suitable woodland habitat. However, there are some eBird records in the vicinity (eBird 2021) and there is evidence that the species is expanding its range northward.</p>
<p><i>Junco phaeonotus</i></p> <p>Yellow-eyed junco</p>	<p>Utilizes open conifer forest, ponderosa pine forest, pine-oak forests, scrubby or brushy areas, pastures or other fields During the winter, may move to lower elevations sites with oak-pine woodland, oak-woodland or chaparral (Corman 2005k).</p> <p>Elevation: Range-wide, occurs between 3,940–11,480 ft (Sullivan 2018).</p>	<p>Typically non-migratory (Sullivan 2018). The range extends from southeastern Arizona and extreme southwestern New Mexico, U.S. and southward into Mexico. In Mexico, this species in a two-pronged distribution from northeastern Sonora and western Chihuahua, and western Nuevo León and southwestern Tamaulipas, south to central Oaxaca. Also found in Chiapas, and adjacent southwestern Guatemala (Sullivan 2018).</p>	<p>Fairly common in southwestern part of the state in the Animas Mountains of Hidalgo County (Sullivan 2018). There have also been some detections of this species in the Big Hatchet Mountains of Hidalgo County and the Piños Altos Mountains in Grant County (BISON-M 2018j, Sullivan 2018).</p>	<p><b>Possible.</b></p> <p>The Project Area has suitable forest habitat and there are eBird records in the vicinity (eBird 2021).</p>



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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
F I S H				
<i>Gila nigrescens</i>  Chihuahua chub	Requires perennial water and prefers habitat with pools and undercut bank habitat (USFWS 1983). In streams, they are found mainly in lateral-scour pools where flow is against or along undercut banks and pools around channel obstructions such as boulders and root wads (Propst and Stefferud 1994).  Elevation: There are few records from New Mexico, but elevations range from approximately 6,900-7,100 ft. Across the range (including Mexico), range from 4,500-7,100 ft (Propst and Stefferud 1994).	Native to the Mimbres River drainage in New Mexico and the Guzmán and Laguna Bustillos basins in Chihuahua, Mexico (Propst 1999).	Historically, occupied all warmwater reaches in the Mimbres River drainage, but they now are found regularly only in Moreno Spring, in about 9 mile reach of the Mimbres River from the confluence of Allie Canyon downstream to the New Mexico Department of Game and Fish Mimbres Property south of Mimbres (Propst 1999).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.
<i>Gila intermedia</i>  Gila chub	Occurs in pools of small streams or cienegas. However, can also be found in larger streams. It is often found near undercut banks, overhanging vegetation, and various types of cover within the aquatic habitat (USFWS 2015c).  Elevation: 2,000–5,500 ft (USFWS 2015c).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 2015c).	Historically documented populations have been extirpated except in Turkey Creek, in northwestern Grant County (USFWS 2005).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.  There is no designated critical habitat in the Project Area.
<i>Poeciliopsis occidentalis occidentalis</i> [Note: There are no currently recognized subspecies of <i>P. occidentalis</i> (Integrated Taxonomic Information System 2019, Accessed April 8, 2019)].  Gila topminnow	Occurs in springs, cienegas, permanent and intermittent streams and the margins of large rivers. Prefers warm, shallow, and slow-moving water but can occur in lentic habitats or lotic habitats with moderate current. Additionally, favors areas with algal mats or debris along stream margins (USFWS 1998).  Elevation: Historical records from 1,320–7,510 ft, with most records occurring below 5,000 ft (AGFD 2001a).	In the U.S., occurs in the Gila River Basin of Arizona and New Mexico. In Mexico, occurs in the Rio Sonora, Santa Cruz River and Rio de la Concepción basins in Sonora (USFWS 1998).	Historically found in the Gila River at Frisco Hot Springs (Sheffer et al. 1997) and San Francisco River drainage, although this species may be extirpated in the state (Paroz et al. 2006). In 1989, the Gila topminnow was stocked in a pond on the New Mexico Department of Game and Fish (NMDGF) Red Rock Wildlife Management Area (NMDGF BISON-M 2018b, 2018) however, the effort was unsuccessful.	<b>None.</b>  There is no suitable aquatic habitat in the Proposed Action Area.

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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Oncorhynchus gilae</i>  Gila trout	Inhabits perennial montane streams in coniferous and mixed woodland, montane coniferous forest, and subalpine forests (USFWS 2003). These streams area characterized by high flow variability but with low turbidity and high dissolved oxygen. Spawns in areas with flow over substrates of coarse sand or gravel. Juveniles likely use areas with slow current such as stream margins, side channels or shallow bars. Subadults favor riffle habitats whereas adults prefer pool habitats (USFWS 2003).  Elevation: 5,400–9,200 ft (USFWS 2003).	Found in Arizona and New Mexico, U.S. (USFWS 2003).	Historically occurred in the headwater streams of the Gila and San Francisco rivers. As of 2001, there were documented populations in Grant, Catron, and Sierra counties (USFWS BISON-M 2018c, 2002). Three streams within Grant County were known to contain populations of the Gila trout (McKnight Creek, Sheep Corral Canyon, and Black Canyon). Gila trout were introduced into McKnight Creek (USFWS BISON-M 2018c, 1993).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.
<i>Rhinichthys [=Tiaroga] cobitis</i>  Loach minnow	Typically inhabits swift, small to large perennial streams where it uses interstitial spaces or lee areas of primarily cobble substrates for resting and spawning (USFWS 2012). However, slow, silty streams are occasionally used (Minckley and Marsh 2009, p. 174). Adults are often found in areas with coarse, filamentous algae (Minckley and Marsh 2009, p. 174, USFWS 2012).  Elevation: Below 8,000 ft (USFWS 2012).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. (USFWS 2012). In Arizona, only found in Aravaipa, Campbell Blue Creeks, and White, San Francisco, and Blue Rivers in Arizona (USFWS 1991).	Found in the Gila River and its tributaries including the West, Middle, and East forks of the Gila River (BISON-M 2019b, Paroz and Propst 2007); the San Francisco and Tularosa Rivers and their tributaries in Catron County (Propst et al. 2009); Blue River and its tributaries, including Dry Blue, Campbell Blue, Pace, and Frieborn creeks (Catron County) and Dry Blue Creek. and Blue Rivers and some of their tributaries (BISON-M 2019b, Carter 2008, Clarkson et al. 2008, USFWS 2012).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.  There is no designated critical habitat in the Project Area.
<i>Gila robusta</i> <sup>1</sup>  Roundtail chub	Inhabits cool to warm water streams and rivers (USFWS 2015b). Typically found in largest and deepest pools of middle to large streams and is considered to be less associated with dense cover than other chub species (AGFD 2015, Minckley and Marsh 2009). Young-of-the-year favor slow, shallow water associated with vegetated shorelines (USFWS 2015b).  Elevation: 1,210–7,220 ft, most common between 2,000–5,000 ft (AGFD 2015, Minckley and Marsh 2009).	Note: The distribution described below reflects USFWS description of the proposed DPS and not the current understanding of the species complex. Historically from The Bill Williams, Gila, Little Colorado, Salt and Verde river drainages in Arizona and New Mexico. At the full species level: In the U.S.: the Colorado River basin in Arizona, Colorado, New Mexico, Utah and Wyoming (USFWS 2015b). In Mexico: Rio Yaqui and Piaxtla in Sonora (AGFD 2015).	Found in Rio Arriba, San Juan, and New Mexico counties (BISON-M 2018h).	<b>None.</b>  There is no suitable aquatic habitat for this species in the Project Area.

<sup>1</sup> Proposed threatened status withdrawn because the it did not meet the definition of a species under the Act (USFWS 2017). USFWS determined that *G. nigra* and *G. intermedia* should be subsumed into *G. robusta*.



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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Meda fulgida</i>  Spikedace	Inhabits shallow riffles with sand, gravel, and rubble substrates of moderate to large perennial streams (USFWS 2012).  Elevation: 1,620–4,500 ft (AGFD 2013c).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. (USFWS 2012).	Found in the mainstem Gila River, as well as in the lower end of the West, Middle, and East forks of the Gila River, and Mangas Creek within Hidalgo, Grant, and Catron counties (BISON-M 2017j).	<b>None.</b>  There is no suitable aquatic habitat in the Project Area.  There is no designated critical habitat in the Project Area.
<b>MAMMALS</b>				
<i>Leptonycteris curasoae yerbabuena</i> [Note: This taxa has been elevated to full species status as <i>L. yerbabuena</i> (TTIS 2019, accessed December 2, 2019)]. <sup>2</sup>  Lesser long-nosed bat	Occurs in thornscrub or Sonoran desertscrub and through semi-desert grasslands and into oak woodlands or deciduous forest where columnar cacti and agaves are present (AGFD 2011b, Medellín 2016). Roosts in caves, abandoned mines, vegetation and occasionally old buildings (AGFD 2011b, USFWS 2018b). Forages at night on nectar and pollen of columnar cacti and agaves (AGFD 2011b, USFWS 2018b). In some portions of its range, fruits of cacti are commonly consumed. Additionally, this species readily finds and utilizes hummingbird feeders. Sometimes bypass foraging areas close to roost sites in favor of distant areas and have been documented travelling greater than 40 miles from known roosts.  Elevation: Range-wide, reported as high as 8,530 ft but is typically found below 5,905 ft (Medellín 2016).	In the U.S.: southern Arizona and extreme southwestern New Mexico. Outside the U.S.: south from the U.S. border through Mexico (including Baja), Guatemala, El Salvador, and Honduras (NatureServe 2020, accessed May 7, 2020). Note that USFWS (2018b) indicates that the range outside of the U.S. only extends as far south as southern Mexico.	Southwestern portions of the state in the Animas and Peloncillo mountains of Hidalgo County (Cole and Wilson 2006, Richardson 2007, USFWS 2016).	<b>None.</b>  The Project Area is outside of the known range, distribution, and lacks suitable roosting and foraging habitat. They were not observed during bat surveys of abandoned mine features in the site. None were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.

<sup>2</sup> Delisted due to recovery (USFWS 2018a).

## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Canis lupus baileyi</i></p> <p>Mexican gray wolf</p>	<p>Occurs in sparsely to densely forested mountainous terrain or adjacent grasslands where prey is abundant. Prey species include cervids, peccaries, lagomorphs and rodents (USFWS 2015a). Are sensitive to disturbance</p> <p>Elevation: 3,000–12,000 ft (AGFD 2001b). In New Mexico, 4,000-9,000 ft (BISON-M 2021).</p>	<p>The <i>baileyi</i> subspecies occurs in Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 2015a).</p>	<p>They has been translocated into the Gila National Forest (Mexican Wolf Interagency Field Team 2020). The non-essential experimental population boundaries are south of I-40 and is divided into management zones. Zone 1: Initial releases and translocations can occur into Apache-Sitgreaves National Forests, and the Tonto Basin Ranger District of Tonto National Forest. Zone 2: Areas outside of Zone 1, south of I-40 and east of Hwy 60/89 and 93, I-10 and I-19 allows for natural dispersal and occupancy. Initial releases allowed on private and tribal land with approved management agreements. Translocations and release of pups less than 5-months old allowed on Federal lands. Zone 3: Areas south of I-40 and west of Hwy 60/89 and 93, I-10 and I-19. Within Zone 3 no releases or translocations are allowed but can be occupied by naturally dispersing individuals (USFWS BISON-M 2021, 2015a).</p>	<p><b>Unlikely.</b></p> <p>While the Project Area occurs within the secondary recovery zone of the Blue Range Recovery Area, and suitable habitat for the wolf exists in areas surrounding the site, no wolves have been documented in the Project Area. Currently, there are no packs within 45 miles of the Project Area (USFWS 2021). However, due to the high mobility of this species, it is possible that an occasional wolf could disperse through the area, although unlikely due to human disturbance in the vicinity.</p>
<p><i>Euderma maculatum</i></p> <p>Spotted bat</p>	<p>Occurs in a wide-range of vegetation types including desertscrub, pinyon-juniper woodlands, ponderosa pine forests, mixed conifer forest, canyon bottoms, riparian areas, fields, pastures, and sub-alpine meadows. Roost in cracks and crevices of rock cliffs and in caves. They are generally solitary but may roost or hibernate in small groups. Foraging ranges may be large and up to 25 miles from their roost sites. Primarily consume moths. Are rarely caught in nets, potentially due to rarity, high flight patterns or sensitivity to light and sound. In Arizona, this species is most commonly captured near water or along canyon rims. It is unknown if this species is migratory. In Arizona, they appear active year-round (Luce, Chambers, and Herder 2005).</p> <p>Elevation: In Arizona, 110–8,670 ft (AGFD 2003).</p>	<p>Occurs in British Columbia, Canada and the U.S. states of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Washington, and Wyoming. Range extends south from U.S. populations to Durango and Queretaro, Mexico (AGFD 2003, Hammerson 2015).</p>	<p>Documented from Bernalillo, Catron, Cibola, Doña Ana, Eddy, Grant, Lincoln, Los Alamos, Otero, Rio Arriba, Sandoval, San Juan, Santa Fe, Valencia, and Socorro counties. In 2006, this species was observed in Grant County at the following locations: near the Gila River at Lichty Farm, near Buckhorn, Big Burro Mountains, and near Santa Fe at Black Canyon Campground (BISON-M 2017k).</p>	<p><b>Possible.</b></p> <p>The Project Area contains potentially suitable woodland habitat and is within the known range of this species because they have been observed in the Big Burro Mountains in vicinity of the site. None were observed during surveys of abandoned mine features in the site but they have some potential to forage in the area.</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
REPTILES				
<i>Thamnophis rufipunctatus</i>  Narrow-headed gartersnake	Are strongly associated with pool and riffle habitats in clear, rocky streams habitats in Petran Montane Conifer Forest, Great Basin Conifer Woodland, Interior Chaparral and the Arizona Upland subdivision of Sonoran Desertscrub. Occasionally utilizes lake shoreline habitats (USFWS 2014a). They primarily preys on fish species (USFWS 2014a). Bank-line vegetation is an important habitat component and this species favors areas with shrub- and sapling-sized plants for thermoregulation (USFWS 2014a). Been documented using site up to 656 ft away from the floodplain for hibernation (USFWS 2014a). Typically surface active between March and November with air temperatures of 52° to 89° F (USFWS 2014a).  Elevation: 2,300-8,000 ft (USFWS 2014a).	Occurs in Arizona and New Mexico (USFWS 2014a).	Confined to the Catron, Grant, and Hidalgo counties where it reaches the easternmost edge of its distribution, where it uses suitable rocky rivers and streams of the San Francisco and Gila River drainages. Expected to exist within the San Francisco River drainage at low densities. Individuals have been recently detected in Saliz Creek, Whitewater Creek, Diamond Creek, and Dry Blue Creek near the Arizona border in Catron County (New Mexico Game and Fish Department 2020).	None.  There is no suitable aquatic habitat in the Project Area, and as there are no fish species present thus there is no suitable prey base. The nearest suitable aquatic habitat is outside of the dispersal capabilities of this species.  There is no proposed critical habitat in the Project Area.
<i>Thamnophis eques megalops</i>  Northern Mexican gartersnake	Strongly associated with water due to its primarily aquatic prey base and is heavily dependent on fish species. Occurs near or in ponds, cienegas, lowland river riparian forests and woodlands, and upland stream gallery forests. Avoids steep mountain canyons. Most abundant in densely vegetated habitat. Associated with a variety of biotic communities including Sonoran Desertscrub, Semidesert Grasslands, Interior Chaparral, Madrean Evergreen Woodland and into the lower reaches of Petran Montane Conifer Forest (AGFD 2012, USFWS 2013b). May be found up to one mile (or more) away from water, using terrestrial habitat for brumation, digestion, or for thermoregulatory needs such as developing young (Jeff Servoss, USFWS pers. comm. to D. Cerasale, April 18, 2016).  Elevation: 130-8,497 ft (USFWS 2014a) but is most common below 5,000 ft (AGFD 2012).	Occurs in Arizona and New Mexico, U.S. (USFWS 2014a). Although it is poorly known, the range extends into Mexico and is thought to include Sonora, Chihuahua, Durango, Coahuila, Zacatecas, Guanajuato, Nayarit, Hidalgo, Jalisco, San Luis Potosí, Aguascalientes, Tlaxcala, Puebla, México, Michoacán, Oaxaca, Veracruz, and Querétaro (AGFD 2012).	The status in the state is uncertain, although it is possible that this species may occur in Mule Creek (USFWS 2014c), and there is proposed critical habitat for this species in Gila River and Duck Creek, although portions of these areas are being considered for exclusion (USFWS 2020); however, it is likely extirpated.	<b>None.</b>  There is no suitable aquatic habitat in the Project Area and the distance from the nearest suitable habitat is well outside of the dispersal capability of this species.  There is no designated critical habitat in the Project Area.

