

**Wildlife Survey Report
For
Southwest Resources, Inc.
Section 11/12 Mine
McKinley County, New Mexico**

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Prepared By:

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1.0 INTRODUCTION

A survey for wildlife and for threatened, endangered, and special status (listed) wildlife was conducted at the site of Southwest Resource's Section 11/12 mine on November 5, 2015. The mine is located near Ambrosia Lake, McKinley County, New Mexico approximately 20 miles north of Milan. The mine is located on private land in the southwest quarter of Section 12, T. 14 North, R. 10 West. An air vent/escape shaft for the mine is located in the southeast quarter of Section 11. The mine is currently inactive. It has changed ownership several times in the last 40 years and was most recently active in the 1980s when uranium prices were more favorable.

Southwest Resources is seeking to complete a mine permit application with the State of New Mexico Mining and Minerals Department. The wildlife survey was performed to ensure that there are no federal or state listed species or otherwise sensitive wildlife occurring on or near the mine project area or in an approximate 0.5 mile buffer around the perimeter of the mine center (i.e., the head frame) located in the northeast quarter of the southwest quarter of Section 12 [Lat. 35.454463°, Long. -107.850745° NAD 83].

2.0 METHODS

Prior to field surveys, the Information, Planning, and Conservation System (IPaC) and the Biotic Information System of New Mexico (BISON –M) websites were evaluated for listed or otherwise sensitive wildlife species and designated critical habitats [NMDGF, USFWS, 2015] that could potentially be impacted by activities at the mine and are known to occur within McKinley County [Appendices A and B].

On November 6, 2015, wildlife biologist Celia Cook of Permits West, Inc., conducted a pedestrian survey of the project area. Weather during the survey was mild with clear skies and light breezes. Temperatures during the survey were in the upper 50s (°F).

The surveyed area consisted of the facilities area within the center of the mine, Ambrosia Lake to the west of the mine's head frame, the access road to the mine, and the surrounding area up to 0.5 miles from the head frame. General habitat and existing conditions were evaluated. Shrubs and other vertical structures were surveyed for raptor nests. Ambrosia Lake which was mostly dry was surveyed for waterfowl and shorebird use. Unique habitat elements were noted and considered with regards to potential wildlife use. Observed species were identified by direct observation of individuals, or by tracks, scat, and other sign.

3.0 DESCRIPTION OF EXISTING HABITAT

Habitat in the project area consists of a broad grassy valley surrounded by low hills and sandstone outcroppings to the north. Several ephemeral drainages flow from northwest to southeast and accumulate in the depression that is Ambrosia Lake. This approximately 30 acre lake is ephemeral in nature and could more accurately be described as a temporary pond. It does not support any wetland vegetation, but does provide a temporary source of water for wildlife and livestock in the area during

the monsoon season and significant precipitation events. During the survey, only a small puddle of water was left in the deepest part of the depression about 400 feet (122 m) northwest of the mine's head frame (Figure 1).



Figure 1. Ambrosia Lake mostly dry in November 2015. Dark area represents mud flat.

There are a couple of small salt cedar (*Tamarix* sp.) trees near the southeast end of the lake, but the vegetation is mostly limited to fourwing saltbush (*Atriplex canescens*), several species of wheatgrass (*Pascopyrum* spp.), common sunflower (*Helianthus annuus*), purple aster (*Aster bigelovii*), and dock (*Rumex* sp.). Further away from the lake and upland, grasses are predominant and include species of grama grass (*Bouteloua* spp.), Indian ricegrass (*Achnatherum hymenoides*), alkali sacaton (*Sporobolus airoides*), galleta (*Hilaria jamesii*) as well as shrub species such as rabbitbrush (*Chrysothamnus* sp.), snakeweed (*Gutierrezia sarothrae*), prickly pear (*Opuntia* sp.), and fringed sage (*Artemisia frigida*). Weedy annual species were pervasive in all disturbed areas throughout the project area, particularly around the head frame and buildings. These species included Russian thistle (*Salsola* sp.) and kochia (*Kochia* sp.). The project area is grazed by cattle and occasionally by elk (*Cervus elaphus*). There are no homes located within 1.5 miles of the mine center.

The project area has been used at least since the early 1900s for homesteading and farming. A berm built circa 1935 is still present north and northwest of the lake, presumably intended for water diversion for crops and/or livestock. An old homestead is located approximately 0.3 miles southwest of the head frame.

