



Biological Evaluation T20 Uranium Mine Site

McKinley County, New Mexico

Project No. 117-019765-26001

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1. INTRODUCTION

The T20 Uranium Mine site is an abandoned mine site within the Lower San Mateo Creek subwatershed (HUC12: 130202070306). It consists of a subsidence feature and mining waste piles from historic uranium mining operations. The site is north of New Mexico State Highway 605 and the San Mateo River approximately 11.5 miles north of Milan, New Mexico ([Figure 1-1](#)). The site is within the Grants Mining District (often referred to as the Poison Canyon Mining District) (EPA 2025). This District was the primary focus of uranium extraction and production in New Mexico from the 1950s until the late 1990s.

This report presents a biological evaluation of the site based on desktop research and observations made by two Tetra Tech biologists during a site visit on April 27, 2026.

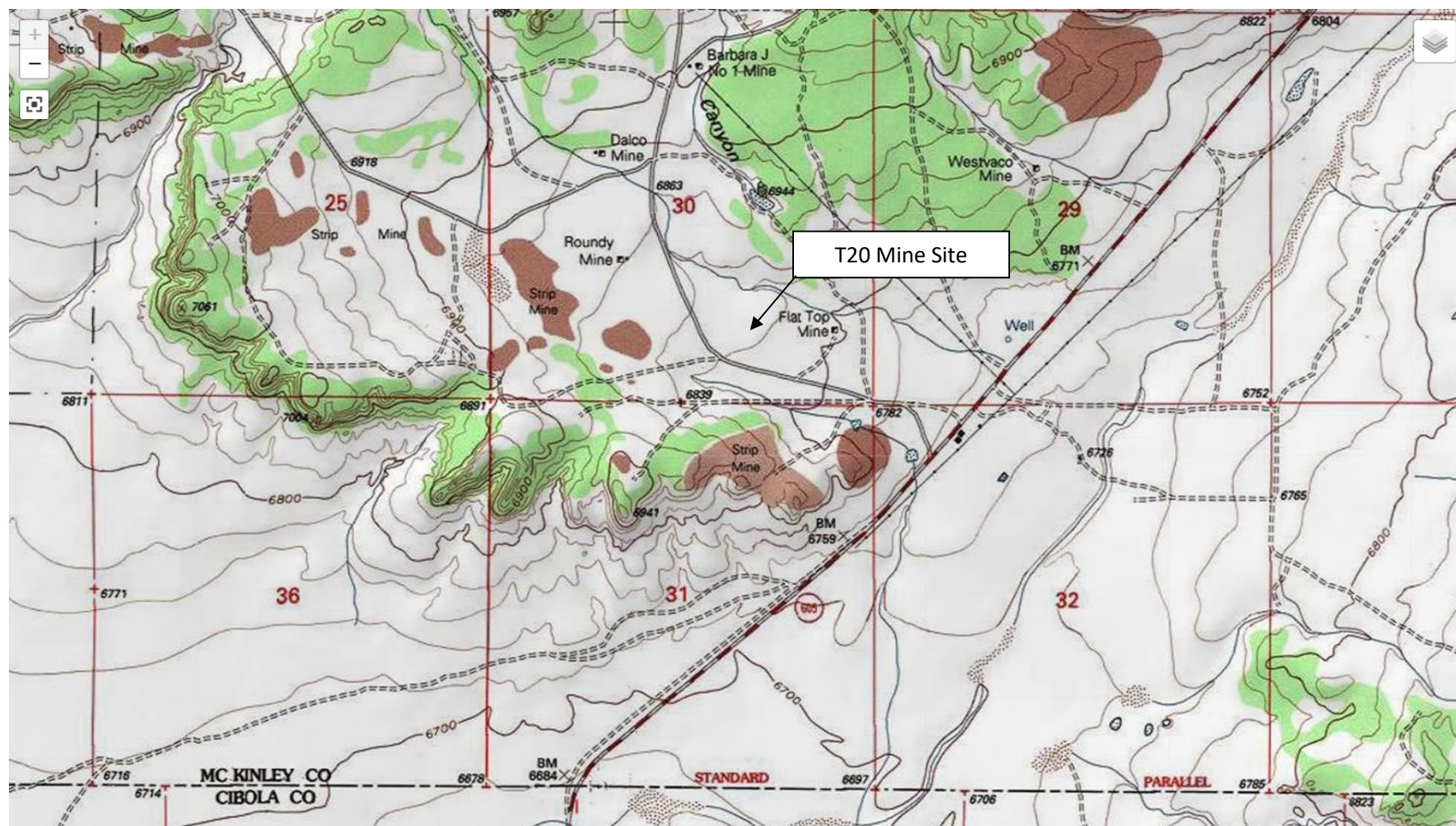


Figure 1-1. Project area north of Milan, New Mexico, as depicted on the Dos Lomas 7.5-minute quadrangle

2. PROPOSED ACTION

The New Mexico Environment Department (NMED) is proposing remedial action on privately owned lands as part of the T20 Abandoned Uranium Mine Project (Project) in McKinley County, New Mexico. The Project is approximately 12 miles north of Grants, New Mexico, in Township 13 North, Range 9 West, Section 30. The Project involves reclamation of the T20 abandoned uranium mine. The NMED, in cooperation with the New Mexico Energy, Minerals, and Natural Resources Department, is the lead agency and is planning to remove 5,000 cubic yards of discarded materials from the T20 mine and transport them to a to-be-determined repository.

3. CLIMATE AND TOPOGRAPHY

The site is situated at approximately 7,050 feet above sea level. The climate is characterized by relatively mild summers and cold winters. Average high temperatures at the nearby San Mateo weather station (elevation 7,225 feet, approximately 12.5 miles east of the mine site) during June, July, and August are in the low 80s, and average low temperatures from December to February are in the mid-to-upper teens. Average annual precipitation averages 9.38 inches with over half of that falling between July and September from monsoonal thunderstorms (WRCC 2026). [Table 3-1](#) provides a climate summary for San Mateo, New Mexico.

Table 3-1. San Mateo, New Mexico Monthly Climate Summary

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	42.1	46.6	51.3	62.3	71.2	81.0	84.0	80.6	76.5	68.2	53.5	46.7	63.7
Average Min. Temperature (F)	12.1	17.8	21.6	28.2	35.5	45.4	52.9	50.9	43.6	33.8	25.5	15.7	31.9
Average Total Precipitation (in.)	0.25	0.54	0.51	0.36	0.27	0.61	1.63	2.17	1.14	0.97	0.38	0.56	9.38
Average Total Snowfall (in.)	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.6
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: WRCC 2026

4. GEOLOGY AND SOILS

4.1. Geology

Topography is gently sloping towards the east with a single dry arroyo channel fed by rills and sheet flow. There are no bedrock outcrops on the property, and the entire area is covered with Quaternary deposits of loamy sand and sandy clay loam. Surface disturbance consists of scattered exploration drill holes, a fenced subsidence feature, and a rock/gravel dumpsite covered with what appears to be Todilto Formation limestone originating from beneath the surface or from outcrops adjacent to the property. The surficial geology of the area is dominated by two geologic units as follows:

Qal – Alluvium (Holocene)

Sand, gravel, and mud in and adjacent to modern arroyo channels. Alluvium is typically at or near the grade of modern channels. 0-10 m thick (NMBGMR 2011).

Qae – Eolian and Alluvial Deposits (Upper Pleistocene-Holocene)

Reddish-brown eolian sand and loessic silt locally reworked by alluvial processes. Deposits are stabilized by vegetation in most areas. Includes discontinuous eolian veneers on stable upland surfaces. 0-10 m thick (NMBGMR 2011).

4.2. Soils

There are two soil types covering the project area: Penistaja-Tintero complex, 1 to 10 percent slopes (approximately 90%) and Flugle-Fragua complex, 1 to 10 percent slopes (approximately 10%), from McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties (NM692) (NRCS 2026). [Figure 4-1](#) shows NRCS soil units within the Project Area.

