BIOLOGICAL REPORTS

1. Biological Survey Report, Daneros Project, San Juan County, Utah prepared by SWCA Environmental Consultants, June 2008.
2. Survey Report, Utah Energy Corporation, Daneros Mine Project prepared by SWCA Environmental Consultants, May 2009.
3. Biological Assessment and Raptor Survey of the Daneros Mine Proposed Expansion Project, Sections 6 and 7, Township 37 South, Range 16 East, SLB&M, San Juan County, Utah prepared by Canyon Environmental, LLC, July 2011.
4. Biological Survey Report, Daneros Mine Expansion prepared by SWCA Environmental Consultants, January 2013.

Biological Survey Report, Daneros Project,

San Juan County, Utah

Prepared by SWCA Environmental Consultants,

June 2008

BIOLOGICAL SURVEY REPORT

Daneros Project
San Juan County, Utah

Prepared for
Utah Energy Corporation
P.O. Box 1346
Moab, UT 84532

Prepared by
SWCA Environmental Consultants
515 E. College Drive
Durango, CO 81301

June 2008

TABLE OF CONTENTS

Page

Introduction 1

Project Description 1

Methodology 1

Action Area 1
- A. Physical Description 1
- B. Biological Description 2

Survey Results 4
- A. Federally Listed Species 4
- B. MFO Special Management Species 6

Certification 8

Literature Cited 9

Tables

Table 1: Species listed by the USFWS 4
Table 2: BLM MFO special management species 6

Appendices

A - Project Maps
B - Photographs of Survey Area
D - Plants and Wildlife Observed in Survey Area

INTRODUCTION

This Biological Survey Report (BSR) evaluates the potential effects of a uranium mining project known as the Daneros Project (Proposed Action) proposed by Utah Energy Corporation on federally threatened or endangered species listed under the Endangered Species Act of 1973, as amended et seq. (ESA), as well as other special status species designated by the State of Utah and the Bureau of Land Management (BLM). The BSR results will evaluate whether any such listed species or their critical habitats are likely to be affected by the Proposed Action. This report will also be used in determining whether formal consultation with the U.S. Fish and Wildlife Service (USFWS) is necessary, per 50 Code of Federal Regulations (CFR) 402.12.

Section 7 of the ESA requires federal agencies to ensure that actions authorized, funded, or carried out by federal agencies are not likely to jeopardize the continued existence of proposed, candidate, threatened, or endangered species or result in the destruction or adverse modification of their critical habitats. This process ensures that listed, proposed, and candidate species receive full consideration in the decision-making process prior to implementing the Proposed Action. This report is prepared in accordance with the BLM's biological survey guidelines and is intended to provide the agency with information to make determinations of effect on species with special conservation status.

PROJECT DESCRIPTION

The proposed project would entail the construction, operation, and maintenance of an ore pad, air vent area, waste area, portal and service areas. The proposed project area (PPA) is located in the central portion of the Colorado Plateau in southeastern Utah. It is approximately 10 miles southwest of Fry Canyon, Utah. (Appendix A, Figure 1). The PPA is located completely within San Juan County and on BLM lands with federal minerals administered by the BLM Monticello Field Office (MFO). The PPA can be found on the Fry Spring, Utah (1983) U.S. Geological Survey (USGS) 7.5' topographic quadrangle maps (Geo Community 2008) (Appendix A, Figure 2). The legal description of the PPA is Section 06, Township 37 South, Range 16 East. In general, the PPA would be accessed west of Utah State Highway 95 from existing improved roads.

METHODOLOGY

Prior to field reconnaissance, SWCA Environmental Consultants (SWCA) compiled a list of federally listed and candidate species, species listed by the State of Utah, and BLM Special Management Species with the potential to occur in San Juan County, Utah (USFWS 2008, UCDC 2008).

SWCA conducted a biological survey of the PPA on May 25 - 26, 2008. The biological survey consisted of walking the PPA to collect data for habitat characterizations and survey for Cronquist's milkvetch (*Astragalus cronquistii*). The surrounding areas were visually inspected with binoculars for nests, raptors, or past signs of raptor use, and bighorn sheep. In addition, two evening surveys for bats were conducted in the PPA, focusing on existing mine shaft areas. Weather conditions were warm, clear, and mostly sunny with temperatures near 70°F. Surveys noted vegetation and wildlife present in the PPA and in the vicinity. Digital photographs are included as examples of the existing condition at the proposed project area and the most common vegetative types present (Appendix B).

ACTION AREA

Physical Description

The PPA is located below Wingate Mesa, within Bullseye Canyon. The topographic pattern of the general area is varied, consisting of defined ridges and deep, relatively incised valleys and canyons. Soil compositions found in the PPA include contents of very stony sandy clay loam and extremely bouldery loam. The most prevalent soil type in the PPA is the Strych-Skos-Badland complex with Myton family-Skos-Rock outcrop association found just outside the PPA (Natural Resources Conservation Service [NRCS] 2008).

The Strych-Skos-Badland complex consists of three components, two of which are described here (Badland is not considered a major soil component). The Strych component is found on slopes from 30 to 50 percent on structural benches. The parent material consists of alluvium derived from sandstone and shale and/or colluvium derived from sandstone and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low as is the shrink-swell potential. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent and the calcium carbonate equivalent within 40 inches, typically, does not exceed 20 percent.

The Skos component is also found at slopes from 30 to 50 percent on structural benches. The parent material consists of colluvium derived from interbedded sandstone and shale and/or residuum weathered from interbedded sandstone and shale. Depth to a root restrictive layer, bedrock, lithic, is 4 to 20 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low with a moderate shrink-swell potential; this soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent and the calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. The soil has a slightly sodic horizon within 30 inches of the soil surface.

The Myton family-Skos-Rock outcrop association also consists of three components, one of which is described below (rock outcrop is also not considered a major soil component and the Skos component was described above). The Myton family component is found on slopes from 50 to 70 percent on hill slopes and ledges. The parent material consists of colluvium derived from sandstone and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low as is the shrink-swell potential. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent and the calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent.

Biological Description

There are six major vegetation communities that exist within the PPA: Colorado Plateau Piñon-Juniper Woodland; Colorado Plateau Piñon-Juniper Shrubland; Colorado Plateau Mixed Bedrock Canyon and Tableland; Colorado Plateau Blackbrush-Mormon tea Shrubland; Inter-Mountain Basins Mixed Salt Desert Scrub; and Inter-Mountain Basins Big Sagebrush Shrubland. Descriptions and locations of vegetation cover types were derived from the Southwest Regional Gap Analysis Program (USGS 2004).

Vegetation within the PPA is comprised mainly of piñon-juniper woodland and shrubland, at about 20 percent cover. The understory consists of patches of four-winged saltbrush (*Atriplex canescens)*, shadescale saltbrush (*Atriplex confertifolia*), cliffrose (*Purshia stansburiana)*, yellow rabbitbrush (*Chrysothamnus viscidiflorus*), rubber rabbitbrush *(Ericameria nauseosa)*, and mountain mahogany (*Cercocarpus montanus*) with sparse cacti, forbs, and graminoids. A list of vegetation observed at the proposed sight by an SWCA biologist on May 25 - 26, 2008 is located in Appendix C.

<u>Colorado Plateau Piñon-Juniper Woodland</u>
This ecological system occurs in dry mountains and foothills of the Colorado Plateau region including the Western Slope of Colorado to the Wasatch Range, south to the Mogollon Rim and east into the northwestern corner of New Mexico. It is typically found at lower elevations ranging from 1500-2440 m. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of piñon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture ranging from stony, cobbly, gravelly sandy loams to clay loam or clay. Piñon pine *(Pinus edulis)* and/or Utah juniper *(Juniperus osteosperma)* dominate the tree canopy. In the southern portion of the Colorado Plateau in northern Arizona and northwestern New Mexico, one-seed juniper *(Juniperus monosperma)* and hybrids of juniper may dominate or codominate the tree

canopy. Rocky Mountain juniper *(Juniperus scopulorum)* may codominate or replace Utah juniper at higher elevations. Understory layers are variable and may be dominated by shrubs, graminoids, or be absent. Associated species include greenleaf manzanita *(Arctostaphylos patula)*, big sagebrush *(Artemisia tridentate)*, littleleaf mountain mahogany *(Cercocarpus intricatus)*, mountain mahogany *(Cercocarpus montanus),* blackbrush (*(Coleogyne ramosissima)*, stansbury cliffrose *(Purshia stansburiana)*, antelope bitterbrush *(Purshia tridentate),* Gambel oak *(Quercus gambelii)*, blue gramma *(Bouteloua gracilis)*, James' galleta *(Pleuraphis jamesii)*, or mutton grass *(Poa fendleriana)*. This system occurs at higher elevations than Great Basin Piñon-Juniper Woodland and Colorado Plateau shrubland systems where sympatric.

Colorado Plateau Piñon-Juniper Shrubland

This ecological system is characteristic of the rocky mesa tops and slopes on the Colorado Plateau, but these stunted tree shrublands may extend further upslope along the low-elevation margins of taller piñon -juniper woodlands. Sites are drier than Colorado Plateau Piñon-Juniper Woodland. Substrates are shallow/rocky and shaley soils at lower elevations (1200-2000 m). Sparse examples of the system grade into Colorado Plateau Mixed Bedrock Canyon and Tableland. The vegetation is dominated by dwarfed (usually <3 m tall) piñon pine and/or Utah juniper trees forming extensive tall shrublands in the region along low-elevation margins of piñon-juniper woodlands. Other shrubs, if present, may include black sagebrush *(Artemisia nova)*, Wyoming big sagebrush *(Artemisia tridentata ssp. wyomingensis)*, yellow rabbitbrush *(Chrysothamnus viscidiflorus)*, or blackbrush. Herbaceous layers are sparse to moderately dense and typically composed of xeric graminoids.

Colorado Plateau Mixed Bedrock and Tableland

The distribution of this ecological system is centered on the Colorado Plateau where it is comprised of barren and sparsely vegetated landscapes (generally <10% plant cover) of steep cliff faces, narrow canyons, and open tablelands of predominantly sedimentary rocks, such as sandstone, shale, and limestone. Some eroding shale layers similar to Inter-Mountain Basins Shale Badland may be interbedded between the harder rocks. The vegetation is characterized by very open tree canopy or scattered trees and shrubs with a sparse herbaceous layer. Common species include piñon pine, ponderosa pine *(Pinus ponderosa)*, juniper spp., blackbrush, and other short-shrub and herbaceous species, utilizing moisture from cracks and pockets where soil accumulates.

Colorado Plateau Blackbrush-Mormon-tea Shrubland

This ecological system occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments or bajadas. Elevation ranges from 560-1650 m. Substrates are shallow, typically calcareous, non-saline and gravelly or sandy soils over sandstone or limestone bedrock, caliche or limestone alluvium. It also occurs in deeper soils on sandy plains where it may have invaded desert grasslands. The vegetation is characterized by extensive open shrublands dominated by blackbrush often with Mormon tea *(Ephedra viridis)*, Torrey's jointfir *(Ephedra torreyana),* or Grayia spinosa (spiny hospage). Sandy portions may include sand sagebrush *(Artemisia filifolia)* as codominant. The herbaceous layer is sparse and composed of graminoids such as Indian ricegrass *(Achnatherum hymenoides)*, James' galleta, or sand dropseed *(Sporobolus cryptandrus)*.

Inter-Mountain Basins Mixed Salt Desert Scrub

This extensive ecological system includes open-canopied shrublands of typically saline basins, alluvial slopes and plains across the Intermountain western U.S. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more Atriplex species such as shadescale saltbush *(Atriplex confertifolia),* four-winged saltbush *(Atriplex canescens),* cattle saltbush *(Atriplex polycarpa)*, or spinescale saltbush *(Atriplex spinifera).* Other shrubs present to codominate may include Wyoming big sagebrush, yellow rabbitbrush, rubber rabbitbrush *(Ericameria nauseosa),* Nevada jointfir *(Ephedra nevadensis*), spiny hospage, winterfat *(Krascheninnikovia lanata)*, wolfberry (*Lycium spp.),* bud sagebrush (*Picrothamnus desertorum)*, or horsebrush (*Tetradymia spp*). Greasewood *(Sarcobatus vermiculatus)* is generally absent, but if present does not codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as Indian ricegrass, blue gramma, thickspike wheatgrass (*Elymus lanceolatus ssp. Lanceolatus*), western wheatgrass

(*Pascopyrum smithii)*, James' galleta, big galleta (*Pleuraphis rigida)*, Sandberg bluegrass (*Poa secunda)*, or alkali sacaton (*Sporobolus airoides)*. Various forbs are also present.