Wildlife species using the project area and adjacent lands are typical of grassland/valley landscapes. Rocky Mountain elk probably use the area for winter range and/or as a water source as evidenced by old and more recent scat observed during the survey. Significant herds are present within the Mt. Taylor

area approximately 20 miles east-southeast of the mine. Smaller mammals such as kangaroo rats (*Dipodomys* spp.), pack rats (*Neotoma* spp.), and desert cottontail (*Sylvilagus* sp.) were also present. Representative over-wintering bird species observed during the survey included common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), and western meadow lark (*Sturnella neglecta*). Reptilian species were not observed due to time of year, but are likely to occur throughout the project area during the warmer seasons. Other migratory bird species not observed during the survey may also use the area around the mine for breeding during spring and summer months. A list of species observed during the survey is presented in Sections 5.8 and 5.9.

4.0 THREATENED AND ENDANGERED (T&E) AND SPECIAL STATUS SPECIES

Under Section 7 of the Endangered Species Act of 1973 (as amended), the State of New Mexico (Mining and Minerals Division) is required to consult with the U.S. Fish and Wildlife Service (USFWS) on any proposed action which may affect federally listed threatened or endangered species or species proposed for listing (ESA 16 U.S.C. 1531-1544).

Table 1 presents federal and New Mexico state listed species that have potential to occur in the project area. These species are recognized by the USFWS or the State of New Mexico as declining in McKinley County due to habitat loss, fragmentation, human disturbance, or other factors.

Table 1. Listed wildlife species in McKinley County

SPECIES	STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR AT PROJECT SITE**
BIRDS			
Bald Eagle <i>Haliaeetus leucocephalus</i>	NM Threatened, Federal Bald and Golden Eagle Protection Act	Cottonwood and other woodlands along lowland rivers or streams.	NP
Mexican spotted owl <i>Strix occidentalis lucida</i>	Federal Threatened	Mature, closed canopy and streamside forests, mesic canyons.	NP
Peregrine falcon <i>Falco peregrinus</i>	NM Threatened	Large bodies of water with adequate fish and stands of trees in shallows or on shore.	NP
Arctic Peregrine Falcon <i>Falco peregrinus tundrius</i>	NM Threatened	Migrant only in New Mexico	NP
Yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Federal Threatened	Riparian woodlands, orchards, and woodlots.	NP
Least Tern <i>Sternula antillarum</i>	Federal Endangered; NM Endangered	Mud flats and	NP
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Federal Endangered	Riparian or wetland habitats with dense multi-story vegetation. Willow-cottonwood habitats preferred.	NP
Gray vireo <i>Vireo vicinior</i>	NM Threatened	Grasslands and shrublands with significant juniper component	NP
Costa's hummingbird <i>Calypte costae</i>	NM Threatened	Desert and foothill montane shrub habitats	NP
Mammals			
Canada lynx	Federal Threatened	Spruce-fir and high elevation forests	NP

SPECIES	STATUS	HABITAT ASSOCIATIONS	POTENTIAL TO OCCUR AT PROJECT SITE**
<i>Lynx canadensis</i>		in mountains with significant snow pack	
Fish			
Zuni Bluehead Sucker <i>Catostomus discobolus yarrowi</i>	Federal Endangered NM Endangered	Rivers, ponds, marshes, irrigation ditches	NP

**PRESENCE

K-KNOWN, DOCUMENTED OBSERVATION WITHIN PROJECT AREA.

S-HABITAT SUITABLE AND SPECIES LIKELY TO OCCUR WITHIN PROJECT AREA

NS- HABITAT SUITABLE BUT SPECIES IS NOT SUSPECTED TO OCCUR WITHIN THE PROJECT AREA

NP-HABITAT NOT PRESENT AND SPECIES UNLIKELY TO OCCUR WITH THE PROJECT AREA AS BREEDER BUT MAY OCCUR AS TRANSIENT OR MIGRANT.

4.1 MIGRATORY BIRDS

All migratory birds (including those listed in Table 1) are protected under the federal Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703-712). Birds protected under the act include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes, etc.), nests, and eggs. The MBTA protects migratory birds from “take”, defined as “to hunt, pursue, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” In short, any activity that results in the take of migratory birds is prohibited unless authorized by the USFWS. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

In addition to the general protection of all migratory birds, the USFWS Migratory Bird Program has identified Birds of Conservation Concern as a result of a 1988 amendment to the Fish and Wildlife Conservation Act [USFWS 2008]. The following Table 2 lists migratory birds of Conservation Concern that have potential to occur within the project area. Bird species already presented in Table 1 are not repeated in Table 2.