## Appendix G. NMDGF Threatened and Endangered Species Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Heloderma suspectum</i>  Gila monster	Inhabit desert and mesquite-grassland, but also pine-oak forest, tropical deciduous forest, and thorn forest. It is usually found in rocky foothill regions and avoids open flats. It typically inhabits the lower slopes of mountains and nearby outwash plains, especially in canyons and arroyos where water is at least periodically present (Beck 2009). In some areas, they also frequent irrigated farmlands that adjoin those habitat types. Cover in such areas often includes boulders, rock crevices, downed vegetation, and litter (AGFD 2013b).  Elevation: 3,800-6,400 ft (Beck 2009).	Occupies the southern areas of Utah, Nevada, California, and New Mexico. The most southern population lives in the Sonoran desert of Mexico near the towns of Alamos Guayamas and Ortiz (AGFD 2013b, Beck 2009).	Peripheral in the state, reaching the eastern edge of its range in the southwest, where it is known from Hidalgo, Grant, Luna and perhaps Doña Ana counties (BISON-M 2018g). Most common at the Redrock Wildlife Area on the Gila River west of the Big Burro Mountains (BISON-M 2018g).	<b>Unlikely.</b>  The Project Area contains suitable habitat but is near the eastern limit of its known geographic range.
<b>MOLLUSCS</b>				
<i>Pyrgulopsis gilae</i>  Gila springsnail	Inhabits cool springs and brooks, but a few have also been found in a nearby thermal spring. Occurs in mud, debris, and vegetation. Typical habitat is a rivulet about 3 ft wide and grown up with watercress ( <i>Nasturtium officinale</i> ) (BISON-M 2017g).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2017g).	Limited to a series of thermal springs along the Gila River in Grant County in the East and West Forks. Has also been observed along Beaver Creek, Mimbres District and in the Black Range District (BISON-M 2017g).	<b>None.</b>  Project Area is outside of the highly restricted geographic range.
<i>Pyrgulopsis thermalis</i>  New Mexico springsnail	Inhabits waters as warm as 38°C but is more common where temperatures are 33-35°C. Occupies substrates in areas of steep or even vertical rock, covered with thin sheets of water. Also found in minor spring flows on algal film and crusts of lime-depositing algae. Likely also occurs in dense grasses and sedges bordering the springs (BISON-M 2019d).  Elevation: Unknown.	Endemic to New Mexico (BISON-M 2019d).	Restricted to a series of thermal springs along the Gila River in Grant County (BISON-M 2019d).	<b>None.</b>  Project Area is outside of the highly restricted geographic range.

- Arizmendi, M. D. C., C. I. Rodríguez-Flores, C. A. Soberanes-González, and T. S. Schulenberg. 2015. "White-Eared Hummingbird (*Hylocharis leucotis*), version 1.0." In *Neotropical Birds Online*, edited by T. S. Schulenberg. Ithaca, New York: Cornell Lab of Ornithology.
- Arizona Game and Fish Department. 2001a. Gila Topminnow (*Poeciliopsis occidentalis occidentalis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- \_\_\_\_\_. 2001b. Mexican Gray Wolf (*Canis lupus baileyi*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. March 6, 2001. 7 pp.
- \_\_\_\_\_. 2001c. Northern Aplomado Falcon (*Falco femoralis septentrionalis*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6 pp.
- \_\_\_\_\_. 2002a. American Peregrine Falcon (*Falco peregrinus anatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 3, 2002. 6 pp.
- \_\_\_\_\_. 2002b. 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. November 11, 2002. 7 pp.
- \_\_\_\_\_. 2003. Spotted Bat (*Eudermma maculatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. January 19, 2003. 9 pp.
- \_\_\_\_\_. 2006. Lowland Leopard Frog (*Lithobates yavapaiensis*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 26, 2006. 10 pp.
- \_\_\_\_\_. 2010. Thick-billed Kingbird (*Tyrannus crassirostris*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 4 pp.
- \_\_\_\_\_. 2011a. Bald Eagle (*Haliaeetus leucocephalus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. September 2, 2011. 9 pp.
- \_\_\_\_\_. 2011b. Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 9 pp.
- \_\_\_\_\_. 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. July 20, 2012. 8 pp.

- \_\_\_\_\_. 2013a. Common Black-hawk (*Buteogallus anthracinus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- \_\_\_\_\_. 2013b. Gila Monster (*Heloderma suspectum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 4.
- \_\_\_\_\_. 2013c. Spikedace (*Meda fulgida*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 6.
- \_\_\_\_\_. 2014. Elegant Trogon (*Trogon elegans*) Draft. *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- \_\_\_\_\_. 2015. Roundtail Chub (*Gila robusta*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 7, 2015. 7 pp.
- Averill-Murray, Annalaura, and Troy E. Corman. 2005. "Bell's Vireo (*Vireo bellii*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 338-339.
- Baltosser, W. H., and P. E. Scott. 1996. "Costa's Hummingbird (*Calypte costae*), version 2.0.\" In *The Birds of North America*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Barlow, Jon C., Sheridan N. Leckie, and Colette T. Baril. 2020. "Gray Vireo (*Vireo vicinior*).\" In *Birds of the World*, edited by A.F. Poole and F.B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Beck, Daniel D. 2009. *Biology of Gila Monsters and Beaded Lizards*. First edition ed. Berkeley, California: University of California Press.
- BISON-M. 2017a. "Aplomado Falcon (*Falco Femoralis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017b. "Brown Pelican (*Pelecanus occidentalis*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017c. "Buff-collared Nightjar (*Antrostomus ridgwayi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017d. "Common Ground-dove (*Columbina passerina*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017e. "Costa's Hummingbird (*Calypte costae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017f. "Elegant Trogon (*Trogon elegans*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.



- \_\_\_\_\_. 2017g. "Gila Springsnail (*Pyrgulopsis gilae*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017h. "Gray Vireo (*Vireo vicinior*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>.
- \_\_\_\_\_. 2017i. "Northern Beardless-Tyrannulet (*Camptostoma imberbe*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017j. "Spikedace (*Meda fulgida*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017k. "Spotted Bat (*Euderma maculatum*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017l. "Thick-billed Kingbird (*Tyrannus crassirostris*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017m. "Varied Bunting (*Passerina versicolor*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018a. "Abert's Towhee (*Melospiza aberti*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018b. "Gila Topminnow (*Poeciliopsis occidentalis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018c. "Gila Trout (*Oncorhynchus gilae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018d. "Gila Woodpecker (*Melanerpes uropygialis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018e. "Lucifer Hummingbird (*Calothorax lucifer*).\" Biota Information Systems of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018f. "Neotropic Cormorant (*Phalacrocorax brasilianus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018g. "Reticulate Gila Monster (*Heloderma suspectum suspectum*).\" Biotic Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018h. "Rio Grande Sucker (*Catostomus plebeius*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018i. "Southwestern Willow Flycatcher (*Empidonax traillii extimus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.



- \_\_\_\_\_. 2018j. "Yellow-eyed Junco (*Junco phaeonotus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019a. "Baird's Sparrow (*Centronyx bairdii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019b. "Loach Minnow (*Rhinichthys cobitis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019c. "Lowland Leopard Frog (*Lithobates yavapaiensis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019d. "New Mexico Hot Springsnail (*Pyrgulopsis thermalis*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020a. "Broad-billed Hummingbird (*Cyanthus latirostris*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020b. "White-eared Hummingbird (*Basilinna leucotis*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2021. "Mexican Gray Wolf (*Canis lupus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- Bowers, R. K. Jr., and J. B. Jr. Dunning. 1997. "Buff-collared Nightjar (*Antrostomus ridgwayi*), version 2.0.\" In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020. "Buff-collared Nighjar (*Antrostomus ridgwayi*) Version 1.0.\" In *Birds of the World*, edited by S.M. Billerman. Ithaca, New York.
- Bowman, R. 2020. "Common Ground Dove (*Columbina passerina*) Version 1.0.\" In *Birds of the World*, edited by A. Poole and F. B. Gill. Ithaca, New York.
- Bradley, Robert. 2005. "Gila Woodpecker (*Melanerpes uropygialis*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 275-275.
- Buehler, David A. 2020. "Bald Eagle (*Haliaeetus leucocephalus*), version 1.0.\" The Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.baleag.01>. Ithaca, New York.
- Bureau of Reclamation. 2016. Species Accounts for the Lower Colorado River Multi-Species Conservation Program. Boulder City, Nevada: Lower Colorado River Multi-Species Conservation Program. June, 2016.
- Burger, Bill. 2005. "Peregrine Falcon (*Falco peregrinus*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 156-157.

- Carter, C. 2008. email transmission from Codey D. Carter, Arizona Game and Fish Department, to K. McMillan, U.S. Forest Service re: Blue River loach minnow collection. March 28, 2008.
- Clarkson, R.W., P.C. Marsh, J.A. Stefferud, and B.R. Kesner. 2008. Fishery survey of lower Blue River, Greenlee County, Arizona, May 19-22, 2008. Unpublished report.: Bureau of Reclamation, Phoenix, AZ, and Marsh & Associates, Chandler, AZ. 5.
- Cole, F. Russell, and Don E. Wilson. 2006. "*Leptoncyteris yerhabuenae*." *Mammalian Species* 797:1-7.
- Corman, Troy E. 2005a. "Abert's Towhee (*Pipilo aberti*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 500-501.
- \_\_\_\_\_. 2005b. "Broad-Billed Hummingbird (*Cynathus latirostris*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 242-243.
- \_\_\_\_\_. 2005c. "Costa's Hummingbird (*Calypte costae*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 260-261.
- \_\_\_\_\_. 2005d. "Elegant Trogon (*Trogon elegans*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 264-265.
- \_\_\_\_\_. 2005e. "Gray Vireo (*Vireo vicinior*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 340-341.
- \_\_\_\_\_. 2005f. "Lucifer Hummingbird (*Calothorax lucifer*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 254-255.
- \_\_\_\_\_. 2005g. "Northern Beardless-Tyrannulet (*Camptostoma imberbe*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 294-295.
- \_\_\_\_\_. 2005h. "Thick-Billed Kingbird (*Tyrannus crassirostris*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 330-331.
- \_\_\_\_\_. 2005i. "Varied Bunting (*Passerina versicolor*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 550-551.
- \_\_\_\_\_. 2005j. "White-Eared Hummingbird (*Hylocharis leucotis*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 244-245.