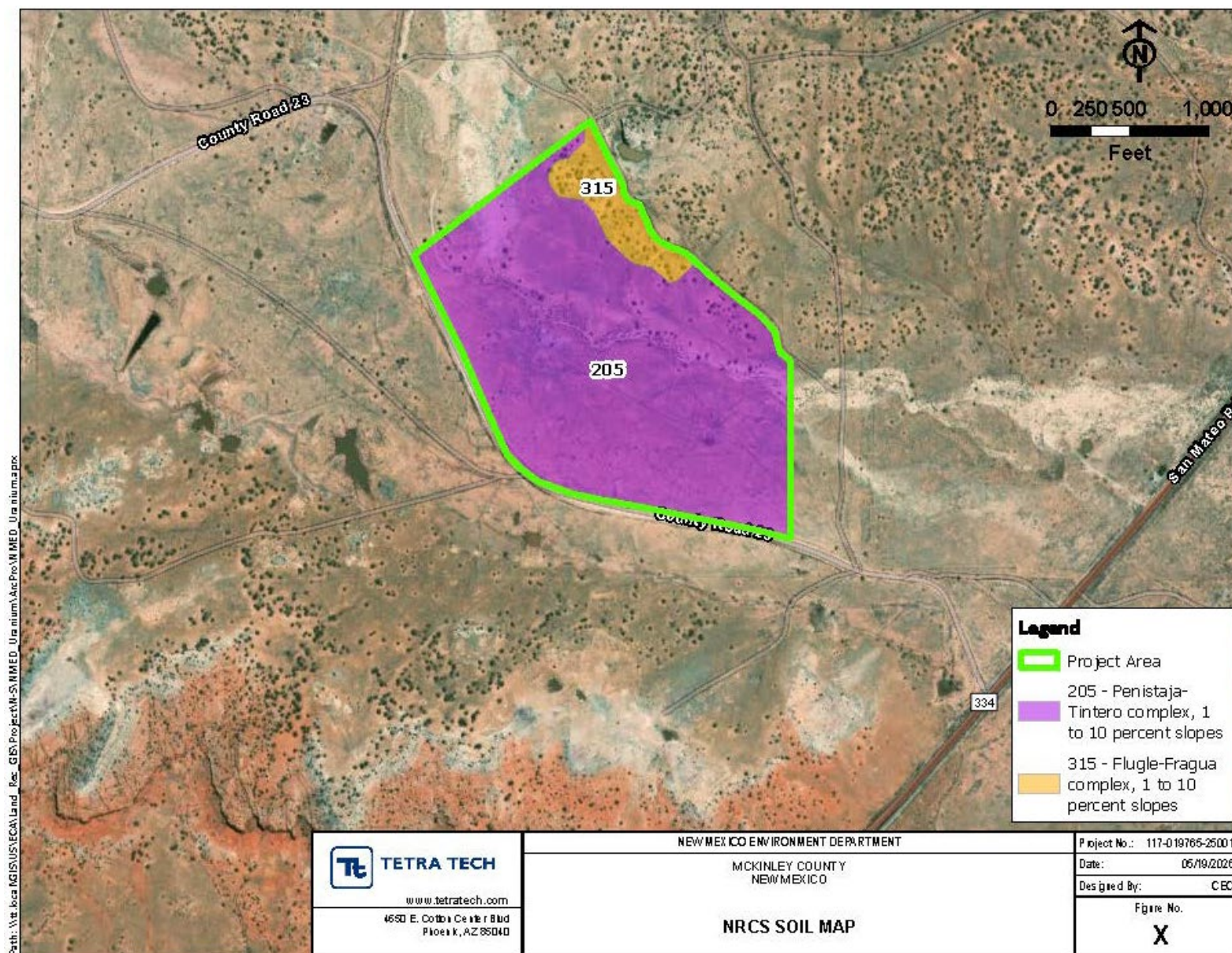


Figure 4-1. NRCS Soil Units within the Project Area

Table 4-1 through Table 4-6 describe the NRCS soil units within the Project Area as presented in the NRCS Web Soil Survey (NRCS 2026).

Table 4-1. Description of Penistaja-Tintero Complex (Penistaja), 1 to 10 percent slopes

205 – Penistaja-Tintero complex, 1 to 10 percent slopes (Penistaja)	
Map Unit Setting	• National map unit symbol: 2zgdf • Landscape: Plateaus • Elevation: 6,030 to 7,860 feet • Mean annual precipitation: 10 to 13 inches • Mean annual air temperature: 34 to 64 degrees F • Frost-free period: 140 to 160 days • Farmland classification: Not prime farmland
Map Unit Composition	• Penistaja and similar soils: 45 percent • Tintero and similar soils: 40 percent • Minor components: 15 percent • Estimates are based on observations, descriptions, and transects of the map unit.
Setting	• Landscape: Plateaus • Landform: Fan remnants, Mesas, Dip slopes • Landform position (two-dimensional): Backslope • Landform position (three-dimensional): Side slope, tread, talf • Down-slope shape: Convex • Across-slope shape: Convex, linear • Parent material: Eolian deposits and slope alluvium derived from sandstone and shale
Typical profile	• Ap - 0 to 3 inches: sandy loam • Bt - 3 to 19 inches: sandy clay loam • Bk - 19 to 65 inches: sandy loam
Properties and qualities	• Slope: 1 to 5 percent • Depth to restrictive feature: More than 80 inches • Drainage class: Well drained • Runoff class: Low • Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr) • Depth to water table: More than 80 inches • Frequency of flooding: None • Frequency of ponding: None • Calcium carbonate, maximum content: 10 percent • Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) • Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)
Interpretive groups	• Land capability classification (irrigated): None specified • Land capability classification (non-irrigated): 6c • Hydrologic Soil Group: B • Ecological site: R035XA112NM - Loamy • Hydric soil rating: No
Unnamed soils	• Percent of map unit: 15 percent • Hydric soil rating: No

Table 4-2. Description of Penistaja-Tintero Complex (Tintero), 1 to 10 percent slopes

205 – Penistaja-Tintero complex, 1 to 10 percent slopes (Tintero)	
Map Unit Setting	• National map unit symbol: 2zgdf • Landscape: Plateaus • Elevation: 6,030 to 7,860 feet • Mean annual precipitation: 10 to 13 inches • Mean annual air temperature: 34 to 64 degrees F • Frost-free period: 140 to 160 days • Farmland classification: Not prime farmland
Map Unit Composition	• Penistaja and similar soils: 45 percent • Tintero and similar soils: 40 percent • Minor components: 15 percent • Estimates are based on observations, descriptions, and transects of the map unit.
Setting	• Landscape: Plateaus • Landform: Fan remnants, Mesas, Dip slopes • Landform position (two-dimensional): Backslope • Landform position (three-dimensional): Side slope, tread, talf • Down-slope shape: Convex • Across-slope shape: Convex, linear • Parent material: Eolian deposits and slope alluvium derived from sandstone
Typical profile	• A - 0 to 4 inches: fine sandy loam • Bt - 4 to 16 inches: fine sandy loam • Bk1 - 16 to 48 inches: fine sandy loam • Bk2 – 48 to 65 inches: loamy fine sand
Properties and qualities	• Slope: 1 to 10 percent • Depth to restrictive feature: More than 80 inches • Drainage class: Somewhat excessively drained • Runoff class: Low • Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr) • Depth to water table: More than 80 inches • Frequency of flooding: None • Frequency of ponding: None • Calcium carbonate, maximum content: 10 percent • Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) • Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)
Interpretive groups	• Land capability classification (irrigated): None specified • Land capability classification (non-irrigated): 7e • Hydrologic Soil Group: A • Ecological site: R035XA113NM - Sandy • Hydric soil rating: No

Table 4-3. Description of Penistaja-Tintero Complex (Minor components)

Minor Components (Sparank)	• Percent of map unit: 5 percent • Landscape: Valleys • Landform: Flood plains • Landform position (two-dimensional): Toeslope • Landform position (three-dimensional): Base slope • Down-slope shape: Concave • Across-slope shape: Linear • Ecological site: R035XA119NM – Clayey Bottomland • Hydric soil rating: No
Minor Components (Hagerwest)	• Percent of map unit: 5 percent • Landscape: Plateaus • Landform: Hills, Dip slopes, Mesas • Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope • Landform position (three-dimensional): Crest, head slope, nose slope, side slope • Down-slope shape: Convex • Across-slope shape: Convex, concave, linear • Ecological site: R035XA112NM – Loamy • Hydric soil rating: No
Minor Components (Bond)	• Percent of map unit: 5 percent • Landscape: Plateaus • Landform: Ridges, Hills, Dip slopes, Mesas • Landform position (two-dimensional): Shoulder, backslope, footslope • Landform position (three-dimensional): Side slope, crest, head slope, nose slope, talus • Down-slope shape: Convex • Across-slope shape: Convex, concave, linear • Ecological site: R035XG121NM – Shallow Sandstone • Hydric soil rating: No

Table 4-4. Description of Flugle-Fragua Complex (Flugle), 1 to 10 percent slopes

315 – Flugle - Fragua complex, 1 to 10 percent slopes (Flugle)	
Map Unit Setting	• National map unit symbol: 1xks • Landscape: Uplands • Elevation: 6,400 to 7,300 feet • Mean annual precipitation: 13 to 14 inches • Mean annual air temperature: 49 to 53 degrees F • Frost-free period: 115 to 135 days • Farmland classification: Not prime farmland
Map Unit Composition	• Flugle and similar soils: 50 percent • Fragua and similar soils: 40 percent • Minor components: 10 percent • Estimates are based on observations, descriptions, and transects of the map unit.
Setting	• Landscape: Uplands • Landform: Fan remnants on valley sides, Dip slopes on cuestas, Mesas • Landform position (three-dimensional): Side slope, tread, talf • Down-slope shape: Convex, concave • Across-slope shape: Convex, concave, linear • Parent material: Eolian deposits over fan and slope alluvium derived from sandstone and shale
Typical profile	• A - 0 to 3 inches: loam • Bt1 - 3 to 10 inches: sandy clay loam • Bt2 - 10 to 28 inches: clay loam • Bk – 28 to 65 inches: sandy loam
Properties and qualities	• Slope: 1 to 5 percent • Depth to restrictive feature: More than 80 inches • Drainage class: Well drained • Runoff class: Medium • Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr) • Depth to water table: More than 80 inches • Frequency of flooding: None • Frequency of ponding: None • Calcium carbonate, maximum content: 10 percent • Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) • Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)
Interpretive groups	• Land capability classification (irrigated): None specified • Land capability classification (non-irrigated): 6c • Hydrologic Soil Group: C • Ecological site: F035XG001NM – Twoneedle Pinyon/Oneseed Juniper Woodland – Zuni 13 to 17 inches • Hydric soil rating: No

Table 4-5. Description of Flugle-Fragua Complex (Fragua), 1 to 10 percent slopes

315 – Flugle - Fragua complex, 1 to 10 percent slopes (Fragua)	
Map Unit Setting	• National map unit symbol: 1xks • Landscape: Uplands • Elevation: 6,400 to 7,300 feet • Mean annual precipitation: 13 to 14 inches • Mean annual air temperature: 49 to 53 degrees F • Frost-free period: 115 to 135 days • Farmland classification: Not prime farmland
Map Unit Composition	• Flugle and similar soils: 50 percent • Fragua and similar soils: 40 percent • Minor components: 10 percent • Estimates are based on observations, descriptions, and transects of the map unit.
Setting	• Landscape: Uplands • Landform: Fan remnants on valley sides, Dip slopes on cuestas, Mesas • Landform position (three-dimensional): Side slope, tread, talf • Down-slope shape: Convex, concave • Across-slope shape: Convex, concave, linear • Parent material: Eolian deposits over fan and slope alluvium derived from sandstone
Typical profile	• A - 0 to 2 inches: loamy fine sand • Btk - 2 to 19 inches: sandy loam • Bk – 19 to 65 inches: sandy loam
Properties and qualities	• Slope: 1 to 10 percent • Depth to restrictive feature: More than 80 inches • Drainage class: Somewhat excessively drained • Runoff class: Low • Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr) • Depth to water table: More than 80 inches • Frequency of flooding: None • Frequency of ponding: None • Calcium carbonate, maximum content: 10 percent • Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) • Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)
Interpretive groups	• Land capability classification (irrigated): None specified • Land capability classification (non-irrigated): 6c • Hydrologic Soil Group: A • Ecological site: R036XB111NM – Sandy slopes • Hydric soil rating: No