Inter-mountain Basins Big Sagebrush Shrubland

This ecological system occurs throughout much of the western U.S., typically in broad basins between mountain ranges, plains and foothills between 1500 and 2300 m elevation. Soils are typically deep, well-drained and non-saline. These shrublands are dominated by basin big sagebrush *(Artemisia tridentata ssp. Tridentate)* and/or Wyoming big sagebrush. Scattered juniper spp., greasewood, and saltbush spp. may be present in some stands. Rubber rabbitbrush, yellow rabbitbrush, antelope bitterbrush, or mountain snowberry *(Symphoricarpos oreophilus)* may codominate disturbed stands. Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species include Indian ricegrass, blue gramma, thickspike wheatgrass, Idaho fescue *(Festuca idahoensis)*, needle and thread *(Hesperostipa comata)*, basin wildrye *(Leymus cinereus)*, James' galleta, western wheatgrass, Sandberg bluegrass, or bluebunch wheatgrass *(Pseudoroegneria spicata)*.

SURVEY RESULTS

Federally Listed Species

Threatened, endangered, and candidate species identified by the USFWS that are known to, or have the potential to, occur in San Juan County are listed in Table 1. There are nine species listed as Threatened or Endangered and one species listed as a Candidate. Species accounts with habitat requirements are provided immediately after Table 1. Field investigations evaluated habitat requirements for these species and in the professional opinion of SWCA, none of the ten federally listed species have the potential to occur in the PPA.

Table 1. Federally Listed and Candidate Species that are Known to Occur or Have the Potential to Occur in San Juan County, Utah (USFWS 2008).

Common Name	Scientific Name	Federal Status	Potential to Occur in the PPA
Black-footed ferret	*Mustela nigripes*	Endangered[1]	No
Bonytail	*Gila elegans*	Endangered	No
California condor	*Gymnogys californianus*	Endangered[1]	No
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered	No
Humpback chub	*Gila cypha*	Endangered	No
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	No
Navajo sedge	*Carex specuicola*	Threatened	No
Razorback sucker	*Xyrauchen texanus*	Endangered	No
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	No
Western Yellow-billed cuckoo	*Coccyzus americanus occidentailis*	Candidate	No

[1] Experimental Population, Non-Essential

Black-footed Ferret (*Mustela nigripes*)

The black-footed ferret is listed as endangered by the USFWS, with non-essential experimental status given to re-introduced populations (USFWS 2008). Black-footed ferrets are inhabitants of prairie dog towns. Individuals have been released at several sites in the western United States, including the Coyote Basin area of Uintah County, Utah in late 1999. In addition to this reintroduced population, unconfirmed sightings of naturally occurring ferrets persist throughout eastern Utah (Utah Conservation Data Center [UCDC] 2008). No critical habitat for this species is designated in the PPA.

Bonytail *(Gila elegans)*
The bonytail is a rare fish originally native to the Colorado River system. The near extinction of the bonytail can be traced to flow regulation, habitat loss/alteration, and competition with/predation by exotic fishes. Bonytail are now Federally listed as endangered, and efforts to re-establish the species are underway (UCDC 2008). No habitat for the Bonytail exists within the PPA.

California Condor (*Gymnogys californianus)*
The California condor is a Federally listed species, with non-essential experimental status given to re-introduced populations (USFWS 2007). In Utah, sightings were historically rare, noted only twice by pioneers in the 1800s, but sightings of birds that were released in northern Arizona have been made almost statewide in the late 1990s (UCDC 2008). Condors are extending the length of time they spend in areas away from the release site, and are ever more proficient in finding carrion. A number of birds traveled in summer 2006 to Utah to reside in the hills just outside Zion National Park. Condors prefer mountains, gorges, and hillsides, which create updrafts, thus providing favorable soaring conditions (UCDC 2008). Though it is very unlikely, habitat for the released California condors could potentially be found within the PPA.

Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*)
The Colorado pikeminnow and razorback sucker are endemic fish species that once thrived in the Colorado River system. Dam installation and the introduction of non-native fish changed the river environment and put these fish at risk (Upper Colorado River Endangered Fish Recovery Program [UCREFRP] 2006). Critical habitat has been designated for these Colorado River fish species. No habitat for the Colorado pikeminnow and razorback sucker exists within the proposed PPA.

Humpback Chub (*Gila cypha)*
The humpback chub is listed as a Federally Endangered species by the USFWS (USFWS 2007). It lives primarily in canyons with swift currents and white water. Historically, it inhabited canyons of the Colorado River and four of its tributaries: the Green, Yampa, White and Little Colorado rivers. Now, there are two populations near the Colorado/Utah border - one at Westwater Canyon in Utah and one in an area called Black Rocks, in Colorado (UCREFRP 2006). Flow alterations within historical habitat have changed the turbidity, temperature, and flow, which has negatively impacted the species. No habitat for the Humpback chub exists within the PPA. .

Mexican Spotted Owl (*Strix occidentalis lucida*)
The Mexican spotted owl is Federally listed as threatened by the USFWS and is protected under the MBTA (USFWS 2008; MBTA 1918). Mexican spotted owls are rare residents of southern and eastern Utah, residing in steep-walled canyons of the Colorado Plateau ecoregions and adjacent portions of the Utah Mountains ecoregion (Howe 1998). Primary Mexican spotted owl habitat consists of mixed conifer dominated by Douglas-fir (*Pseudotsuga menziesii*), pine, or true fir (*Abies*) and pine-oak forests. Secondarily selected habitats include such features as steep, narrow canyons with cliffs and a perennial water source. Such canyon habitats generally include conifer or riparian forests, or clumps of trees, but also may be sparsely vegetated. Contiguous forests comprised of old-growth forests or forests that have more complex structure than surrounding forests are strongly selected for (Gutierrez et al. 1995). No critical habitat for this species is designated in the PPA.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
The Southwestern willow flycatcher is listed as endangered by both the USFWS and is protected under the MBTA (USFWS 2008, MBTA 1918). The species is rare in southern Utah, with the Virgin River supporting most of the breeding flycatchers within the state (Sogge 2003). The Southwestern willow flycatcher breeds in riparian habitats along rivers, streams, and other wetlands. These habitats are typically dominated by cottonwoods (*Populus* spp.), often with an understory of small trees or tall shrubs and surface water nearby. No critical habitat for this species is designated in the PPA.

Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)
The Western yellow-billed cuckoo is listed as a candidate species by the USFWS and is protected under the MBTA (USFWS 2008; MBTA 1918). This species breeds in riparian woodlands and similar habitats at lower (2,800 feet to 5,500 feet) to middle (5,000 feet to 7,500 feet) elevations (Hubbard 1978).

Historically, cuckoos were probably common to uncommon summer residents in Utah. The current distribution of yellow-billed cuckoos in Utah is poorly understood, though they appear to be an extremely rare breeder in lowland riparian habitats statewide (UCDC 2008, Benton 1987). Population declines resulting from loss or disturbance of riparian habitat have been consistently reported in the West for this species (Finch 1992). The greatest factors affecting the yellow-billed cuckoo have been the invasion of exotic woody plants into southwest riparian systems, and clearing of riparian woodlands for agriculture, fuel, development, and attempts at water conservation (Howe 1986). There are no dense riparian thickets in or adjacent to the PPA to support this species.

MFO Special Management Species

The BLM MFO has identified twenty-four species with special management status. Of these, six have the potential to occur in the PPA and surrounding area (Table 2). Areas within and surrounding the PPA provide potential roosting habitat for the Big free-tailed bat (*Nyctinomops macrotis*), Fringed myotis (*Myotis thysanodes*), Spotted bat (*Euderma maculatum*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Suitable habitat also exists for the Desert night lizard(*Xantusia vigilis*) and Kit fox (*Vulpes macrotis*).

Table 2. Special Management Species Designated by the BLM MFO.

Species	Conservation Status	Habitat Associations	Potential to Occur in the PPA
	UT		
Allen's big-eared bat (*Idionycteris phyllotis*)	SPC	Occurs primarily in forested mountain areas.	No. Suitable habitat for this species does not occur in the PPA.
American white pelican (*Pelecanus erythrorhynchos*)	SPC	Lacustrine areas.	No. Suitable habitat for this species does not occur in the PPA.
Arizona toad (*Bufo microscaphus*)	SPC	Lowland riparian habitat.	No. Suitable habitat for this species does not occur in the PPA.
Big free-tailed bat (*Nyctinomops macrotis*)	SPC	Inhabits rugged, rocky terrain and typically roosts in rock crevices.	Yes. Suitable habitat for this species occurs throughout the PPA.
Bobolink (*Dolichonyx oryzivorus*)	SPC	Restricted to wet meadow and flooded pasture habitats.	No. Suitable habitat for this species does not occur in the PPA.
Burrowing owl (*Athene cunicularia hypugaea*)	SPC	Lives in dry, open areas with no trees and short grass, often in association with prairie dog towns.	No. There are no prairie dog towns in the vicinity of the PPA.
California floater (*Anodonta californiensis*)	SPC	Lake and pond habitats.	No. Suitable habitat for this species does not occur in the PPA.
Common chuckwalla (*Sauromalus ater*)	SPC	Occurs in desert communities of blackbrush and salt desert scrub with large rocks and boulders.	No. Desert vegetation and rocky hillsides occur in the PPA to suit this species. However, it is not known to occur in San Juan County.
Desert night lizard (*Xantusia vigilis*)	SPC	Found in arid and semiarid rocky areas.	Yes. Suitable habitat for this species exists in the PPA..

Ferruginous hawk (*Buteo regalis*)	SPC	Relies on grassland or shrubsteppe terrain and, in many parts of Utah, nests on the ecotone between these habitats and piñon-juniper woodlands.	No. There are no open areas within the PPA that could provide foraging habitat. Piñon-juniper woodlands occur in the PPA, but there is no foraging habitat in close proximity.
Fringed myotis (*Myotis thysanodes*)	SPC	Commonly roosts in mine tunnels, caves, and buildings.	Yes. There are multiple mine shafts in the PPA.
Greater sage-grouse (*Centrocercus urophasianus*)	SPC	Uses sagebrush-grassland habitats and nests on the ground.	No. Suitable habitat for this species does not occur in the PPA.
Gunnison's prairie dog (*Cynomys gunnisoni*)	SPC	Inhabit grasslands, semidesert and montane shrublands.	No. Suitable habitat for this species does not occur in the PPA.
Kit fox (*Vulpes macrotis*)	SPC	A desert-adapted fox, it is found exclusively in arid and semi-arid landscapes with soils suitable for denning.	Yes. Suitable habitat for this species occurs in the PPA. However, no dens were observed during the survey.
Lewis's woodpecker (*Melanerpes lewis*)	SPC	Habitat includes ponderosa pine and open riparian areas.	No. Suitable habitat for this species does not occur in the PPA.
Long-billed curlew (*Numenuis americanus*)	SPC	Nests in dry grasslands where sufficient cover and abundant prey exists.	No. Suitable habitat for this species does not occur in the PPA.
Mogollon vole (*Microtus mogollonensis*)	SPC	Inhabit thickets of *Ceanothus*, *Rosa, Symphoricarpos*, and *Arctostaphylos* shrubs, as they require thick stands of brush.	No. Suitable habitat for this species does not occur in the PPA.
Short-eared owl (*Asio flammeus*)	SPC	Prefers open country and is a ground-nesting species that occupies grasslands and tundra.	No. Suitable habitat for this species does not occur in the PPA.
Silky pocket mouse (*Perognathus flavus*)	SPC	Inhabits semidesert arid grasslands with rocky or loamy soils.	No. Suitable habitat for this species does not occur in the PPA.
Smooth greensnake (*Opheodrys vernalis*)	SPC	Habitat in Utah includes meadows and stream margins.	No. Suitable habitat for this species does not occur in the PPA.
Spotted bat (*Euderma maculatum*)	SPC	Found in dry, rough, desert terrain. Roosts are typically in rock crevices or under loose rocks or boulders.	Yes. Suitable habitat for this species occurs throughout the PPA.
Three-toed woodpecker (*Picoides tridactylus*)	SPC	Coniferous forests with a significant percentage of dead trees.	No. Suitable habitat for this species does not occur in the PPA
Townsend's big-eared bat (*Corynorhinus townsendii*)	SPC	Roosts in abandoned mines and natural caverns.	Yes. There are multiple mine shafts in the PPA.

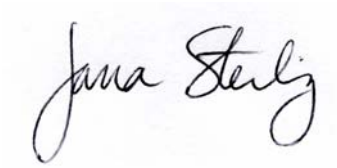
Yavapai mountainsnail (*Oreohelix yavapai*)	SPC	Found in aspens and in rocky habitat in the vicinity of Navajo Mountain and the Abajo Mountains.	No. Suitable habitat for this species does not occur in the PPA

CERTIFICATION

Within the limitations of schedule, budget, and scope of work, SWCA warrants that this study was conducted in accordance with accepted environmental science practices, including the technical guidelines, evaluation criteria, and species' listing statuses in effect at the time this evaluation was performed. The results and conclusions of this report represent the best professional judgment of SWCA scientists, and are based on information provided by the project proponent and that obtained from agencies and other sources during the course of the study.

