

Appendix C
Archaeological Survey Summary
Biological Survey



BIOLOGICAL EVALUATION

**OF THE PROPOSED FOOTHILLS
DOLOMITE QUARRY
SOUTH OF DEMING,
LUNA COUNTY, NEW MEXICO**

PREPARED FOR

AMERICAN MAGNESIUM, LLC

SUBMITTED TO

**BUREAU OF LAND
MANAGEMENT, LAS CRUCES
DISTRICT OFFICE**

PREPARED BY

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Environmental Planning • Regulatory Compliance



SEPTEMBER 7, 2016

Biological Evaluation

Proposed Foothills Dolomite Quarry South of Deming, Luna County, New Mexico

*Las Cruces District Office
Bureau of Land Management
Las Cruces, New Mexico*

PROPOSED ACTION

American Magnesium proposes to construct a dolomite quarry on 40 acres of Bureau of Land Management (BLM) Las Cruces District Office (LCDO) land in the western foothills of the Florida Mountains, centered on a small hill just west of Mahoney Park. The exceptionally pure dolomite would be mined in a quarry, trucked or conveyed via conveyor belt to a processing facility at Peru Mill Industrial Park in Deming, and shipped via rail to market.

The two claims which comprise the proposed quarry are centered on a small, unnamed hill in the western foothills of the Florida Mountains, approximately 14 miles south-southeast of Deming, New Mexico (Figure 1). The claims are located in the SE ¼ of Section 27, T25S, R8W, New Mexico Baseline & Meridian.

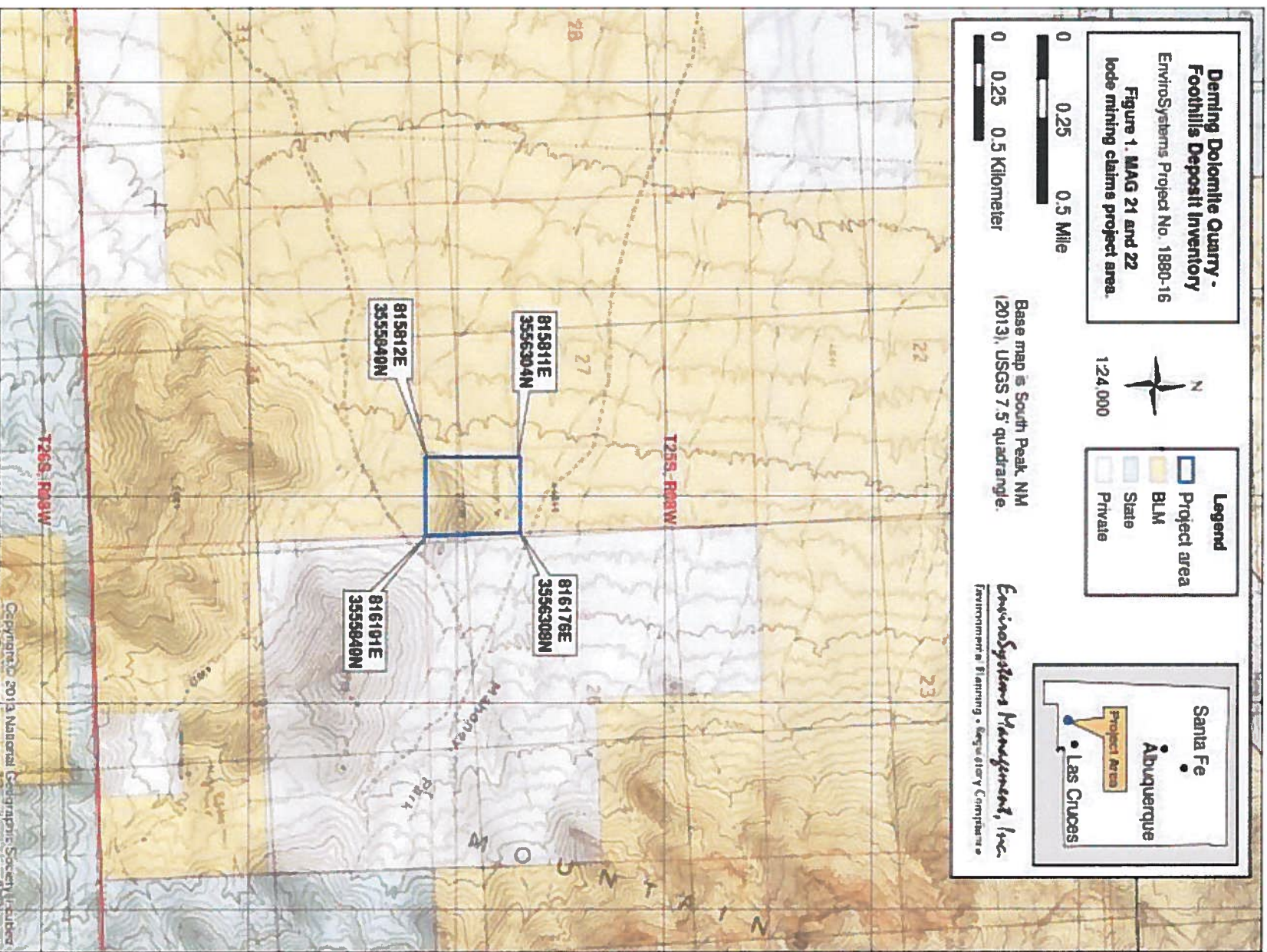
EXISTING CONDITION

The project area is located in a desert scrub community, with a sparse vegetation cover of cacti, agave, and grasses and dotted with occasional shrubs or small trees including saltbush, snakeweed, juniper, and honey mesquite. The area proposed for the quarry is currently undeveloped and does not appear to have been previously used except for grazing.

Hydrology

The project area covers a small hill on the western flanks of the Florida Mountains. Ephemeral washes on the northern and southern edges of the hill carry runoff from the nearby foothills and mountains during heavy rain events. The U.S. Fish and Wildlife Service (USFWS) Wetlands Inventory shows these and numerous other ephemeral washes along the slope of the mountains, draining west toward a series of agricultural fields with occasional ponds in the valley below (USFWS 2016a). These wetlands are classified as intermittent riverine habitats which may be seasonally flooded. The washes were dry during the biological field survey of the proposed project area.

Figure 1. Project Location.



Geology and Soils

The proposed Foothills Dolomite Quarry project is based around on a single large outcrop of Silurian-age Fusselman Dolomite, with smaller outcrops of Ordovician-age Montoya Formation Dolomite along the southern flanks, all rising out of a fan of Quaternary-age alluvial material descending from the mountains to the east (Clemmons 1985).

Soils on the dolomite outcrop are classified as rough broken and rock land, and soils at the base of the outcrop as Eba very gravelly clay loam (NRCS 2016). The rough broken and rock land has very little soil development, with at most a few inches of very stony loam over bedrock on slopes of at least 25 percent. The Eba soils are common on alluvial fans and are well drained, with 0 to 2 inches of very gravelly clay loam over a very gravelly clay.

Vegetation

The plant community in the project area and vicinity is a matrix of Chihuahuan Desert Broadleaf Evergreen Scrub and Chihuahuan Desert Broadleaf Deciduous Desert Scrub (BISON-M 2016). Shrubby species dominated the vegetation of the project area and included honey mesquite (*Prosopis glandulosa*), broom snakeweed (*Gutierrezia sarothrae*), ocotillo (*Fouquieria splendens*), sotol (*Dasylirion wheeleri*), redberry juniper (*Juniperus arizonica*), and yellow trumpetbush (*Tecoma stans*). Cactus species and other succulents such as candy barrelcactus (*Ferocactus wislizeni*), cholla (*Cylindropuntia* sp.), prickly pear cactus (*Opuntia* sp.), Graham's nipple cactus (*Mammillaria grahamii*), and Palmer's century plant (*Agave palmeri*) were also common. Grasses and forbs were less common in the rocky, shrubby terrain, including threawn (*Aristida* sp.), matted grama (*Bouteloua simplex*), and silverleaf nightshade (*Solanum elaeagnifolium*). Table 1 contains a list of all plant species identified in the project area during the biological field survey on July 28, 2016.