Table 4-6. Description of Fluge-Fragua Complex (Minor Components)

Minor Components (Royosa)	• Percent of map unit: 5 percent • Ecological site: R036XB012NM – Sandy Savanna • Hydric soil rating: No
Minor Components (Celavar)	• Percent of map unit: 5 percent • Ecological site: F035XG135NM – Steep Gravelly – Woodland • Other vegetative classification: Pinyon-Juniper Forest (null_21) • Hydric soil rating: No

5. BIOLOGICAL SURVEY

5.1. Methods

During the April 27, 2026 site visit, the biologists traversed the project area and recorded field notes and photographs of representative habitat conditions. Drainages were evaluated for flow regime (ephemeral, intermittent, or perennial), and natural depressions were evaluated for potential wetland characteristics. Observed habitat characteristics were compared to known habitat associations of special status species to inform an assessment of the potential for special status species to occur in the project area. Special status species include species listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act (ESA), species protected under the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA), species identified as sensitive by the Bureau of Land Management (BLM), wildlife listed as threatened or endangered at the State level by the New Mexico State Wildlife Commission, plants listed as State endangered by the New Mexico Energy, Minerals, and Natural Resources Department, and plant species identified as rare by the New Mexico Rare Plant Technical Council. All plant and wildlife species encountered within the project area were recorded. No formal protocol-level surveys were conducted; all plant and wildlife observations were opportunistic. The site visit plant and wildlife list does not represent a comprehensive species inventory for the site.

5.2. Project Area Vegetation

Most of the project area is vegetated with common plant associations typical of sandy sedimentary geologic substrates in northwestern New Mexico. The plant communities are juniper savanna and shrubby grassland. Common woody plants are oneseed juniper, fourwing saltbush, snakeweed, rubber rabbitbrush, Greene's rabbit brush, and winterfat. Common grasses are blue grama, purple three awn, Indian ricegrass, spike dropseed, and galleta. The arroyo has western wheatgrass and a denser cover of woody plants. No obligate or facultative wetland plant species were observed in the drainage bottom. Table 5-1 lists all of the plant species observed in the project area during the field survey on April 27, 2026.

5.3. Special Status Plants

Several rare or endangered plant species occur in north-central Cibola and southwestern McKinley counties (Table 5-2). One is listed as federally Threatened, two species are New Mexico Endangered and the others are BLM Sensitive Species or considered rare plants by the New Mexico Rare Plant Technical Council (NMRPTC 1999). The project area lacks suitable habitat for all of these special status plants and none were observed. The surface piles of Todilto Formation rock and gravel are not a natural outcrop and lack the endemic flora of that substrate.

5.4. Noxious Weeds

Only three non-native plants (cheatgrass, kochia, and prickly Russian thistle) were observed in the project area. Cheatgrass (*Bromus tectorum*) is on the New Mexico Department of Agriculture list of noxious weeds (NMDA 2020) as a Class C noxious weed, which means it is widespread in New Mexico and its management should be determined at the local level, based on feasibility of control and level of infestation. It is a common, fully naturalized, annual weed throughout northwestern New Mexico, but not common in the project area.

5.5. Site Plant List

Table 5-1 presents the vegetation noted during a biological survey of the site conducted on April 27, 2026.

Table 5-1. T20 Plant List

Scientific Name	Common Name		
Woody Plants and Cacti			
<i>Artemisia bigelovii</i>	Bigelow's sagebrush	Native	Uncommon
<i>Artemisia frigida</i>	fringed sagebrush	Native	Few
<i>Atriplex canescens</i>	four-wing saltbush	Native	Abundant
<i>Chrysothamnus geenei</i>	Greene's rabbitbrush	Native	Common
<i>Cylindropuntia imbricata</i>	cane cholla	Native	Few
<i>Ericameria nauseosa</i>	rubber rabbitbush	Native	Abundant
<i>Escobaria vivipara</i>	spiny star	Native	Uncommon
<i>Gutierrezia sarothrae</i>	snakeweed	Native	Common
<i>Juniperus monosperma</i>	one-seed juniper	Native	Common
<i>Krascheninnikovia lanata</i>	winterfat	Native	Common
<i>Lycium pallidum</i>	pale wolfberry	Native	Common
<i>Opuntia phaeacantha</i>	brown-spine prickly pear	Native	Common
<i>Pinus edulis</i>	piñon pine	Native	Few
<i>Tetradymia canescens</i>	spineless horsebrush	Native	Few
Grasses			
<i>Aristida purpurea</i>	purple three-awn	Native	Common
<i>Bouteloua gracilis</i>	blue grama	Native	Abundant
<i>Bromus tectorum</i>	cheatgrass	Exotic	Few
<i>Elymus elymoides</i>	squirrel tail	Native	Few
<i>Eriocoma hymenoides</i>	Indian ricegrass	Native	Abundant
<i>Hilaria jamesii</i>	galleta	Native	Common
<i>Muhlenbergia torreyi</i>	ring muhly	Native	Uncommon
<i>Pascopyrum smithii</i>	western wheatgrass	Native	Common
<i>Sporobolus airoides</i>	alkali sacaton	Native	Uncommon
<i>Sporobolus contractus</i>	spike dropseed	Native	Abundant
<i>Sporobolus flexuosus</i>	mesa dropseed	Native	Few

Scientific Name	Common Name		
Forbs			
<i>Ambrosia acanthicarpa</i>	annual bursage	Native	Uncommon
<i>Artemisia campestris</i>	field wormwood	Native	Uncommon
<i>Astragalus praelongus</i>	stinking milkvetch	Native	Uncommon
<i>Bassia scoparia</i>	kochia	Exotic	Uncommon
<i>Chaetopappa ericoides</i>	rose heath	Native	Common
<i>Cryptantha crassisejala</i>	thicksepal cryptantha	Native	Common
<i>Descurainia pinnata</i>	western tansy mustard	Native	Common
<i>Dieteria canescens</i>	hoary tansyaster	Native	Few
<i>Dimorphocarpa wislizeni</i>	tourist plant	Native	Uncommon
<i>Hymenopappus filifolius</i>	fineleaf hymenopappus	Native	Few
<i>Lappula occidentalis</i>	western tickseed	Native	Few
<i>Malacothrix fendleri</i>	Fendler's desert dandelion	Native	Few
<i>Mentzelia procera</i>	upright blazing star	Native	Common
<i>Oenothera coronopifolia</i>	cutleaf evening-primrose	Native	Common
<i>Oreocarya suffruticosa</i>	bonnut oreocarya	Native	Few
<i>Phacelia integrifolia</i>	scorpion weed	Native	Uncommon
<i>Psilostrophy tagitina</i>	woolly paperflower	Native	Uncommon
<i>Salsola tragus</i>	prickly Russian thistle	Exotic	Common
<i>Sphaeralcea coccinea</i>	scarlet globemallow	Native	Uncommon
<i>Sphaeralcea parvifolia</i>	small-leaf globemallow	Native	Common
<i>Thelespermum megapotamicum</i>	cota	Native	Uncommon
<i>Townsendia annua</i>	annual Townsend daisy	Native	Uncommon
<i>Verbesina encelioides</i>	cowpen daisy	Native	Few
<i>Xanthisma gracilis</i>	slender goldenweed	Native	Few
<i>Xanthisma spinulosum</i>	spiny goldenweed	Native	Common

Table 5-2. Special Status plants near the T20 Mine

Name	Status	Habitat	At T20 Mine	Comments
<i>Astragalus micromerius</i> (Chaco milkvetch)	NM Rare	Gypseous or limy sandstones	No	No habitat in project area
<i>Erigeron acomanus</i> (Acoma fleabane)	NM Rare BLM Sen.	Entrada Sandstone	No	No habitat in project area
<i>Eriogonum lachnogynum</i> var. <i>colobum</i> (clipped wild buckwheat)	NM Rare BLM Sen.	Todilto limestone	No	No habitat in project area
<i>Helianthus paradoxus</i> (Pecos sunflower)	FWS Thr. NM End. BLM Sen.	Spring wetlands	No	No habitat in project area

Name	Status	Habitat	At T20 Mine	Comments
<i>Physaria navajoensis</i> (Navajo bladderpod)	NM Rare BLM Sen.	Todilto limestone	No	No habitat in project area
<i>Puccinellia parishii</i> (Parish's alkali grass)	NM End. BLM Sen.	Spring wetlands	No	No habitat in project area

5.6. Site Wildlife List

The following wildlife or sign were noted during the biological survey:

- Coyote (*Canis latrans*)
- Black-tailed jackrabbit (*Lepus californicus*)
- Mule deer (*Odocoileus hemionus*) (scat)
- Loggerhead shrike (*Lanius ludovicianus*)
- House finch (*Haemorhous mexicanus*)
- Mourning dove (*Zenaida macroura*)
- Ground squirrel species
- Kangaroo rat species
- Flycatcher species
- Pack rat species

No prairie dog colonies were noted.

6. BIOTIC COMMUNITIES

Representative photographs of the primary biotic community present at the site and mining features are included as [Figure 6-1](#) through [Figure 6-5](#); the vegetation is classified as Great Basin Grassland (Brown 1994).