In the professional opinion of SWCA, the proposed action would not violate any provisions of the ESA.

Signature



18 June 2008

Jana Sterling **Date**
SWCA Environmental Consultants
515 East College Drive
Durango, Colorado 81301
970.385.8566

LITERATURE CITED

Benton 1987. Behle et al. Walters 1983. Text taken from Parrish, J. R., F. P. Howe, and R. E. Norvell. 1999. Utah Partners in Flight draft conservation strategy. UDWR publication number 99-40. Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City.

Finch, Deborah M. August 1992. Threatened, Endangered, and Vulnerable Species of Terrestrial Vertebrates in the Rocky Mountain Region. USDA Forest Service General Technical Report RM-215.

Geo Community. 2008. Website for USGS 1:24,000 topographic maps. Fry Spring publication date 1983.

Gutierrez, R.J., A.B. Franklin, and W.S. Lahaye. 1995. Spotted Owl. In: The Birds of North America, No.179, 1995. 28pp. A.Poole and F.Gill, eds.

Howe, Frank. 1998. Endangered and Threatened Animals of Utah. Utah State University Extension Service

Howe, William H. December 22, 1986. Status of the Yellow-Billed Cuckoo (Coccyzus americanus) in New Mexico. New Mexico Department of Game and Fish.

Hubbard, J.P. 1978. Revised checklist of the birds of New Mexico. New Mexico Ornithological Society Publication No 6.

Migratory Bird Treaty Act of 1918 (MBTA). 16 U.S.C. §§703-712 July 3, 1918; As Amended 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989. United States Code. http://laws.fws.gov/lawsdigest/migtrea.html

Natural Resources Conservation Service (NRCS). 2008. Web Soil Survey of San Juan County, New Mexico. http://websoilsurvey.nrcs.usda.gov/app/. Accessed January 2008.

Sogge, Mark. K., P. Dockens, S.O. Williams, B. Kus, S. J. Sferra. 2003. Southwestern Willow Flycatcher Breeding Site and Territory Summary. USGS.

United States Fish and Wildlife Service (USFWS). 2007. Endangered species list for San Juan County, Utah. http://www.fws.gov/mountain-prairie/ut.html/. Accessed June 2008.

United States Geological Survey (USGS) National Gap Analysis Program. 2004. Provisional Digital Land Cover Map for the Southwestern United States. Version 1.0. RS/GIS Laboratory, College of Natural Resources, Utah State University.

Upper Colorado River Endangered Fish Recovery Program [UCREFRP] 2006. UCREFRP Home Page. http://www.fws.gov/coloradoriverrecovery.htm (Last update: 14 December 2006).

Utah Conservation Data Center (UCDC) 2008. State of Utah Natural Resources. UCDC Home Page. http://dwrcdc.nr.utah.gov/ucdc/default.asp. Accessed June 2008.

Appendix A
Project Maps

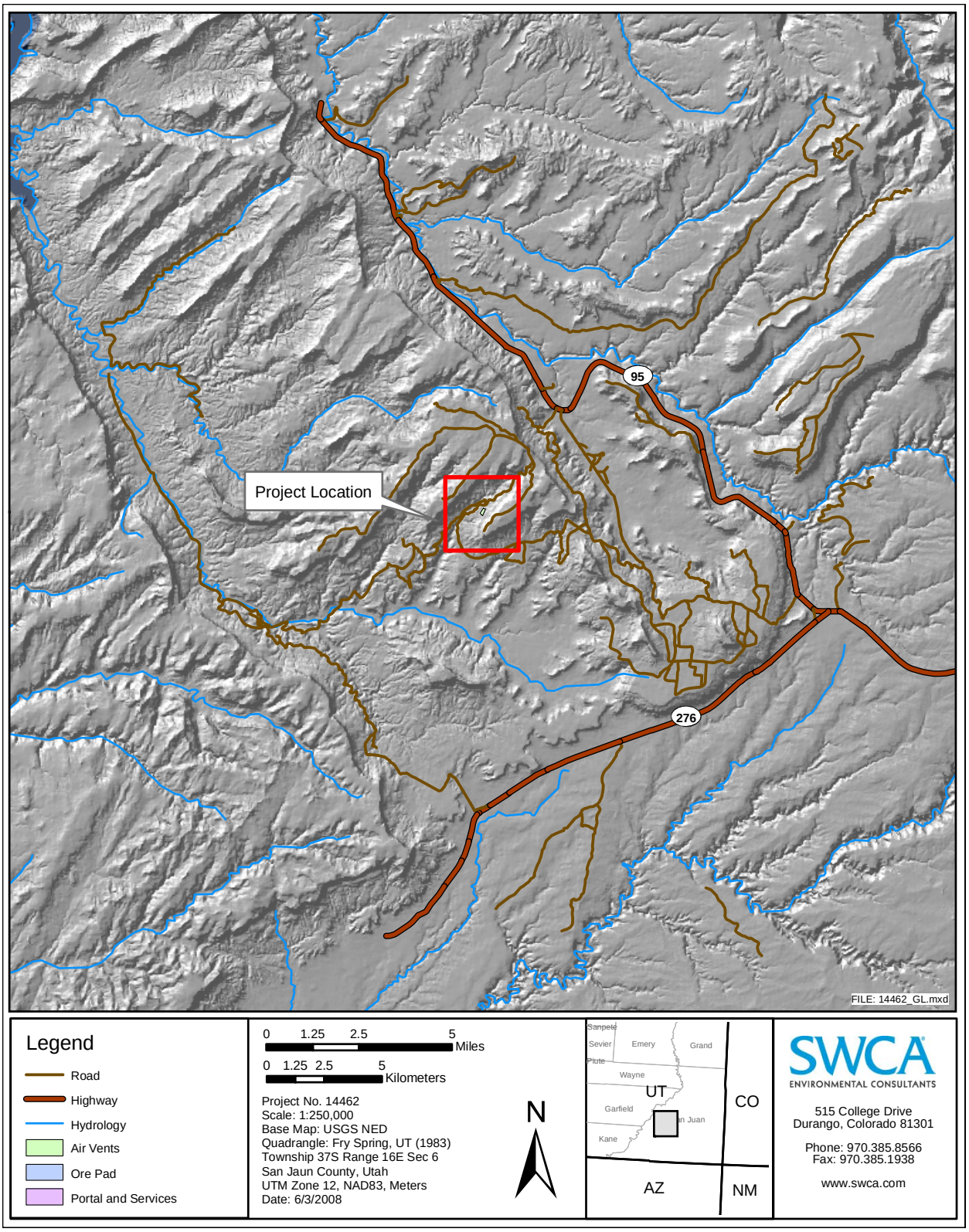


Figure 1. General Location Map

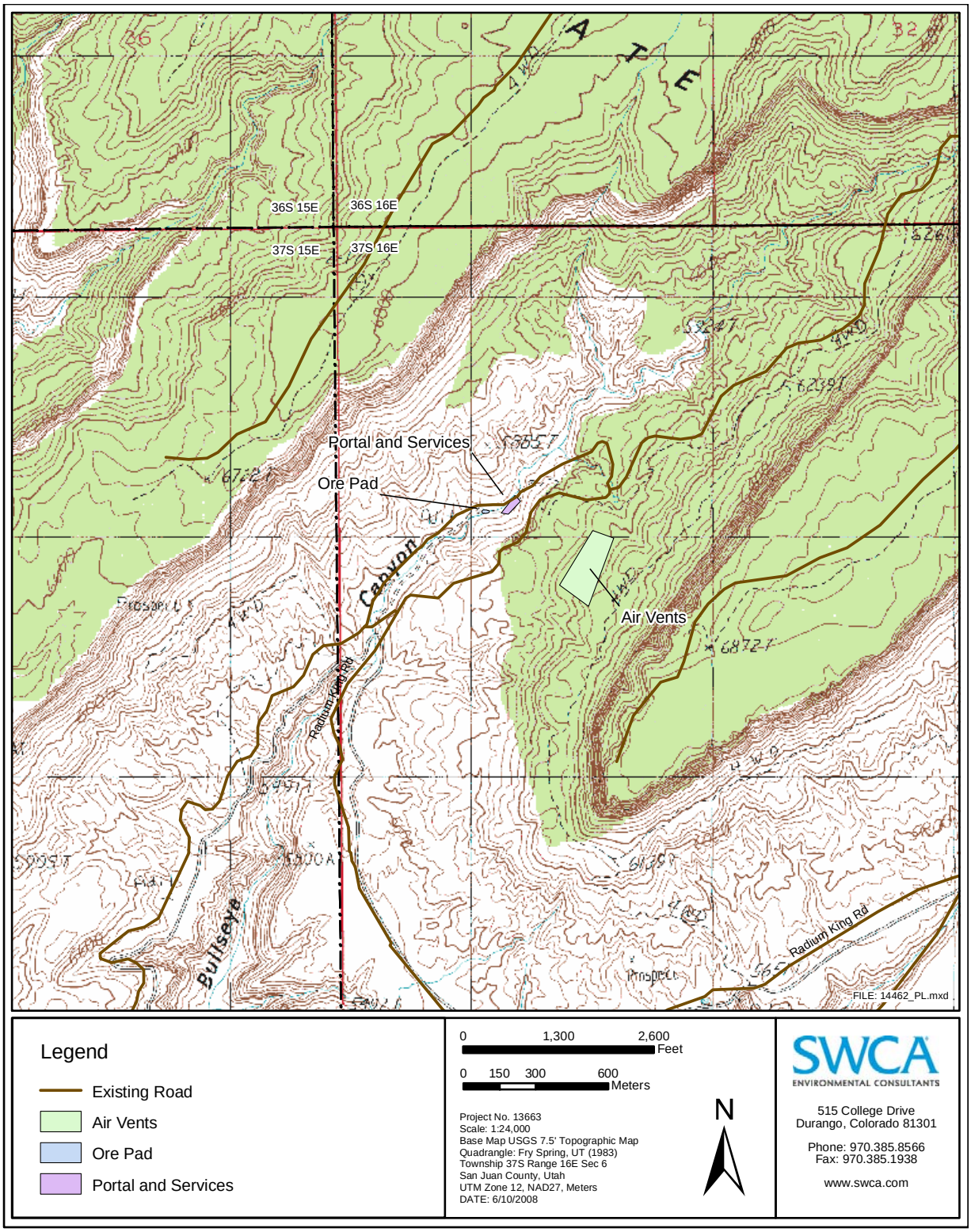


Figure 2. Project Location Map

Appendix B
Photographs of Survey Area

Photograph 1. View of proposed air vent area, depicting piñon-juniper woodland. Taken from above looking north/northwest.

Photograph 2. View of proposed ore pad and waste area looking west.

Appendix C
Plants and Wildlife Observed in the Survey Area

This list includes common plant species observed during the site visit. This does not represent a comprehensive summary of all species that may occur in the PPA.

Common Name	Scientific Name
Banana yucca	*Yucca baccata*
Big sagebrush	*Artemisia tridentata*
Bigelow sage	*Artemisia biglovii*
Blue grama	*Bouteloua gracilis*
Brenda's yellow cryptantha	*Cryptantha flava*
Buckwheat	*Eriogonum* spp.
Cheatgrass*	*Bromus tectorum*
Cliffrose	*Purshia stansburiana*
Colorado four o' clock	*Mirabilis multiflora*
Cresent milkvetch	*Astragalus amphoixys*
Cushion buckwheat	*Eriogonum ovalifolium*
Desert paintbrush	*Castilleja chromosa*
Desert prince's plume	*Stanleya pinnata*
Desert Trumpet	*Eriognum inflatum*
Dwarf milkweed	*Asclepias involucrata*
Evening primrose	*Oenothera sp.*
Fender's spring parsley	*Cymopterus acaulis*
Fineleaf hymenopappus	*Hymenopappus filifolius*
Four-winged saltbush	*Atriplex canescens*
Fremont's mahonia	*Mahonia fremontii*
Hoary Townsend daisy	*Tonsendia incana*
Heartleaf twistflower	*Streptanthus cordatus*
Ive's fournerved daisy	*Tetraneuris ivesiana*
Larkspur	*Delphinium nattallianum*
Little Utah juniper	*Sabina osteosprma*
Lobeleaf groundsel	*Packera multilobata*
Milkvetch	*Astragalus sp.*
Mormon tea	*Ephedra sp.*
Mountain mahogany	*Cercocarpus montanus*

Common Name	Scientific Name
Mountain pepperweed	*Lepidium montanum*
Narrowleaf yucca	*Yucca sp.*
Palmer amaranth	*Amaranthus palmeri*
Piñon pine	*Pinus edulis*
Plantain	*Plantago* sp.
Plains pricklypear	*Opuntia polyacantha*
Rabbitbrush	*Chrysothamnus* sp, *Ericameria sp,*
Rayless tansyaster	*Machaeranthera grindeliodes*
Ribseed sandmat	*Chamaesyce glyptosperma*
Rose heath	*Chaetopappa ericoides*
Rubber rabbitbrush	*Ericameria nauseosa*
Russian thistle*	*Salsola tragus*
Scarlett globemallow	*Sphaeralcea coccinea*
Scarlet hedgehog	*Echinocerus coccineus var. coccineus*
Shadescale saltbush	*Atriplex confertifolia*
Snowberry	*Symphoricarpos rotundifolius*
Thrift mock goldenweed	*Stenotus armeriodes*
Tulip pricklypear	*Opuntia phaeacantha*
Utah serviceberry	*Amelanchair utahensis*
White prairie clover	*Dalea candida*
Yellow rabbitbrush	*Chrysothamnus viscidiflorus*

*Indicates a non-native species.