- \_\_\_\_\_. 2005k. "Yellow-Eyed Junco (*Junco phaeonotus*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 536-537.
- eBird. 2021. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- Edwards, Holly H., and Gary D. Schnell. 2000. Gila Woodpecker (*Melanerpes uropygialis*), version 2.0. *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. 2018. "eBird Status and Trends." Cornell Lab of Ornithology. <https://ebird.org/science/status-and-trends>. Ithaca, New York.
- Green, M. T., P. E. Lowther, S. L. Jones, S. K. Davis, and B. C. Dale. 2020. "Baird's Sparrow (*Centronyx bairdii*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Groschupf, K. D., and C. W. Thompson. 2020. "Varied Bunting (*Passerina versicolor*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: The Cornell Lab of Ornithology.
- Hammerson, G. 2015. "Spotted Bat (*Enderma maculatum*)."  
<https://explorer.natureserve.org/>.
- Integrated Taxonomic Information System. 2019. "Integrated Taxonomic Information System online database." <http://www.itis.gov>.
- Keddy-Hector, D.P., P. Pyle, and M.A. Pattern. 2017. "Aplomado Falcon (*Falco femoralis*), Version 3.0. In the Birds of North America." Cornell Lab of Ornithology. <https://doi.org/10.2173/bna.aplfal.03>. Ithaca, New York.
- Kunzmann, M. R., L. S. Hall, R. R Johnson, and N. R. Williams. 2020. *Elegant Trogon (Trogon elegans) Version 1.0*. Ithaca, New York.
- Kunzmann, M. R., L. S. Hall, and R. R. Johnson. 1998. "Elegant Trogon (*Trogon elegans*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Kus, Barbara, Steven L. Hopp, R. Roy Johnson, and Bryan T. Brown. 2020. "Bell's Vireo (*Vireo bellii*), version 1.0." In *Birds of the World*, edited by A. F. Poole. Ithaca, New York: Cornell Lab of Ornithology.
- Lowther, P. E., P. Pyle, and M. A. Patten. 2020. "Thick-Billed Kingbird (*Tyrannus crassirostris*), version 1.0." In *Birds of the World*, edited by P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Luce, B., C. Chambers, and M. Herder. 2005. "Western Bat Species *Enderma maculatum* (Spotted Bat)." Western Bat Working Group. <http://wbwg.org/western-bat-species/>

- Luensmann, Peggy. 2010. "*Falco peregrinus*. In: Fire Effects Information System, [Online]." U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <https://www.fs.fed.us/database/feis/animals/bird/fape/all.html>.
- Medellín, R. 2016. "*Leptonycteris yerbabuenae* (Lesser Long-nosed Bat)." *The IUCN Red List of Threatened Species*:e.T136659A21988965.
- Mexican Wolf Interagency Field Team. 2020. Mexican Wolf Recovery Program Monthly Update January 1 - 31, 2020. U.S. Fish and Wildlife Service.
- Minckley, W. L., and P.C. Marsh. 2009. *Inland Fishes of the Greater Southwest - Chronicle of a Vanishing Biota*. Tucson, Arizona: University of Arizona Press.
- NatureServe. 2020. "NatureServe Explorer [web application] *Leptonycteris yerbabuenae* Lesser Long-nosed Bat." <https://explorer.natureserve.org/>. Arlington, Virginia.
- New Mexico Department of Game and Fish. 2018. Threatened and Endangered Species of New Mexico 2018 Biennial Review. Santa Fe, New Mexico: Wildlife Management and Fisheries Management Divisions. October 5, 2018.
- New Mexico Game and Fish Department. 2020. Threatend and Endangered Species of New Mexico 20 Biennial Review: Draft. July 30.
- Paroz, Yvette M., and David L. Propst. 2007. Distribution of Spikedace, Loach Minnow, and Cub Species in the Gila River Basin, New Mexico 1908-2007. *Prepared for the U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation*: New Mexico Department of Game and Fish Conservation Services Division. July 2007.
- Paroz, Yvette M., David L. Propst, and Jerome A. Stefferud. 2006. Long-Term Monitoring of Fish Assemblages in the Gila River Drainage, New Mexico 1988-2005. *Submitted to U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation*: Conservation Services Division New Mexico Department of Game and Fish. April 24, 2006.
- Powers, D. R., and S. M. Wethington. 1999. "Broad-billed Hummingbird (*Cyanthus latirostris*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020. "Broad-billed Hummingbird (*Cyanthus latirostris*)." In *Birds of the World*, edited by A. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Propst, David L. 1999. Threatened and endangered fishes of New Mexico. *Tech. Rpt. No. 1*. Santa Fe, NM: New Mexico Department of Game and Fish. 84.
- Propst, David L., Yvette M. Paroz, Stephanie M. Carman, and Nikolas D. Zymonas. 2009. Systematic Investigations of Warmwater fish Communities FW-17-R-36 Performance Report 1 July 2008-30 June 2009. Santa Fe, New Mexico: New Mexico Department of Game and Fish. August 14, 2009.

- Propst, David L., and Jerome A. Stefferud. 1994. "Distribution and Status of the Chihuahua Chub (Teleostei: Cyprinidae: *Gila nigrescens*), with Notes on Its Ecology and Associated Species." *The Southwestern Naturalist* 39 (3): 224-234; Sep. 1994.
- Richardson, Scott. 2007. Final 5-Year Review Summary and Evaluation for the Lesser Long-Nosed Bat. Phoenix, Arizona: U.S. Fish and Wildlife Service Arizona Ecological Services Field Office. 43 pp.
- Rorabaugh, Jim. 2008. "Tarahumara Frog *Lithobates tarahumarae*." Online Field Guide to the Reptiles and Amphibians of Arizona. T.C. Brennan. <http://www.reptilesfaz.org/Turtle-Amphibs-Subpages/h-l-tarahumarae.html>.
- Sadoti, Giancarlo. 2010. "Common Black-Hawk (*Buteogallus anthracinus*)." In *Raptors of New Mexico*, edited by Jean-Luc E. Cartron. Albuquerque, New Mexico: University of New Mexico Press. 213-225.
- Schnell, J. H. 2020. "Common Black Hawk (*Buteogallus anthracinus*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Scott, P. E. 1994. "Lucifer Hummingbird (*Calothorax lucifer*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Sedgwick, James A. 2020. "Willow Flycatcher (*Empidonax traillii*), version 1.0." In *The Birds of the World [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Sheffer, Ruby J., Phillip W. Hedrick, W.L. Minckley, and Anthony L. Velasco. 1997. "Fitness in the Endangered Gila Topminnow." *Conservation Biology* 11 (1):162-171.
- Shields, M. 2020. "Brown Pelican (*Pelecanus occidentalis*), version 1.0." In *Birds of the World*, edited by A. F. Poole. Ithaca, New York: Cornell Lab of Ornithology.
- Sullivan, K. A. 2018. "Yellow-eyed Junco (*Junco phaeonotus*), version 1.1." In *The Birds of North America [online]*, edited by P. G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Telfair II, R.C., and M.L. Morrison. 2020. "Neotropic Cormorant (*Phalacrocorax brasilianus*), version 2.0." In *Birds of the World*, edited by P.E. Rodewald and B.K. Keeney. Ithaca, New York: Cornell Lab of Ornithology.
- Tenney, Chris R. 2000. "Northern Beardless-Tyrannulet (*Camptostoma imberbe*), version 2.0." In *The Birds of North America [online]*, edited by A.F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Twit, R. C., and D. M. Finch. 1994. "Abert's Towhee (*Melospiza aberti*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020. *Abert's Towhee (Melospiza aberti) Version 1.0, Birds of the World*. Ithaca, New York: Cornell Lab of Ornithology.



- U.S. Fish and Wildlife Service. 1983. Endangered and Threatened Wildlife and Plants; Threatened Status for Gila Nigrescens (Chihuahua Chub). *Federal Register*, 48 46053-46057.
- \_\_\_\_\_. 1991. Loach Minnow *Tiaroga cobitis* Recovery Plan. September 30, 1991. 1-45.
- \_\_\_\_\_. 1993. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Second Revision). Albuquerque, New Mexico. December 8, 1993.
- \_\_\_\_\_. 1998. Gila Topminnow, *Poeciliopsis occidentalis occidentalis*, Revised Recovery Plan. Albuquerque, New Mexico: U.S. Fish and Wildlife Services.
- \_\_\_\_\_. 2002. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Third Revision). Albuquerque, New Mexico. Technical Review Draft, April 2002.
- \_\_\_\_\_. 2003. Gila Trout (*Oncorhynchus gilae*) Recovery Plan (Third Revision). Albuquerque, New Mexico: U.S. Fish and Wildlife Service., i-vii + 78 pp.
- \_\_\_\_\_. 2005. Endangered and Threatened Wildlife and Plants; Listing Gila Chub as Endangered with Critical Habitat; Final Rule. November 2, 2005. *Federal Register*, 70 66664-66721.
- \_\_\_\_\_. 2012. Endangered and Threatened Wildlife and Plants; Endangered Status and Designations of Critical Habitat for Spikedace and Loach Minnow. U.S. Fish and Wildlife Service. February 23, 2012. *Federal Register*, 77 (36):10810-10934.
- \_\_\_\_\_. 2013a. Endangered and Threatened Wildlife and Plants, Designation of Critical Habitat for Southwestern Willow Flycatcher, Final Rule. January 3, 2013. *Federal Register*, 78 (2):344-534.
- \_\_\_\_\_. 2013b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Proposed Rule. U.S. Department of the Interior. July 10, 2013. *Federal Register*, 78 (132):41550-41608.
- \_\_\_\_\_. 2014a. Endangered and Threatened Wildlife and Plants; Threatened Status for the Northern Mexican Gartersnake and Narrow-Headed Gartersnake; Final Rule. *Federal Register*. U.S. Department of the Interior. July 8, 2014. 38678-38746.
- \_\_\_\_\_. 2014b. Northern Aplomado Falcon (*Falco femoralis septentrionalis*) 5-Year Review: Summary and Evaluation. New Mexico Ecological Services Field Office. Albuquerque, New Mexico: U.S. Fish and Wildlife Service. August 26, 2014.
- \_\_\_\_\_. 2014c. Northern Mexican Gartersnake (*Thamnophis eques megalops*). July 2014.
- \_\_\_\_\_. 2015a. Endangered and Threatened Wildlife and Plants; Endangered Status for the Mexican Wolf; Final Rule. January 16, 2015. *Federal Register*, 80 2488-2512.
- \_\_\_\_\_. 2015b. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and a Distinct Population Segment of the Roundtail Chub; Proposed Rule. U.S. Department of the Interior. *Federal Register*, 80 (194):60754-60783.

- \_\_\_\_\_. 2015c. Gila Chub (*Gila intermedia*) Draft Recovery Plan. Albuquerque, New Mexico: U.S. Fish and Wildlife Service, Southwest Region. 118 + Appendices A-C.
- \_\_\_\_\_. 2016. Species Status Assessment for the Lesser Long-Nosed Bat (*Leptonycteris yerhabuenae*). Phoenix, Arizona: Arizona Ecological Services Office. December, 2016. 96 pp.
- \_\_\_\_\_. 2017. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Headwater Chub and Roundtail Chub Distinct Population Segment: Proposed Rule; Withdrawal. U.S. Department of the Interior. *Federal Register*, 82 (66):16981-16988.
- \_\_\_\_\_. 2018a. Endangered and Threatened Wildlife and Plants; Removal of the Lesser Long-nosed Bat from the Federal List of Endangered and Threatened Wildlife; Final Rule. U.S. Fish and Wildlife Service. April 18, 2018. *Federal Register*, 83 (75):17093 - 17110.
- \_\_\_\_\_. 2018b. Species Status Assessment for the Lesser Long-Nosed Bat (*Leptonycteris yerhabuenae*). Phoenix, Arizona: Arizona Ecological Services Office. April 2018.
- \_\_\_\_\_. 2020. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-Headed; Revised Proposed Rule. U.S. Department of the Interior. April 28, 2020. *Federal Register*, 85 (82):23608-23668.
- \_\_\_\_\_. 2021. "Mexican Wolf Locations." Mexican Wolf Recovery Program, Published in Web AppBuilder for ArcGIS.  
<https://www.arcgis.com/apps/webappviewer/index.html?id=fa2f5e84ec5545f3985c917825805f65&extent=-12337235.6233%2C3947363.8229%2C-12057476.0998%2C4124086.2323%2C102100>.
- White, Clayton M., Nancy J. Clum, Tom J. Cade, and W. Grainger Hunt. 2002. "Peregrine Falcon (*Falco peregrinus*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Williams, N. R. 2011. "Elegant Trogon (*Trogon elegans*), version 1.0." In *Neotropical Birds Online*, edited by T. S. Schulenberg. Ithaca, New York: Cornell Lab of Ornithology.