Table 1. Complete List of Plant Species Observed in the Project Area.

| Common Name | Scientific Name |
|----------------------------|--------------------------------|
| Trees | |
| redberry juniper | <i>Juniperus arizonica</i> |
| singleneedle pinyon | <i>Pinus monophylla</i> |
| honey mesquite | <i>Prosopis glandulosa</i> |
| Shrubs/Sub-shrubs | |
| saltbush | <i>Atriplex</i> sp. |
| broom snakeweed | <i>Gutierrezia sarothrae</i> |
| yellow trumpetbush | <i>Tecoma stans</i> |
| Forbs | |
| Cochise scaly cloakfern | <i>Astroblepis cochisensis</i> |
| silverleaf nightshade | <i>Solanum elaeagnifolium</i> |
| Cacti, Agave, & Succulents | |
| Palmer's century plant | <i>Agave palmeri</i> |
| cholla | <i>Cylindropuntia</i> sp. |
| sotol | <i>Dasylirion wheeleri</i> |
| candy barrelcactus | <i>Ferocactus wislizeni</i> |

| Common Name | Scientific Name |
|------------------------|-----------------------------|
| ocotillo | <i>Fouquieria splendens</i> |
| Graham's nipple cactus | <i>Mammillaria grahamii</i> |
| prickly pear cactus | <i>Opuntia</i> sp. |
| soaptree yucca | <i>Yucca elata</i> |
| Grasses | |
| threeawn | <i>Aristida</i> sp. |
| matted grama | <i>Bouteloua simplex</i> |

Wildlife

The project area provides habitat for a variety of mammals, reptiles, and birds. Wildlife species encountered during the biological survey included a whiptail lizard (*Aspidoscelis* sp.) and various species of birds, including cactus wren (*Campylorhynchus brunneicapillus*), Gambel's quail (*Callipepla gambelii*), northern mockingbird (*Mimus polyglottos*), black-chinned sparrow (*Spizella atrogularis*), bushiti (*Psaltriparus minimus*), thrasher (*Toxostoma* sp.), and greater roadrunner (*Geococcyx californianus*). See Table 2 for a list of all wildlife species identified during the biological field survey.

Table 2. Complete List of Wildlife Species Observed in the Project Area.

| Common Name | Scientific Name |
|-----------------------|----------------------------------------|
| Birds | |
| black-chinned sparrow | <i>Spizella atrogularis</i> |
| bushiti | <i>Psaltriparus minimus</i> |
| cactus wren | <i>Campylorhynchus brunneicapillus</i> |
| Gambel's quail | <i>Callipepla gambelii</i> |
| greater roadrunner | <i>Geococcyx californianus</i> |
| northern mockingbird | <i>Mimus polyglottos</i> |
| thrasher | <i>Toxostoma</i> sp. |
| Reptiles | |
| whiptail lizard | <i>Aspidoscelis</i> sp. |

SPECIES IDENTIFICATION

Prior to the site visit, the USFWS Information, Planning, and Conservation System (iPaC) online tool was consulted for a Trust Resources List of Threatened, Endangered, Proposed Threatened or Endangered, and Candidate species (T & E species) for the project area (Appendix A; USFWS 2016b). Four species were identified as potentially occurring in the project area. This reference also provided information pertaining to Critical Habitats, USFWS National Wildlife Refuges, USFWS migratory birds, and USFWS National Wetlands Inventory (NWI) Wetlands. There are no Critical Habitats or National Wildlife Refuges identified within the project area; the only wetlands identified within the project area are the ephemeral washes described in the Hydrology section above (USFWS 2016a; USFWS 2016b).

The Biota Information System of New Mexico (BISON-M) online database query was consulted for a list of state-listed species with potential habitat near the project area (Appendix B; BISON-M 2016). The BISON-M database was queried using the following search terms: county, status, habitat, and gap vegetation type. Results indicated that seven state threatened or endangered species have the possibility of occurring in the project area. Note that one state-listed species (northern aplomado falcon) is also on the federal list, so it was not analyzed separately in the state table.

BLM state and district offices were also contacted to obtain information on BLM sensitive species with potential habitat in or near the project area. BLM sensitive species are species that require special management consideration to avoid potential future listing under the Endangered Species Act (ESA) and that have been identified in accordance with procedures set forth in BLM Manual 6840: Special Status Species Management. BLM special status species are (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the BLM State Director. All Federal candidate species, proposed species, and delisted species in the 5 years following delisting will be conserved as BLM sensitive species. The BLM Las Cruces District biologist provided a list of BLM sensitive animal species, and a list of BLM sensitive plant species was obtained from the state office (Appendix C). A total of 27 animal and 18 plant species are on the BLM sensitive species lists for the Las Cruces District.

A qualified biologist of EnviroSystems conducted a comprehensive biological resource evaluation of the project area on July 28, 2016. Photographic documentation of the biological field survey is included in Appendix D. The project area was searched for individuals, sign and/or habitat of each special status species listed in Tables 3 – 5.

ANALYSIS OF EFFECTS

Table 3 includes the analysis of impacts and determination of effects for federally listed and proposed species that could potentially occur in the project area. Table 4 shows the same analysis for state-listed species. Table 5 includes the analysis of effects and the determination of impacts for BLM sensitive species.

Table 3. Analysis of Effects and Determination of Effects for Federally-listed Threatened, Endangered, and Proposed Species.

| Species | FWS Status & Year | Critical Habitat Present | Key Habitat Elements | Status within Action Area of Project | Determination of Effect |
|-------------------------------------------------------------------------|----------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| AMPHIBIANS (1) | | | | | |
| <i>Lithobates chiricahuensis</i> Chiricahua leopard frog | Threatened 2002 | NO | Occurs primarily in the oak and mixed oak and pine woodlands. Highly aquatic and almost always associated with permanent or semi-permanent water, preferably with emergent and submergent aquatic vegetation. Prefers rocky streams with deep rock bound pools. Species inhabits montane springs, streams, rivers, backwaters, ponds, and stock tanks that are mostly free from non-native fish, crayfish, bullfrogs, and other species (AGFD 2006). | There is no suitable or potential habitat for this species within the project area. Critical Habitat was designated final in April, 2012. No critical habitat was designated in Luna County (USFWS 2016c). No effects from the proposed action would occur. | NO EFFECT |
| BIRDS (2) | | | | | |
| <i>Falco femoralis</i> northern aplomado falcon | Experimental Population, Non-Essential 2006 | NO | The Aplomado Falcon has extremely broad habitat preferences. Most late nineteenth- and early twentieth-century Aplomado records from Arizona, New Mexico, transPecos Texas, and central Mexico, were in semi-desert grassland or riparian associations with scattered trees and shrubs, with elevations from 3,300-4,900 feet above sea level. (AGFD 2001a). | Suitable nesting and feeding habitat occurs within the project area. No critical habitat was designated in Luna County (USFWS 2016c). Although individuals may be affected by the proposed quarry, adults would be able to relocate to avoid harm from quarry activities. | NOT LIKELY TO JEOPARDIZE |
| <i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo | Threatened 2014 | NO | Cuckoos generally prefer mature riparian habitats and are most commonly associated with cottonwood or other native forests. However, Yellow-billed Cuckoos breed extensively in the dense saltcedar stands along parts of the Pecos River (BISON-M 2016). | No suitable habitat exists within or near the analysis area. No critical habitat was designated in Luna County (USFWS 2016c). No effects from the proposed action would occur. | NO EFFECT |
| FISHES (1) | | | | | |
| <i>Cyprinella formosa</i> beautiful shiner | Threatened 1984 | NO | Beautiful shiners live mainly in pools of small to medium streams and along shorelines in larger streams. They remain near, but rarely move within beds of aquatic vegetation or other cover (BISON-M 2016). | There is no suitable habitat present in the analysis area. No critical habitat was designated in Luna County (USFWS 2016c). Additionally, there is no potential for downstream impacts generated by this project that would affect occupied or suitable habitat for this species. | NO EFFECT |

The proposed action would have no effect on any Federally-listed threatened or endangered species or Critical Habitat, and is not likely to jeopardize species proposed for listing.