This list includes those wildlife species detected directly (i.e., by sight) or indirectly (i.e., through sound or sign) during the site visit. This list does not represent a comprehensive summary of all species that may occur in the PPA.

Common Name	Scientific Name
BIRDS*	
Turkey vulture	*Cathartes aura*
Red-tailed hawk	*Buteo jamaicensis*
Peregrine falcon	*Falco peregrinus*
White-throated swift	*Aeronautes saxatalis*
Broad-tailed hummingbird	*Selasphorus platycercus*
Flycatcher	*Empidonax sp.*
Ash-throated flycatcher	*Myiarchus cinerascens*
Northern raven	*Corvus corax*
Loggerhead shrike	*Lanius excubitor*
Juniper titmouse	*Baelophus ridgwayi*
Canyon wren	*Catherpes mexicanus*
Blue-gray gnatcatcher	*Polioptila caerulea*
Black-throated gray warbler	*Dendroica nigrescens*
Canyon towhee	*Pipilo fuscus*
Black-throated sparrow	*Amphispiza bilineata*
Scott's Oriole	*Icterus parisorum*
MAMMALS	
Bat	*Unkown sp.*
Deer (scat)	*Odocoileus sp.*
Mountain Cottontail (scat)	*Sylvilagus nuttallii*
Coyote (scat)	*Canis latrans*

*Birds are listed in American Ornithologists' Union order.

Survey Report, Utah Energy Corporation,

Daneros Mine Project

Prepared by SWCA Environmental Consultants,

May 2009

SURVEY REPORT

UTAH ENERGY CORPORATION

DANEROS MINE PROJECT

Prepared for

U.S. Bureau of Land Management

Prepared by

SWCA Environmental Consultants

May 2009

Contents

SPECIES CONSIDERED 1
DISCUSSION 2
PROJECT MITIGATION MEASURES 2
SPECIALIST 2
LITERATURE CITED 2

Table 1. Raptors of Conservation Concern 1

Appendix A – Photographs of Survey Area
Appendix B – Project Maps

SURVEY REPORT

PROJECT NAME: Utah Energy Corporation, Daneros Mine Project

Utah Energy Corporation's Daneros Mine Project entails the development of a small conventional underground uranium mine in southeast San Juan County, Utah. The project includes development of an ore pad, air vent area, waste area, portal, and service areas, as well as exploratory drilling and the use of two existing two-track access roads. The Daneros Mine Project Area (Project Area) is located within Section 6, Township 37 South, Range 16 East (Salt Lake Meridian).

In order to fulfill the Bureau of Land Management's (BLM) Condition of Approval (COA) 39 defined in the *Decision Record, Finding of No Significant Impact, and Environmental Assessment for the Daneros Mine Project* (BLM 2009), SWCA Environmental Consultants (SWCA) conducted a raptor survey in the vicinity of the Daneros Mine Project on May 26, 2009. The survey consisted of a visual assessment of the project area. Surrounding areas were visually inspected using binoculars and a spotting scope for presence of raptors, their nests, or past signs of raptor use (e.g., whitewash) within a radius of 0.5 mile. The same was done for a 1-mile radius to look for signs of peregrine falcon (*Falco peregrinus*) use. Digital photographs are included in this report as examples of the existing conditions in the project area and the most common vegetative types present (Appendix A).

Additionally, to fulfill COA 37, SWCA surveyed for signs or presence of lambing activity for desert bighorn sheep (*Ovis canadensis*).

SPECIES CONSIDERED

Table 1. Raptors of Conservation Concern

Species	Habitat Present in the Project Area?	Species Impacted?
Golden eagle (*Aquila chrysaetos*)	Yes	No
Ferruginous hawk (*Buteo regalis*)	Yes	No
Peregrine falcon (*Falco peregrinus*)	Yes	No
Prairie falcon (*Falco mexicanus*)	Yes	No
Great horned owl (*Bubo virginianus*)	Yes	No
Red-tailed hawk (*Buteo jamaicensis*)	Yes	No
American kestrel (*Falco sparverius*)	Yes	No
Western screech-owl (*Otus kennicottii*)	Yes	No
Northern Pygmy-owl (*Glaucidium gnoma*)	Yes	No
Burrowing owl (*Athene cunicularia*)	Yes	No
Mexican Spotted owl (*Strix occidentalis*)	No	No
Short-eared owl (*Asio flammeus*)	No	No

DISCUSSION

SWCA conducted raptor surveys for the presence of nesting raptors on May 26, 2009. Elevations within the project area range from approximately 5,500 feet above mean sea level (amsl) to 7,000 feet amsl. Vegetation in the area primarily consists of piñon-juniper woodland habitat that occurs on dry mountains and foothills in the Colorado Plateau Region from the western slope of Colorado to the Wasatch Range of Utah. These woodlands typically occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges characteristic of the project area. The most common species in this area are piñon pine (*Pinus edulis*) and juniper (*Juniperus* spp.). Piñon-juniper stands in the area are variable in composition and include mature and immature populations depending on site characteristics, topography, and moisture relationships.

The raptor survey focused on identifying the presence of nesting accipiters and/or buteos. Prior to field study, U.S. Geological Survey (USGS) topographic maps were reviewed to determine the location of potential forested and cliff habitat and points of access to the survey areas. In addition, SWCA biologists are familiar with the project area through prior work conducted in support of the Environmental Assessment for the Daneros Mine Project (BLM 2009).

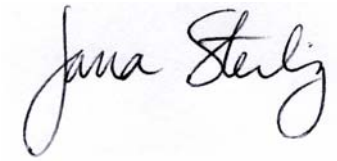
No raptor nests were observed within the Project Area, or within a 0.5 mile radius around it. No peregrine falcon nests were observed within the Project Area or within a 1 mile radius. No individual raptor species were observed within the total survey area during the surveys.

SWCA conducted a ground observation survey for desert bighorn sheep in the project area on May 26, 2009 to look for signs or presence of lambing activity. No signs of desert bighorn sheep lambing activity were observed in the immediate project area on May 26, 2009. Furthermore, no signs of bighorn sheep activity (e.g., tracks or scat) were observed, nor were any individuals noted.

PROJECT MITIGATION MEASURES

This Survey Report satisfies the requirements of COAs 37 and 39 as directed by the BLM Monticello Field Office.

SPECIALIST **Date: 5/28/09**



Jana Sterling, SWCA Biologist

LITERATURE CITED

Bureau of Land Management (BLM). 2009. *Decision Record, Finding of No Significant Impact, and Environmental Assessment for the Daneros Mine Project.* Monticello Field Office, Bureau of Land Management. Monticello, Utah. May 2009.

Appendix A

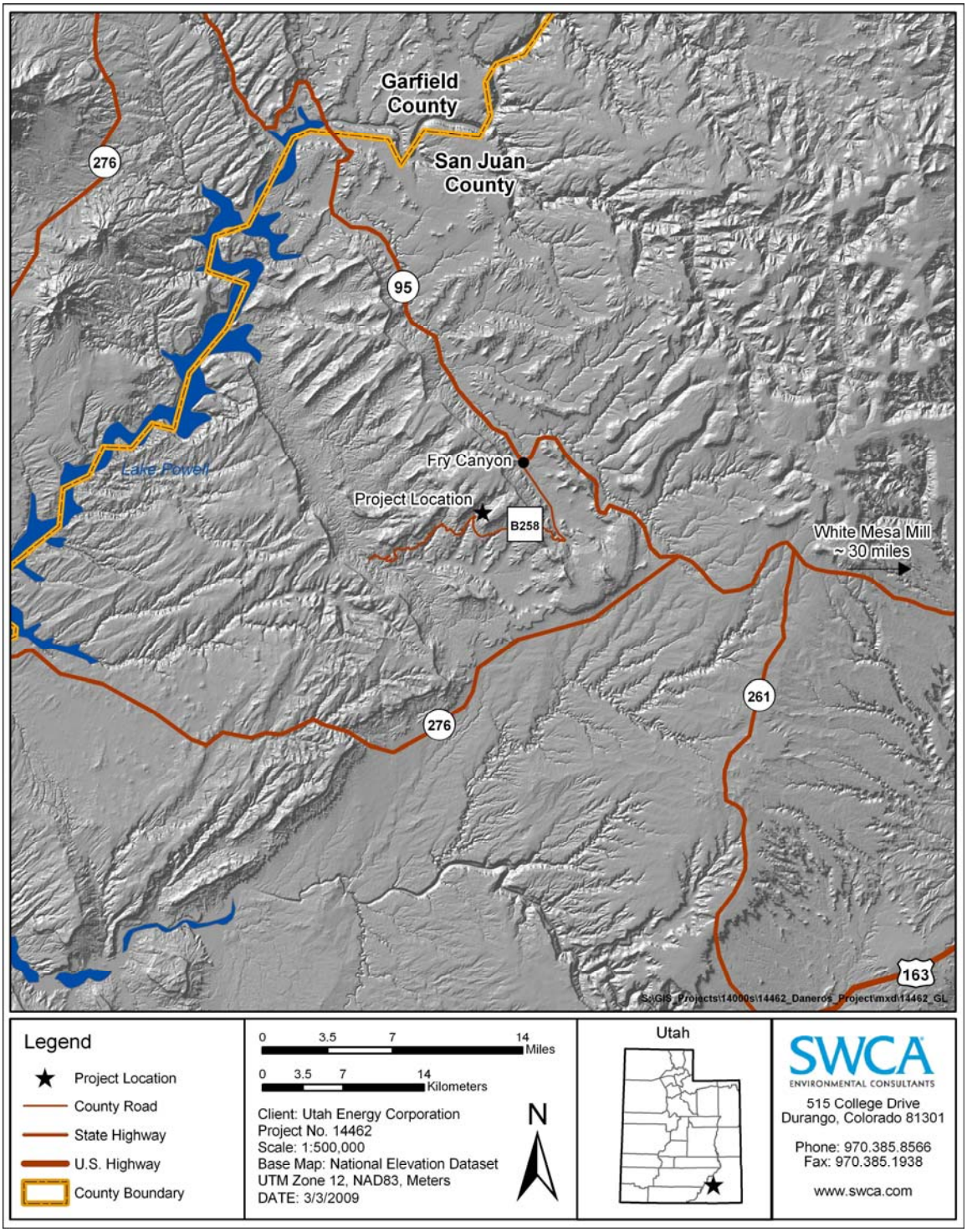
Photographs of Survey Area

Photograph 1. Surrounding habitat, taken south of the Daneros Mine Project, view facing northeast.