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## **APPENDIX H**

**Birds of  
Conservation  
Concern for BCR 35  
Potential to Occur  
Determinations**

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Haliaeetus leucocephalus</i>  Bald eagle	<p>Breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020).</p> <p>Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).</p>	<p>Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).</p>	<p>Are present casually to occasionally in summer, but they migrate and winter almost statewide, although there is limited breeding in New Mexico (Buehler 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the range of this species and there are citizen scientists’ sightings of bald eagles within ten miles of the site (eBird 2021). However, the site does not contain large bodies of water associated with this species. While it is possible that a bald eagle may fly over the site while foraging, given the absence of preferred habitat, it is unlikely that this species will occur.</p>
<i>Buteogallus anthracinus</i>  Common black hawk	<p>Associated with swamps, marshes, flooded forests, coastal plains, mangroves, and riparian areas with perennial water. In the southwestern U.S. they are an obligate riparian species (Schnell 2020). In Arizona, they occur along perennial and intermittent streams with perennial pools in drainages with sycamores, Arizona alder, Fremont cottonwood, Arizona cypress, Arizona walnut, Goodding’s willow, burrowbrush, velvet mesquite or tamarisk. Hunts for arthropods and small vertebrates including fish, frogs, snakes, and lizards from streamside perches. High branches, rock ledges, sandbars or streamside rocks are used as foraging perches (Schnell 2020). U.S. populations are migratory and winter in Mexico or further south (Schnell 2020). Migratory habitat is insufficiently known, but this species is generally believed to follow riparian corridors (Sadoti 2010).</p> <p>Elevation: In Arizona, 1,800–7,000 ft (Averill-Murray and Corman 2005).</p>	<p>Is a partial migrant. Migratory breeding populations in extreme southern Utah and Nevada, Arizona, New Mexico and western Texas in the U.S. and eastern Sonora, western Chihuahua, western Durango, and eastern Nayarit. Resident from Sinaloa and Tamaulipas and south, primarily along the coasts to Ecuador, Columbia, and Venezuela in northern South America. Occasional individuals have been reported overwintering in southern Arizona (Schnell 2020).</p>	<p>Found along the Gila, San Francisco, and Mimbres rivers in the southwest quadrant of the state, as well as along the Rio Hondo in the southeast. It occasionally nests along the Rio Grande as far north as Albuquerque, and in the Canadian River and Upper Pecos drainages (BISON-M 2020a, Schnell 2020).</p>	<p><b>Unlikely.</b></p> <p>While there is no suitable habitat in the Project Area, there have been citizen scientist detections of this species within 10 miles of the site (eBird 2021). As there are ephemeral water features in the Project Area, it is possible that this species may fly over the site while foraging or migrating, although this is very unlikely.</p>

Appendix H. Birds of Conservation Concern for BCR 35 Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Buteo regalis</i>  Ferruginous hawk	<p>Usually found in flat and rolling terrain in grassland or shrubsteppe regions, typically avoiding high elevation, forest interior, and narrow canyons (Ng et al. 2017). Occurs in grassland, sagebrush, saltbush-greasewood shrubland, and the periphery of pinyon-juniper and other forest types. Nesting habitat often includes sparse riparian forests, canyon areas with features such as cliffs and rock outcrops, and small groves of trees in grassland and shrubsteppe (BISON-M 2020b, Ng et al. 2017). In New Mexico, they are more common near prairie dog colonies. Overwintering habitat in New Mexico typically includes open terrain from grassland to desert, where small mammals like black-tailed prairie dogs are abundant (BISON-M 2020b).</p> <p>Elevation: primarily between 2,800 to 7,500 ft (BISON-M 2020b)</p>	<p>Generally occupies western North America from southernmost Canada between the Great Plains and the Rocky Mountains, south to central Mexico (Ng et al. 2017).</p>	<p>Found throughout the state, especially when overwintering. There are breeding colonies in Union County in northeastern portion of the sate (BISON-M 2020b).</p>	<p><b>Possible.</b></p> <p>The Project Area is within the known range of this species and marginally suitable habitat of open grassland areas is present.</p>
<i>Aquila chrysaetos</i>  Golden eagle	<p>Range-wide, breeds in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, prefers pinyon-juniper woodlands and Sonoran desertscrub (Driscoll 2005). Constructs large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Driscoll 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Katzner et al. 2020). Primarily feed on small mammals (greater than 80% of prey items) but also consumes birds, reptiles and fish (Katzner et al. 2020). In the western U.S., average territory size ranges from 22 to 55 square miles (AGFD 2002b).</p> <p>Elevation: In Arizona, typically breeds between 1,300–9,000 ft (Driscoll 2005).</p>	<p>Is a short to medium-distance partial migrant with a Holarctic distribution (Katzner et al. 2020). In North America, primarily breeds in western portion of the continent from Alaska to central Mexico. Northern most populations are typically migratory. Year-round and non-breeding populations occur from central Saskatchewan to British Columbia, Canada and south throughout its range and sparsely in the eastern U.S. (Katzner et al. 2020).</p>	<p>Breed locally in suitable habitat throughout the state (Katzner et al. 2020, Parmeter, Neville, and Emkalns 2002).</p>	<p><b>Possible.</b></p> <p>Golden eagles have been detected within 3 miles of the Project Area (eBird 2020a, accessed 1/5/2021) and the Project Area contains some marginally suitable foraging habitat. There are no cliffs within the Project Area that could serve as suitable nesting habitat, although there are some ponderosa pines are present. Given the nearby sightings of golden eagles and marginally suitable habitat present in the Project Area, it is possible that golden eagles may occur within or in the vicinity.</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Falco peregrinus anatum</i></p> <p>American peregrine falcon</p>	<p>Breeds in a wide range of open habitats (White et al. 2002). Prefer steep cliffs that overlook woodlands and riparian areas. Habitat selection is mainly driven by the abundance of prey (birds and occasionally bats). They dive from cliffs to ambush prey. Usually forages within 9 miles of the nest site, but foraging distances of 15 miles are common (Luensmann 2010). Can be found in less optimal habitats, such as small, broken cliffs or cliffs in xeric areas, when preferred habitat is not available. Will roost on tall buildings when prey is abundant (AGFD 2002a). In Arizona, this species is most often found in forested regions from pinyon pine-juniper and evergreen oaks to ponderosa pine and mixed conifer, to cold-temperate desertscrub and Sonoran desertscrub (AGFD 2002a, Burger 2005). Migratory and overwintering habitats are diverse and include similar habitats to those used during breeding and areas devoid of cliffs (White et al. 2002).</p> <p>Elevation: In Arizona, 400–9,000 ft (AGFD 2002a).</p>	<p><i>F. peregrinus</i> occurs on every continent except Antarctica (White et al. 2002). The <i>anatum</i> subspecies is a partial migrant and breeds throughout North America south of the tundra, excluding coastal Pacific Northwest, to northern Mexico (White et al. 2002). Winter range includes portions of the breeding range where prey is abundant year-round and extends south through Central America and South America through Chile (AGFD 2002a, White et al. 2002).</p>	<p>They pass through the state during migration from March-May and there are isolated breeding records from throughout the state (White et al. 2002).</p>	<p><b>Possible.</b></p> <p>While there is no the cliff habitat for nesting on the site, there are recent detections of peregrine falcons from in the vicinity of the Project Area (eBird 2021). It is possible that this species could pass through the site while foraging.</p>
<p><i>Charadrius nivosus</i></p> <p>Snowy plover</p>	<p>Nesting habitat primarily consists of sandy coastal beaches, barrier islands, barren shores of inland saline lakes, and on river bars (Page et al. 2009). Also now uses man-made, agricultural wastewater ponds and reservoir margins in the interior, dredge spoils on the coast, and salt evaporation ponds on the coast and in the interior. Habitat in the overwintering range is primarily coastal, including beaches, tidal flats, lagoon margins, and salt-evaporation ponds, while birds wintering inland often use agricultural waste-water ponds and saline lakes (Page et al. 2009). Migration habitat is thought to be similar to breeding and overwintering habitat (Page et al. 2009).</p> <p>Elevation: sea level to 10,000 ft (AGFD 2002c). In Arizona, observed at 580 ft (AGFD 2002c).</p>	<p>Is broadly distributed and breeds along the Pacific, Atlantic, and Gulf coast of North America. Inland, this species is found in portions of southcentral Oregon, California, Nevada, Utah, and southern Arizona, although this species may be found irregularly in other portions of the western U.S. where suitable habitat occurs (AGFD 2002c). The wintering range is primarily limited to the coasts, with irregular occurrences of this species inland in portions of California, Arizona, New Mexico, and Texas (Page et al. 2009).</p>	<p>Breeds in the southern portions of the state, primarily in south eastern portions where suitable habitat exists. Distribution in the winter is described as irregular in southern parts of the state (BISON-M 2017g).</p>	<p><b>None.</b></p> <p>The Project Area does not contain suitable habitat of coastal areas for this species, and the only record of this species in the vicinity of the Project Area is from a historical water feature that is no longer present (eBird 2021).</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Charadrius montanus</i>  Mountain plover	<p>Occupy habitats of short vegetation, bare ground, and flat topography for breeding and wintering (AGFD 2013). Inhabit xeric or disturbed uplands and are rarely found near water. Considered to be strongly associated with areas that are heavily grazed to the point of excessive surface disturbance (AGFD 2013). Non-breeding range occurs in plains, plowed fields, and sandy deserts. Does not require a free water source (BISON-M 2018e). Breed April-July in New Mexico (BISON-M 2018e).</p> <p>Elevation: 3,000-8,000 ft with breeding reported between 2,438-9,843 ft (AGFD 2013). In Arizona, 6,645-6,995 ft (AGFD 2013).</p>	<p>Nesting birds are reported in parts of the plains states from Canada south to Texas, and possibly into Mexico. Most breeding occurs in Colorado and Montana but also occurs in Wyoming, New Mexico, and Arizona, Utah, Nebraska, Kansas, Oklahoma and Texas (AGFD 2013b). The majority winter in California, with a few reported in Arizona, Texas and Mexico AGFD 2013b).</p>	<p>Considered extant in the state (BISON-M 2018e). Occassional, summer resident in El Malpais National Moneument and National Conservation Area, rare during the summer in Seveilleta National Wildlife Refuge, breeds in eastern plains to central-western prairie habtiat and migrates through the state, are accidnetal transients in Holloman Air Force Base, witner residents at Gray Ranch in Hidalgo County, and was recorded at Sauz Creek Important Bird Area in Harding County (BISON-M 2018e). During migration (arrive late-August stay through October) they are regualry found on turf farms in Torrance and Valencia counties (BISON-M 2018e).</p>	<p><b>None.</b></p> <p>The Project Area does not contain suitable habitat of flat topography with short vegetation for this species, and there are no eBird records in the vicinity (eBird 2021).</p>
<i>Numenius americanus</i>  Long-billed curlew	<p>Occurs primarily on shortgrass prairies and reservoirs. Breed in prairies, grassy meadows, and usually near water. Nest in damp grassy hollow, on slope occasionally near dry cow patties, typically near a shrub, rock or cactus (BISON-M 2019d). Avoid trees, tall weedy vegetation, and tall dense shrubs during breeding season (Fellows and Jones 2009). Winter along coastal sandy beaches, intertidal mudflats, marshes, coastal and inland pastures and farmlands, freshwater wetlands, salt ponds, and agricultural pastures (Fellows and Jones 2009). In Arizona and New Mexico, have used plowerd fields, harvested and grassy agricultural fields, flooded fields, desert grasslands and cut-over alfalfa fields (Fellows and Jones 2009).</p> <p>Elevation: In New Mexico, 2,800 – 5,500 ft but may extend to 7,000 ft (BISON-M 2019).</p>	<p>Breed in North American and winter in South America as far south as Hoduras and Costa Rica (BISON-M 2019d).</p>	<p>Considered extant. Found locally in western portions of the state (Fellows and Jones 2009). Known during various times of the year in El Malpais National Monument and National Conservatin Area, Sevilletta National Wildlife Refuge, White Sands National Monument, Grulla National Wildlife Refuge, Stinking Lake, Fort Bliss, Snata Rosa Reservoir, B-Square Ranch, Holloman Airo Force Base, Gray Ranch, Sauz Creek Important Bird Area, and Rio Mora National Wildlife Refuge (BISON-M 2019d).</p>	<p><b>None.</b></p> <p>The Project Area does not contain suitable grassland habitat and there are no eBird records in the vicinity (eBird 2021).</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Coccyzus americanus</i> (western Distinct Population Segment)  Yellow-billed cuckoo	<p>Most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013). Also utilizes drier woodlands including mesquite bosques, drainages in desert scrub and desert grassland with a tree component, and Madrean evergreen woodlands in perennial, intermittent or ephemeral drainages (USFWS 2020). Western yellow-billed cuckoos may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020).</p> <p>Elevation: Typically below 6,600 ft (AGFD 2011b).</p>	<p>Is a long-distance neotropical migrant (Hughes 2020). At the species level, breeds throughout temperate North America south to Mexico and the Greater Antilles (Hughes 2020). The western DPS breeds west of the Continental Divide and the watershed boundary between the Rio Grande and Pecos River and the Chihuahuan Desert. The USFWS considers the historical breeding range to include southern British Columbia, Canada and in Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas, U.S. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014). Winters in South America, east of the Andes and typically south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia and northern Argentina (USFWS 2014).</p>	<p>Occurs throughout the state where suitable habitat exists and is considered rare to fairly common. Breeding areas include the San Juan, Dry Cimarron, Rio Grande, Pecos, Mora, Canadian, San Francisco, and Gila valleys (BISON-M 2018h, accessed January 2021). Is most common in the south and along major drainages (BISON-M 2018h)</p>	<p><b>Unlikely.</b></p> <p>There is no riparian habitat in the Project Area preferred by this species. However, this species uses ephemeral drainages in the southwest, thus the site has some marginally suitable habitat and there have been citizen scientists detections in the vicinity of the site (eBird 2021). Given that the habitat in the site is marginal and constitutes a minor portion of the available habitat for cuckoo in New Mexico, it is unlikely for this species to occur in the Project Area, although it is possible that cuckoo may traverse the site while foraging or migrating.</p> <p>There is no proposed critical habitat in the Project Area.</p>
<i>Psiloscops flammeolus</i>  Flammulated owl	<p>Neotropical migrants that are found in forested areas but are restricted year-round to semiarid, cool-temperature climates. Occupies mature open stands of pine, Douglas fir forests, quaking aspen, blue spruce, oaks, and various other trees. Breeding habitats range from dry submontane interior Douglas firs, true firs, larch, incense cedar, spruce, and aspen stands (BISON-M 2018c). Frequents Ponderosa Pine, Ponderosa pine/Quaking aspen, and mixed conifer habitat in New Mexico (BISON-M 2018c).</p> <p>Elevation: 5,000-7,500 ft in New Mexico but also noted as low as 3,000 (BISON-M 2018c). In Arizona, 5,000-8,000 ft (AGFD 2005).</p>	<p>Breed in North America and overwinter primarily south of the U.S.-Mexican border but also in Arizona, southern Texas and California (BISON-M 2018c).</p>	<p>Considered extant in the state. Known in the Animas, Guadalupe, Jemex, Magdalena, Mogollon, Piños Altos Range, Sacramento, San Francisco, San Juan, San Mateo, Sandia, Sangre de Cristo, Tularosa, and Zuni mountains (BISON-M 2018c).</p>	<p><b>None.</b></p> <p>There is no suitable habitat of mature conifered forests in the Project Area and there are no eBird records in the vicinity (eBird 2021).</p>