Figure 6-1. Project area vegetation dominated by blue grama, Indian ricegrass, and spike dropseed



Figure 6-2. Project area vegetation dominated by grasses with occasional juniper and four-wing saltbush



Figure 6-3. Arroyo with western wheat grass in bed and shrubs along banks



Figure 6-4. Flat Top Mine immediately east of the Project Area



Figure 6-5. Mine waste piles within the Project Area

7. SURFACE WATER AND POTENTIAL WATERS OF THE UNITED STATES

7.1. U.S. Fish and Wildlife Service National Wetlands Inventory

According to the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2026a), the arroyo running through the project area is classified as R4SBJ as follows:

- **Riverine (R):** This System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.
- **Intermittent (4):** This Subsystem includes channels that contain flowing water only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.
- **Streambed (SB):** Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.
- **Intermittently Flooded (J):** The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation. The dominant plant communities under this Water Regime may change as soil moisture conditions change. Some areas exhibiting this Water Regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes. This Water Regime is generally limited to the arid West.

Two other features are classified as PUS2jx as follows:

- **Palustrine (P):** The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.
- **Unconsolidated Shore (US):** Includes all wetland habitats having two characteristics: (1) unconsolidated substrates with less than 75 percent areal cover of stones, boulders or bedrock and; (2) less than 30 percent areal cover of vegetation. Landforms such as beaches, bars, and flats are included in the Unconsolidated Shore class.
- **Sand (2):** The unconsolidated particles smaller than stones are predominantly sand, although finer or coarser sediments may be intermixed.
- **Intermittently Flooded (J):** The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation. The dominant plant communities under this Water Regime may change as soil moisture conditions change. Some areas exhibiting this Water Regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes. This Water Regime is generally limited to the arid West.
- **Excavated (x):** This Modifier is used to identify wetland basins or channels that were excavated by humans.

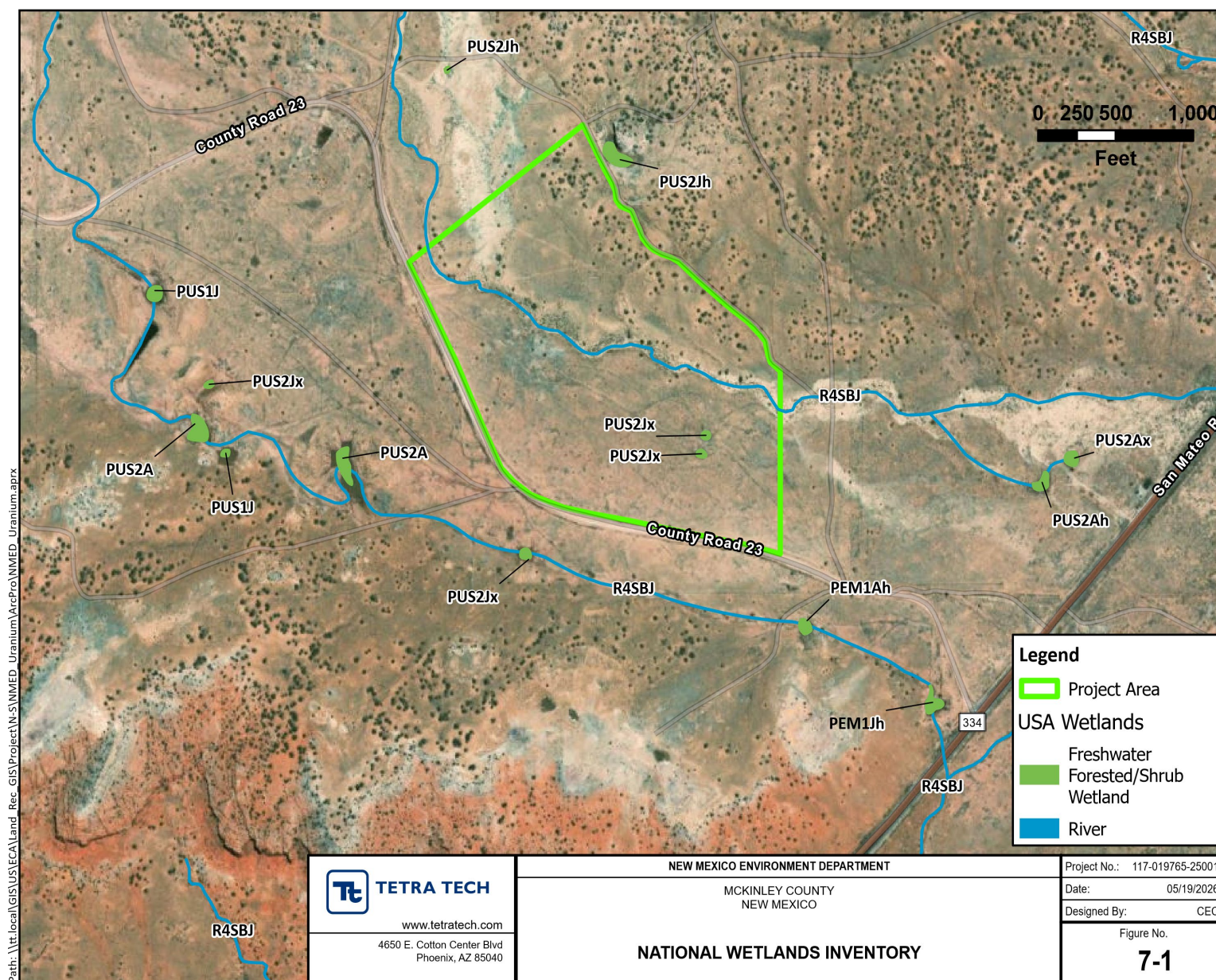


Figure 7-1. USFWS National Wetlands Inventory map of the T20 Mine site

7.2. Environmental Protection Agency Streamflow Duration Assessment Method

The EPA's Streamflow Duration Assessment Method (SDAM) is described in the Streamflow Duration Assessment Methods for the Arid West and Western Mountains of the United States of America, October 2024 (EPA 2024). The method is intended to quickly classify stream reaches into one of three streamflow duration classes as follows:

- *Ephemeral reaches* are channels that flow only in direct response to precipitation. Water typically flows only during and/or shortly after large precipitation events, the streambed is always above the water table, and stormwater runoff is the primary water source.
- *Intermittent reaches* are channels that contain sustained flowing water for only part of the year, typically during the wet season, where the streambed may be below the water table and/or where the snowmelt from surrounding uplands provides sustained flow. The flow may vary greatly with stormwater runoff.
- *Perennial reaches* are channels that contain flowing water continuously during a year of normal rainfall, often with the streambed located below the water table for most of the year. Groundwater typically supplies the baseflow for perennial reaches, but the baseflow may also be supplemented by stormwater runoff and/or snowmelt.

The five indicators of the method are as follows:

- 1) Hydrophytic plant species growing in or within one half-channel width of the channel
- 2) Aquatic macroinvertebrate species
- 3) Aquatic stages of Ephemeroptera, Plecoptera, or Trichoptera (EPT) taxa
- 4) Algae in the streambed
- 5) Observations of single indicators (i.e., the presence of fish or > 10% algal cover) to differentiate intermittent or perennial streams

None of the aforementioned indicators were noted in the arroyo or in excavated features in the Project Area. The hydrologic flow regime of these features can be classified as ephemeral.

7.3. Waters of the United States and the Relatively Permanent Standard

The Clean Water Act does not define "waters of the United States." The USACE and EPA have defined "waters of the United States" by regulation since the 1970s. Per the Proposed "Waters of the United States" (WOTUS) Rule published in the Federal Register on November 20, 2025, the categories of jurisdictional waters are as follows:

- (a)(1)
 - (i) Traditional Navigable Waters
 - (ii) Territorial Seas
- (a)(2) Impoundments of Jurisdictional Waters
- (a)(3) Tributaries
- (a)(4) Adjacent Wetlands

(a)(3) Tributaries include natural, man-altered, or man-made water bodies that flow directly or indirectly into (a)(1) waters or (a)(2) impoundments. Tributaries can include rivers, streams, lakes, ponds, and impoundments as well as ditches and canals.

For a surface water channel such as a river, stream, or ditch to meet the definition of a “Water of the United States,” the channel must be “relatively permanent” (i.e. flowing continuously year-round or flowing continuously during certain times of the year and more than in direct response to a single precipitation event).

Relatively permanent waters do not include tributaries with flowing or standing water for only a short duration in direct response to precipitation. “Direct response to precipitation” is intended to distinguish between episodic periods of flow associated with discrete precipitation events versus continuous flow for extended periods of time. The EPA and USACE have not defined a minimum flow duration because flow duration varies extensively by region.

7.4. Conclusion

The arroyo in the Project Area is clearly ephemeral and only flows in direct response to precipitation. Because the channel does not exhibit relatively permanent flow, it is not considered a Water of the United States. Additionally, the mapped palustrine excavation features also appear to be ephemeral and are also not considered jurisdictional.

8. ENDANGERED SPECIES ACT SPECIES ANALYSIS

The USFWS Information for Planning and Consultation (IPAC) tool (USFWS 2026b; **Appendix A**) was accessed for information regarding federally listed species under the Endangered Species Act (ESA) of 1973 and other special status species.

Table 10-1 lists federally listed species and habitats under the ESA with the potential to occur in the project area (USFWS 2026b).