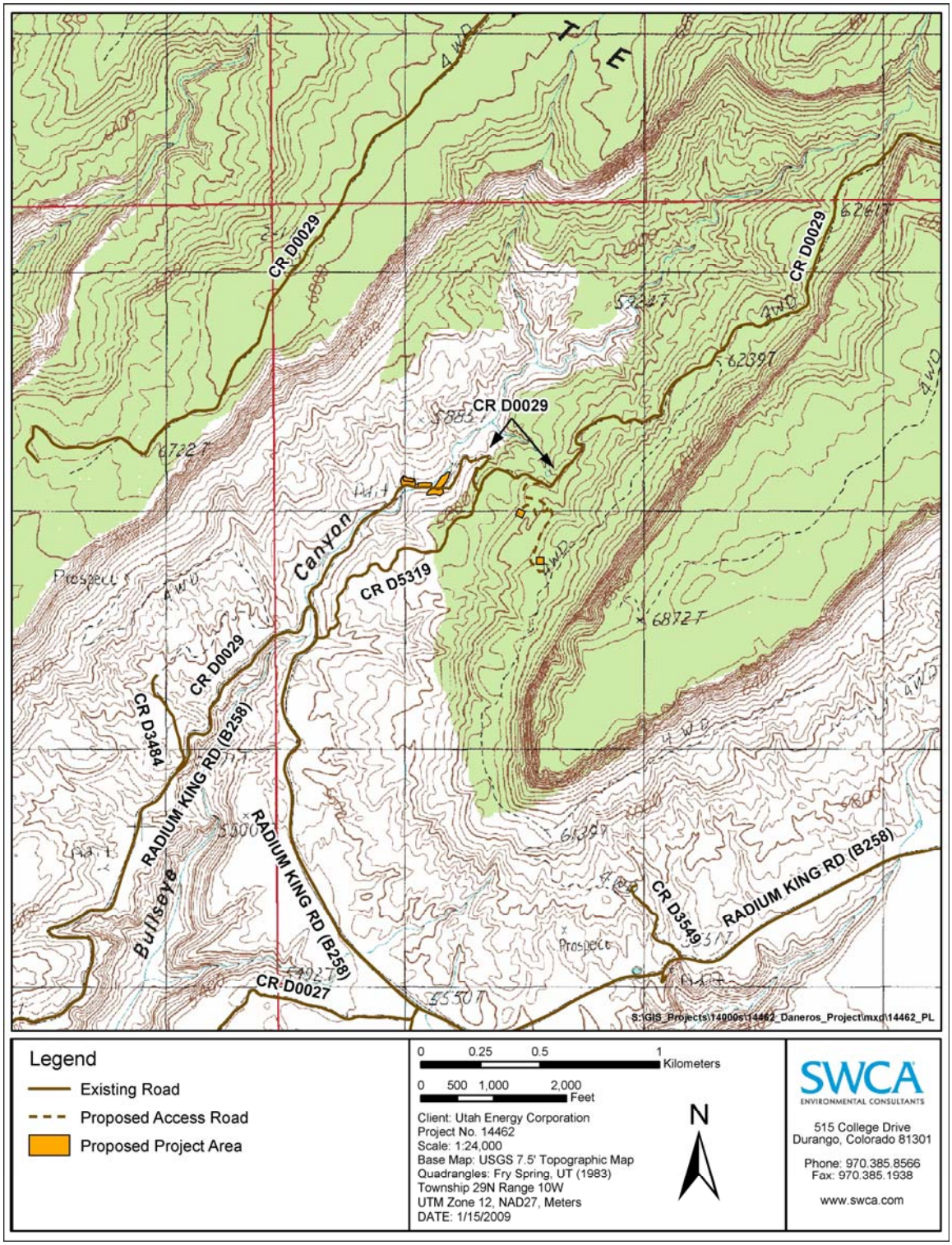
Photograph 2. Surrounding raptor habitat, taken from southwest of the Daneros Mine Project, looking north.

Appendix B

Project Maps



Map 1. Daneros Mine Project general location map.



Map 1. Daneros Mine Project location map.

Biological Assessment and Raptor Survey of the Daneros Mine Proposed Expansion Project,

Sections 6 and 7, Township 37 South, Range 16 East,

SLB&M, San Juan County, Utah

Prepared by Canyon Environmental, LLC,

July 2011

BIOLOGICAL ASSESSMENT AND RAPTOR SURVEY OF THE DANEROS MINE PROPOSED EXPANSION PROJECT SECTIONS 6 AND 7, TOWNSHIP 37 SOUTH, RANGE 16 EAST, SLB&M, SAN JUAN COUNTY, UTAH

Canyon Environmental Report No. 110115

July 5, 2011

Prepared on behalf of

Utah Energy Corporation
P.O. Box 1346
1300 S. Hwy 191
Moab, Utah 84532

Prepared by

CANYON ENVIRONMENTAL, LLC

770 East 2550 North
Provo, Utah 84604

(This page intentionally left blank)

SUMMARY

A biological Assessment was conducted by Canyon Environmental, on behalf of Utah Energy Corporation for the Bureau of Land Management, Monticello Field Office. The proposed project is located in Sections 6 and 7 of Township 37 South, Range 16 East, SLB&M in San Juan County, Utah (Appendix A).

Canyon Environmental obtained threatened, endangered or sensitive species information from the Utah Division of Wildlife Resources (DWR), Bureau of Land Management (BLM), and US Fish and Wildlife Service. The DWR had no records of occurrence for any threatened, endangered or sensitive species within the project area or within a two-mile radius. (Appendix B).

The subject property was inspected within the context of evaluating the potential impacts to these species and determining whether "take" of these species would occur. In addition, habitat at the site was characterized and observed, as well as flora and fauna identified. Furthermore, surveys were conducted for noxious weeds as defined by the state of Utah. Multiple on-site inspections were performed in June of 2011.

TABLE OF CONTENTS

SUMMARY i
TABLE OF CONTENTS ii
PURPOSE 1
PROJECT DESCRIPTION 1
GENERAL SITE CHARACTERISTICS 1
Habitat and Wildlife 1
Noxious Weeds 3
SPECIES OF CONCERN 3
CONCLUSIONS AND RECOMMENDATIONS 5
LITERATURE CITED 6

PURPOSE

The objective of this biological assessment (BA) is to assess potential environmental impacts of the proposed Lark-Royal Expansion Project (Appendix A). This report focuses on federally-listed plant and animal species in accordance with the requirements of Section 7 of the Endangered Species Act (ESA; 16 U.S.C. 460 et seq., as amended), as well as sensitive species and noxious weeds as listed by the state of Utah. The BA includes species accounts, analysis of potential project-related impacts, and effects determinations for each species. This document is intended to provide the U.S. Fish and Wildlife Service with the information necessary to 1) evaluate the potential impacts associated with the proposed project and 2) determine whether to proceed to formal consultation.

Methods

The complete proposed project area was surveyed on foot by Canyon Environmental biologists Mr. Chris Jensen and Mr. Chris Balzotti. The survey was completed over two days in June, 2011. The survey spacing between field workers was five meters. Plants were identified to species level when possible. Animal signs were investigated in and around the project area. Special emphasis was placed on birds of prey, noxious weeds and desert bighorn sheep.

PROJECT DESCRIPTION

The proposed project includes the expansion of the existing mining operation to incorporate formerly used mining areas that were included in the original development of the mining claim. The current and proposed mining operation is situated in the bottom of a small canyon with a seasonal drainage. The older mine portions were abandoned about 40 years ago and are being re-incorporated into the current mining operation once again. The original infrastructure has been removed, leaving only minor structural elements that will either be replaced and/or upgraded.

GENERAL SITE CHARACTERISTICS

Habitat and Wildlife

Habitat at the site is characterized as disturbed desert shrub community, which is vegetated primarily with *Ericameria nauseosa* (Pall. ex Pursh) G.L. Nesom & Baird (rubber rabbit brush) *Atriplex* spp. and *Pinus edulis* Engelm. (two needle pinyon). Photographs of the general habitat are included in Appendix C. The complete disturbance area falls within the Strych-Skos-Badland soil Complex. Soil texture is a very stony sand clay loam. The following vegetation was noted at the site and in the surrounding site vicinity, but does not represent every species:

FORBS		
GENUS	**SPECIES**	**Common Name**
Astragalus	*spp*	
Chaetopappa	*ericoides (Torr.) G.L. Nesom*	rose heath
Chenopodium	*album L.*	lambsquarters
Cryptantha Lehm. ex G. Don	*spp*	cryptantha
Eriogonum	*spp*	buckwheat
Eriogonum	*inflatum Torr. & Frém.*	desert trumpet
Halogeton	*glomeratus (M. Bieb.) C.A. Mey.*	saltlover
Mentzelia	*multiflora (Nutt.) A. Gray*	Adonis blazingstar
Oenothera	*caespitosa Nutt.*	tufted evening primrose
Packera	*multilobata (Torr. & A. Gray ex A. Gray) W.A.*	lobeleaf groundsel
Penstemon	*palmeri A. Gray*	Palmer's penstemon
Phlox	*longifolia Nutt.*	longleaf phlox
Salsola	*tragus L.*	prickly Russian thistle
Sisymbrium	*altissimum L*	tall tumblemustard
Stanleya	*pinnata (Pursh) Britton*	desert princesplume
GRASSES		
GENUS	**SPECIES**	**Common Name**
Achnatherum	*hymenoides (Roem. & Schult.) Barkworth*	Indian ricegrass
Aristida	*purpurea Nutt.*	purple threeawn
Bromus	*tectorum L.*	cheatgrass
Pleuraphis	*jamesii Torr.*	James' galleta
SHRUBS		
GENUS	**SPECIES**	**Common Name**
Amelanchier	alnifolia (Nutt.) Nutt. ex M. Roem.	Saskatoon serviceberry
Atriplex	*confertifolia (Torr. & Frém.) S. Watson*	shadscale saltbush
Atriplex	*canescens (Pursh) Nutt.*	fourwing saltbush
Chrysothamnus	*viscidiflorus (Hook.) Nutt.*	yellow rabbitbrush
Echinocereus Engelm.	*spp.*	
Ephedra	*torreyana S. Watson*	Torrey's jointfir
Ephedra L.	*spp.*	
Ericameria	*nauseosa (Pall. ex Pursh) G.L. Nesom & Baird*	rubber rabbitbrush
Gutierrezia	*sarothrae (Pursh) Britton & Rusby*	broom snakeweed
Juniperus	*osteosperma (Torr.) Little*	Utah juniper
Opuntia	*spp.*	pricklypear
Pinus	*edulis Engelm.*	twoneedle pinyon
Shepherdia	*rotundifolia Parry*	roundleaf buffaloberry
Tamarix	*chinensis Lour.*	tamarisk
Tetradymia	*canescens DC.*	spineless horsebrush
Yucca L.	*spp.*	yucca

Noxious Weeds

There were no noxious weeds found in the proposed project or immediately surrounding areas. Tamarisk was observed in portions of the site near an ephemeral drainage and numerous common weeds were observed on the roadside. The State of Utah Noxious Weed List is included in Appendix D.

SPECIES OF CONCERN

The State of Utah identifies numerous species of concern that may occur in San Juan County. These species include Federally listed Threatened and Endangered Species, Candidate Species, and State Sensitive Species. The following sensitive species are excluded from analysis due to lack of suitable habitat within the project area and limited likelihood of occurrence based on information obtained from the Utah Division of Wildlife Resources:

American white pelican
Arizona toad
Bald eagle
Black footed ferret
Bluehead sucker
Bobolink
Bonytail
Colorado pikeminnow
Common chuckwalla
Desert night lizard
Ferruginous hawk
Flannelmouth sucker
Gray wolf
Greater sage-grouse
Ginnison's prairie dog
Humpback chub
Kit fox
Lewis's woodpecker
Long billed curlew
Mogollon vole
Northern goshawk
Razorback sucker
Roundtail chub
Short-eared owl
Silky pocket mouse
Smooth greensnake
Southwestern willow flycatcher
White-tailed prairie dog
Yavapai mountainsnail
Yellow-billed cuckoo

The following species may occur within the project area and/or immediately surrounding environs:

Bat Species

The project area is located within a region comprised of steep canyon walls and cliffs with numerous locations that could contain roosting sites for bat species. Although no bat activity was directly observed during the site assessments, which occurred over multiple days in June and also included dusk and early morning observance times, bat species may occur in the

surrounding area. The following bat species are identified by the Utah State Division of Wildlife Resources, as sensitive species that occur in portions of San Juan County:

Allen's big-eared bat
Big free-tailed bat
Fringed myotis
Spotted bat
Townsend's big-eared bat

Status
The aforementioned bat species are not Federally listed, but are identified as State Sensitive Species.

Distribution and Habitat Requirements
Bat species in Utah inhabit a number of different environments. They range throughout all regions of the State of Utah and generally inhabit caves, crevices, cliff overhangs, buildings, and other similar areas. Foraging habitats can range from forested areas to rocky canyons (Utah DNR 2008).

Primary Threats
Primary threats to bat species in Utah include mine closure activities, removal of abandoned buildings, and other similar activities.

Occurrence on the Project
The project area falls within substantial value habitat for many bat species, but does not fall within designated critical habitat areas. No bat activity was observed during site reconnaissance which occurred over multiple days and included early morning, mid-day, and dusk monitoring. No significant droppings were observed in any crevices, mining areas, or shaded overhangs within the project area.

Effects
Due to the relative abundance of roosting and foraging areas for bat species about the proposed project, direct impacts are unlikely.

Desert Bighorn

Status
The desert bighorn sheep, *Ovis canadensis nelsoni*, is not a federally listed species in Utah. Bighorn sheep populations in California were listed as endangered on March 18, 1998. (USFWS 2000).