## Appendix H. Birds of Conservation Concern for BCR 35 Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<p><i>Micrathene whitneyi</i></p> <p>Elf owl</p>	<p>Occupies open to dense vegetation of shrubs, low trees, and succulents. Known from Sonoran desertscrub, Chihuahuan desertscrub, Riparian Deciduous Woodlands, Marsh, Woodlands, especially with cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins (BISON-M 2017c). Areas with open stands of creosote brush and large succulents in southern New Mexico (BISON-M 2017c). Nest in snags.</p> <p>Elevation: 2,800 to 7,500 ft (BISON-M 2017c).</p>	<p>Found in the southwest U.S. to central Mexico and Baja California. Northern populations winter in Central Mexico and on the Pacific slope north to Sinaloa, Mexico (Wise-Gervais 2005a).</p>	<p>Considered extant in the state. Known from Animas, Guadalupe, and Mogollon mountains (BISON-M 2017c).</p>	<p><b>None.</b></p> <p>The Project Area lacks suitable habitat of developed riparian woodlands and there are no eBird records in the vicinity (eBird 2021).</p>
<p><i>Athene cunicularia</i></p> <p>Western burrowing owl</p>	<p>Inhabits flat or gently-sloping treeless and sparsely vegetated areas in deserts and grasslands (Poulin et al. 2011). In Arizona, they are most commonly breeds in grazed grasslands and open disturbed areas such as the edges of agricultural fields, fallow fields, bladed areas, irrigation embankments, airports and golf courses. They also breed in sparsely vegetated Sonoran or cold-temperate desertscrub (Martin 2005). Areas with burrows and unobstructed perches are favored (Martin 2005). Largely reliant on burrows dug by mammals but, on rare occasion, will dig their own holes (Klute et al. 2003, Poulin et al. 2011). Northern populations are migratory, and habitat used migratory and winter period is similar to that used for breeding but with some evidence of increased reliance on agricultural areas (Klute et al. 2003, Poulin et al. 2011).</p> <p>Elevation: In New Mexico, generally found 2,800-7,500 ft (BISON-M 2018b).</p>	<p>Is a partial migrant, with northern populations being primarily migratory (Poulin et al. 2011). In southwestern states, individuals appear to make yearly decisions to remain on their breeding grounds or migrate, likely based on environmental conditions (Ogonowski and Conway 2009, Poulin et al. 2011). The <i>hypugaea</i> subspecies breeds in Alberta, British Columbia, Manitoba and Saskatchewan, Canada and 19 U.S. states including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming (Klute et al. 2003). The breeding range extends southward into the Mexican states of Aguascalientes, Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosí, Sinaloa, Sonora, Tamaulipas and Zacatecas (Poulin et al. 2011). Winters primarily in Arizona, California, Louisiana, New Mexico, and Texas U.S., and southward through Mexico, excluding the Yucatan Peninsula, to Guatemala and Honduras, with rare reports as far south as Panama (Klute et al. 2003, Poulin et al. 2011).</p>	<p>Found in the state during the summer and variably winters statewide where suitable habitat occurs, with small populations occurring on grasslands (BISON-M 2018b).</p>	<p><b>None.</b></p> <p>Project Area is outside of known distribution of this species and there have been no eBird records within the vicinity (eBird 2021) and the site only contains marginal habitat for this species.</p>



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Calothorax lucifer</i>  Lucifer hummingbird	<p>Range-wide, this species primarily occurs in arid habitats including desertscrub, densely vegetated dry washes, lava fields, volcanic hills, rocky slopes but occasionally uses deciduous riparian woodland (Scott 1994). Little is known about habitat use in New Mexico. There is no information on migratory habitat and this species winters outside of the U.S. (Scott 1994). However, individuals have been reported from feeding stations in drainages dominated by sycamores, Madrean evergreen oak woodlands or pine-oak forest during the presumably post-breeding period (Corman 2005b).</p> <p>Elevation: Range-wide 2,625–7,220 ft (Scott 1994).</p>	<p>Migratory behavior is poorly understood, but this species is likely primarily migratory (Scott 1994). There are sparse breeding populations in southeastern Arizona, extreme southwestern New Mexico and the Big Bend region of Texas, U.S. The breeding range extends along the Sierra Madre Occidental and Oriental in northeastern Sonora, Chihuahua, Durango, Coahuila and Nuevo Leon to the Central Plateau and possibly as far south as Puebla (Scott 1994). Winters in central and southwestern Mexico in Jalisco, Guanajuato, Querétaro, Guerrero, Oaxaca, Colima, Michoacán and Morelos (Scott 1994).</p>	<p>A rare breeder and sparse visitor to the mountain ranges in the southwestern portion of the state including Post Office Canyon in the Peloncillo Mountains. Has also been recorded in the Peloncillos at Clanton Canyon and Skeleton Canyon (BISON-M 2018d).</p>	<p><b>Unlikely.</b></p> <p>While the Project Area may contain some marginally suitable woodland habitat, it is a rare vagrant to New Mexico, and has only been detected in the vicinity of the Project Area twice in the past 35 years, both times in Silver City (eBird 2021). Given the rarity of this species in New Mexico, it is unlikely to occur in the Project Area.</p>
<i>Lanius ludovicianus</i>  Loggerhead shrike	<p>Found in Douglas fir, Ponderosa pine, aspen (hardwoods), chaparral, and pinyon-juniper forest types. Also uses agricultural lands, montane meadows, and grasslands. In New Mexico, they utilize open habitats including shrubland and shrubby grasslands (BISON-M 2021).</p> <p>Elevations: In New Mexico, 2,800-7,500 ft (BISON-M 2021).</p>	<p>Breeds throughout southern Canada, south through Great Basin, in California to Baja California, Mexico, along the Gulf Coast to southern Florida. Migrates southward for the winter (AGFD 2004).</p>	<p>Extant in the state but considered rare in summer and uncommon in winter. Known from the Sacramento, Sandia, and Sangre de Cristo mountains (BISON-M 2021).</p>	<p><b>Possible.</b></p> <p>The Project Area is within the known geographic range, possess potentially suitable habitat, and there are eBird records in the vicinity specifically, Mangus Valley Road in 1994, Little Burrow Mtns in 2005, Forest Road 138 in 1994 and 1996, and Gila National Forest in 2004 (eBird 2021).</p>

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Vireo bellii</i>  Bell's vireo	<p>Breeds in a wide variety of dense shrubby habitats, often near water, particularly in arid environments, including riparian scrub along drainages, successional riparian vegetation, brushy fields, mesquite brushlands, chaparral and young forests and woodlands (Kus et al. 2020). In New Mexico, this species characteristically occurs near riparian habitat and dense shrubland or woodland along lowland stream courses (Kus et al. 2020). In the southeast and southwest parts of the state, most nests occur in willow, seepwillow, or hackberry (Kus et al. 2020)</p> <p>Elevation: In Arizona, breeds 120–5,120 ft (Averill-Murray and Corman 2005).</p>	<p>Is a neotropical migrant (Kus et al. 2020). Breeds throughout the central and southwestern U.S. including Arizona, Arkansas, California, Colorado, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, Nebraska, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Utah, Wisconsin, and Wyoming. Additionally, breeds in northern Mexico in Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, and Zacatecas. The wintering range is less well known but includes Baja California Sur and south along the Pacific Slope from Sonora through Oaxaca, El Salvador, Honduras and Nicaragua (Kus et al. 2020). There are scattered winter records throughout the southern U.S. portion of the breeding range and in Florida (Kus et al. 2020).</p>	<p>Considered a common and widespread summer resident in southern portion of the state (Bailey 1928b, Hubbard 1978c). Known populations occur in the lower Gila Box, San Simon Cienega, and Guadalupe Canyon (BISON-M 2019b).</p>	<p><b>None.</b></p> <p>Lack of suitable foraging or nesting habitat within the Project Area, and the site is above the elevation preferred by this species. There are no citizen scientist records of this species from the vicinity (eBird 2021).</p>

Appendix H. Birds of Conservation Concern for BCR 35 Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Vireo vicinior</i>  Gray vireo	<p>Preferred breeding habitat includes pinyon pine-juniper woodlands, oak scrub and chaparral in arid mountain ranges and high plains (Barlow, Leckie, and Baril 2020). In Arizona and New Mexico, occurs in chaparral-juniper and dwarf conifer forests, as well as sites with Graves oak (<i>Quercus gravesii</i>), mixed piñon, and madrone (<i>Arbutus</i> spp.; (Barlow, Leckie, and Baril 2020). Occasionally occurs in chaparral dominated slopes and Madrean evergreen oak woodlands with only scattered pinyon pine or junipers (Corman 2005a). Habitat used during migration is likely similar to the breeding and wintering habitats. In Arizona, wintering habitat includes lowland Sonoran desertscrub and rocky canyons in desert mountains. Elsewhere in the wintering range this species uses Chihuahuan desertscrub and lowland riparian areas with willow and cottonwood near springs or intermittent streams (Barlow, Leckie, and Baril 2020).</p> <p>Elevation: Typically breeds 3,500–6,800 ft (Corman 2005a), winters much lower (Barlow, Leckie, and Baril 2020).</p>	<p>A short-distance migrant (Barlow, Leckie, and Baril 2020). Breeds from central and southern Utah and western Colorado, south to southern Nevada, Arizona, and New Mexico, U.S. Isolated populations also breed in southern California, Baja California, western Texas, U.S. and in Mexico in northwestern Coahuila and possibly north-central Durango. Wintering range is poorly known, but this species has been reported from south-central Arizona, western Sonora, Baja California Sur and western Texas (Barlow, Leckie, and Baril 2020).</p>	<p>Rare summer residents of the Gila National Forest, this species occurs in New Mexico only in the warmer months. Have been recorded in central and western counties east to Pecos, western San Miguel County, and Gran Quivara National Monument, eastern Socorro County, the Silver City area, the foothills of the Magdalena, Manzanita, and Sandia mountains and in the southeast in the Guadalupe Mountains and in eastern Otero County (BISON-M 2017d).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is within the known distribution of this species, has potentially suitable woodland habitat, and there are eBird records within the immediate vicinity (eBird 2021). However, this species is rarely detected in New Mexico, and thus it is unlikely to occur in the site.</p>
<i>Toxostoma bendirei</i>  Bendire’s thrasher	<p>In southern New Mexico, they breed in degraded desert grassland areas and desertscrub with various xerophytic shrub species, but little grass. In central New Mexico, they are more commonly associated with cholla stands. Are rare and very local in shrubland/woodland (BISON-M 2019c).</p> <p>Elevation: 2,800-5,500 ft (BISON-M 2019c).</p>	<p>Breeds across the southwest, from southeastern California and southern Nevada to the eastern third of New Mexico, From southern Utah and Colorado south into Sonora and Chihuahua, and along the Pacific slope of Mexico to Sinaloa (BISON-M 2019c).</p>	<p>Breeds in scattered locations throughout the central and western portions of the state (BISON-M 2019c, England and Laundehslayer 1993).</p>	<p><b>Unlikely.</b></p> <p>There is no suitable desertscrub habitat for this species in the Project Area, although there eBird records of this species in the vicinity (eBird 2021).</p>
<i>Anthus spragueii</i>  Sprague’s pipit	<p>Prefer dry, open grasslands with mid-height vegetation. Areas with shrubs, even at low densities, are avoided for breeding. Upland mixed-grass prairies and meadows often near lakes. Generally avoids over-grazed pastures (BISON-M 2018g).</p> <p>Elevation: 2,800-5,500 ft (BISON-M 2018g).</p>	<p>Breeds in the northern Great Plains. Winters from southern Arizona, southern New Mexico, Texas, southern Oklahoma, Arkansas, Mississippi, and southern Louisiana south into northern Mexico to Michoacán, Puebla, and Veracruz (Davis, Robbins, and Dale 2014).</p>	<p>Winters in southern part of the state (Davis, Robbins, and Dale 2014). Occurs sporadically during winter in southern desert grasslands, primarily in the lower Pecos River Valley, Otero Mesa, and the Animas Valley (BISON-M 2018g).</p>	<p><b>None.</b></p> <p>There is no suitable grassland habitat in the Project Area, the site occurs above the elevational range preferred by this species, and there are no eBird records in the vicinity (eBird 2021).</p>