Table 2. USFWS Birds of Conservation Concern with potential to occur in project area

SPECIES	STATUS	POTENTIAL TO OCCUR AT PROJECT SITE**
Brewer's Sparrow <i>Spizella breweri</i>	Sagebrush and grassland habitats with shrub component.	NS
Burrowing Owl <i>Athene cunicularia</i>	Disturbed grassland or desert shrub habitats, usually associated with prairie dogs.	NS. No prairie dogs towns; however some areas of kangaroo rat burrows may be suitable.
Flammulated Owl <i>Otus flammeolus</i>	Generally associated with woodland pine habitat.	NP
Fox Sparrow <i>Passerella iliaca</i>	Coniferous forests and dense mountain scrub.	NP
Golden Eagle <i>Aquila chrysaetos</i>	Open habitats with cliffs >30 meters.	S
Grace's Warbler <i>Dendroica graciae</i>	Ponderosa pine forests.	NP

SPECIES	STATUS	POTENTIAL TO OCCUR AT PROJECT SITE**
Juniper Titmouse <i>Baeolophus ridgwayi</i>	Pinyon pine and juniper woodland.	NP
Lewis's Woodpecker <i>Melanerpes lewis</i>	Ponderosa pine woodland	NP
Loggerhead Shrike <i>Lanius ludovicianus</i>	Open shrubby areas, fence lines, pastures.	K. within several miles of project area.
Mountain Plover <i>Charadrius montanus</i>	Mud flats, lowlands, disturbed areas in pastures.	S
Olive-sided Flycatcher <i>Contopus cooperi</i>	Spruce fir and mixed pine forests.	NP
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	Pinyon pine forest and associated open areas.	NP
Prairie Falcon <i>Falco mexicanus</i>	Open grasslands with cliff habitat.	S
Swainson's Hawk <i>Buteo swainsoni</i>	Grasslands and agricultural fields.	S
Williamson's Sapsucker <i>Sphyrapicus thyroideus</i>	Forested habitats.	NP

**PRESENCE

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5.0 SURVEY RESULTS

No federal or state listed wildlife species were observed during the November 5, 2015 wildlife survey. Additionally, no suitable habitat for any listed species was observed on or near the project area. The closest critical habitat to the project area is for the Mexican spotted owl, approximately 20 miles east-southeast in the Mt. Taylor range (USFWS 2015).

Suitable habitat for several species of migratory birds, including Birds of Conservation Concern was observed near the mine and surrounding area (within 0.5 miles of the mine center). These species are discussed below.

5.1 GOLDEN EAGLE

Golden eagles are usually found near mountainous areas, high cliffs, and canyons. In the southwest, rimrock terrain adjacent to open desert or grassland areas is preferred. Golden eagles forage over open grasslands, valleys, and desert shrub lands (NMACP 2015). Golden eagles may forage within the project area and use Ambrosia Lake for a water source and hunting area. However, there are no suitable nest structures within 1.0 miles of the project area. The closest suitable cliffs are located 1.5 miles northeast of the mine center.

5.2 PRAIRIE FALCON

Prairie falcons are found in open prairies and grassland habitats similar to that surrounding the mine area. Prairie falcons may forage or cross through the project area. Prairie falcon nests sites are usually located on cliffs and bluffs. The closest bluffs are approximately 1.5 miles northeast of the center of the mine.

5.3 SWAINSON'S HAWK

Swainson's hawks are also found in open prairies and grassland habitats similar to that surrounding the mine area. Swainson's hawks may forage or cross through the project area. Swainson's hawk nests sites are usually located in trees that are at least 15 feet (5 meters in height). There are no trees located within the project area. The closest trees suitable for nest sites for Swainson's hawks are located more than 2 miles away from the center of the mine.

5.4 MOUNTAIN PLOVER

Mountain plovers are often found in disturbed pastures and mudflats. The mud flats and grazed areas around Ambrosia Lake may offer suitable nest and forage habitat for this small shorebird. It is recommended that additional surveys for this species be conducted in the vicinity of the lake prior to any physical disturbance of the lake bed or shoreline.

5.5 LOGGERHEAD SHRIKE

Several loggerhead shrikes were observed along NM Highway 509 south of the mine site. These birds were using the right-of-way fence line and the brush that grew alongside the fence line. The mine area itself did not offer good perch substrates adjacent to brushy habitats, therefore it is unlikely that any loggerhead shrikes use the mine site regularly or nest there. They may, however, pass through the mine area on occasion.