The desert bighorn sheep population for Utah was estimated to be 3100 sheep in 2008, of which approximately a third are found on National Park Service or tribal lands. (Utah DNR 2008)

Species Description, Distribution and Habitat Requirements

Desert bighorn sheep are similar to other bighorn sheep in having muscular bodies with thick necks and short brown tails, rams having massive brown horns that curve up and around the ears and curve up past the cheeks (ewes have short and slender horns). Desert bighorns are pale tan with white muzzles, eye patches and white coloration on the rump and back of legs. Ewes generally give birth to one lamb each year in the spring. Juveniles have creamy, soft and wooly coats. (USFWS 2011)

Bighorn sheep are found throughout the western United States from California to the Dakotas and central British Columbia to Mexico. A Utah endemic, the species has a long history with human inhabitants, depicted in pictographs and petroglyphs and sightings recorded by explorers, trappers and settlers. Bighorn sheep in Utah include the Rocky Mountain bighorns (*Ovis canadensis canadensis*), with a historic distribution covering northern and central Utah and desert bighorns (*Ovis canadensis nelsoni*), inhabiting southern (particularly southeastern) Utah. Desert bighorns are more abundant than Rocky Mountain bighorns with large populations occurring across the Colorado Plateau. (Utah DNR 2008)

Desert bighorns prefer open habitat containing steep rocky areas (canyons, gulches, talus cliffs, mountaintops and river benches). Steep, rocky slopes are utilized by the species to escape predators (primarily mountain lions). Desert bighorns are opportunistic feeders (feeding on mainly grasses and forbs) and derive much of their moisture requirements through the foods they eat, making them able to survive long periods without water.

Primary Threats

Utah's desert bighorn population declined due to pioneer settlement, competition with domestic livestock, introduction of domestic livestock-borne diseases, habitat change, hunting and uranium mining along the Colorado Plateau. (Shields 1999). Current and future threats to the species include changes in vegetation and habitat, disease, human encroachment and competition from domestic livestock.

Occurrence on the Project

The project area falls on the edge of crucial habitat for the desert bighorn. Crucial habitat is defined by the Utah DWR as "habitat on which the local population of a wildlife species depends for survival because there are no alternative ranges or habitats available" (DWR vector data 2008). Survey work found 2 very old pellet groups that may have been desert bighorn sheep or domestic sheep north of the proposed disturbance area. Old cow pies were found in the same area indicating some domestic use. Possible trails were found north of the proposed project as well.

Effects

Direct impacts on the desert bighorn from this project are unlikely due to the lack of suitable habitat in the immediate proposed project area and the relatively small size of the disturbance.

Mexican Spotted Owl

Status
The Mexican spotted owl, *Strix occidentalis lucida*, was federally listed as threatened in 1993. Populations recorded from 1990 to 2004 estimated 1,222 owl sites (areas used by a single or pair of owls for foraging, nesting or roosting), up from 758 owl sites, recorded from 1990 to 1993. (USFWS 2011)

Species Description, Distribution and Habitat Requirements
Mexican spotted owls are the smallest of three subspecies of spotted owl, generally 40-48cm in height and 43cm in length with a wingspan of approximately 106-114cm (females being larger than males). A medium sized owl, the species has dark eyes, is ashy-chestnut brown in color with the abdomen, back and head covered with white and brown spots and has brown tails marked with thin white bands. Owl young are white, then buffy-brown with adult markings becoming more distinct as the owl matures. (owling.com 2001)

Mexican spotted owls can be found in western North America from British Columbia to central Mexico including the Colorado Plateau in the southern and eastern parts of Utah. Protected and restricted habitats defined in the 1995 Mexican spotted owl recovery plan lies within boundaries of approximately 3.5 million ha on Federal lands in Arizona, Colorado, New Mexico and Utah which was designated as critical habitat for the species in 2004. (USFWS 2011 and Utah DNR)

A variety of habitats are suitable for Mexican spotted owl including various forest types (preferring old-growth forests) and steep rocky canyons, the latter the owls' primary habitat in Utah. Nesting occurs in naturally occurring sites (tree cavities, broken tree tops, caves, potholes in cliff ledges and nests built by other birds). Being a nocturnal hunter, the owls' primary food source is rodents. However, they have also been known to feed on rabbits, gophers, bats, birds, reptiles and insects. (USFWS 2011 and Utah DNR)

Primary Threats
Past, current and future threats to the Mexican spotted owl include habitat loss (i.e. logging, fires, climate change), starvation, fire, disease, encroachment of other owl species, predation and low reproductive success. (USFWS 2011)

Occurrence on the Project
Based on the Willey and Spotskey 1997 habitat model the project area is within Mexican spotted owl habitat. However, in the refined Willey and Spotskey 2000 model the proposed project falls outside of the habitat area. No owl signs were noted in or around the project area. The canyons in the surrounding area do not meet the 2X2 rule of less than 2km wide and more than 2km long. Furthermore, the lack of water resources in the immediate area makes nesting or foraging less likely.

Effects
Direct impacts on the Mexican spotted owl from this project are unlikely due to the lack of suitable habitat in the proposed project area.

Raptors

A general raptor survey was conducted for signs of any raptors in the area which included a 0.5 mile buffer area about the immediate project area. Areas that were readily accessible within the buffer area were evaluated for potential and inventoried where accessible. Areas within the buffer that were not readily accessible were evaluated using binoculars and spotting scopes. No raptors or raptor nests were seen on the proposed project. No nests were observed within the evaluated buffer area. Two Buteo Jamaicensis (red tailed hawks) were seen outside the project area foraging to the west.

Effects

Direct impacts on raptors from this project are unlikely due to lack of nesting sites in the proposed disturbance and immediately surrounding area, and the abundance of similar foraging habitat in the general vicinity.

CONCLUSIONS AND RECOMMENDATIONS

The proposed project area was evaluated in June 2011 over multiple days to evaluate the biological resources that may be impacted by the proposed mine expansion. The proposed expansion area would encompass previously impacted areas within the canyon that were initially developed for mining in the 1960s-1970s. The proposed expansion is not expected to result in impacts to areas that have not been previously developed.

Accordingly, Canyon Environmental recommends that personnel associated with mining and construction operations remain within the surveyed areas to avoid any impacts to unknown biological resources that may be present in the surrounding vicinity.

LITERATURE CITED

Owling.com. 2001. Spotted owl biology: a reference for North and Central American owls. Retrieved July 2, 2011 from http://www.owling.com/Spotted_nh.htm

U.S. Fish and Wildlife Service. 2000. Recovery plan for bighorn sheep in the Peninsular Ranges, California. U.S. Fish and Wildlife Service, Portland, OR. pp xv + 251

U.S. Fish and Wildlife Service. 2011. Draft recovery plan for the Mexican spotted owl (*Strix occidentalis lucida*), First Revision. U.S. Fish and Wildlife Service. Albuquerque, New Mexico, USA. Xxpp.

U.S. Fish and Wildlife Service. 2011. Species Profile for Peninsular bighorn sheep (*Ovis canadensis ssp. nelsoni*) Retrieved July 2, 2011 from http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0DR

State of Utah Natural Resources, Division of Wildlife Resources. Mexican spotted owl (*Strix occidentalis lucida*) Retrieved July 2, 2011 from http://dwrcdc.nr.utah.gov/rsgis2/search/Display.asp?FlNm=striocciv

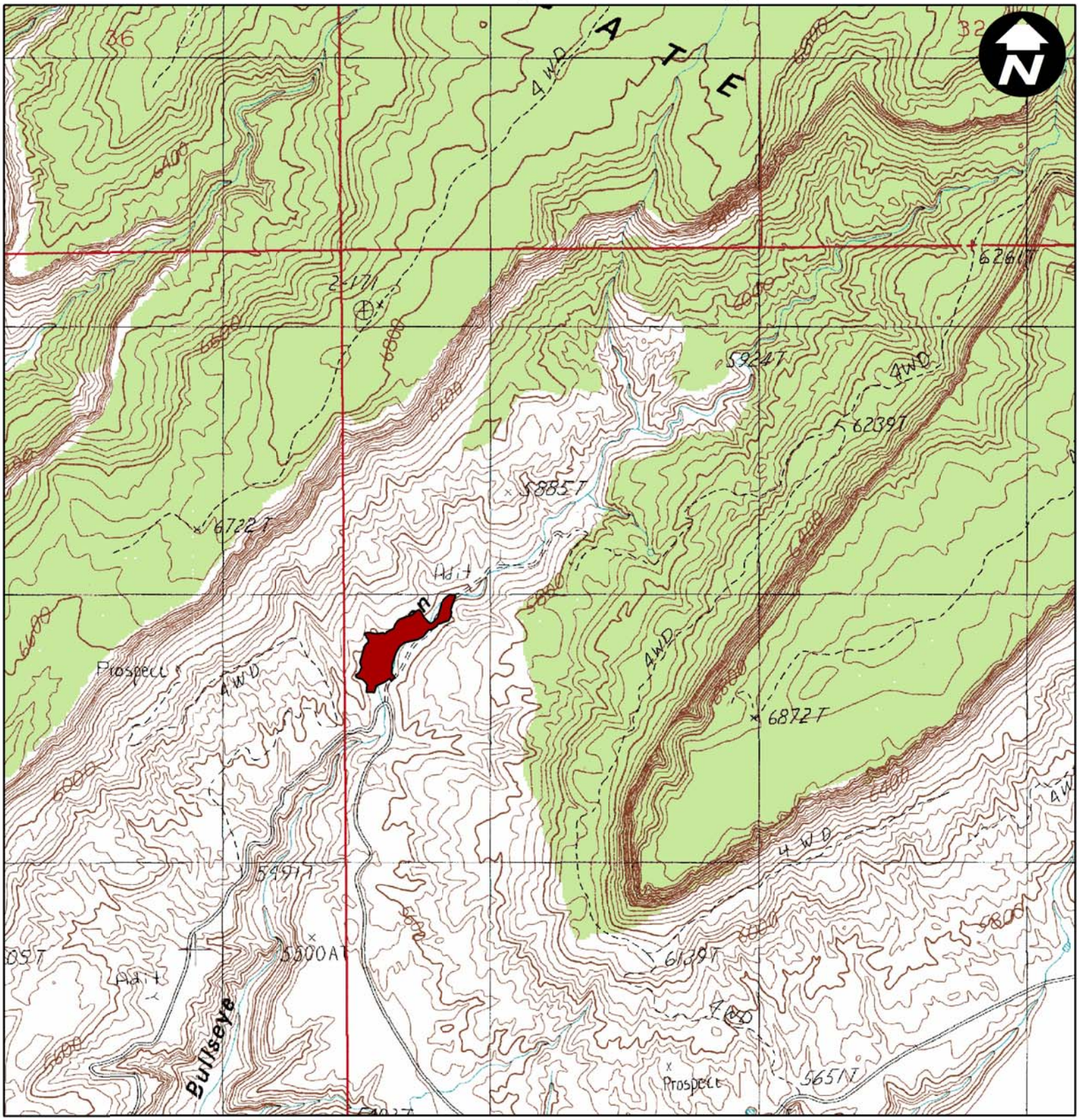
State of Utah Natural Resources, Division of Wildlife Resources. 2008. Utah bighorn sheep statewide management plan. Retrieved July 2, 2011 from http://wildlife.utah.gov/hunting/biggame/pdf/bighorn-plan.pdf

Willey, D. W., and D. Spotskey. 1997. GIS habitat model for Mexican spotted owl habitat in Utah. Utah Division of Wildlife Resources. Unpublished Final Report. Salt Lake City, UT.

Willey, D. W., and D. Spotskey. 2000. Field test of a habitat model for Mexican spotted owl breeding habitat. Final Report; Arizona Heritage Program, Phoenix, AZ.