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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Vermivora virginiae</i> Virginia's warbler	Commonly breed and are transient in pinyon-juniper woodlands, ponderosa pine forest, ponderosa-oak forest, mixed conifer forest, and spruce-fir forest. Breeding habitat shows a strong association with steep draws, drainages, or slopes with oak or other shrubby vegetation. Often utilize lower elevation woodland and shrubland during migration (BISON-M 2020e).  Elevation: <6000-9000 ft (BISON-M 2020e).	Have a large range, estimated globally at 280,000 square kilometers. Native to the Bahamas, Guatemala, Belize, Turks and Caicos Islands, and North America (eBird 2020b). In North America this species is known from New Mexico and Arizona with historical records from Colorado, Texas and Utah (BISON-M 2020e)	Breed in mountains in northern portion of state, along Mogollon Rim in southwest, and locally at scattered other locations in central and western portion of the state, but more widespread in southwest ranges than previously described, occurring in Magdalena and Caballo Mountains., throughout Black Range, and in any appropriate habitat in Gila Wilderness (BISON-M 2020e, Olson and Martin 1999).	<b>Possible.</b>  The Project Area is within the known range of this species, contains potentially suitable woodland habitat, and habitat for migration. This species has been observed somewhat frequently in the vicinity of the Project Area (eBird 2021).
<i>Oreothlypis crissalis</i> Colima warbler	Utilize oak-pine habitats in canyons including montane forests of pine, juniper, oak, and madrone or oak-maple-Arizona cypress habitats. Prefers canyons and slopes in summer. Found in humid pine-oak habitat with brushy understory in Mexico (Kauffman 2021).  Elevation: breed above 6,000 ft (Kauffman 2021).	Range extends into southwestern Texas in the Chisos Mountains of Big Bend National Park (Kauffman 2021). Winters in southwestern Mexico. Mainly found in the Sierra Madre Occidental and Oriental mountains of central Mexico (Kauffman 2021).	Not known to occur in the state (Kauffman 2021).	<b>None.</b>  There Project Area is well outside the known geographic range of this species.
<i>Setophaga petechia</i> Yellow warbler	Occupy various forest types including riparian woodlands. Generally seen within or in proximity to relatively mesic woodland habitat characterized by salt-cedar and Russian olive. Snags and other forms of debris are common throughout the habitat. In New Mexico, breeding occurs in canyon slope and riparian habitats (BISON-M 2017i).  Elevation: 2,800 up to 13,000 ft (BISON-M 2017i).	Breed across central and northern North America and winter in Centra American and northern South America (Wise-Gervais 2005c).	Known from Sacramento, Sandia, and Sangre de Cristo mountains (BISON-M 2017i).	<b>Possible.</b>  The Project Area contains potentially suitable woodland habitat, is within the known geographic range, and there are recent eBird records in Dead Man's Canyon and along Red Rock Road near Silver City (eBird 2021).
<i>Steophaga graciae</i> Grace's warbler	Closely associated with Ponderosa pine woodlands with Gambel's oak understory and can tolerate habitats that have been lightly to moderately disturbed during the breeding season (BISON-M 2020c). Sometimes also uses spruce, fir, and oak thickets in higher mountains of the southwest. Winters in pine-oak woodlands in Mexico (Wise-Gervais 2005b).  Elevations: In New Mexico, 5,000-8,000 ft (BISON-M 2020c).	Breed in North American and winter south of the U.S.-Mexico border (BISON-M 2020c).	Known from Animas, Black Range, Gallo, Jemez, Magdalena, Manzano, Mogollon, Peloncillo, Piños Altos, Sacramento, San Francisco, San Juan, San Mateo, Sandia, Sangre de Cristo, Tularosa, and Zuni mountains (BISON-M 2020c).	<b>Unlikely.</b>  The Project Area is within the geographic range, and there are numerous recent eBird records in the vicinity including Dead Man's Canyon, Forest Road 136, and near Burrow Mountain homestead (eBird 2021). However, the site lacks suitable pine-oak habitat, for this reason it is considered unlikely to occur.

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Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Cardellina rubrifrons</i> Red-faced warbler	Inhabit mature forests including Ponderosa pine and oak, and mixed conifer forests in undisturbed or lightly disturbed areas. Utilize open water riparian vegetation in Ponderosa pine forests with oak understory (BISON-M 2018f).  Elevations: above 6,500 ft with breeding records in New Mexico between 7,300 and 8,150 ft (BISON-M 2018f).	Found in southwestern U.S. including eastern New Mexico and western and south-central Arizona during the summer. Winter in Mexico and South America (Corman 2005c).	Occasionally seen in the state with records in Animas, Black Range, Gallo, Magdalena, Mogollon, Peloncillo, Piños Altos, Sacramento, San Francisco, San Mateo, Sandia, Tularosa, and Zuni mountains (BISON-M 2018f).	<b>None.</b>  There is a recent eBird records on Dead Man's Canyon Trail (eBird 2021). However, the Project Area does not contain suitable pine forest habitat.
<i>Peucaea cassinii</i> Cassin's sparrow	Utilize dry grasslands with scattered shrubs, yucca, and small oak, acacia, mesquite, and other trees. Transient in desertscrub, rocky slopes, and juniper savannas near montane regions. Breed in grassland, shortgrass prairie (BISON-M 2017a).  Elevation: In New Mexico, 2,800 to 7,500 ft (BISON-M 2017a).	Breed in south central U.S. and winter in southern U.S. and in South America (BISON-M 2017a).	Known from the Sandia Mountains. Considered a summer resident in the eastern portion of the state and are occasional to irregular in the western portion. More widespread during migration (BISON-M 2017a).	<b>Unlikely.</b>  The Project Area lacks grassland habitat but the species may migrate through the area and there is a recent eBird record in the vicinity along Forest Road 136 (eBird 2021).
<i>Spizella atrogularis</i> Black-chinned sparrow	Inhabit rugged and rocky hillsides evergreen shrubs including chaparral and desertscrub habitats. Inhabits moderately open mountains slopes in New Mexico. Requires moderately thick shrub cover (BISON-M 2018a).  Elevation: 5,000-8,000 ft (BISON-M 2018a).	Found in the southwestern U.S. and throughout much of Mexico. Migrate south for the winter (BISON-M 2018a)	Known from the Animas, Guadalupe, Magdalena, Sacramento, and Sandia mountains (BISON-M 2018a).	<b>Unlikely.</b>  The Project Area is within the known geographic range but does not contains suitable of chaparral. However, there are recent eBird records in the vicinity including Dead Man's Canyon Trail and Forest Road 136 (eBird 2021) therefore this species considered unlikely because the species may travel through the area but is not likely to nest in the site.
<i>Calamospiza melanocorys</i> Lark bunting	Inhabit open grassland and greasewood habitats in summer. Transient in desertscrub, rocky slopes and juniper savannas near montane regions in New Mexico. Breed in grassland, prairie, meadows, and sagebrush. Nest on the ground adjacent to grasses or small shrub (BISON-M 2017e).  Elevation: 2,800-5,500 ft in New Mexico (BISON-M 2017e).	Occurs in the grasslands of North America in the summer with breeding in the prairie regions in central Canada and the mid-western U.S. Migrate to southern Texas, Arizona, and the high plateau of northern Mexico during the winter (Shane 2000).	Found in Florida, Sandia, and Sangre de Cristo mountains (BISON-M 2017e).	<b>None.</b>  The Project Area does not contain suitable grassland habitat for nesting and is above the higher elevational limits of this species.

## Appendix H. Birds of Conservation Concern for BCR 35 Potential to Occur Determinations

Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<b><i>Centronyx bairdii</i></b> [recently changed from <i>Ammodramus bairdii</i> ]  Baird's sparrow	Utilizes prairie habitats. Winters in areas of dense and expansive grasslands, with only a minor shrub component (Green et al. 2020). In southern New Mexico, this species prefers areas with denser grass cover than surrounding areas (BISON-M 2019a).  Elevation: 3,900-6,570 ft (BISON-M 2019a).	Nests in the Dakotas, Montana, and Minnesota, as well as the Canadian provinces of Alberta, Manitoba, and Saskatchewan. Winters primarily in northern Mexico, although some may be found in southern Texas, New Mexico, and Arizona (BISON-M 2019a, Green et al. 2020).	Migrates in the eastern and extreme southern areas of the state, where it is considered rare to uncommon (BISON-M 2019a, Green et al. 2020).	<b>None.</b>  The Project Area lack of suitable habitat, this species is considered rare to uncommon in the state, and has only been detected irregularly in southwestern New Mexico (eBird 2021).
<b><i>Rhynchophanes mccownii</i></b> [recently changed from <i>Calcarius mccownii</i> ]  McCown's longspur	Occupies primarily grassland habitat. During migration and in winter, the species utilizes similar short, open habitat as well as agricultural fields and dry lake beds (With 2010).  Elevation: 2,800-5,500 ft (BISON-M 2020d).	Breeds and winters extensively in North America (BISON-M 2020d). Range extends from southern Alberta and Saskatchewan, southward through much of Montana, Wyoming, Colorado, New Mexico, and Texas, to northern Durango, Mexico (With 2010).	Winters in the southeast and southwest, with observations of migrants and transients elsewhere throughout the state (BISON-M 2020d).	<b>Unlikely.</b>  The Project Area is within the geographic range of this species but lacks suitable grassland and is at the upper limits of the known elevation range. However, this species has also been detected, albeit infrequently, in the vicinity of the Project Area (eBird 2021).
<b><i>Calcarius ornatus</i></b>  Chestnut-collared longspur	Typical breeding habitat is arid short- to mixed-grass prairie with flat to rolling topography in northern Great Plains and Canadian prairies. Often more abundant in areas that have been recently grazed, mowed, or burned (Bleho et al. 2015). Generally avoids undisturbed habitat. Limited information on habitat preferences during migration but prefers native grassland during migration through Kansas. Winters in southern Great Plains and Chihuahuan Desert of southwest U.S. and Mexico (Bleho et al. 2015).  Elevation: 2,800-7,500 ft (BISON-M 2017b).	Northern limits of breeding range include se. Alberta to northern edge of grasslands east of Rockies, Montana and throughout most of North Dakota. Winter range includes northern Arizona, north-central New Mexico, Colorado, Oklahoma, and extends through northwest Texas to north Mexico in deserts of northern Sonora and on Central Plateau from Chihuahua and Coahuila south to Zacatecas, Aguascalientes, and San Luis Potosí (Bleho et al. 2015).	Found in the northcentral part of the state throughout east, and south of Santa Fe in the western part of the state (Bleho et al. 2015).	<b>None.</b>  The Project Area is within the range of this species but lacks suitable grassland habitat and there are no eBird records in the vicinity (eBird 2021).



Species Name	Known Suitable Habitat	Total Range	Distribution in New Mexico	Potential to Occur
<i>Passerina versicolor</i>  Varied bunting	<p>Range-wide, they breeds in densely vegetated areas with desertscrub, thornscrub, scrubby woodlands, forest edges, and overgrown clearings (Groschupf and Thompson 2020). Habitat use in New Mexico is poorly described. However, in Arizona, most breeding records are from arid slopes adjacent to drainages with mesquite and netleaf hackberry and from areas with dense Sonoran desertscrub (Corman 2005d). During migration this species uses habitat similar to that used for breeding (Groschupf and Thompson 2020). They winters in habitats outside of the U.S. (Groschupf and Thompson 2020).</p> <p>Elevation: In Arizona, breeds between 1,350–5,100 ft (Corman 2005d).</p>	<p>Is a partial migrant (Groschupf and Thompson 2020). Breeding range includes south-central and southeastern Arizona, southern New Mexico and southern Texas, U.S. The range extends southward to northern Michoacán, Mexico and locally in Guatemala. During the winter, northern populations withdraw southward and this species can be found in Mexico from southern Sonora on the Pacific Slope, Guanajuato in the interior and northern Tamaulipas and eastern Nuevo León on the Atlantic Slope and southward through the breeding range (Groschupf and Thompson 2020). There is some evidence that this species may be expanding northward into Arizona and New Mexico (Groschupf and Thompson 2020).</p>	<p>Occurs in southern part of the state near the Carlsbad Caverns in Hidalgo County and the Guadalupe Mountains. Vagrants of this species have also been detected in west-central New Mexico (BISON-M 2017h, Groschupf and Thompson 2020).</p>	<p><b>Unlikely.</b></p> <p>The Project Area is outside of the known range of this species, although marginally suitable habitat may be present. However, there is some evidence this species is expanding its range northward, as evidenced by citizen scientist detections in the general vicinity of Project Area (eBird 2021).</p>
<i>Passerina ciris</i>  Painted bunting	<p>Occupy semi-open areas with dense low growth. Breeds in thickets, woodland edges, roadsides, brush, gardens. Winters in thorn scrub and shrubby forest or savanna edges (BISON-M 2017f).</p> <p>Elevation: 2,800-7,500 ft (BISON-M 2017f).</p>	<p>Breed in southwestern U.S. and migrate south to Florida, Mexico, and Central America (BISON-M 2017f).</p>	<p>Known from the Lower Pecos Valley and vicinity and formerly in the lower Rio Grande Valley. Considered rare and fairly common. Rare migrants at the White Sands National Monument and Fort Bliss. Models predict that the summer range may extend into the state (BISON-M 2017f).</p>	<p><b>None.</b></p> <p>The Project Area contains potentially suitable habitat, the nearest eBird record is in Tyrone in 2003 (eBird 2021), but this is the only record in the vicinity.</p>



## REFERENCES

- Arizona Game and Fish Department. 2002a. American Peregrine Falcon (*Falco peregrinus anatum*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. December 3, 2002. 6 pp.
- \_\_\_\_\_. 2002b. Golden Eagle (*Aquila chrysaetos*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. July 27, 2002. 5 pp.
- \_\_\_\_\_. 2002c. Western Snowy Plover (*Charadrius alexandrinus nivosus*). *Draft Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. November 27, 2002. 6 pp.
- \_\_\_\_\_. 2004. Loggerhead Shrike (*Lanius ludovicianus*) Draft. *Unpublished abstract edited by the Heritage Data Management System*, Arizona Game and Fish Department,. 5 pp.
- \_\_\_\_\_. 2005. Flammulated Owl (*Psilosops flammeolus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7.
- \_\_\_\_\_. 2011a. Bald Eagle (*Haliaeetus leucocephalus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. September 2, 2011. 9 pp.
- \_\_\_\_\_. 2011b. Yellow-billed Cuckoo (*Coccyzus americanus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. October 31, 2011. 6 pp.
- \_\_\_\_\_. 2013. Mountain Plover (*Charadrius montanus*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. 7 pp.
- Averill-Murray, Annalaura, and Troy E. Corman. 2005. "Bell's Vireo (*Vireo bellii*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 338-339.
- Barlow, Jon C., Sheridan N. Leckie, and Colette T. Baril. 2020. "Gray Vireo (*Vireo vicinior*).\" In *Birds of the World*, edited by A.F. Poole and F.B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- BISON-M. 2017a. "Cassin's Sparrow (*Peucaea cassinii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017b. "Chestnut-collared Longspur (*Calcarius ornatus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017c. "Elf Owl (*Microathene whitneyi*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017d. "Gray Vireo (*Vireo vicinior*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>.