Table 4. Analysis of Effects and Determination of Impacts for New Mexico Threatened and Endangered Species.

| Species | Status | Key Habitat Elements | Status within Action Area of Project | Determination of Impact |
|-----------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| AMPHIBIANS (1) | | | | |
| <i>Gastrophryne olivacea</i> Great Plains narrowmouth toad | NM Endangered | The Great Plains narrowmouth toad occurs primarily in grassland and desert-grassland habitats, in seasonally or permanently wet areas (BISON-M 2016). | No suitable habitat exists within or near the analysis area. No impacts from the proposed action would occur. | NO IMPACT |
| BIRDS (4) | | | | |
| <i>Falco peregrinus tundrius</i> Arctic peregrine falcon | NM Threatened | In New Mexico, the breeding territories of peregrine falcons center on cliffs that are in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage (BISON-M 2016). | No suitable habitat exists within or near the analysis area. No impacts from the proposed action would occur. | NO IMPACT |
| <i>Columbina passerina</i> common ground-dove | NM Endangered | Occurs in marshes and desert riparian deciduous woodland, especially of cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins (BISON-M 2016). | No suitable habitat exists within or near the analysis area. No impacts from the proposed action would occur. | NO IMPACT |
| <i>Falco peregrinus</i> peregrine falcon | NM Threatened | In New Mexico, the breeding territories of peregrine falcons center on cliffs that are in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage (BISON-M 2016). | No suitable habitat exists within or near the analysis area. No impacts from the proposed action would occur. | NO IMPACT |
| <i>Passerina versicolor</i> varied bunting | NM Threatened | In New Mexico the species seems to prefer dense stands of mesquite (<i>Prosopis</i> spp.) and associated growth in canyon bottoms (BISON-M 2016). | Although mesquite is present in the study area, it does not grow in dense stands. Individuals may pass through the area on occasion, but it is highly unlikely that varied buntings would nest in the project area. No impacts from the proposed action would therefore occur. | NO IMPACT |
| REPTILES (1) | | | | |
| <i>Heloderma suspectum suspectum</i> Reticulate gila monster | NM Endangered | This species is most widely distributed in desert and mesquite-grassland, but also occurs in pine-oak forest, tropical deciduous forest, and thorn forest. It is usually found in rocky foothill regions and avoids open flats (BISON-M 2016). | Suitable habitat occurs within the project area. Individuals inhabiting the area that did not relocate off-site would be adversely impacted by mining activities. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |

Table 5. Analysis of Impacts and Determination of Impacts for BLM Sensitive Species

| Species | Status | Key Habitat Elements | Status within Action Area of Project | Determination of Impact |
|------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| BIRDS (7) | | | | |
| <i>Athene cunicularia hypugaea</i> western burrowing owl | Sensitive | Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Burrowing owls are at times observed open areas such as vacant lots near human habitation, golf courses and airports (AGFD 2001b). | Suitable habitat may exist in the project area, although no mammal burrows were detected during the biological survey. Although individuals may be impacted by the proposed quarry, adults would be able to relocate to avoid harm from quarry activities. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |
| <i>Gymnorhinus cyanocephalus</i> pinyon jay | Sensitive | This species is closely tied to pinyon-juniper woodlands, but also breeds in sagebrush, scrub oak, chaparral, ponderosa pine, and Jeffrey pine forests. It prefers mature stages of pinyon, which produce more seeds (BISON-M 2016). | Pinyon and juniper trees are found in the project area, although not in great abundance, as it is primarily a desert scrub environment. Although pinyon jays may occasionally pass through on foraging expeditions, it is unlikely that they would nest in the project area. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |
| <i>Toxostoma bendirei</i> Bendire's thrasher | Sensitive | Found in Sonoran desert scrub, Chihuahuan desert scrub, desert riparian deciduous woodlands, marshes, annual grasslands, and farms (BISON-M 2016). | Suitable habitat exists in the project area. Although individuals may be impacted by the proposed quarry, adults would be able to relocate to avoid harm from quarry activities. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |
| <i>Anthus spragueii</i> Sprague's pipit | Sensitive | Sprague's pipit is known to prefer nesting in short-grass plains, mixed-grass prairie, alkaline and wet meadows. Birds are often found in grasslands with mid-height vegetation including upland mixed-grass prairie, alkaline meadows and wet meadow zones around alkali and freshwater lakes (AGFD 2010a). | Although there are grasses in the project area, they are sparse and not likely to support nesting by Sprague's pipit. No impacts from the proposed action would occur. | NO IMPACT |
| <i>Ammodramus savannarum ammolagus</i> Arizona grasshopper sparrow | Sensitive | The preferred habitat of the Arizona grasshopper sparrow is open grassland between 3800 and 5300 feet. Within this range, the sparrow is limited to areas with moderate to high coverage of medium-height grass and with relatively low shrub coverage (AGFD 2010b). | Although there are grasses in the project area, they are sparse and not likely to support nesting by the Arizona grasshopper sparrow. No impacts from the proposed action would occur. | NO IMPACT |
| <i>Ammodramus bairdii</i> Baird's sparrow | Sensitive | Breeds in shorgrass prairies. In New Mexico it has been found in a variety of habitats, ranging from desert grasslands in the south to prairies in the northeast and mountain meadows in the San Juan and Sangre de Cristo mountains--including to an elevation of 3600 m (BISON-M 2016). | Although there are grasses in the project area, they are sparse and not likely to support nesting by Baird's sparrow. No impacts from the proposed action would occur. | NO IMPACT |

| Species | Status | Key Habitat Elements | Status within Action Area of Project | Determination of Impact |
|-------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <i>Passerina ciris</i> Painted Bunting | Sensitive | Woodland edges, roadsides, brush, towns, gardens. Favors semi-open areas with dense low growth at all seasons. Breeds around thickets, hedgerows, woodland clearings and edges, and undergrowth of open woods. Winters in similar habitats in Florida, plus areas of scrub and second growth in the tropics. (Audubon 2016a). | Potential habitat may occur in the project area. However the project area is outside of the known range for the species (BISON-M), and while the occasional vagrant may pass through during migration, it is highly unlikely that the species would nest in the area. No impacts from the proposed action would occur. | NO IMPACT |
| MAMMALS (4) | | | | |
| <i>Choeronycteris mexicana</i> Mexican long-tongued bat | Sensitive | These bats inhabit deep canyons where they use caves and mine tunnels as day roosts. They have also been found in buildings and often are associated with big-eared bats (BISON-M 2016). | Suitable habitat may occur in the vicinity of the project area, but no deep canyons are found in the project area itself, nor were caves or mine shafts located during the biological survey. The project area is also located outside of the known range for the species (BISON-M 2016). No impacts from the proposed action would occur. | NO IMPACT |
| <i>Idionycteris phyllotis</i> Allen's lappet-browed bat | Sensitive | Inhabit primarily conifer, oak, and riparian forests in mountainous areas They are frequently captured near cliffs, outcroppings, boulders, and lava flows and it is likely they roost in such sites They are also known to roost in tree snags. Found in ponderosa pine, pinyon-juniper, Mexican-type woodlands, white fir, and Mohave desertscrub vegetative communities (AGFD 2001c, Solvesky and Chambers 2009). | Suitable habitat may exist in the rock outcrops and boulders in the project area. However the project area is outside the known distribution of the species, so it is unlikely that development of the proposed quarry would impact the species. | NO IMPACT |
| <i>Corynorhinus townsendii</i> Townsend's big-eared bat | Sensitive | Townsend's big-eared bats are to be found during the day mostly in caves or mine tunnels, but at night they often rest in abandoned buildings. In summer these bats occur widely in the state and can be found over desert-scrub, in shelters in desert-mountains, oak-woodland, pinon-juniper, or coniferous forests (BISON-M 2016). | Suitable habitat exists in the project area. Although individuals may be impacted by the proposed quarry, adults would be able to relocate to avoid harm from quarry activities. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |
| <i>Lepus callotis</i> White-sided jack rabbit | Sensitive | In the United States portion of its range, the white-sided jackrabbit appears to be a virtual obligate of grasslands. These hares apparently spend the daylight hours hiding in the grass, and almost all observations of the species at that time are of animals flushed from cover (BISON-M 2016). | Although there are grasses in the project area, they are sparse and would not appear to support habitat needs of the white-sided jack rabbit. No impacts from the proposed action would occur. | NO IMPACT |
| PLANTS (4) | | | | |