Table 8-1. Federally listed species under the Endangered Species Act with the potential to occur in the project area

Species Common name <i>Scientific Name</i>	Status	Species background information The known distribution or habitat association for the species.	Project Information The project area is in Great Basin grassland at 7,050 feet elevation.
MAMMALS			
Mexican wolf <i>Canis lupus baileyi</i>	Exp	The Mexican wolf is the rarest subspecies of gray wolf in North America. In 1998, Mexican wolves were released into the Blue Range Wolf Recovery Area within the Mexican Wolf Experimental Population Area in east-central Arizona and southwestern New Mexico. Mexican wolves occur largely in mountainous forests and woodlands and eat large and small mammals. They depend on a healthy population of large ungulates (elk, deer) to survive (USFWS 2026c).	The project area is not within the Blue Range Wolf Recovery Area; thus, the wolf is considered an experimental population in the area. From 2017 to 2025 there have been 6 documented occurrences south and east of the project area, largely in higher elevation forests and woodlands (Center for Biological Diversity 2025). Suitable habitat does not occur within the project area.
BIRDS			
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	T	This species is associated with mature stands of cottonwood-willow riparian deciduous forest. It is also known to use dense thickets comprised of mixed hardwoods species with tamarisk included. Known to occur along the Rio Grande River 80 miles to the east.	There is no significant, natural, perennial water source at the site to support the cuckoo's preferred habitat of mature cottonwood-willow forest and the elevation of the site is generally higher than that suitable for the species.
INSECTS			
Monarch butterfly <i>Danaus plexippus</i>	C	Fields, roadside areas, and open areas where milkweed and flowering plants occur. Adult monarchs feed on the nectar of many flowers, but they breed only where milkweeds are found.	Suitable habitat does occur within the project area.
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i>	C	Has been documented in grasslands, shrub-steppe, montane to subalpine mesic meadows, and conifer forest, as well as agricultural fields and urban areas	Suitable habitat does occur within the project area.

Species Common name <i>Scientific Name</i>	Status	Species background information The known distribution or habitat association for the species.	Project Information The project area is in Great Basin grassland at 7,050 feet elevation.
* STATUS DEFINITIONS:			
◆ Exp	Experimental population under the ESA		
◆ T	Listed Threatened under the ESA: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.		
◆ C	Candidates are those species for which the Fish and Wildlife Service has enough information on file to propose listing as threatened or endangered, but listing has been precluded by other agency priorities.		

Although the USFWS planning tool is valuable for initial assessments of species to consider in a project area, the breadth of the area considered (up to a 3-mile radius from the actual site) exceeds the project area boundaries and sometimes includes much different habitat.

8.1. Mexican Wolf

The Mexican wolf (*Canis lupus baileyi*) is the smallest, southern-most occurring, rarest, and most genetically distinct subspecies of gray wolf in North America. Mexican wolves typically weigh 50 - 80 pounds and measure about 5 ½ feet from nose to tail and stand 28 to 32 inches at the shoulder. They have a distinctive, richly colored coat of buff, gray, rust, and black, often with distinguishing facial patterns; solid black or white variations do not exist as with other North American gray wolves (USFWS 2026c).

Mexican wolves live in extended family groups, or packs, consisting of an adult mated pair and their offspring, often from several generations. They hunt cooperatively to bring down prey animals usually much larger than themselves. Native prey for Mexican wolves includes elk, mule deer, white-tailed deer, javelina, rabbits, and other small mammals. Mexican wolves are found in a variety of southwestern habitats; however, they are not low desert dwellers as once commonly believed. They prefer mountain woodlands, probably because of the favorable combination of cover, water, and available prey (USFWS 2026c).

Historically, the core range of Mexican wolves occurred throughout mountainous regions from central Mexico, through southeastern Arizona, southern New Mexico, and southwestern Texas. More recent information obtained from examining historical wolf specimens however, suggests that Mexican wolves may have roamed farther north. The Mexican wolf was common throughout its core range through the mid-1800s. Towards the turn of the century, however, high cattle stocking rates and declining populations of native prey, such as deer and elk, caused many wolves to prey on livestock. This led to intensive efforts to eradicate Mexican wolves in the southwestern United States. By the mid-1900s, Mexican wolves had been effectively eliminated from the United States, and populations in Mexico were severely reduced. Following the passage of the Endangered Species Act in 1973, Mexican wolves were listed by the U.S. Fish and Wildlife Service as an endangered species in 1976, thereby prompting recovery efforts to save the species from extinction (USFWS 2026c).

In 1982, the Mexican Gray Wolf Recovery Plan was approved. The plan involved ensuring the wolves' survival through captive breeding programs followed by efforts to reintroduce the subspecies back into their historic range. Reintroduction began in 1998, when the first wolves were released into the Blue Range Wolf Recovery Area in the Apache National Forest of east-central Arizona and the Gila National Forest of west-central New Mexico. By 2017, the reintroduction phase of the recovery plan had been completed and the new goal involved recovering the population to pre-endangered numbers and survivability.

Management of wolves in the Mexican Wolf Experimental Population Area (MWEPA) is conducted in accordance with the Regulations for the Nonessential Experimental Population of the Mexican wolf, an ESA "10(j) rule" population (USFWS 2022). This rule designates the reintroduced population as experimental and nonessential and establishes the MWEPA within historical range south of Interstate 40 to the United States-Mexico border in

Arizona and New Mexico, inclusive of three management areas (Zones 1, 2, and 3; USFWS 2025). The Project Area is north of Interstate 40 and is not within the MWEPA. A minimum of 286 Mexican wolves and 26 breeding pairs were documented in the MWEPA at the end of 2024 (USFWS 2025).

8.1.1. Effect Determination

Given the low-quality habitat of the Project Area and no documented occurrences in or near the Project Area, the proposed action is “Not Likely to Adversely Affect” the Mexican wolf.

8.2. Yellow Billed Cuckoo

The Western Distinct Population Segment of yellow-billed cuckoo (YBC) nests west of the Rocky Mountains in North America south to southern Baja California. Breeding generally occurs from June through September, peaking in July, with May breeding occurring less commonly. All YBC winter in Central and South America (AGFD, 2022b).

The YBC is associated with riparian habitat, the highest quality of which consists of rivers and streams of lower gradients in open valleys with a broad floodplain containing riparian woodland habitat with the overstory and understory comprised of a variety of plant species but generally dominated by willow or cottonwood. Nesting often occurs in riparian cottonwood-willow galleries, though tamarisk and larger mesquite bosques are also used. In arid southwestern United States breeding habitat, arid riparian and xeroriparian habitat, desert scrub, and desert grassland, drainages with a tree component and Madrean evergreen woodland drainages are also used. The YBC is also rarely observed as a transient in xeric desert or urban settings (AGFD, 2022b).

Breeding habitat for the YBC is restricted to riparian woodlands along riparian drainages range-wide, but in the southwestern United States and northwestern Mexico, the species is known to breed in more arid and sometimes narrower or patchier tree-lined drainages. Southwestern breeding habitat, found primarily in Arizona and New Mexico, occurs within perennial, intermittent, and ephemeral drainages in montane canyons, foothills, bajadas, desert floodplains, and arroyos. Breeding habitat may include woody side drainages, terraces, and hillsides immediately adjacent to the main drainage bottom below 1,829 m (6,000 ft) in elevation. In areas where water is especially limited, but the area is nonetheless productive in terms of food and cover, breeding habitat often consists of narrow, patchy, and/or sparsely vegetated drainages surrounded by arid-adapted vegetation. Due to more arid conditions, southwestern breeding habitat contains a greater proportion of xeroriparian and non-riparian tree species. Riparian and xeroriparian trees in southwestern breeding habitat may even be more sparsely distributed and less prevalent than non-riparian trees. Southwestern breeding habitat is often, but not always, 81 hectares or more in size and may consist of a series smaller tree and large shrub patches separated by openings. Canopy closure is variable and, where trees are sparsely scattered, it may be dense only at the nest tree (USFWS, 2021).

8.2.1. Effect Determination

Given the low-quality habitat of the Project Area and no documented occurrences in or near the Project Area, the proposed action is “Not Likely to Adversely Affect” the yellow-billed cuckoo.

8.3. Monarch Butterfly

Monarch butterflies are found in open habitats, such as grasslands, foothills, valley bottoms, pastures/weedy fields, roadsides, wetlands, and suburban areas. Breeding monarchs require milkweed as host plants to support eggs, larvae, and pupae stages. Therefore, habitat suitability is mostly tied to where milkweeds (*Asclepias* spp.) occur (Dilts et al. 2019). However, an abundance and diversity of nectar plants is also important for adult butterflies, particularly during migration (Xerces 2018a). Most western monarchs migrate to coastal California to overwinter though some may overwinter in Mexico.

Fall migration habitat is tied to areas with abundant nectar plants that flower in late summer and early fall, such as sunflowers (*Helianthus* spp.), rabbitbrush (*Ericameria* spp., *Chrysothamnus* spp.), asters (*Symphyotrichum* spp.), mule fat (*Baccharis salicifolia*), and goldenrod (*Solidago* spp., *Euthania* spp.). Non-native nectar plants are also used, including thistles (*Cirsium* spp.) and purple loosestrife (*Lythrum salicaria*) (Xerces 2018a). Migration is concentrated in river valleys and irrigated agricultural areas (McIntyre et al. 2024; Dingle et al. 2005).

The monarch population has declined due to the loss of milkweed breeding habitat from herbicide use and widespread land conversion (from grasslands and shrublands to agriculture), logging at overwinter sites in Mexico, habitat loss and degradation at overwinter sites in California, exposure to insecticides, and effects of climate change and extreme weather (USFWS 2024a).

Monarch butterfly is an ESA Proposed Threatened species. Proposed Threatened species are not protected by the take prohibitions of ESA § 9, and under ESA § 7(a)(4), federal agencies must confer with the with the USFWS if their action will jeopardize the continued existence of the species.

8.3.1. Effect Determination

The Project Area contains flowering plant species and may contain milkweeds, which could provide breeding and foraging opportunities for monarchs. Monarch caterpillars, if present in the Project surface disturbance footprint at the time of construction, would be at risk of injury or mortality. Monarch butterflies (as opposed to monarch caterpillars), if present in the Project Area during Project disturbance activities, would likely be capable of avoiding or vacating the Project Area, and as such no Project-related monarch butterfly mortalities are anticipated. Based on these considerations as well as the Project Area size and the limited anticipated Project duration, the Project has no potential to jeopardize the continued existence of monarch butterfly or result in unauthorized “take” of monarch butterfly under the ESA.