APPENDIX A

Lark-Royal Project



Disturbance Perimeter

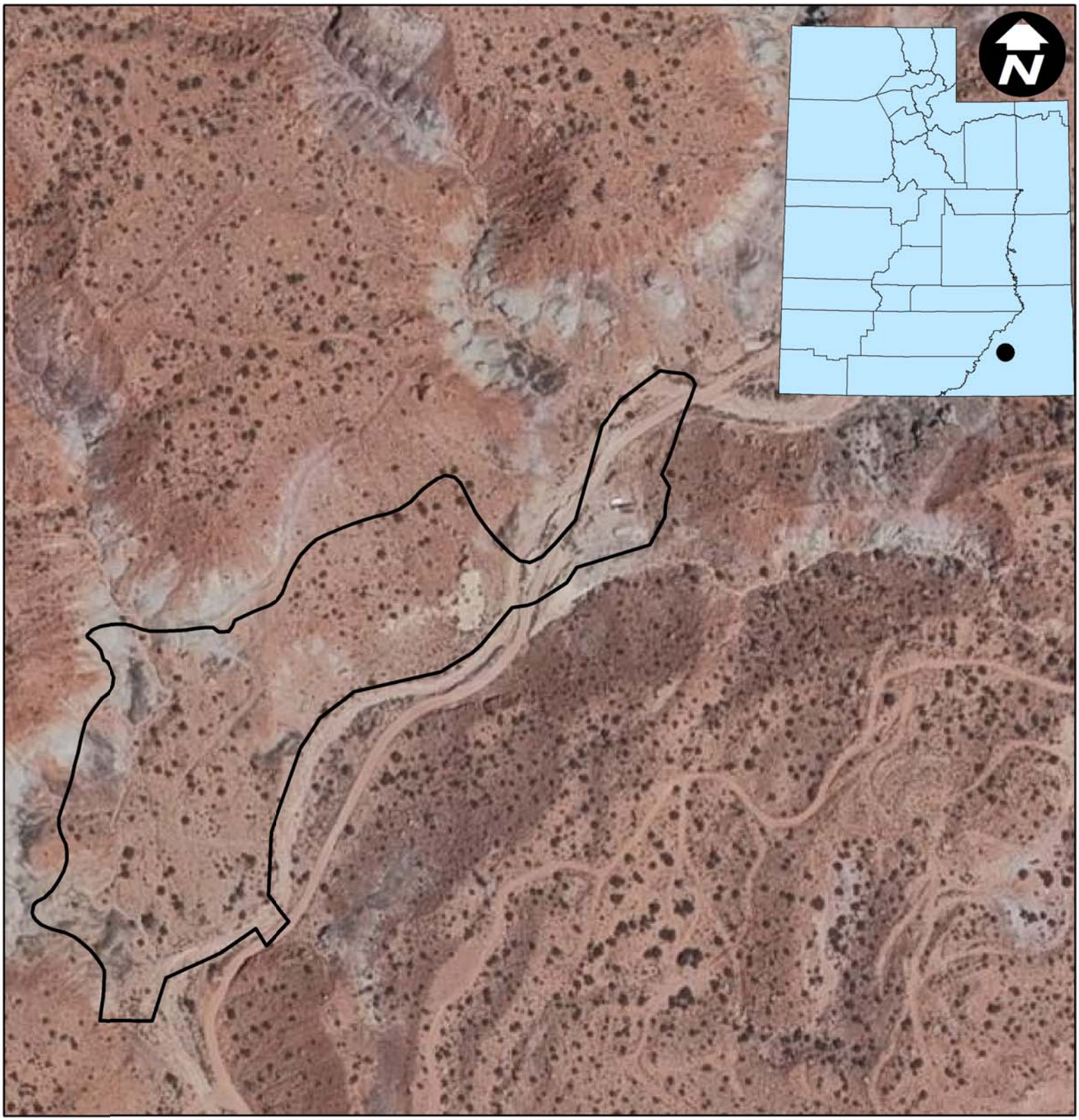
USGS Topographic Map:
Fry Spring, Utah
7.5 Quadrangle

0 250 500 m

Figure Job

Canyon Environmental, LLC

Lark-Royal Project



Disturbance Perimeter

Project Location:
San Juan County, Utah
Sections 6 and 7
Township 37 South,
Range 16 East

0 50 100 m

Figure Job

Canyon Environmental, LLC

APPENDIX C

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

JAMES F. KARPOWITZ
Division Director

June 27, 2011

Chris Jensen
Canyon Environmental
770 East 2550 North
Provo, Utah 84064

Subject: Species of Concern Near the Lark-Royal Disturbance Area

Dear Chris Jensen:

I am writing in response to your email dated June 21, 2011 regarding information on species of special concern proximal to the proposed Lark-Royal disturbance area located in Sections 6 and 7 of Township 37 South, Range 16 East, SLB&M in San Juan County, Utah.

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project area noted above, or within a two-mile radius.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Wood, at (435) 613-3709 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

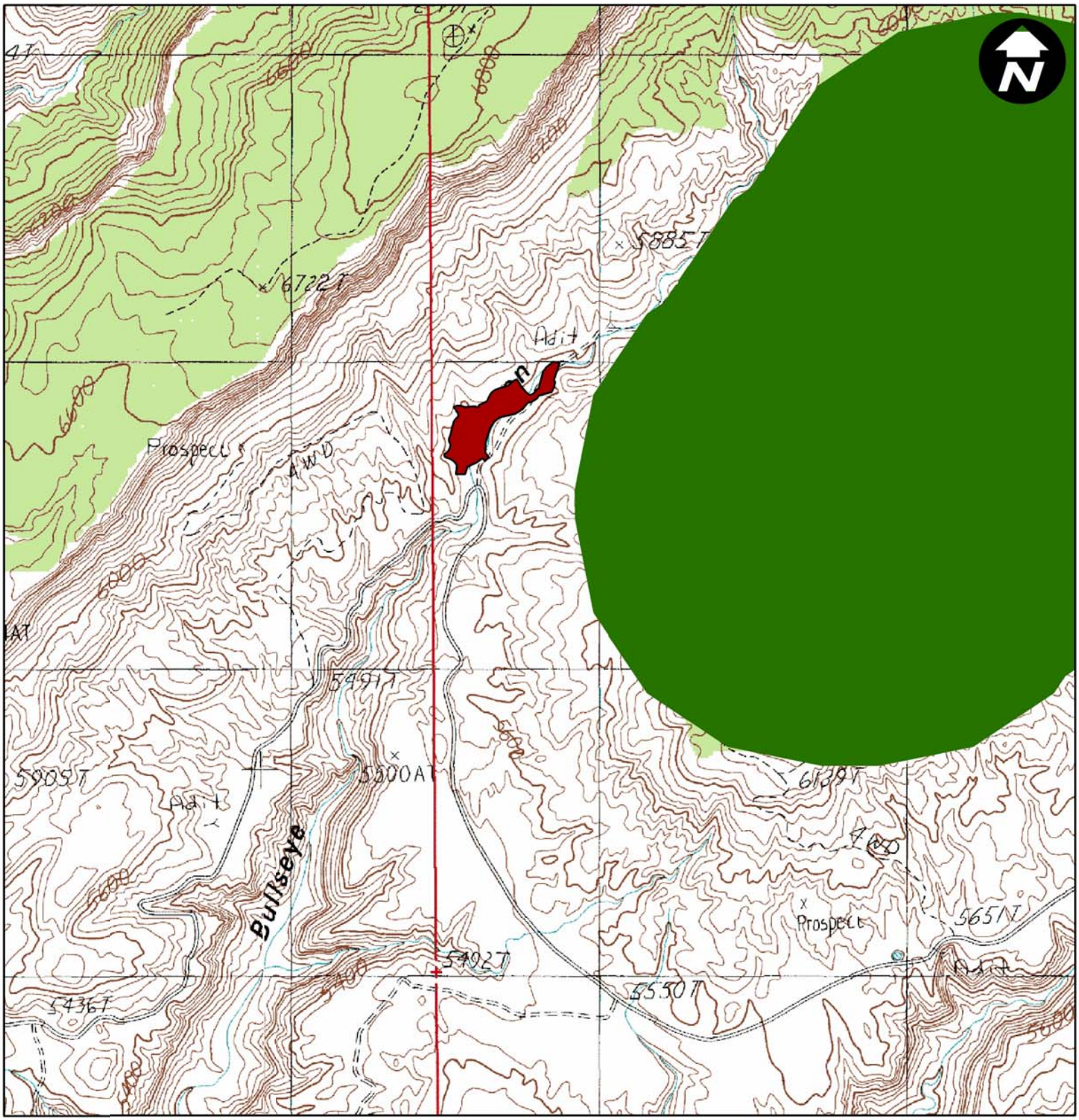
Sarah Lindsey

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Chris Wood

1594 W. North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

Mexican Spotted Owl Habitat Model 2000



Disturbance Perimeter

2000 Habitat Model

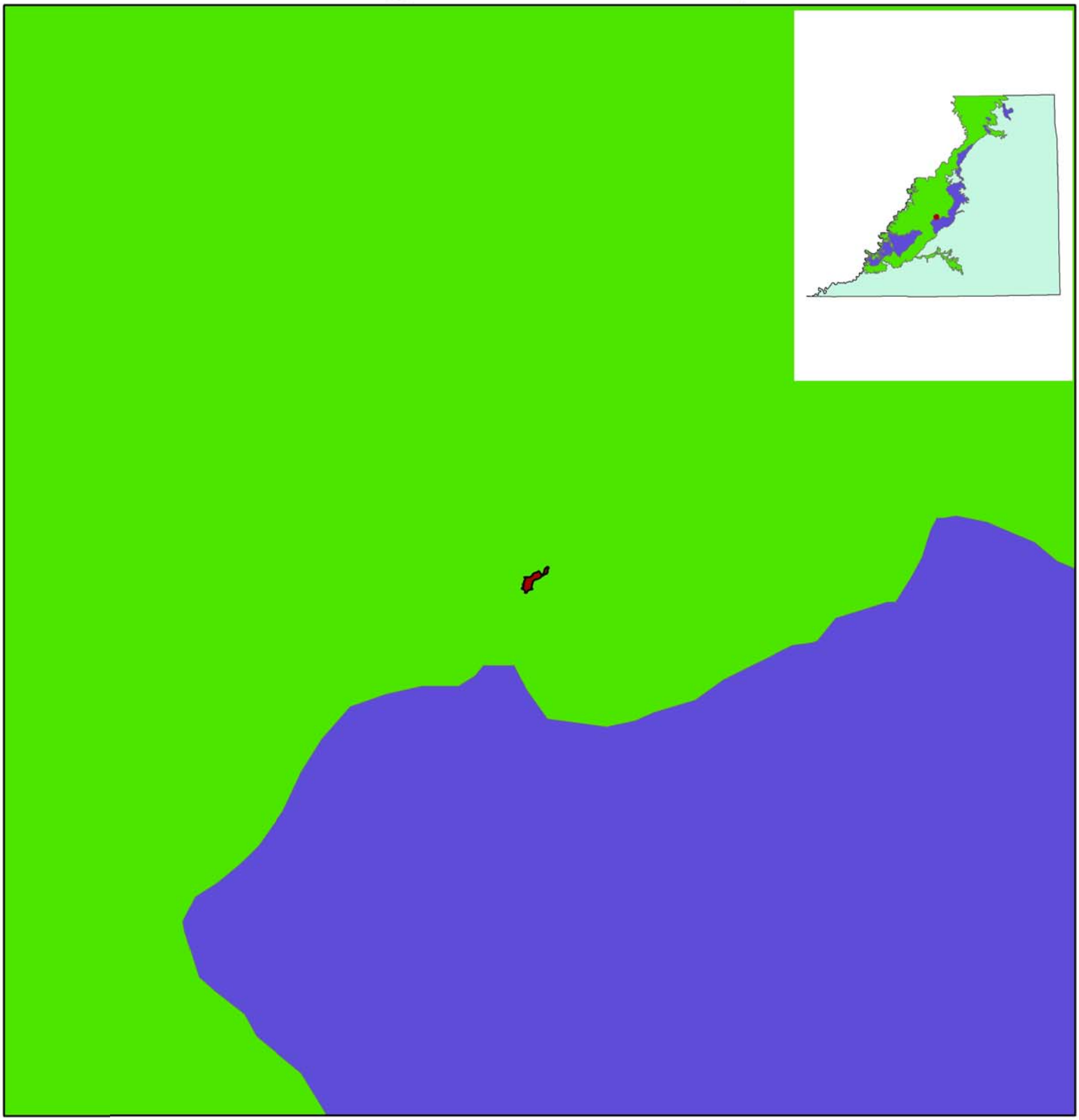
Project Location:
San Juan County, Utah
Section 6 and 7
Township 37 South,
Range 16 East

0 250 500 M

Figure Job

Canyon Environmental, LLC

Desert Bighorn Sheep Habitat



San Juan County

Disturbance Perimeter

Desert Bighorn Sheep Habitat

crucial

substantial

Project Location:
San Juan County, Utah
Section 6 and 7
Township 37 South,
Range 16 East

0 1 2 Kilometers

Figure Job

Canyon Environmental, LLC

APPENDIX B

SITE: Daneros Mine Expansion

Photograph 1

View of project area looking southwest.

Photograph 2

Overview of project area looking north.

Photograph 3

Overview of project area.

APPENDIX D

Utah Noxious Weed List

October 2010

The following weeds are hereby officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture and Food under Section 4-17-3, Utah Noxious Weed Act:

There are hereby designated three classes of noxious weeds in the state: Class A (EDRR) Class B (Control) and Class C (Containment).

Class A: Early Detection Rapid Response (EDRR) Declared noxious weeds not native to the sate of Utah that pose a serious threat to the state and should be considered as a very high priority.

Black henbane	*Hyoscyamus niger (L.)*
Diffuse knapweed	*Centaurea diffusa (Lam.)*
Leafy spurge	*Euphorbia esula L.*
Medusahead	*Taeniatherum caput-medusae*
Ox-Eye daisy	*Chrysanthemum leucanthemum L.*
Perennial Sorghum spp. including but not limited to:	
Johnsongrass	*Sorghum halepense (L.) Pers.*
and Sorghum almum	*Sorghum almum, Parodi*
Purple loosestrife	*Lythrum salicaria L.*
Spotted knapweed	*Centaurea maculosa Lam.*
Squarrose knapweed	*Centaurea squarrosa Gugle.*
St. Johnswort	*Hypericum perforatum L.*
Sulfur cinquefoil	*Potentilla recta L.*
Yellow starthistle	*Centaurea solstitialis L.*
Yellow toadflax	*Linaria vulgaris Mill.*

Class B: (Control) Declared noxious weeds not native to the state of Utah that pose a threat to the state and should be considered a high priority for control.