| Species | Status | Key Habitat Elements | Status within Action Area of Project | Determination of Impact |
|-----------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <i>Escobaria duncanii</i> Duncan pincushion cactus | Sensitive | Cracks in limestone and limy shale in broken terrain in Chihuahuan desert scrub; 1,550 m (5,100 ft) in New Mexico (NMRPTC 2005). | Although the habitat described for the species exists in the project area, the only known population is located in central Sierra County. It is unlikely that another population would be located this far south, and the species was not detected during the biological survey. No impacts would occur. | NO IMPACT |
| <i>Pediomelum pentaphyllum</i> Chihuahua scurfpea | Sensitive | Desert grassland or desertscrub among creosote bush or mesquite in sandy or gravelly loam soils; 1,350-2,000 m (4,400-6,600 ft) (NMRPTC 2005). | Although the habitat described for the species exists in the project area, the only known New Mexico population is located in Hidalgo County. It is unlikely that another population would be located this far east, and the species was not detected during the biological survey. No impacts would occur. | NO IMPACT |
| <i>Peniocereus greggii</i> var. <i>greggii</i> night-blooming cereus | Sensitive | Mostly in sandy to silty gravelly soils in gently broken to level terrain in desert grassland or Chihuahuan desert scrub. Typically found growing up through and supported by shrubs, especially <i>Larrea divaricata</i> and <i>Prosopis glandulosa</i> (NMRPTC 2005). | Potential habitat for the species exists in the project area, but it has not been collected or documented from near the Florida Mountains, and no individuals were detected during the biological survey. Although individuals could be impacted by development of the proposed quarry, the species or its overall habitat would not be impacted. | MAY IMPACT INDIVIDUALS, NOT LIKELY TO ADVERSELY IMPACT SPECIES OR ITS HABITAT |
| <i>Sclerocactus papyracanthus</i> grama grass cactus | Sensitive | Desert grasslands, pinyon-juniper woodlands, Chihuahuan desert scrub; 1500-2200 m (FNA 2016). | Potential habitat exists in the project area, but the species has not been recorded from Luna County, and it was not detected during the biological survey. No impacts would occur. | NO IMPACT |

An additional 30 BLM Las Cruces District sensitive species were not analyzed in detail because they did not have appropriate habitat within the project area and/or the project area is well outside their known range. These include the following:

- Amphibians: southwestern toad, lowland leopard frog;
- Arthropods: Moore’s fairy shrimp, Sublette’s fairy shrimp, Lynch’s tadpole shrimp, Anthony blister beetle;
- Birds: bald eagle, western yellow-billed cuckoo, Bell’s vireo;
- Mammals: western yellow bat, spotted bat, black-tailed prairie dog, meadow (New Mexico) jumping mouse, white-nosed coati;
- Plants: Howard’s gyp ringstem, Chapline’s columbine, coppermine milkvetch, Guadalupe mescalbean, Roetter’s hedgehog cactus, Villard’s pincushion cactus, gypsum scalebroom, Guadalupe stickleaf, sand pricklypear, Alamo beardtongue, nodding cliff daisy, Parish’s alkaligrass, Mimbres figwort, Texas thelypody;
- Reptiles: narrow-headed gartersnake, Big Bend slider.

The proposed action would not likely lead to a trend toward listing for any of the BLM sensitive species considered.

Cumulative Impacts

There are no known past, current, or proposed actions on federal, state, tribal, or private lands that would generate effects that would combine with those of the proposed action to constitute an accumulation of effects on wildlife species. The bulk of the Florida Mountains just east and north of the project area is included in state parks and a wilderness study area currently precluding significant development in the surrounding arid mountain environment.

Table 6. Summary of Determination of Effects for Federally-Listed and Proposed or Candidate Species.

| Species | Determination of Effect |
|------------------------------|--------------------------|
| Chiricahua leopard frog | No Effect |
| northern aplomado falcon | Not Likely To Jeopardize |
| western yellow-billed cuckoo | No Effect |
| beautiful shiner | No Effect |

MIGRATORY BIRDS

On January 10, 2001, President Clinton signed Executive Order 13186 placing emphasis on the conservation of migratory birds. The BLM has developed a strategic plan for migratory bird conservation (BLM 2013), which provides preliminary guidance on addressing migratory birds in environmental planning documents. The plan recommends two sources for determining which

migratory birds should be considered for analysis: the BLM Priority Migratory Birds Table (BLM 2013), and the Game Birds Below Desired Condition list (USFWS 2004).

The BLM Priority Migratory Birds Table is organized by habitat and bird conservation region (BCR). Species which occupy the desert scrub habitat of the project area and BCR 35 (Chihuahuan Desert) were analyzed for potential impacts from the proposed quarry project (Table 7). The Game Birds Below Desired Condition (GBBDC) list was also reviewed and species which could potentially utilize the project area were also analyzed.

Table 7. Migratory birds of high priority and conservation concern listed for the project area.

| Species | Status | Habitat | Disturbance Effects |
|-----------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Columba fasciata</i> band-tailed pigeon | GBBDC | Oak canyons, foothills, chaparral, mountain forests. Mainly in wooded or semi-open habitats; moves around to take advantage of changing food supplies. Breeds in oak woodland along the coast and in mountains, also in pine-oak woods and fir forest. May forage along streams in lowland desert (Audubon 2016b). | Suitable habitat does not exist in the project area, so no effects to species or its habitat anticipated. |
| <i>Oreothlypis thlctae</i> Lucy's warbler | BLM PMBT | Mesquite along desert streams and washes; willows, cottonwoods. Breeds mostly in cottonwood-mesquite woods near desert streams or in open groves of mesquite along dry washes in the Sonoran desert. Also found in sycamore and live oak groves near streams in the lower parts of canyons close to arid lowlands (Audubon 2016c). | Marginal habitat present in project area, as there are scattered mesquite trees along the dry washes at the base of the dolomite outcrop, although the project area is on the periphery of the species range (Audubon 2016c). If mining activities commence prior to the beginning of the breeding season, minimal impacts to the species are anticipated, as adults can relocate to avoid the area. |
| <i>Phainopepla nitens</i> phainopepla | BLM PMBT | Desert scrub, mesquites, oak foothills, mistletoe clumps. Occurs in many lowland and foothills habitats, moving around with availability of berries. Often in Sonoran desert areas and mesquite groves at various times of year; at some seasons, moves into chaparral, streamside trees, and oak woodlands (Audubon 2016d). | Suitable habitat present in the project area. If mining activities commence prior to the beginning of the breeding season, minimal impacts to the species are anticipated, as adults can relocate to avoid the area. |
| <i>Zenaidura macroura</i> mourning dove | GBBDC | Farms, towns, open woods, roadsides, grasslands. Found in almost any kind of open or semi-open habitat in temperate parts of North America, including forest clearings, farmland, suburbs, prairies, deserts. May be most common in edge habitats having both trees and open ground, but also found in some treeless areas. Avoids unbroken forest (Audubon 2016e). | Suitable habitat present in the project area. If mining activities commence prior to the beginning of the breeding season, minimal impacts to the species are anticipated, as adults can relocate to avoid the area. |

Important Bird Areas

Important Bird Areas (IBAs) are listed on the Audubon Society’s website. The closest IBA is the Mimbres River IBA, located approximately 40 miles north-northwest of the project area. Project activities are sufficiently removed from this and other more distant IBAs to avoid any adverse effects to IBAs. There are no other identified or potential IBAs that would be affected by the proposed project.