8.4. Suckley’s Cuckoo Bumble Bee

Suckley’s cuckoo bumble bee has not been observed in the contiguous U.S. since 2016 (USFWS 2024b). The species has previously been documented in grasslands, shrub-steppe, montane to subalpine mesic meadows, and conifer forest, as well as agricultural fields and urban areas (USFWS 2024c). They have been found at elevations up to 10,500 feet (USFWS 2024c). This bumble bee requires foraging, nesting, and overwintering habitat (USFWS 2024c). Reproductive females overwinter and emerge from hibernation in early spring. Suckley’s cuckoo bumble bee is entirely dependent on other bumble bee species, such as western bumble bee (*B. occidentalis*), to rear their young. They parasitize nests of other bumble bees, which are typically in abandoned underground holes, such as rodent burrows, but may be on the surface. Suckley’s cuckoo bumble bees also require an abundance and diversity of floral resources (pollen and nectar) across the entire active season, but particularly in the spring and fall when nutritional needs are higher. Key forage plants are unknown but likely food plant genera are *Aster*, *Centaurea*, *Cirsium*, *Trifolium*, *Chrysothamnus*, and *Helichrysum* (Xerces 2018b). Floral resource availability corresponds to nest density and nesting success of western bumble bees (Xerces 2023). Western bumble bee nests are typically within 10 to 100 meters of floral resources and may be within grasslands/meadows or shrublands with abundant flowers or in woodlands and forests that are adjacent to grasslands (Xerces 2023). Overwinter habitat requirements are unknown but may include mulch or other

decomposing vegetation for cover. Thermal limits (both lower and upper temperatures) are unknown (USFWS 2024c). Habitat connectivity (availability of host nests) is a key constraint because their populations are small and fragmented and are at risk of decreased genetic diversity (USFWS 2024b). Commercial/managed bee hives can be a threat due to the risk of pathogens and competition for floral resources. The main threats to Suckley's cuckoo bumble bee are host species declines, pathogens, pesticides, habitat fragmentation, and climate change (increased temperatures and drought) (USFWS 2024b). Drought can have a significant effect on floral resources and competition with nonnative bees can have a compounding effect during drought periods.

Suckley's cuckoo bumble bee is an ESA Proposed Threatened species. Proposed Threatened species are not protected by the take prohibitions of ESA § 9, and under ESA § 7(a)(4), federal agencies must confer with the USFWS if their action will jeopardize the continued existence of the species.

8.4.1. Effect Determination

The Project Area contains flowering plant species which could provide breeding and foraging opportunities for the bumble bee. Bees, if present in the Project Area during Project disturbance activities, would likely be capable of avoiding or vacating the Project Area, and as such no Project-related bee mortalities are anticipated. Based on these considerations as well as the Project Area size and the limited anticipated Project duration, the Project has no potential to jeopardize the continued existence of Suckley's cuckoo bumble bee or result in unauthorized "take" under the ESA.

9. MIGRATORY BIRD TREATY ACT ANALYSIS

The USFWS Information for Planning and Consultation (IPAC) tool (USFWS 2026b) was accessed for information regarding species protected under the MBTA of 1918. Pursuant to the MBTA, migratory birds not listed under the ESA are prohibited from "take" by federal law. The following birds are considered "Species of Greatest Conservation Need" and are protected under the MBTA (NMGF 2026, USFWS 2026b).

- Golden eagle (*Aquila chrysaetos*)
- Mountain plover (*Charadrius montanus*)
- Flammulated owl (*Psilosops flammeolus*)
- Western burrowing owl (*Athene cunicularia hypugae*)
- Common nighthawk (*Chordeiles minor*)
- Williamson's sapsucker (*Sphyrapicus thyroideus*)
- Olive-Sided flycatcher (*Contopus cooperi*)
- Pinyon jay (*Gymnorhinus cyanocephalus*)
- Clark's nutcracker (*Nucifraga Columbiana*)
- Pygmy nuthatch (*Sitta pygmaea*)
- Western bluebird (*Sialia mexicana*)
- Mountain bluebird (*Sialia currucoides*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Virginia's warbler (*Leiothlypis virginiae*)
- Grace's warbler (*Setophaga graciae*)
- Black-chinned sparrow (*Spizella atrogularis*)
- Vesper sparrow (*Pooecetes gramineus*)

- Chestnut-collared longspur (*Calcarius ornatus*)
- Cassin's finch (*Haemorhous cassinii*)
- Evening grosbeak (*Coccothraustes vespertinus*)

9.1. Conclusion

If construction is planned from approximately May 1 to August 20, pre-construction surveys would be conducted to determine if nesting migratory birds occur on site. If found, remedial activities would not occur during the migratory bird breeding season from approximately May 1 to August 20 (depending on the species encountered), or until it is confirmed the young have fledged to prevent “take” of a bird protected under the MBTA.

10. BALD AND GOLDEN EAGLE PROTECTION ACT ANALYSIS

The USFWS Information for Planning and Consultation (IPAC) tool (USFWS 2026b) was accessed for information regarding species protected under the BGEPA of 1940.

The purpose of this section is to document if there is “take of eagles” as part of the proposed action, the no action, or other action alternatives on bald and golden eagles protected under the Bald and Golden Eagle Protection Act. In the BGEPA “take” is defined to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.” The USFWS subsequently defined “disturb” as follows: “Disturb means to agitate or bother a bald eagle or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its 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.” (Federal Register Vol.72/No.107/page31132 June 5, 2007)

Table 10-1 compares the known habitat and distribution for each eagle species to that of the project area and proposed action.

Table 10-1. Federally protected species under the Bald and Golden Eagle Protection Act

Species Common name Scientific Name	Species Background Information The known distribution or habitat association for the species.	Project Information The project area is in Great Basin grassland at 7,050 feet elevation with no perennial water source
Bald eagle <i>Haliaeetus leucocephalus</i>	Occurs year round. Documented in McKinley County. Fall transients begin arriving in Aug. and continue into the winter, primarily in the northern two-thirds of the state. Numbers and locations vary depending on severity of winter and condition of large reservoirs. Good locations for finding wintering birds somewhat near the project area include Navajo Lake on the San Juan River east of Farmington and the Rio Grande Valley. Wintering birds begin leaving in Feb-Mar. Local residents are nesting by Feb. (BISON-M 2026a).	Suitable breeding habitat does not occur within the project area as there is no perennial water and very limited tree cover. Bald eagles may fly over and possibly forage in the project area but there are no known nests within or near the project area.

Species Common name <i>Scientific Name</i>	Species Background Information The known distribution or habitat association for the species.	Project Information The project area is in Great Basin grassland at 7,050 feet elevation with no perennial water source
Golden eagle <i>Aquila chrysaetos canadensis</i>	Golden eagles typically nest in rock outcrops or on ledges on cliffs. Golden eagles generally forage in open habitats where rabbits and small rodents are available. Live or dead trees are often used for perches near open areas where prey can be easily seen. Uncommon permanent resident of New Mexico except the southeastern plains. Documented in shrublands and woodlands of the Zuni Reservation in McKinley County. Found in mountains, river canyons, mesas, plains, and deserts. Resident numbers augmented by transients and winter residents Oct to Mar. (BISON-M 2026b).	Suitable habitat does not occur in the Project Area, though rock outcrops and cliffs do occur relatively nearby outside the Project Area. Golden eagles may fly over or forage in the area but there are no known nests within or near the project area.

10.1. Conclusion

Suitable breeding habitat for bald and golden eagles does not occur within the project area. The nearest known location bald eagles frequent is along the Rio Grande approximately 80 miles to the east. Thus, impacts to nesting or foraging bald or golden eagles are not anticipated and there would be no “take” under the BGEPA as a result of this project.

11. MITIGATION MEASURES

Mitigation measures have been developed to avoid and minimize impacts to biological resources, and to align with the objectives in the Black Mountain Ecosystem Management Plan (BLM 1996).

11.1. Wildlife

- All holes or trenches should be frequently checked for any trapped wildlife.
- Vehicles should be driven slowly when accessing the mine site to avoid roadkill.
- All trash should be contained and removed.
- Disturbed land should be fully reclaimed to restore habitat.
- Ground disturbance and vegetation removal activities should be conducted outside of the following dates: 15 April – 1 September for upland songbirds, 1 March – 1 September for most raptors; 1 January – 15 July for golden eagle and great horned owl (*Bubo virginianus*). If ground-disturbing and clearing activities must be conducted during the breeding season, the area should be surveyed for active nest sites (with birds or eggs present in the nesting territory) and avoid disturbing active nests until young have fledged. For active nests, establish adequate buffer zones to minimize disturbance to nesting birds. Buffer distances should be at least 100 feet from songbird and raven nests; 0.25 miles from most raptor nests; and 0.5 miles for ferruginous hawk (*Buteo regalis*), golden eagle, peregrine falcon (*Falco peregrinus*), and prairie falcon (*Falco mexicanus*) nests. Active nest sites in trees or shrubs that must be removed should be mitigated by qualified biologists or wildlife rehabilitators.

- A presence survey of burrowing owls would be completed prior to ground clearing activity.

11.2. Vegetation

- Project equipment would be washed and inspected for noxious or invasive species before entering the site. Project personnel would avoid driving or parking in areas containing noxious weeds.
- A presence survey of milkweed would be conducted preferably during the flowering season prior to initiation of activity and if noted these plants would be flagged and avoided, as is possible.
- Vegetation would be re-established in disturbed areas as soon as practical to reduce the potential for wind and water erosion, minimize impacts to soils and vegetation, and help prevent the spread of invasive non-native species.
- Weed-free project staging areas would be used.
- All equipment would be cleaned before leaving the project site if operating in areas infested with weeds.
- Noxious weeds and non-native vegetation would be disposed of properly to prevent unwanted spread.
- Native certified weed-free and/or weed-seed-free hay or straw would be used where certified materials are required and/or are reasonably available. If practicable, seeds should be sourced from the same region and/or habitat type as the project area.