- \_\_\_\_\_. 2017e. "Lark Bunting (*Calamospiza melanocorys*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017f. "Painted Bunting (*Passerina ciris*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017g. "Snowy plover (*Charadrius nivosus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017h. "Varied Bunting (*Passerina versicolor*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2017i. "Yellow Warbler (*Setophaga petechia*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018a. "Black-chinned Sparrow (*Spizella atrogularis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018b. "Burrowing Owl (*Athene cunicularia*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018c. "Flammulated Owl (*Psiloscopus flammeolus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018d. "Lucifer Hummingbird (*Calothorax lucifer*).\" Biota Information Systems of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018e. "Mountain Plover (*Charadrius montanus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018f. "Red-faced Warbler (*Cardellina rubrifrons*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018g. "Sprague's Pipit (*Anthus spragueii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2018h. "Yellow-billed Cuckoo (western pop; *Coccyzus americanus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019a. "Baird's Sparrow (*Centronyx bairdii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019b. "Bell's Vireo (*Vireo bellii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2019c. "Bendire's Thrasher (*Toxostoma bendirei*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.

- \_\_\_\_\_. 2019d. "Long-billed Curlew (*Numenius americanus*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020a. "Common Black Hawk (*Buteogallus anthracinus*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020b. "Ferruginous hawk (*Buteo regalis*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020c. "Grace's Warbler (*Stetophaga graciae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020d. "McCown's Longspur (*Rhynchophanes mccownii*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2020e. "Virginia's Warbler (*Leiothlypis virginiae*).\" Biota Information System of New Mexico [BISON-M]. <https://bison-m.org/>. Santa Fe, New Mexico.
- \_\_\_\_\_. 2021. "Loggerhead Shrike (*Lanius ludovicianus*).\" Biota Information System of New Mexico. <https://bison-m.org/>. Santa Fe, New Mexico.
- Bleho, Barbara, Kevin Ellison, Dorothy P. Hill, and Lorne K. Gould. 2015. Chestnut-collared Longspur (*Calcarius ornatus*). *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: The Cornell Lab of Ornithology.
- Buehler, David A. 2020. "Bald Eagle (*Haliaeetus leucocephalus*), version 1.0.\" The Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.baleag.01>. Ithaca, New York.
- Burger, Bill. 2005. "Peregrine Falcon (*Falco peregrinus*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 156-157.
- Corman, Troy E. 2005a. "Gray Vireo (*Vireo vicinior*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 340-341.
- \_\_\_\_\_. 2005b. "Lucifer Hummingbird (*Calothorax lucifer*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico Press. p. 254-255.
- \_\_\_\_\_. 2005c. "Red-Faced Warbler (*Cardellina rubrifrons*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 480-481.
- \_\_\_\_\_. 2005d. "Varied Bunting (*Passerina versicolor*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 550-551.

- Davis, Stephen K., Mark B. Robbins, and Brenda C. Dale. 2014. Sprague's Pipit (*Anthus spragueii*). *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.
- Driscoll, James T. 2005. "Golden Eagle (*Aquila chrysaetos*).\" In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 150-151.
- eBird. 2020a. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2020b. Virginia's Warbler (*Leiothlypis virginiae*) Species Map. *eBird website*. Ithaca, New York: Cornell Lab of Ornithology.
- \_\_\_\_\_. 2021. eBird: An Online Database of Bird Distribution and Abundance. *eBird Website*. Ithaca, New York: Cornell Lab of Ornithology.
- England, A. Sidney, and W. F. Laundehsayer. 1993. "Bendire's Thrasher (*Toxostoma bendirei*), version 2.0.\" In *The Birds of North America Online*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Fellows, Susan D., and Stephanie L. Jones. 2009. Status Assessment and Conservation Action Plan for the Long-billed Curlew (*Numenius americanus*). *Biological Technical Publication FWS/BTP-R6012-2009*. Washington, D.C.: U.S. Department of Interior, Fish and Wildlife Service.
- Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, M. Iliff, and S. Kelling. 2018. "eBird Status and Trends.\" Cornell Lab of Ornithology. <https://ebird.org/science/status-and-trends>. Ithaca, New York.
- Green, M. T., P. E. Lowther, S. L. Jones, S. K. Davis, and B. C. Dale. 2020. "Baird's Sparrow (*Centronyx bairdi*), version 1.0.\" In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Groschupf, K. D., and C. W. Thompson. 2020. "Varied Bunting (*Passerina versicolor*), version 1.0.\" In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: The Cornell Lab of Ornithology.
- Hughes, Janice M. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*), version 1.0.\" In *The Birds of the World [online]*, edited by P.G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Katzner, T. E., M. N. Kochert, K. Steenhof, C. L. McIntyre, and E. H. Craig. 2020. "Golden Eagle (*Aquila chrysaetos*), version 2.0.\" In *Birds of the World*, edited by P. G. Rodewald and B. K. Keeney. Ithaca, New York: Cornell Lab of Ornithology.
- Kauffman, K. 2021. "Colima Warbler (*Leiothlypis crissalis*).\" Audbon Society. <https://www.audubon.org/field-guide/bird/colima-warbler#>.
- Klute, D. S., L. W. Ayers, M. T. Green, W. H. Howe, S. L. Jones, J. A. Shaffer, S. R. Sheffield, and T. S. Zimmerman. 2003. Status Assessment and Conservation Plan for the Western Burrowing

- Owl in the United States. *Biological Technical Publication FWS/BTP-R6001-2003*: U.S. Fish and Wildlife Service. June 2003.
- Kus, Barbara, Steven L. Hopp, R. Roy Johnson, and Bryan T. Brown. 2020. "Bell's Vireo (*Vireo bellii*), version 1.0." In *Birds of the World*, edited by A. F. Poole. Ithaca, New York: Cornell Lab of Ornithology.
- Luensmann, Peggy. 2010. "*Falco peregrinus*. In: Fire Effects Information System, [Online]." U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <https://www.fs.fed.us/database/feis/animals/bird/fape/all.html>.
- Martin, Jennifer L. 2005. "Burrowing Owl (*Athene cunicularia*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 222-223.
- Ng, J., M. D. Giovanni, M. J. Bechard, J. K. Schmutz, and P. Pyle. 2017. "Ferruginous Hawk (*Buteo regalis*), version 2.0." In *The Birds of North America*, edited by P. G. Rodewald. Ithaca, New York: Cornell Lab of Ornithology.
- Ogonowski, Mark S. , and Courtney J. Conway. 2009. "Migratory Decisions in Birds: Extent of Genetic versus Environmental Control." *Oecologia* 2009 (161):199-207.
- Olson, Christopher R., and Thomas E. Martin. 1999. Virginia's Warbler (*Oreothlypis virginiae*). *The Birds of North America Online*, P.G. Rodewald. Ithaca, New York: The Cornell Lab of Ornithology.
- Page, Gary W., Lynne E. Stenzel, J. S. Warriner, J. C. Warriner, and P. W. Paton. 2009. Snowy Plover (*Charadrius nivosus*). *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.
- Parmeter, John, Bruce Neville, and Douglas Emkalns. 2002. New Mexico Bird Finding Guide. *Third Edition*: New Mexico Ornithological Society.
- Poulin, Ray L, Danielle Todd, E A Haug, B A Millsap, and M S Martell. 2011. "Burrowing Owl (*Athene cunicularia*), version 2.0." In *The Birds of North America Online*, edited by A. F. Poole. Ithaca, New York: The Cornell Lab of Ornithology.
- Sadoti, Giancarlo. 2010. "Common Black-Hawk (*Buteogallus anthracinus*)." In *Raptors of New Mexico*, edited by Jean-Luc E. Cartron. Albuquerque, New Mexico: University of New Mexico Press. 213-225.
- Schnell, J. H. 2020. "Common Black Hawk (*Buteogallus anthracinus*), version 1.0." In *Birds of the World*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Scott, P. E. 1994. "Lucifer Hummingbird (*Calothorax lucifer*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Shane, Thomas G. 2000. Lark Bunting (*Calamospiza melanocorys*). *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.

- Tesky, Julie L. 1994. *Aquila chrysaetos*. *Fire Effects Information System [online]*. Rocky Mountain Research Station: U.S. Department of Agriculture, U.S. Forest Service.
- U.S. Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. U.S. Department of Interior. October 3, 2013. *Federal Register*, 78 (192):61622-61666.
- \_\_\_\_\_. 2014. 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. U.S. Department of Interior. October 3, 2014. *Federal Register*, 79 (192):59992-60038.
- \_\_\_\_\_. 2020. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule. U.S. Department of Interior. February 27, 2020. *Federal Register*, 85 (39):11458-11594.
- White, Clayton M., Nancy J. Clum, Tom J. Cade, and W. Grainger Hunt. 2002. "Peregrine Falcon (*Falco peregrinus*), version 2.0." In *The Birds of North America [online]*, edited by A. F. Poole and F. B. Gill. Ithaca, New York: Cornell Lab of Ornithology.
- Wise-Gervais, Cathryn. 2005a. "Elf Owl (*Micrathene whitneyi*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 220-221.
- \_\_\_\_\_. 2005b. "Grace's Warbler (*Dendroica graciae*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 474-475.
- \_\_\_\_\_. 2005c. "Yellow Warbler (*Dendroica petechia*)." In *Arizona Breeding Bird Atlas*, edited by Troy E. Corman and Cathryn Wise-Gervais. Albuquerque, New Mexico: University of New Mexico. p. 468-469.
- With, Kimberly A. 2010. McCown's Longspur (*Rhynchophanes mccownii*) version 2.0. *The Birds of North America Online*. Ithaca, New York: The Cornell Lab of Ornithology.

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## **APPENDIX I**

**Complete List of  
Special-Status  
Species Analyzed  
(Excel File)**



## Appendix I. Complete List of Special-status Species Analyzed for the Project

Group	Common name	Scientific name	ESA	BGEPA	NMGF	BLM	GNF	NM Rare Plants	BCC	Potential To Occur
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>		X	X	X	X		X	Unlikely
Birds	Bell's vireo	<i>Vireo bellii</i>			X	X	X		X	None
Fish	Roundtail chub	<i>Gila robusta</i>			X	X	X			None
Mammals	Spotted bat	<i>Euderma maculatum</i>			X	X	X			Possible
Amphibians	Lowland leopard frog	<i>Lithobates yarapaiensis</i>			X		X			None
Birds	Abert's towhee	<i>Melospiza aberti</i>			X		X			Unlikely
Birds	American peregrine falcon	<i>Falco peregrinus anatum</i>			X		X		X	Possible
Birds	Common black hawk	<i>Buteogallus anthracinus</i>			X		X		X	Unlikely
Birds	Common ground dove	<i>Columbina passerine</i>			X		X			Unlikely
Birds	Costa's hummingbird	<i>Calypte costae</i>			X		X			Unlikely
Birds	Gila woodpecker	<i>Melanerpes uropygialis</i>			X		X			Unlikely
Birds	Gray vireo	<i>Vireo vicinior</i>			X		X		X	Unlikely
Birds	White-eared hummingbird	<i>Hylocharis leucotis</i>			X		X			Unlikely
Birds	Baird's sparrow	<i>Centronyx bairdii</i>			X	X			X	None
Mammals	Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>			X	X				None
Reptiles	Gila monster	<i>Heloderma suspectum</i>			X	X				Unlikely
Birds	Broad-billed hummingbird	<i>Cynanthus latirostris</i>			X					Unlikely
Birds	Brown pelican	<i>Anaxyrus microscaphus</i>			X					None
Birds	Buff-collared nightjar	<i>Antrostomus [=Caprimulgus] ridgwayi</i>			X					None
Birds	Elegant trogon	<i>Trogon elegans</i>			X					Unlikely
Birds	Lucifer hummingbird	<i>Calothorax lucifer</i>			X				X	Unlikely
Birds	Neotropic cormorant	<i>Phalacrocorax brasilianus</i>			X					None
Birds	Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	X		X					None
Birds	Northern beardless tyrannulet	<i>Camptostoma imberbe</i>			X					None
Birds	Southwestern willow flycatcher	<i>Empidonax traillii eximius</i>	X		X					None
Birds	Thick-billed kingbird	<i>Tyrannus crassirostris</i>			X					None
Birds	Varied bunting	<i>Passerina versicolor</i>			X				X	Unlikely
Birds	Yellow-eyed junco	<i>Junco phaeonotus</i>			X					Possible
Fish	Chihuahua chub	<i>Gila nigrescens</i>	X		X					None
Fish	Gila chub	<i>Gila chub</i>	X		X					None
Fish	Gila topminnow	<i>Poeciliopsis occidentalis</i>	X		X					None
Fish	Gila trout	<i>Oncorhynchus gilae</i>	X		X					None
Fish	Loach minnow	<i>Tiaroga cobitis</i>	X		X					None
Fish	Spikedace	<i>Meda fulgida</i>	X		X					None
Mammals	Mexican gray wolf	<i>Canis lupus baileyi</i>	X		X					Unlikely
Mollusc	Gila springsnail	<i>Pyrgulopsis gilae</i>			X					None
Mollusc	New Mexico springsnail	<i>Pyrgulopsis thermalis</i>			X					None
Reptiles	Narrow-headed gartersnake	<i>Thamnophis rufipunctatus</i>	X		X					None
Reptiles	Northern Mexican gartersnake	<i>Thamnophis eques megalops</i>	X		X					None
Birds	Western burrowing owl	<i>Athene cunicularia</i>				X	X		X	None
Fish	Desert sucker	<i>Catostomus clarkii</i>				X	X			None
Fish	Rio Grande sucker	<i>Catostomus plebeius</i>				X	X			None