Migratory Bird Mitigation Recommendations

To avoid potential impacts to and unintentional take of migratory bird species, it is recommended that significant mining activities be initiated outside of the breeding season (March 1 to August 31). If activities were to occur during this time period, a survey for nesting birds would be completed to ensure there are none on-site. It is expected that the ongoing disturbance caused by these activities will then deter migratory birds from nesting in the project area in the future.

BALD AND GOLDEN EAGLE PROTECTION ACT

The bald eagle was removed from the list of threatened and endangered species August 8, 2007 (USDI 2007). Although bald and/or golden eagles could potentially use the project area for foraging, the proposed project will not result in take as defined by the Bald and Golden Eagle Protection Act. Effects to bald and golden eagles are insignificant and discountable and will not cause 1) injury to an eagle, 2) a decrease in productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

SIGNATURES AND DATE

Preparer of this Document

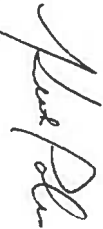


Mark Daniels, M.S., M.Eng.
Senior Ecologist/Environmental Engineer
EnviroSystems Management, Inc.

09/07/2016

Date

Reviewer of this Document



Keith Pohs, M.S., CPM
Project Manager
EnviroSystems Management, Inc.

09/07/2016

Date

Bureau of Land Management Approval

Steven Torrez,
Wildlife Biologist
Las Cruces District Office

Date

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APPENDIX A

**USFWS Trust Resources List of Threatened, Endangered, Proposed Threatened or Endangered,
and Candidate species (T & E species) for the project area**

Proposed Deming Mine

IPaC Trust Resources Report

Generated July 15, 2016 10:23 AM MDT, IPaC v3.0.8

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.

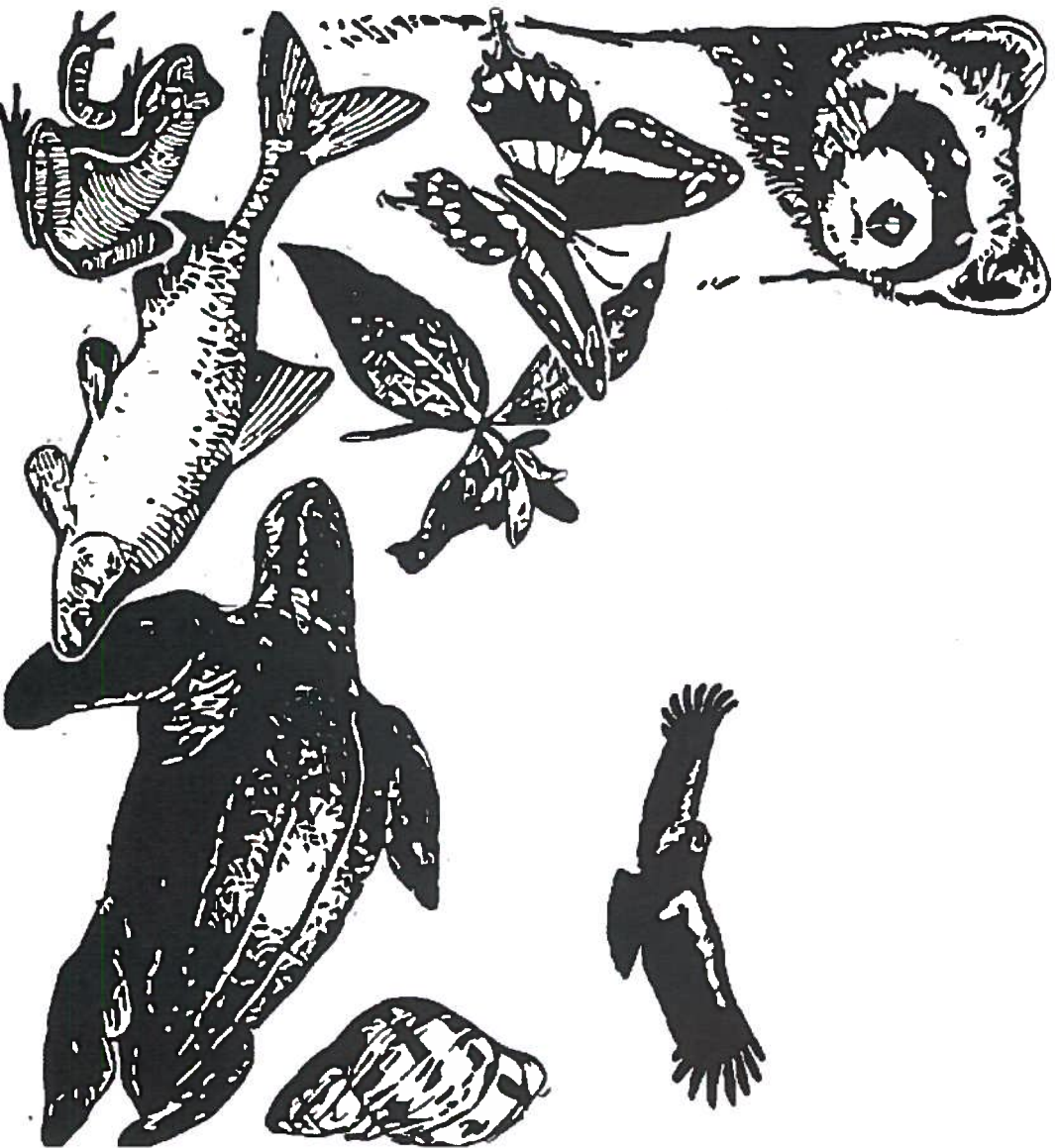


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| Endangered Species | 2 |
| Migratory Birds | 4 |
| Refuges & Hatcheries | 7 |
| Wetlands | 8 |

U.S. Fish & Wildlife Service

IPAC Trust Resources Report



NAME

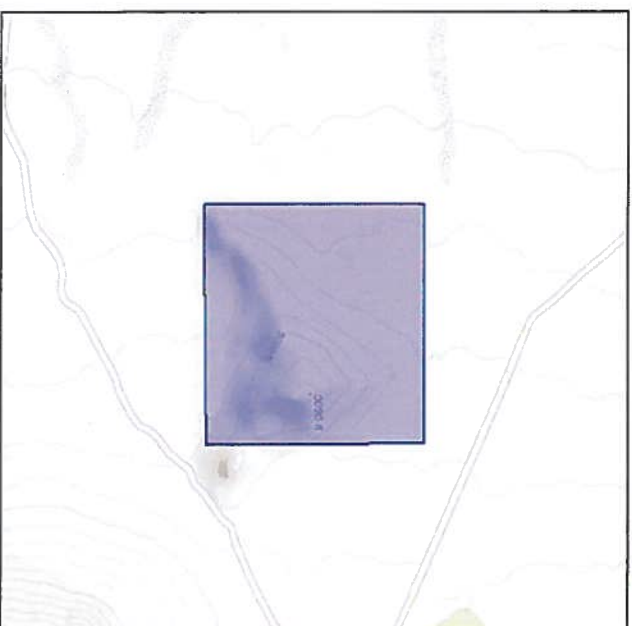
Proposed Deming Mine

LOCATION

Luna County, New Mexico

IPAC LINK

<https://ecos.fws.gov/ipac/project/XBSMD-QRYAN-F4NP5-OHNTY-REAETM>



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[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 either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