5.6 BURROWING OWL

Burrowing owls are generally associated with disturbed grasslands/agricultural lands and prairie dog colonies. Prairie dogs and their characteristic burrows were not observed within the wildlife survey area during the November survey. A few kangaroo rat burrows were present in the western half of the project area, but these burrows had not been used during the 2015 breeding season by burrowing owls. It is unlikely that any burrowing owls occur in the project area but they may be present in surrounding habitats and thus would perhaps hunt or pass through the project area.

5.7 BREWER'S SPARROW

Brewer's sparrows prefer grasslands with a strong shrub component. The mine area is somewhat lacking in shrubs, making it marginal habitat for the Brewer's sparrow. It is not likely that this species would occur regularly at the mine site, but may pass through on its way to breeding grounds in the northwestern part of the state.

5.8 MIGRATORY SPECIES OBSERVED DURING THE WILDLIFE SURVEY

The following migratory bird species are representative year-round or wintering residents in the project area and were observed during the November 5, 2015 wildlife survey:

American kestrel (*Falco sparverius*)
Northern harrier (*Circus cyaneus*) - observed within 3 miles of the project area
Mourning dove (*Zenaida macroura*)
Common raven (*Corvus corax*)
Loggerhead shrike (*Lanius ludovicianus*)-observed within 3 miles of project area
European starling (*Sturnus vulgaris*)
Western meadowlark (*Sturnella neglecta*)

5.9 OTHER SPECIES OBSERVED DURING WILDLIFE SURVEY

Domestic cattle (*Bos taurus*)
Coyote (*Canis latrans*)
Elk (*Cervus elaphus*)
Desert cottontail (*Sylvilagus audubonii*)
Black-tailed jackrabbit (*Lepus californicus*)
Kangaroo rat (*Dipodomys* sp.)

No reptilian or amphibian species were observed during the November 5, 2015 survey, however, it is likely that Ambrosia Lake supports some amphibian species, such as tiger salamander (*Ambystoma tigrinum*) or spadefoot toad (*Spea multiplicata*) and upland areas of the mine support some reptilian species, such as whiptail lizards (*Aspidoscelis* spp.).

6.0 DISCUSSION

All of the migratory bird species discussed above, as well as the species that are year-round or winter residents at the mine site, have the potential to be impacted if present during mining, reclamation, construction, and other activities at the mine. Nesting birds are subject to human disturbance during courtship and nest building periods, and use of equipment in mine activities (e.g. front end loaders, trucks, vehicles) has the potential to disturb nests or nesting birds through collisions or inadvertent destruction of nests.

Likewise, small terrestrial species of wildlife are subject to disturbance from human activity within the mine area and access roads through collisions or general activity at the mine.

Elk using the project area as wintering grounds may be deterred from foraging and movement patterns if activity at the mine resumes during fall and winter months.

Additionally, certain portions of the mine may currently pose hazards to all wildlife that would use it, cross it and/or use Ambrosia Lake as a water resource due to the ongoing radioactivity of the site and

the leaching of uranium ore and perhaps other contaminants into the surface soils and run off that would collect in Ambrosia Lake.

Presently, there are no open shafts or access to the underground portions of the mine, other than the head frame area, two air vents in Section 12, and the air vent in the southeast corner of Section 11 that would be available for bat egress or ingress. Bats and other “on the wing” foragers are likely present over Ambrosia Lake during the summer months, though none of these species are currently listed or protected for McKinley County. Barn swallows (*Hirundo rustica*) and cliff swallows (*Petrochelidon pyrrhonata*) would also use mud from the lake for their nests.

7.0 WILDLIFE MITIGATION RECOMMENDATIONS

Southwest Resources is committed to protecting wildlife during any activity at the mine that would occur concurrent with reclamation or during initiation of further mining of uranium ore. These commitments would include conducting additional breeding bird surveys at least one week prior to reclamation and construction activities at the mine that could occur during the breeding period of May 1- August 30. If reclamation and mine closure occurs, Southwest Resources would coordinate with the New Mexico Mining and Minerals Division to ensure that any potential bat roosts or colonies and/or other wildlife that may be using the underground portions of the mine are protected during closure of the shafts.

8.0 REFERENCES

- Executive Order 13186. 2001. Responsibilities of Federal Agencies to Protect Migratory Birds. Federal Register V. 66-11. Washington, D.C. Web. <http://www.fws.gov/laws/lawsdigest/EO.htm#eo13186>
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