11.3. Reclamation

- A backhoe would be used to recontour disturbed areas. Disturbed areas would be scarified where soils have been compacted and then reseeded with an approved seed mix. Seeding would be conducted prior to seasonal precipitation.
- Topsoil, to the extent present, would be stored adjacent to activities. The topsoil would be spread evenly over the recontoured terrain following remediation.
- Straw wattles and mulch used to control erosion during reclamation would be certified weed free.
- Invasive non-native species would be controlled manually in newly disturbed areas until the reclamation activities have been determined to be successful.

11.4. Soil and Water

- Equipment would not be operated when ground conditions would result in excessive resource damage or increased sediment transport, such as following heavy rain.
- Dead native vegetative material would be spread atop reclaimed terrain as vertical and horizontal mulch to prevent erosion and create microclimates for seed germination.
- Topography would be restored to its approximate pre-remediation state to prevent excessively steep slopes and subsequent erosion and to restore natural surface water flow.

12. REFERENCES

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APPENDIX A: **U.S. Fish & Wildlife Service Information for Planning and Consultation Review**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542



In Reply Refer To:
Project Code: 2026-0029121
Project Name: T-20 AUM

12/18/2025 22:55:28 UTC

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

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 *et seq.*), the Migratory Bird Treaty Act as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act as amended (16 USC 668-668(c)). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area, and to recommend some conservation measures that can be included in your project design.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA is to provide a means whereby threatened and endangered species and

the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (NEPA; 42 USC 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico State agencies. These lists, along with species information, can be found at the following websites.

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program:
<https://www.emnrd.nm.gov/sfd/rare-plants/>

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html, integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

In addition to responsibilities to protect threatened and endangered species under the ESA, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 CFR 10.12 and 16 USC 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a Federal nexus) or a Bird/Eagle Conservation Plan (when there is no Federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>. We also recommend review of the Birds of Conservation Concern list (<https://www.fws.gov/media/birds-conservation-concern-2021>) to fully evaluate the effects to the birds at your site. This list identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent top conservation priorities for the Service, and are potentially threatened by disturbance, habitat impacts, or other project development activities.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 thereby provides additional protection for both migratory birds and migratory bird habitat. Please visit <https://www.fws.gov/partner/council-conservation-migratory-birds> for information regarding the implementation of Executive Order 13186.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico

Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State protected and at-risk species fish, wildlife, and plants.

For further consultation with the Service we recommend submitting inquiries or assessments electronically to our incoming email box at nmesfo@fws.gov, where it will be more promptly routed to the appropriate biologist for review.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

New Mexico Ecological Services Field Office

2105 Osuna Road Ne

Albuquerque, NM 87113-1001

(505) 346-2525

PROJECT SUMMARY

Project Code: 2026-0029121

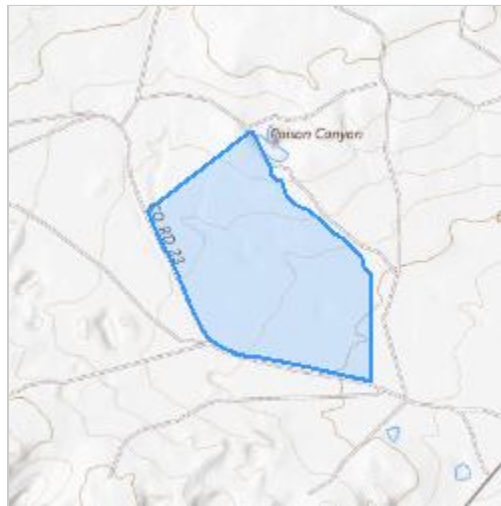
Project Name: T-20 AUM

Project Type: Mine Closure

Project Description: The NMED plans to mitigate the public health and safety dangers associated with the T-20 AUM which includes multiple waste piles, and possible contaminated soils. Tetra Tech has been contracted to assess impacts to biological and cultural resources.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.323668,-107.82761194376633,14z>



Counties: McKinley County, New Mexico

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

MAMMALS

NAME	STATUS
Mexican Wolf <i>Canis lupus baileyi</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3916 General project design guidelines: https://ipac.ecosphere.fws.gov/project/YTYEFWUR3RHFPMMMEAKVY5RB5EI/documents/generated/9162.pdf	Endangered

BIRDS

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911 General project design guidelines: https://ipac.ecosphere.fws.gov/project/YTYEFWUR3RHFPMMMEAKVY5RB5EI/documents/generated/9183.pdf	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i> Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: New Mexico Environment Department

Name: Daniel McNair

Address: 1037 E Blanton Dr.

City: Tucson

State: AZ

Zip: 85719

Email: danielmcnair@gmail.com

Phone: 6015734655

LEAD AGENCY CONTACT INFORMATION

Lead Agency: New Mexico Environment Department

APPENDIX B:
New Mexico Game and Fish Environmental Review Tool Report



PROJECT INFORMATION

Project Title: T-20 AUM
Project Type: MINING, Mine Reclamation
Latitude/Longitude (DMS): 35.323324 / -107.827568
County(s): MCKINLEY
Project Description: The NMED plans to mitigate the public health and safety dangers associated with the T-20 AUM which includes multiple waste piles, and possible contaminated soils. Tetra Tech has been contracted to assess impacts to biological and cultural resources.

REQUESTOR INFORMATION

Project Organization:
Contact Name: Daniel McNair
Email Address: daniel.mcnaire@tetrattech.com
Organization: Tetra Tech
Address: 1037 E Blanton Dr., Tucson AZ 85719
Phone: 6015734655

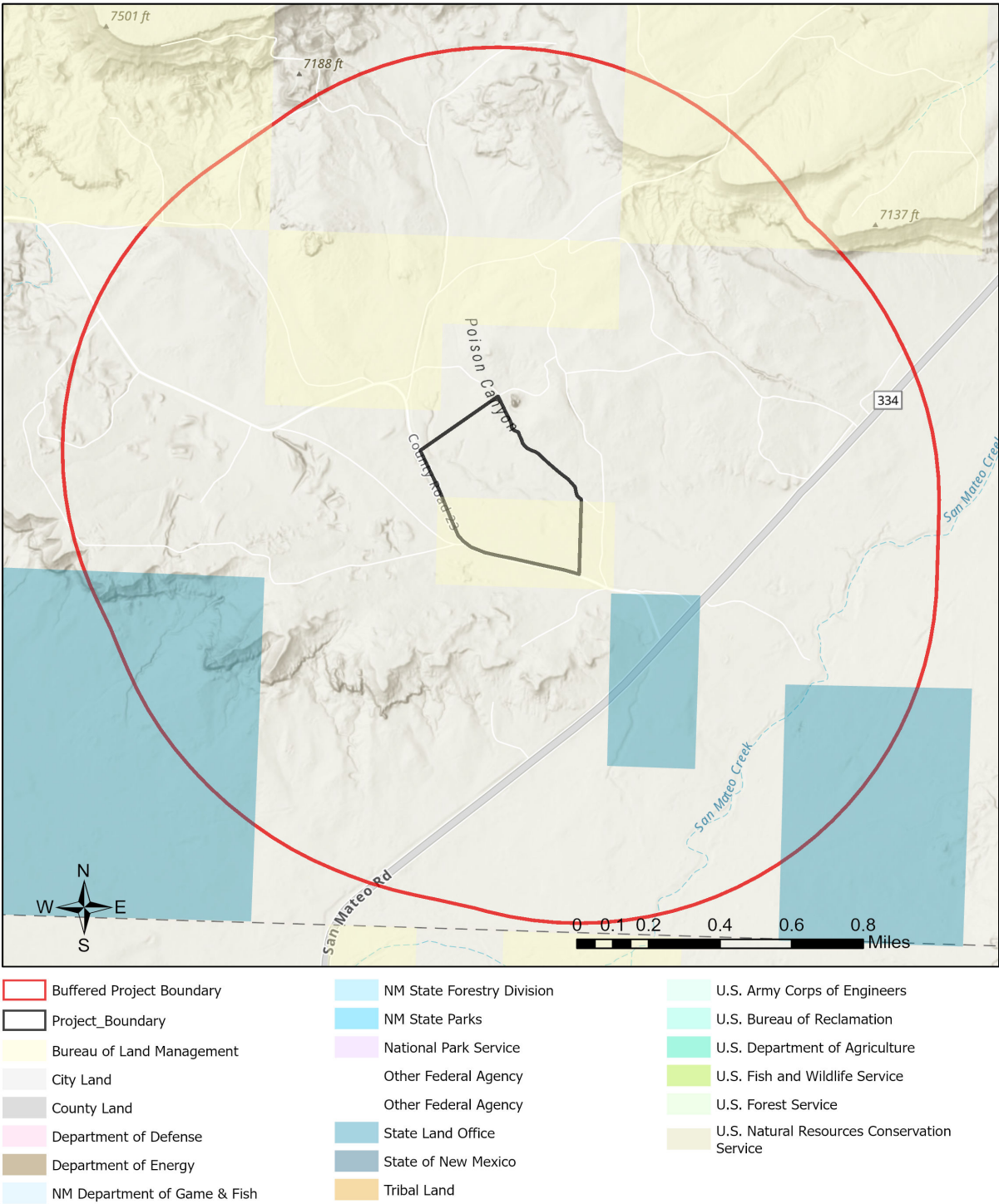
OVERALL STATUS

The information contained within this report comprises the recommendations of the New Mexico Department of Game and Fish (Department) for management and mitigation of proposed project impacts to wildlife and habitat resources; see the Project Recommendations section below for further details. No further consultation with the Department is required based on the project's location and, with implementation of mitigation measures described in the Project Recommendations section below, no adverse effects to wildlife or important habitats are anticipated. However, a Department biologist may be in touch within 30 days if they determine that further review is required.