Chiricahua Leopard Frog *Rana chiricahuensis*

Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/less_public/profile/speciesProfile.action?sppcode=D02E

Birds

Northern Aplomado Falcon *Falco femoralis septentrionalis*

Experimental Population, Non-Essential

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/less_public/profile/speciesProfile.action?sppcode=B06V

Yellow-billed Cuckoo *Coccyzus americanus*

Threatened

CRITICAL HABITAT

There is proposed critical habitat designated for this species.

http://ecos.fws.gov/less_public/profile/speciesProfile.action?sppcode=B06R

Fishes

Beautiful Shiner *Cyprinella formosa*

Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=E04B

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service. [1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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>
- **Conservation measures for birds**
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- **Year-round bird occurrence data**
<http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle *Haliaeetus leucocephalus*

Bird of conservation concern

Season: Wintering

http://ecos.fws.gov/fess_public/profile/speciesProfile.action?spcode=B008

Bell's Vireo *Vireo bellii*

Bird of conservation concern

Season: Breeding

http://ecos.fws.gov/fess_public/profile/speciesProfile.action?spcode=B0JX

Bendire's Thrasher *Toxostoma bendirei*

Bird of conservation concern

Season: Year-round

http://ecos.fws.gov/fess_public/profile/speciesProfile.action?spcode=B0IF

Black-chinned Sparrow *Spizella atrogularis*

Bird of conservation concern

Season: Year-round

http://ecos.fws.gov/fess_public/profile/speciesProfile.action?spcode=B0IR

Brewer's Sparrow *Spizella breweri*

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0HA

Bird of conservation concern

Burrowing Owl *Athene cunicularia*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0NC

Bird of conservation concern

Cassin's Sparrow *Aimophila cassinii*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0K2

Bird of conservation concern

Chestnut-collared Longspur *Calcarius ornatus*

Season: Wintering

Bird of conservation concern

Golden Eagle *Aquila chrysaetos*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0DV

Bird of conservation concern

Gray Vireo *Vireo vicinior*

Season: Breeding

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0G5

Bird of conservation concern

Lark Bunting *Calamospiza melanocorys*

Season: Wintering

Bird of conservation concern

Lawrence's Goldfinch *Carduelis lawrencei*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0J8

Bird of conservation concern

Loggerhead Shrike *Lanius ludovicianus*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0FY

Bird of conservation concern

Long-billed Curlew *Numenius americanus*

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B06S

Bird of conservation concern

Lucy's Warbler *Vermivora luciae*

Season: Breeding

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0DL

Bird of conservation concern

Mccown's Longspur *Calcarius mccownii*

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0HB

Bird of conservation concern

Peregrine Falcon *Falco peregrinus*

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0FU

Bird of conservation concern

Red-faced Warbler *Cardellina rubrifrons*

Season: Breeding

Bird of conservation concern

Rufous-crowned Sparrow *Aimophila ruficeps*

Bird of conservation concern

Season: Year-round

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0MX

Short-eared Owl *Asio flammeus*

Bird of conservation concern

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0HD

Sonoran Yellow Warbler *Dendroica petechia* ssp. *sonorana*

Bird of conservation concern

Season: Breeding

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0FZ

Sprague's Pipit *Anthus spragueii*

Bird of conservation concern

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0GD

Swainson's Hawk *Buteo swainsoni*

Bird of conservation concern

Season: Breeding

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0Z0

Virginia's Warbler *Vermivora virginiae*

Bird of conservation concern

Season: Breeding

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0LL

Williamson's Sapsucker *Sphyrapicus thyroideus*

Bird of conservation concern

Season: Wintering

http://ecos.fws.gov/less_public/profile/speciesProfile.action?spcode=B0FX

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in 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](#).

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 tubercifid 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.

This location overlaps all or part of the following wetlands:

Riverine

[RASBC](#)

A full description for each wetland code can be found at the National Wetlands

Inventory website: <http://107.20.228.18/decoders/wetlands.aspx>

APPENDIX B

BISON-M online database query results for the project area



Biota Information System of New Mexico



Maintained by:



[Disclaimer Policy](#)

Database Query

[Close Window](#)

[Print Page](#)

Your search terms were as follows:

County Name
Luna

Status
State NM: Endangered
State NM: Threatened



Habitat
TERRESTRIAL








Gap Veg
CHIH DESERT creosotebush
CHIH DESERT tarbush/mesquite
/ocotillo

7 species returned.

| Taxonomic Group | # Species | Taxonomic Group | # Species |
|-----------------|-----------|-----------------|-----------|
| Amphibians | 1 | Birds | 5 |
| Reptiles | 1 | | |

[Export to Excel](#)

| Species ID | Common Name | Scientific Name | Photo | USGS Distribution Map | County | Status | Habitat | GapVeg |
|------------|--------------------------------|---------------------------|-----------------------------------------------------------------------------------|-----------------------|--------|----------------------|-------------|-------------------------------------------------------------------|
| 040380 | Aplomado Falcon | Falco femoralis |  | no map | Luna | State NM: Endangered | TERRESTRIAL | CHIH DESERT tarbush/mesquite/ocotillo |
| 040384 | Peregrine Falcon | Falco peregrinus |  | no map | Luna | State NM: Threatened | TERRESTRIAL | CHIH DESERT creosotebush CHIH DESERT tarbush/mesquite/ocotillo |
| 040385 | Arctic Peregrine Falcon | Falco peregrinus tundrius | no photo | no map | Luna | State NM: Threatened | TERRESTRIAL | CHIH DESERT creosotebush |

| | | | | | | | | |
|--------|------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------|-------------------------|-------------|----------------------------------------------------------------------|
| 040690 | Common Ground-dove | Columbina passerina |  |  | Luna | State NM: Endangered | TERRESTRIAL | CHIH DESERT creosotebush CHIH DESERT tarbush/mesquite/ocotillo |
| 040125 | Varied Bunting | Passerina versicolor |  |  | Luna | State NM: Threatened | TERRESTRIAL | CHIH DESERT creosotebush CHIH DESERT tarbush/mesquite/ocotillo |
| 030135 | Reticulate Gila Monster | Heloderma suspectum suspectum |  |  | Luna | State NM: Endangered | TERRESTRIAL | CHIH DESERT creosotebush CHIH DESERT tarbush/mesquite/ocotillo |
| 020110 | Great Plains Narrowmouth Toad | Gastrophryne olivacea |  | no map | Luna | State NM: Endangered | TERRESTRIAL | CHIH DESERT creosotebush CHIH DESERT tarbush/mesquite/ocotillo |

[Close Window](#)

APPENDIX C

BLM Las Cruces District sensitive animal and plant species lists

**BLM Sensitive Species List
Las Cruces District Office**

| Mammals | |
|--------------------------------|-----------------------------------|
| <i>Choeronycteris mexicana</i> | Mexican long-tongued bat |
| <i>Lasiurus xanthinus</i> | Western yellow bat |
| <i>Euderma maculatum</i> | Spotted bat |
| <i>Idionycteris phyllotis</i> | Allen's lappet-browed bat |
| <i>Corynorhinus townsendii</i> | Townsend's big-eared bat |
| <i>Lepus callotis</i> | White-sided jack rabbit |
| <i>Cynomys ludovicianus</i> | Black-tailed prairie dog |
| <i>Zapus hudsonius luteus</i> | Meadow (New Mexico) jumping mouse |
| <i>Nasua narica</i> | White-nosed coati |

| Birds | |
|-----------------------------------------|------------------------------|
| <i>Haliaeetus leucocephalus</i> | Bald Eagle |
| <i>Coccyzus americanus occidentalis</i> | Western Yellow-billed Cuckoo |
| <i>Athene cunicularia hypugaea</i> | Western Burrowing Owl |
| <i>Gymnorhinus cyanocephalus</i> | Piñon Jay |
| <i>Toxostoma bendirei</i> | Bendire's Thrasher |
| <i>Vireo bellii arizonae</i> | Bell's Vireo |
| <i>Anthus spragueii</i> | Sprague's Pipit |
| <i>Ammodramus savannarum ammolegus</i> | Arizona Grasshopper Sparrow |
| <i>Ammodramus bairdii</i> | Baird's Sparrow |
| <i>Passerina ciris</i> | Painted Bunting |