## Appendix I. Complete List of Special-status Species Analyzed for the Project

Group	Common name	Scientific name	ESA	BGEPA	NMGF	BLM	GNF	NM Rare Plants	BCC	Potential To Occur
Mammals	Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallascens</i>				X	X			Possible
Plants	Mimbres figwort	<i>Scrophularia macrantha</i>				X	X	X		Unlikely
Birds	Northern goshawk	<i>Accipiter gentilis</i>					X			Possible
Birds	Yellow-billed cuckoo	<i>Coccyzus americanus</i>	X				X		X	Unlikely
Fish	Headwater chub	<i>Gila nigra</i>					X			None
Fish	Rio Grande cutthroat trout	<i>Oncorhynchus clarki virginalis</i>					X			None
Fish	Sonora sucker	<i>Catostomus insignis</i>					X			None
Insect	A stonefly	<i>Capnia caryi</i>					X			None
Insect	Dashed ringtail	<i>Erpetogomphus heterodon</i>					X			None
Insect	Gila mayfly	<i>Lachlania dencyanna</i>					X			None
Insect	Notodontid moth	<i>Eubhyparapax rosea</i>					X			Unlikely
Mammals	Allen's big-eared bat	<i>Idionycteris phyllotis</i>					X			Unlikely
Mammals	Arizona gray squirrel	<i>Sciurus arizonensis arizonensis</i>					X			Unlikely
Mammals	Arizona montane vole	<i>Microtus montanus arizonensis</i>					X			None
Mammals	Gunnison's prairie dog (prairie and montane)	<i>Cynomys gunnisoni</i>					X			None
Mammals	Hooded skunk	<i>Mephitis macroura milleri</i>					X			Possible
Mammals	Western red bat	<i>Lasiurus blossevillii</i>					X			Unlikely
Mollusc	Snail (No common name)	<i>Ashmunella cockerelli argenticola</i>					X			None
Mollusc	Black Range woodlandsnail	<i>Ashmunella cockerelli cockerelli</i>					X			None
Mollusc	Snail (No common name)	<i>Ashmunella cockerelli perobtusula</i>					X			None
Mollusc	Whitewater Creek woodlandsnail	<i>Ashmunella danieli</i>					X			None
Mollusc	Iron Creek woodlandsnail	<i>Ashmunella mendax</i>					X			None
Mollusc	Snail (No common name)	<i>Ashmunella tetrodon animorum</i>					X			None
Mollusc	Snail (No common name)	<i>Ashmunella tetrodon inermis</i>					X			None
Mollusc	Snail (No common name)	<i>Ashmunella tetrodon mutator</i>					X			None
Mollusc	Snail (No common name)	<i>Ashmunella tetrodon tetrodon</i>					X			None
Mollusc	Bearded mountain snail	<i>Oreobelix barbata</i>					X			None
Mollusc	Snail (No common name)	<i>Oreobelix metcalfei acutidiscus</i>					X			None
Mollusc	Snail (No common name)	<i>Oreobelix metcalfei concentrica</i>					X			None
Mollusc	Snail (No common name)	<i>Oreobelix metcalfei metcalfei</i>					X			None
Mollusc	Snail (No common name)	<i>Oreobelix metcalfei radiata</i>					X			None
Mollusc	Mineral Creek mountainsnail	<i>Oreobelix pilsbryi</i>					X			None
Mollusc	Morgan Creek mountainsnail	<i>Oreobelix swopei</i>					X			None
Mollusc	Gila springsnail	<i>Pyrgulopsis gilae</i>					X			None
Mollusc	New Mexico springsnail	<i>Pyrgulopsis thermalis</i>					X			None
Mollusc	Silver Creek woodland springsnail	<i>Ashmunella binneyi</i>					X			None
Plants	Arizona coralroot	<i>Hexalectris arizonica</i>					X			Unlikely
Plants	Blumer's dock	<i>Rumex orthoneurus</i>					X			Unlikely
Plants	Davidson's cliff carrot	<i>Pteroxia davidsonii</i>					X	X		Unlikely
Plants	Gila thistle	<i>Cirsium gilense</i>					X			None
Plants	Goodding's onion	<i>Allium gooddingii</i>					X			None
Plants	Greene milkweed	<i>Asclepias uncialis</i> ssp. <i>uncialis</i>					X			None

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Group	Common name	Scientific name	ESA	BGEPA	NMGF	BLM	GNF	NM Rare Plants	BCC	Potential To Occur
Plants	Heartleaf groundsel	<i>Packera cardamine</i> (= <i>Senecio cardamine</i> )					X			None
Plants	Hess' fleabane	<i>Erigeron bessii</i>					X			None
Plants	Maguire's beardtongue	<i>Penstemon linarioides</i> ssp. <i>maguirei</i>					X	X		None
Plants	Metcalf's tick-trefoil	<i>Desmodium metcalfei</i>					X	X		None
Plants	Metcalf's penstemon	<i>Penstemon metcalfei</i>					X			None
Plants	Mogollon clover	<i>Trifolium longipes</i> ssp. <i>neurophyllum</i> (= <i>T. neurophyllum</i> )					X			None
Plants	Mogollon hawkweed	<i>Hieracium brevipilum</i> (= <i>H. fendleri</i> var. <i>mogollense</i> )					X			None
Plants	Mogollon death camas	<i>Anticlea mogollonensis</i> (= <i>Zigadenus m.</i> )					X			None
Plants	Pinos altos flame flower	<i>Pterisanthus humilis</i>					X	X		Unlikely
Plants	Porsild's starwort	<i>Stellaria porsildii</i>					X	X		None
Plants	Rusby's hawkweed	<i>Hieracium abscissum</i>					X			None
Plants	Villous groundcover milkvetch	<i>Astragalus humistratus</i> var. <i>crispulus</i>					X			None
Plants	Wootton's hawthorne	<i>Crataegus woottoniana</i>					X	X		None
Plants	Wright's dogweed	<i>Adenophyllum wrightii</i> var. <i>wrightii</i>					X			Possible
Plants	Yellow lady's slipper	<i>Cypripedium parviflorum</i> var. <i>pubescens</i>					X	X		None
Amphibians	Southwestern (Arizona) toad	<i>Anaxyrus microscaphus</i>				X				None
Birds	Arizona Botteri's sparrow	<i>Peucaea botteri arizonae</i> or <i>Aimophila botteri</i>				X				Unlikely
Birds	Arizona grasshopper sparrow	<i>Ammodramus savannarum</i>				X				None
Birds	Bendire's thrasher	<i>Toxostoma bendirei</i>				X			X	Unlikely
Birds	Chestnut-collared longspur	<i>Calcarius ornatus</i>				X			X	None
Birds	McCown's longspur	<i>Rhynchophanes mccownii</i>				X			X	Unlikely
Birds	Mexican whip-poor-will	<i>Antrostomus arizonae</i>				X				Possible
Birds	Pinon jay	<i>Gymnorhinus cyanocephalus</i>				X				Possible
Birds	Sprague's pipit	<i>Anthus spragueii</i>				X			X	None
Birds	Virginia's warbler	<i>Vermivora virginiae</i>				X			X	Possible
Crustacean	Bowman's fairy shrimp	<i>Streptocephalus thomasbowmani</i>				X				None
Crustacean	Moore's fairy shrimp	<i>Streptocephalus moorei</i>				X				None
Crustacean	Salt Playa (Sublette's) fairy shrimp	<i>Phallocryptus sublettei</i>				X				None
Fish	Rio Grande chub	<i>Gila pandora</i>				X				None
Insect	Anthony blister beetle	<i>Lytta mirifica</i>				X				None
Insect	Monarch butterfly	<i>Danaus plexippus plexippus</i>				X				Possible
Mammals	Arizona shrew	<i>Sorex arizonae</i>				X				None
Mammals	Black-tailed prairie dog	<i>Cynomys ludovicianus</i>				X				None
Mammals	Mexican long-tongued bat	<i>Choeronycteris mexicana</i>				X				Unlikely
Mammals	Western yellow bat	<i>Lasiurus xanthinus</i>				X				Unlikely
Mammals	White-sided jackrabbit	<i>Lepus callotis</i>				X				None
Mollusc	Cooke's peak snail	<i>Asbmunella macromphala</i>				X				None
Mollusc	Cross holospira snail	<i>Holospira crossei</i>				X				None
Mollusc	Doña Ana talussnail	<i>Sonorella todseni</i>				X				None
Mollusc	Fringed mountainsnail	<i>Radiocentrum ferrissi</i>				X				None
Mollusc	Hacheta Grande woodlandsnail	<i>Asbmunella bebaridi</i>				X				None
Mollusc	Metcalf holospira snail	<i>Holospira metcalfi</i>				X				None

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Mollusc	New Mexico talussnail	<i>Sonorella bachitana</i>				X				None
Mollusc	New Mexico talussnail	<i>Sonorella bachitana flora</i>				X				None
Mollusc	Shortneck snaggletooth snail	<i>Gastrocopta dalliana dalliana</i>				X				None
Plants	Alamo beardtongue	<i>Penstemon alamosensis</i>				X				None
Plants	Chapline's columbine	<i>Aquilegia chrysantha</i> var. <i>chaplinei</i>				X				None
Plants	Chihuahua scurfpea	<i>Pedimelum pentaphyllum</i>				X				None
Plants	Coppermine milkvetch	<i>Astragalus cobrensis</i> var. <i>maguirei</i>				X				None
Plants	Crow Flat greggia	<i>Nerisyrenia hypercorax</i>				X				None
Plants	Duncan's pincushion cactus	<i>Escobaria duncanii</i>				X				None
Plants	Gray sibarra	<i>Sibara grisea</i>				X				None
Plants	Guadalupe mescalbean	<i>Dermatophyllum guadalupense</i>				X				None
Plants	Guadalupe stickleaf	<i>Mentzelia humilis</i> var. <i>guadalupensis</i>				X				None
Plants	Gypsum scalebroom	<i>Lepidospartum burgessii</i>				X				None
Plants	Howard's gyp ringstem	<i>Anulocaulis leiosolenus</i> var. <i>howardii</i>				X				None
Plants	New Mexico bitterweed	<i>Hymenoxys ambigens</i> var. <i>neomexicana</i>				X				None
Plants	Nightblooming cereus	<i>Peniocereus greggii</i>				X		X		None
Plants	Nodding cliff daisy	<i>Perityle cernua</i>				X				None
Plants	Organ Mountains figwort	<i>Scrophularia laevis</i>				X				None
Plants	Organ Mountains giant hyssop	<i>Agastache pringlei</i> var. <i>verticillata</i>				X				None
Plants	Organ Mountains paintbrush	<i>Castilleja organorum</i>				X				None
Plants	Organ Mountains scaleseed	<i>Spermolepis organensis</i>				X				None
Plants	Parish's alkali grass	<i>Puccinellia parishii</i>				X				None
Plants	Sand pricklypear	<i>Opuntia arenaria</i>				X				None
Plants	Scheer's beehive cactus	<i>Coryphantha robustispina</i> ssp. <i>scheeri</i>				X				None
Plants	Villard's pincushion cactus	<i>Escobaria villardii</i>				X				None
Plants	Wild mountain rockcress	<i>Boechera zephyra</i>				X				None
Plants	Wilkinson's nailwort	<i>Paronychia wilkinsonii</i>				X				None
Plants	Wright's marsh thistle	<i>Cirsium wrightii</i>				X				Unlikely
Reptiles	Big bend slider	<i>Trachemys gaigeae</i>				X				None
Reptiles	Desert massasagua	<i>Sistrurus tergeminus</i> [= <i>catenatus</i> ] <i>edwardsii</i>				X				Unlikely
Reptiles	Gray-checked whiptail	<i>Aspidoscelis dixonii</i>				X				None
Amphibians	Chiricahua leopard frog	<i>Rana chiricahuensis</i>	X							None
Birds	Black-chinned sparrow	<i>Spizella atrogularis</i>							X	Unlikely
Birds	Cassin's sparrow	<i>Peucaea cassinii</i>							X	Unlikely
Birds	Colima warbler	<i>Oreothlypis crissalis</i>							X	None
Birds	Elf owl	<i>Micrathene whitneyi</i>							X	None
Birds	Ferruginous hawk	<i>Buteo regalis</i>							X	Possible
Birds	Flammulated owl	<i>Psiloscops flammeolus</i>							X	None
Birds	Golden eagle	<i>Aquila chrysaetos</i>		X					X	Possible
Birds	Grace's warbler	<i>Setophaga graciae</i>							X	Unlikely
Birds	Lark bunting	<i>Calamospiza melanocorys</i>							X	None
Birds	Loggerhead shrike	<i>Lanius ludovicianus</i>							X	Possible

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Birds	Long-billed curlew	<i>Numenius americanus</i>							X	None
Birds	Mexican spotted owl	<i>Strix occidentalis lucida</i>	X							Unlikely
Birds	Mountain plover	<i>Charadrius montanus</i>							X	None
Birds	Painted bunting	<i>Passerina ciris</i>							X	None
Birds	Red-faced warbler	<i>Cardellina rubrifrons</i>							X	None
Birds	Snowy plover	<i>Charadrius nivosus</i>							X	None
Birds	Yellow warbler	<i>Setophaga petechia</i>							X	Possible
Fish	Beautiful shiner	<i>Cyprinella formosa</i>	X							None
Mammals	Mexican long-nosed bat	<i>Leptonycteris nivalis</i>	X							None
Plants	Bigleaf sedge	<i>Carex amplifolia</i>						X		None
Plants	Chenopod brickellbush	<i>Brickellia chenopodina</i>						X		None
Plants	Grayish-white giant hyssop	<i>Agastache cana</i>						X		None
Plants	Mogollon whitlowgrass	<i>Draba mogollonica</i>						X		None
Plants	New Mexico gumweed	<i>Grindelia arizonica</i> var. <i>neomexicana</i>						X		None
Plants	Ray Turner's spurge	<i>Euphorbia rayturneri</i>						X		None
Plants	Reclined gumweed	<i>Grindelia decumbens</i> var. <i>subincisa</i>						X		None
Plants	San Luis Mountain giant hyssop	<i>Agastache mearnsii</i>						X		None
Plants	Slender spiderflower	<i>Peritoma multicaulis</i>						X		None
Plants	Wheel milkweed	<i>Asclepias uncialis</i>						X		None
Plants	Woolly campion	<i>Silene thurberi</i>						X		None
Plants	Wright's campion	<i>Silene wrightii</i>						X		None