About this report:

- This environmental review is based on the project description and location that was entered. The report must be updated if the project type, area, or operational components are modified.
- This is a preliminary environmental screening assessment and report. It is not a substitute for the potential wildlife knowledge gained by having a biologist conduct a field survey of the project area. Federal status and plant data are provided as a courtesy to users. The review is also not intended to replace consultation required under the federal Endangered Species Act (ESA), including impact analyses for federal resources from the U.S. Fish and Wildlife Service (USFWS) using their [Information for Planning and Consultation tool](#).
- This report contains information on wildlife species protected under the ESA and the [Wildlife Conservation Act \(WCA\)](#), [Species of Greatest Conservation Need \(SGCN\)](#), and Species of Economic and Recreational Importance (SERI). Species listed under the ESA are protected from take at the federal level and under the WCA are protected from take at the state level. SGCN are identified in the [State Wildlife Action Plan \(SWAP\) for New Mexico](#); all of these species are considered to be of conservation concern but not all of them are protected from take at the state or federal level. The harvest of all SERI is regulated at the state level. The Department has no authority to designate critical habitat for species listed under the WCA; only the USFWS can designate critical habitat for species listed under the ESA.
- The New Mexico Environmental Review Tool (ERT) utilizes species observation locations and species habitat suitability models, both of which are subject to ongoing change and refinement. Inclusion or omission of a species within a report cannot guarantee species presence or absence within your project area. To determine occurrence of any species listed in this report, or other wildlife that may be present within your project area, onsite surveys conducted by a qualified biologist during appropriate, species-specific survey timelines may be necessary.
- The Department encourages use of the ERT to modify proposed projects for avoidance, minimization, or mitigation of wildlife impacts. However, the ERT is not intended to be used in a repeatedly iterative fashion to adjust project attributes until a previously determined recommendation is generated. The ERT serves to assess impacts once project details are developed. The [New Mexico Crucial Habitat Assessment Tool](#), the data layers from which are included in the ERT, is the appropriate system for advising early-stage project planning and design to avoid areas of anticipated wildlife concerns and associated regulatory requirements.

T-20 AUM



NHNM, USGS, USFS, US Census Bureau, NMDGF
Esri, NASA, NGA, USGS, FEMA
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Special Status Animal Species Potentially within 1 Miles of Project Area

Common Name	Scientific Name	USFWS (ESA)	NMDGF (WCA)	NMDGF SGCN/SERI	USFS	USFS SCC	BLM
Golden Eagle	Aquila chrysaetos			SGCN			BLM WATCH
Mountain Plover	Charadrius montanus			SGCN	Sensitive Species		BLM WATCH
Flammulated Owl	Psilosops flammeolus			SGCN			BLM WATCH
Western Burrowing Owl	Athene cunicularia hypugaea			SGCN	Sensitive Species	USFS R3 SCC	BLM SENSITIVE
Common Nighthawk	Chordeiles minor			SGCN			
Williamson's Sapsucker	Sphyrapicus thyroideus			SGCN			
Olive-Sided Flycatcher	Contopus cooperi			SGCN			
Pinyon Jay	Gymnorhinus cyanocephalus			SGCN		USFS R3 SCC	BLM SENSITIVE
Clark's Nutcracker	Nucifraga columbiana			SGCN			
Pygmy Nuthatch	Sitta pygmaea			SGCN			
Western Bluebird	Sialia mexicana			SGCN			
Mountain Bluebird	Sialia currucoides			SGCN			
Loggerhead Shrike	Lanius ludovicianus			SGCN		USFS R3 SCC	BLM WATCH
Virginia's Warbler	Leiothlypis virginiae			SGCN			BLM SENSITIVE
Grace's Warbler	Setophaga graciae			SGCN		USFS R3 SCC	BLM WATCH
Black-Chinned Sparrow	Spizella atrogularis			SGCN			BLM WATCH
Vesper Sparrow	Poocetes gramineus			SGCN			
Chestnut-Collared Longspur	Calcarius ornatus			SGCN			BLM SENSITIVE
Cassin's Finch	Haemorhous cassinii			SGCN			BLM WATCH
Evening Grosbeak	Coccothraustes vespertinus			SGCN			
Spotted Bat	Euderma maculatum		T	SGCN	Sensitive Species	USFS R3 SCC	BLM SENSITIVE
Gunnison's Prairie Dog	Cynomys gunnisoni			SGCN	Sensitive Species		BLM SENSITIVE
Mountain Lion	Puma concolor			SERI			

Special Status Animal Species Potentially within 1 Miles of Project Area

Common Name	Scientific Name	USFWS (ESA)	NMDGF (WCA)	NMDGF SGCN/SERI	USFS	USFS SCC	BLM
Elk	Cervus canadensis			SERI			
Mule Deer	Odocoileus hemionus			SERI			

Common Name hyperlink takes you to species account in [bison-m.org](https://www.bison-m.org/); Scientific Name hyperlink takes you to information in [NatureServe Explorer](#); ESA = Endangered Species Act, C = Candidate, LE = Listed Endangered, LT = Listed Threatened, XN = Non-essential Experimental Population, for other ESA codes see this [website](#); WCA = Wildlife Conservation Act, E = Endangered, T = Threatened; SERI = Species of Economic and Recreational Importance; SGCN = Species of Greatest Conservation Need; USFS = U.S. Forest Service, Sensitive Species = A species likely to occur on USFS lands that is of concern for a potential reduction in population viability; SCC = Species of Conservation Concern; BLM = Bureau of Land Management, BLM SENSITIVE = A species that occurs on BLM lands and whose viability is at risk, BLM WATCH = Species that may be added to the sensitive species list in future pending new information regarding species status.

Project Recommendations

Burrowing owl (*Athene cunicularia*) may occur within your project area. Burrowing owls are protected from take by the Migratory Bird Treaty Act and under New Mexico state statute. Before any ground disturbing activities occur, the Department recommends that a preliminary burrowing owl survey be conducted by a qualified biologist using the Department's [Burrowing Owl Survey Protocol](#). Should burrowing owls be documented in the project area, please contact the Department or USFWS for further recommendations regarding relocation or avoidance of impacts.

Prairie dog colonies may occur within the vicinity of your project area. Both black-tailed prairie dogs (*Cynomys ludovicianus*) and Gunnison's prairie dogs (*Cynomys gunnisoni*) are designated as New Mexico SGCN, and their colonies provide important habitat for other grassland wildlife. Wherever possible, occupied prairie dog colonies should be left undisturbed, and all project activities should be directed off the colony. Any burrows that are located on the project site should be surveyed by a qualified biologist to determine whether burrows are active or inactive and whether burrowing owls may be utilizing the site. Colonies within the range of the black-tailed prairie dog can be surveyed by a qualified biologist diurnally, year-round using binoculars. Colonies within the range of the Gunnison's prairie dog can be surveyed by a qualified biologist diurnally, using binoculars during the warmer months from April through October and by searching for fairly fresh scat and lack of cobwebs or debris at the mouths of burrows during the cold months (November through March). If ground-disturbing activities cannot be relocated off the prairie dog colony, or if project activities involve control of prairie dogs, the Department recommends live-trapping and relocation of prairie dogs. The Department can provide recommendations regarding suitability of potential translocation areas and procedures.

The current project area appears to contain one or more wetland types as classified by the New Mexico Environment Department's [Wetland Map](#). Information on wetlands in your project area can also be viewed on the ERT's [Create Project/Map](#) page. This [key](#) can assist in interpreting Landscape Position, landform, water flow path, and waterbody type (LLWW) codes in the ERT's wetland data. Wetlands provide important habitat for numerous species of wildlife and pollinators and provide ecosystem services, such as water filtration and storage, to downstream users. The Department recommends avoiding disturbance of wetlands whenever possible, avoiding actions or infrastructure installment that may disrupt natural wetland hydrological processes, and reseeding or replanting areas where disturbance cannot be avoided with native wetland plant species appropriate to the local wetland type. For a list of native seed providers, please see the Department's habitat handbook guideline for [Restoration and Management of Native and Non-native Trees in Southwestern Riparian Ecosystems](#). For projects involving filling wetlands under federal jurisdiction, please contact the [Army Corps of Engineers](#) for more information on permits required under the Clean Water Act.

Disclaimers regarding recommendations:

- The Department provides technical guidance to support the persistence of all protected species of native fish and wildlife, including game and nongame wildlife species. Species listed within this report include those that have been documented to occur within the project area, and others that may not have been documented but are projected to occur within the project vicinity.
- Recommendations are provided by the Department under the authority of § 17-1-5.1 New Mexico Statutes Annotated 1978, to provide "communication and consultation with federal and other state agencies, local governments and communities, private organizations and affected interests responsible for habitat, wilderness, recreation, water quality and environmental protection to ensure comprehensive conservation services for hunters, anglers and nonconsumptive wildlife users".
- The Department has no authority for management of plants or Important Plant Areas. The [New Mexico Endangered Plant Program](#), under the Energy, Minerals, and Natural Resources Department's Forestry Division, identifies and develops conservation measures necessary to ensure the survival of plant species within New Mexico. Plant status information is provided within this report as a courtesy to users. Recommendations provided within the ERT may not be sufficient to preclude impacts to rare or sensitive plants, unless conservation measures are identified in coordination with the Endangered Plant Program.
- Additional coordination and/or consultation may also be necessary under the federal ESA or National Environmental Policy Act (NEPA). Further site-specific mitigation recommendations may be proposed during ESA consultation and/or NEPA analyses or through coordination with affected federal agencies.