| Amphibians | |
|---------------------------------------|----------------------|
| <i>Anaxyrus (Bufo) microscaphus</i> | Southwestern toad |
| <i>Lithobates (Rana) yavapaiensis</i> | Lowland leopard frog |

| Reptiles | |
|----------------------------------|----------------------------|
| <i>Thamnophis rufipunctatus</i> | Narrow-headed Garter Snake |
| <i>Trachemys gaigeae gaigeae</i> | Big Bend Slider |

| Molluscs, Crustaceans, & other Arthropods | |
|------------------------------------------------------|-------------------------|
| <i>Streptocephalus moorei</i> | Moore's Fairy Shrimp |
| <i>Phallocryptus (Branchinella) sublettei</i> | Sublette's fairy shrimp |
| <i>Lepidurus lemmoni</i> | Lynch's tadpole shrimp |
| <i>Lytta mirifica</i> | Anthony Blister Beetle |

NM - BLM SPECIAL STATUS PLANT SPECIES LIST

UPDATED WITH ESA STATUS SPECIES 1/4/12

FIELD OFFICE OCCURRENCE - VERIFIED, HYPOTHETICAL, PERIPHERAL (WITHIN OFFICE BDRY BUT NOT ON BLM)

STATUS

| FAMILY | SPECIES | COMMON NAME | RIO PUERCO - NM110 | SOCORRO - NM120 | FARMINGTON - NM210 | TAOS - NM220 | LAS CRUCES - NM030 | ROSWELL - NM510 | CARLSBAD - NM520 | NATURES ERVE GLOBAL RANK | NATURES ERVE STATE RANK | FWS STATUS | STATE STATUS | USES STATUS | BLM SPECIAL STATUS LIST |
|------------------|--------------------------------------|--------------------------------|--------------------|-----------------|--------------------|--------------|--------------------|-----------------|------------------|--------------------------|-------------------------|-----------------------------------------------------------|--------------------|-------------|-------------------------|
| NYCTAGINACEAE | ABRONIA BIGELOVII | SAND VERBENA, GALISTEO | VERIFIED | | | PERIPHERAL | | | | G3 | S3 | NONE | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| ACAROSPORACEAE | ACAROSPORA CLAUZADEANA | LICHEN, ACAROSPORA CLAUZADEANA | | | | | VERIFIED | | | G1G2 | | PETITIONED / NEGATIVE 90 DAY FINDING | | | BLM SENSITIVE |
| POLEMONIACEAE | ALCIELLA FORMOSA | GILA, AZTEC | | VERIFIED | | | | | | G2 | S2 | PETITIONED / NEGATIVE 90 DAY FINDING | ENDANGERED | NONE | BLM SENSITIVE |
| APOCYNACEAE | AMSONIA FUGATEI | AMSONIA, FUGATE'S | | | | | | | | G2 | S2 | SPECIES OF CONCERN | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| APOCYNACEAE | AMSONIA THARPII | BLUESTAR, THARP'S | | | | | | | | G1 | S1 | SPECIES OF CONCERN + PETITIONED - POSITIVE 90 DAY FINDING | ENDANGERED | NONE | BLM SENSITIVE |
| NYCTAGINACEAE | ANULOCALYX LEIOSOLENUS VAR. HOWARDII | RINGSTEM, HOWARD'S GYP | | | | | | | | G2T2 | SNR | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| RANUNCULACEAE | AQUILEGIA CHRYSANTHA VAR. CHAPLINEI | COLUMBINE, CHAPLINE'S | | | | | | | | G4T2 | S2 | NONE | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| ASCLEPIADACEAE | ASCLEPIAS SANJUANENSIS | MILKWEED, SAN JUAN | | | | | | | | GUQ | S3 | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| FABACEAE | ASTRAGALUS CORBRENIS VAR. MAGUIREI | MILKVETCH, COPPERMINE | | | | | | | | G4T2 | S2,S1? | SPECIES OF CONCERN | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| FABACEAE | ASTRAGALUS GYPSODES | MILKVETCH, GYPSUM | | | | | | | | G3 | S3 | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| FABACEAE | ASTRAGALUS KNIGHTII | MILKVETCH, KNIGHT'S | VERIFIED | | | | | | | NONE | NONE | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| FABACEAE | ASTRAGALUS RIPLEYI | MILKVETCH, RIPLEY | HYPOTHETICAL | | | | | | | G3 | S3? | SPECIES OF CONCERN | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| FABACEAE | DERMATOPHYLLUM GUADALUPENSE | MESCALBEAN, GUADALUPE | | | | | | | | G1 | | PETITIONED / NEGATIVE 90 DAY FINDING | SPECIES OF CONCERN | | BLM SENSITIVE |
| CACTACEAE | ECHINOCEBUS X ROETTERI VAR. ROETTERI | CACTUS, ROETTER'S HEDGEHOG | | | | | | | | NONE | NONE | NONE | NONE | NONE | BLM SENSITIVE |
| ASTERACEAE | ERIGERON ACOMANUS | FLEABANE, ACOMA | VERIFIED | | HYPOTHETICAL | | | | | GNR | SNR | NONE | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| CACTACEAE | ESCOBARIA DUNCANII | CACTUS, DUNCAN'S PINCUSHION | | | | | | | | G1G2 | S1 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| CACTACEAE | ESCOBARIA VILLARDII | CACTUS, VILLARD'S PINCUSHION | | | | | | | | G2 | S2 | SPECIES OF CONCERN | ENDANGERED | SENSITIVE | BLM SENSITIVE |
| ASTERACEAE | LEPIDOSPARTUM BURGESSII | SCALEBROOM, GYPSUM | | | | | | | | G2 | S1 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| LINACEAE | LINUM ALLREDII | FLAX, ALLRED'S | | | | | | | | NONE | NONE | NONE | NONE | NONE | BLM SENSITIVE |
| LOASACEAE | MENTZELIA HUMILIS VAR. GUADALUPENSIS | STICKLEAF, GUADALUPE | | | | | | | | G4T2 | SNR | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| CACTACEAE | OPUNTIA ARENARIA | PRICKLYPEAR, SAND | | | | | | | | G2 | S2 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| CACTACEAE | OPUNTIA X VIRIDIFLORA | CHOLLA, SANTA FE | | | | | | | | G1G2 | S1 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| FABACEAE | PEDIONELUM PENTAPHYLLUM | SCURFEA, CHIHUAHUA | | | | | | | | G1 | SH,S1 | SPECIES OF CONCERN + PETITIONED - POSITIVE 90 DAY FINDING | ENDANGERED | SENSITIVE | BLM SENSITIVE |
| CACTACEAE | PENIOGEREUS GREGGII VAR. GREGGII | CEREUS, NIGHT-BLOOMING | | | | | | | | G3G4T2 | S1 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| SCROPHULARIACEAE | PENSTEMON ALAMOSENSIS | BEARDTONGUE, ALAMO | | | | | | | | G3 | S3 | SPECIES OF CONCERN | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| SCROPHULARIACEAE | PENSTEMON CARDINALIS SSP. REGALIS | PENSTEMON, GUADALUPE | | | | | | | | G3T2 | S2 | NONE | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| ASTERACEAE | PERITYLE CERNUA | CLIFF DAISY, NODDING | | | | | | | | G2 | S2 | SPECIES OF CONCERN | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| CHENOPODIACEAE | PROA TRIPLEX PLEANTHA | SALTBUUSH, MANCOS | | | | | | | | G3 | S3? | SPECIES OF CONCERN | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| POACEAE | PUCGINELLA PARISHII | ALKALIGRASS, PARISH'S | VERIFIED | | HYPOTHETICAL | | | | | G2 | S2,S1 | SPECIES OF CONCERN | ENDANGERED | SENSITIVE | BLM SENSITIVE |
| CACTACEAE | SCLEROCACTUS CLOVERAE SSP. BRACKII | CACTUS, BRACK'S HARDWALL | | | | | | | | G3T1 | S1 | SPECIES OF CONCERN | ENDANGERED | NONE | BLM SENSITIVE |
| CACTACEAE | SCLEROCACTUS PAPYRACANTHUS | CACTUS, GRAMA GRASS | VERIFIED | | HYPOTHETICAL | | | | | G4 | S2,S3,S4 | SPECIES OF CONCERN | NONE | NONE | BLM SENSITIVE |
| SCROPHULARIACEAE | SCROPHULARIA MACRANTHA | FIGWORT, MIMBRES | | | | | | | | G2 | S2 | SPECIES OF CONCERN | SPECIES OF CONCERN | SENSITIVE | BLM SENSITIVE |
| BRASSICACEAE | SIBARA GRISEA | THELPODY, TEXAS; SIBARA, GRAY | | | | | | | | G3 | S3? | NONE | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| BRASSICACEAE | STREPTANTHUS PLATYCARPUS | JEWELFLOWER, BROADPOD | | | | | | | | G1?Q | S1? | PETITIONED / NEGATIVE 90 DAY FINDING | SPECIES OF CONCERN | NONE | BLM SENSITIVE |
| ASTERACEAE | TOWNSENDIA GYPSOPHILA | TOWNSEND DAISY, GYPSUM | VERIFIED | | | | | | | G2 | S2 | SPECIES OF CONCERN | SPECIES OF CONCERN | NONE | BLM SENSITIVE |

APPENDIX D

Photographic log from the biological survey conducted July 28, 2016



Photo 1. Looking west from a wash near the southeast corner of the project area.



Photo 2. Looking west from the eastern boundary of the project area.



Photo 3. Small wash on the south side of the project area with the Florida Mountains behind.



Photo 4. Top of the hill in the center of the project area.

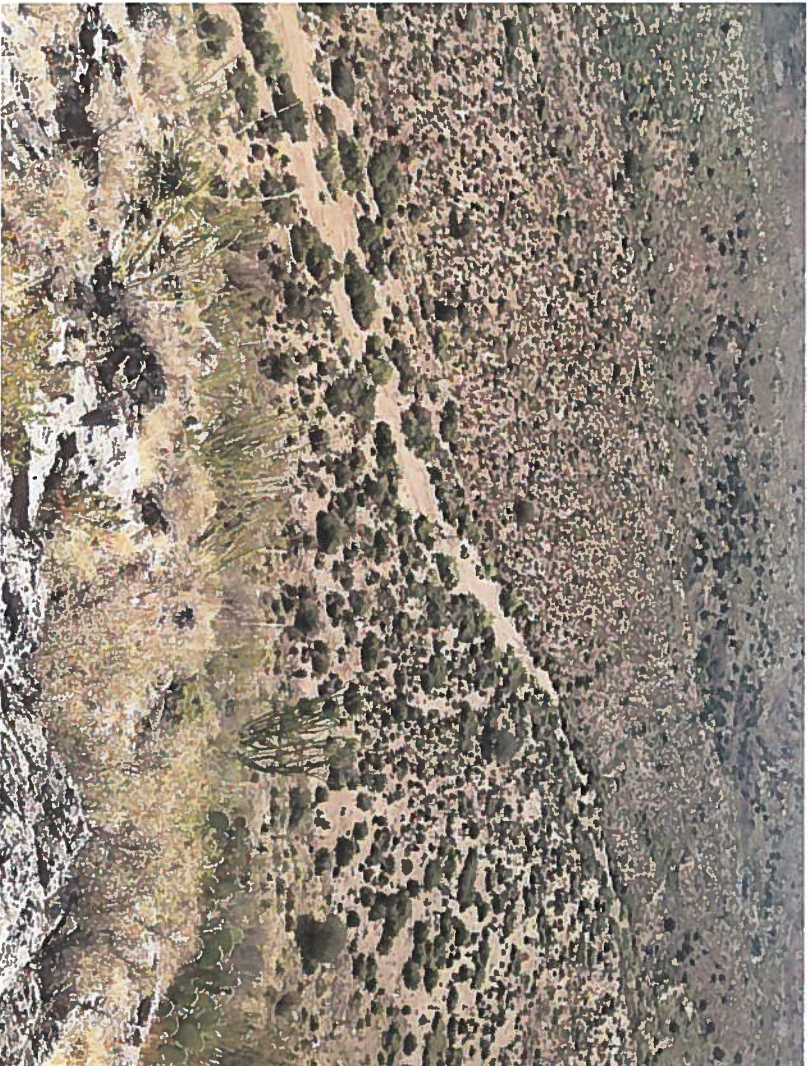


Photo 5. Small wash on the north side of the project area.

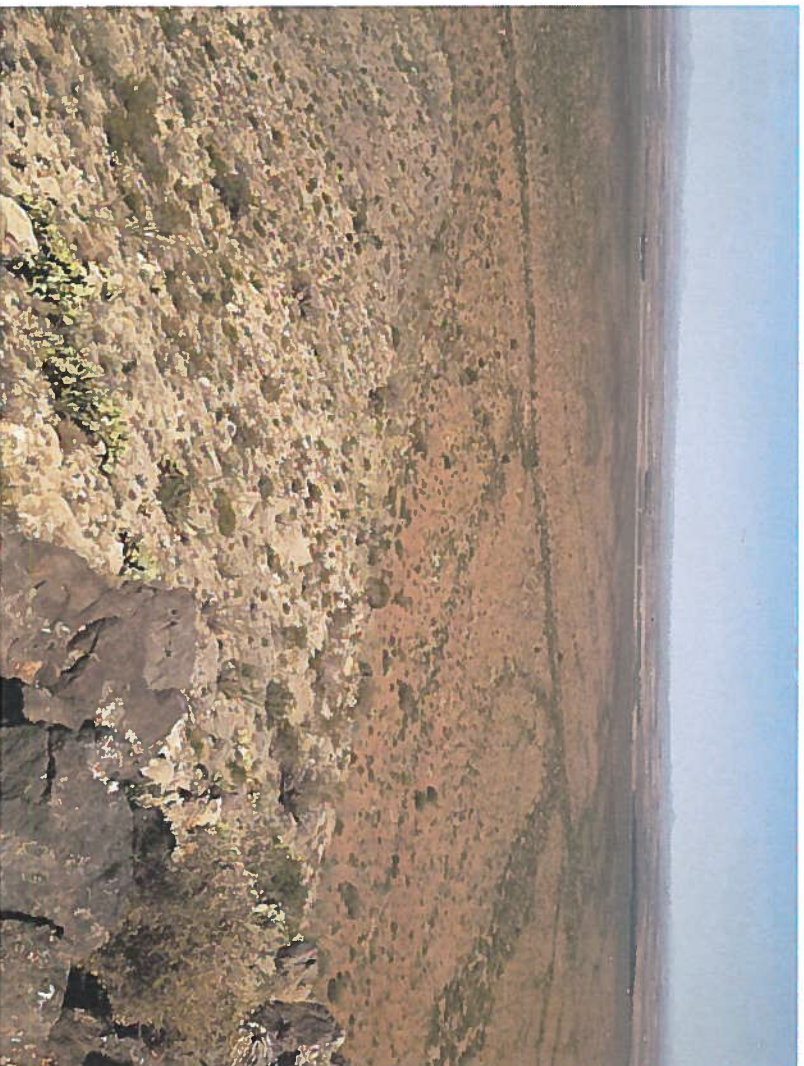


Photo 6. View northwest from the hill in the center of the project area.