Bermudagrass*	*Cynodon dactylon (L.) Pers.*
Broad-leaved peppergrass (Tall whitetop)	*Lepidium latifolium L.*
Dalmatian toadflax	*Linaria dalmatica (L.) Mill.*
Dyers woad	*Isatis tinctoria L.*
Hoary cress	*Cardaria spp.*
Musk thistle	*Carduus nutans L.*
Poison hemlock	*Conium maculatum L.*
Russian knapweed	*Centaurea repens L.*
Scotch thistle (Cotton thistle)	*Onopordium acanthium L.*

Squarrose knapweed	*Centaurea virgata Lam. ssp*

Class C: (Containment) Declared noxious weeds not native to the sate of Utah that are widely spread but pose a threat to the agricultural industry and agricultural products with a focus on stopping expansion.

Field bindweed (Wild morning-glory)	*Convolvulus spp.*
Canada thistle	*Cirsium arvense (L.) Scop.*
Houndstounge	*Cynoglossum officianale L.*
Saltcedar	*Tamarix ramosissima Ledeb.*
Quackgrass	*Agropyron repens (L.) Beauv.*

* Bermudagrass (*Cynodon dactylon*) shall not be a noxious weed in Washington County and shall not be subject to provisions of the Utah Noxious Weed Law within the boundaries of that county. It shall be a noxious weed throughout all other areas of the State of Utah and shall be subject to the laws therein.

Biological Survey Report,

Daneros Mine Expansion

Prepared by SWCA Environmental Consultants,

January 2013

BIOLOGICAL SURVEY REPORT

ENERGY FUELS RESOURCES (USA) INC.
Daneros Mine Expansion
San Juan County, Utah

Prepared by
SWCA ENVIRONMENTAL CONSULTANTS
130 Rock Point Drive, Suite A
Durango, CO 81301

January 2013

CONTENTS

CONTENTS i
INTRODUCTION 1
PROJECT DESCRIPTION 1
Operations South Site 1
Operations Daneros Site 2
Possible Future Mine Vents 2
METHODOLOGY 2
PROPOSED PROJECT AREA 3
General Description 3
Physical Description 3
Biological Description 4
Colorado Plateau Blackbrush-Mormon-tea Shrubland 5
Colorado Plateau Pinyon-Juniper Shrubland 5
Inter-Mountain Basins Big Sagebrush Shrubland 5
Inter-Mountain Basins Mixed Salt Desert Scrub 5
Colorado Plateau Mixed Bedrock Canyon and Tableland 6
ANALYSIS 7
USFWS-listed Species 7
Birds 7
Fishes 9
Plants 10
BLM MFO Sensitive Species 11
Raptors 12
Migratory Birds 12
DISCUSSION 13
CERTIFICATION 13
LITERATURE CITED 14

TABLES

Table 1. Federally Listed and Candidate Species That Are Known to Occur or Have the Potential to Occur in San Juan County, Utah 7
Table 2. BLM MFO Sensitive Species That Are Known to Occur or Have the Potential to Occur in San Juan County, Utah 11

APPENDICES

A – PROJECT MAP
B – PHOTOGRAPHS OF SURVEY AREA
C – PLANTS AND WILDLIFE OBSERVED IN SURVEY AREA

INTRODUCTION

This biological survey report (BSR) evaluates the potential effects of the Daneros Mine Expansion (Proposed Action) proposed by Energy Fuels Resources (USA) Inc. (Energy Fuels) on species federally listed as threatened or endangered under the Endangered Species Act of 1973 (ESA), as amended (16 United States Code [USC] 1531–1544 et seq.), as well as federal species listed as candidate or proposed, and other sensitive species designated by the Bureau of Land Management (BLM) Monticello Field Office (MFO). This report will also be used in determining whether formal consultation with the U.S. Fish and Wildlife Service (USFWS) is necessary, per 50 Code of Federal Regulations (CFR) 402.12.

PROJECT DESCRIPTION

Energy Fuels proposes to expand the existing Daneros Mine, an underground uranium mine in San Juan County, Utah. SWCA conducted biological and cultural resources surveys for the original Daneros Mine project in 2008; the 2008 biological survey report addressed the ore pad, air vent area, waste area, portal and service areas that were proposed for the original Daneros Mine project (SWCA 2008).. The current mine expansion project involves several proposed surface facilities. SWCA surveyed the proposed facilities for biological and cultural resources in 2011 and 2012. The project map, which shows the areas surveyed by SWCA for biological resources in 2008, 2011, and 2012, is included in Appendix A.

Operations South Site

This BSR covers the southern and northern portions of the expansion project. Energy Fuels proposes to construct several new surface facilities along Radium King Road in the southern portion of the expansion project. This portion of the project is referred to as the Operations South Site area. The following facilities would be constructed on the south side of Radium King Road, between the road and the edge of the south-southwest-trending tributary canyon of Red Canyon:

- office water well
- warehouse /shop
- one 5,000-gallon water tank
- septic tank and leach field
- two 1,000-gallon propane tanks
- two 6,000-gallon fuel tanks
- Development Rock Area #4
- topsoil storage area
- additional topsoil storage area
- temporary sediment pond
- ‘dry’ (shower facility)
- berm

The facilities listed above would be located within a common, roughly rectangular area bounded by Radium King Road to the north and a proposed earthen berm on the west, south, and east sides. The following facilities would also be constructed on the south side of Radium King Road, approximately 2,000 feet to the northeast of the aforementioned improvements:

- low-grade stockpile area
- ore stockpile area

Like the other group of facilities proposed for the south side of Radium King Road, the two

facilities listed above would be constructed together within a roughly rectangular area bounded by the road to the north and a proposed earthen berm on the west, south, and east sides.

On the opposite (north) side of Radium King Road, Energy Fuels proposes to construct the following improvements:

- new mine portal (South Portal)
- compressors
- two generators
- power substation
- gate
- equipment laydown area
- parking area
- inert material storage area
- topsoil storage area

Operations Daneros Site

In the northern portion of the expansion project, Energy Fuels proposes several improvements to the existing Operations Daneros Site. These include expansion of Development Rock Area #1 and construction of a topsoil storage area in the northern portion of the Operations Daneros Site; a temporary sediment pond would be constructed in the southeastern portion of the Operations Daneros Site. Compressors, fuel tanks and generators would be installed within the existing disturbed area in the eastern portion of the Operations Daneros Site.

Possible Future Mine Vents

Two existing portals (Spook Portal and Jim Butts Portal) remaining from previous mining activity in the southern portion of the project area may be used in the future as mine vents, although no construction or development is currently planned for either location. The Spook Portal is located north of Radium King Road and the proposed South Portal, and the Jim Butts Portal lies south of the road and east of the proposed Operations South Site; both portals are accessed by existing graded dirt roads. Both of these existing locations and associated access roads were surveyed for biological resources in July 2012.

METHODOLOGY

Prior to field reconnaissance, SWCA Environmental Consultants (SWCA) compiled a list of federally listed, candidate, and proposed species with the potential to occur in San Juan County, Utah (USFWS 2012a). BLM personnel were contacted directly to obtain the most recent information regarding MFO sensitive species. Vegetation cover types were mapped by the Southwest Regional Gap Analysis Project (SWReGAP) (U.S. Geological Survey [USGS] 2004). Geologic information was obtained from the Utah Geological Survey (2011). Soil information

was obtained from the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2012a).

SWCA conducted a biological survey of the majority of the proposed project area (PPA) on July 11, 2012, and additional areas on October 25, 2012, after design changes that expanded the footprint of the proposed project. Weather conditions were 80 degrees Fahrenheit (26.7 degrees Celsius), mostly clear with a light breeze on July 11, 2012, and 50 degrees Fahrenheit (10 degrees Celsius), mostly clear and windy on October 25, 2012. The biological survey consisted of walking the PPA and surrounding area to collect data for habitat characterizations. Approximately 69 acres were surveyed. Surrounding areas within line-of-sight were visually inspected using binoculars for the presence of raptors, their nests, or past signs of raptor use (e.g., whitewash). The surveyors noted vegetation and wildlife present at the PPA and within the surrounding area. Digital photographs are included in this BSR as examples of the existing conditions at the PPA and the most common vegetative types present (Appendix B).

PROPOSED PROJECT AREA

General Description

The proposed area within the Operations South Site includes previously disturbed ground and debris associated with previous mining activity in the area. A historic mine site (Spook Portal) is located north of the proposed Operations South Site. The proposed limit of the disturbed area extends into a drainage that flows in a southeasterly direction into a southwesterly flowing tributary of North Fork Red Canyon.

A second historic mine portal, known as the Jim Butts Portal, is located east of the proposed Operations South Site in the upper wall of a steep canyon, which flows in a southeasterly direction into a southwesterly flowing tributary of North Fork Red Canyon.

The expansion of the Operations Daneros Site would involve two areas not previously surveyed in 2008. The southern segment follows the existing road (San Juan County Road [CR] D0029), encompassing the area of the proposed temporary sediment pond, and extends into Bullseye Canyon. Development rock has been used to build up the existing road, between the Bullseye Canyon drainage and a roughly south-flowing tributary drainage (see Figure B.4 in Appendix B). An existing sediment pond was observed on October 25, 2012, in the area proposed for the temporary sediment pond (see Figure B.5 in Appendix B). The berm on the northwest side of the sediment pond extends into Bullseye Canyon, creating a narrow trench in the natural channel (see Figures B.6 and B.7 in Appendix B). A narrow trench has been excavated on the northwest side of the existing sediment pond, apparently to channel surface water from the south-trending tributary drainage past the sediment pond and into the primary Bullseye Canyon drainage. The northern area is a steep hillside along a primitive two-track road.

Physical Description

The Proposed Operations South Site, Spook Portal, and Jim Butts Portal are located east of Bullseye Canyon, on the northwest edge of a southwest-trending tributary of North Fork Red

Canyon, and are bisected by Radium King Road (see Appendix A, Figure A.1). The Operations Daneros Site is located north of the headwaters of Bullseye Canyon. The topographic pattern of the general area is varied, consisting of defined ridges and deep, relatively incised valleys and canyons. The geology in the PPA is composed of the Moenkopi and Chinle formations (USGS 2012). Soil compositions found in the PPA include contents of channery sandy loam and very stony sandy clay loam. The most prevalent soil type in the PPA is the Skos-Rock outcrop complex, which is found in the southern portion of the PPA. The Strych-Skos-Badland complex is found in the smaller, northern portion of the PPA (NRCS 2012a). The components of these soils are described below.

The Skos-Rock outcrop complex consists of two components. The Skos component is found on slopes from 4% to 30% on structural benches and breaks. The parent material consists of colluvium derived from interbedded sandstone and shale and/or residuum weathered from interbedded sandstone and shale. Depth to a root restrictive layer is 4 to 20 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low with a moderate shrink-swell potential; this soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2% and the calcium carbonate equivalent within 40 inches, typically, does not exceed 8%. The soil has a slightly sodic horizon within 30 inches of the soil surface. Rock outcrop is not considered a major soil component.

The Strych-Skos-Badland complex consists of three components. The Strych component is found on slopes from 30% to 50% on structural benches. The parent material consists of alluvium derived from sandstone and shale and/or colluvium derived from sandstone and shale. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low, as is the shrink-swell potential. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2% and the calcium carbonate equivalent within 40 inches, typically, does not exceed 20%. Badland is not considered a major soil component (the Skos component is described above).

Biological Description

Vegetation within the PPA is sparse overall. The dominant species include Utah juniper (*Juniperus osteosperma*), crispleaf buckwheat (*Eriogonum corymbosum*), and rubber rabbitbrush (*Ericameria nauseosa*). The understory vegetation is extremely sparse, less than 1% cover overall within the PPA. Common grasses and forbs in the understory include James' galleta (*Pleuraphis jamesii*), rock goldenrod (*Petradoria pumila*), and thrift mock goldenweed (*Stenotus armerioides*). A list of plant and animal species observed by SWCA biologists within the PPA on July 11 and October 25, 2012, is located in Appendix C.

Five major land vegetation cover types have been mapped by SWReGAP within and surrounding the PPA; the most prominent cover types are Colorado Plateau Blackbrush-Mormon-tea Shrubland and Colorado Plateau Pinyon-Juniper Shrubland. Smaller patches within the PPA have been mapped as Inter-Mountain Basins Big Sagebrush Shrubland, Inter-Mountain Basins Mixed Salt Desert Scrub, and Colorado Plateau Mixed Bedrock Canyon and Tableland.

Descriptions of these vegetation cover types have been defined by SWReGAP and are described in more detail below (USGS 2004).

Colorado Plateau Blackbrush-Mormon-tea Shrubland

This ecological system occurs in the Colorado Plateau on benchlands, colluvial slopes, pediments, or bajadas. Elevation ranges from 1,850 to 5,400 feet above mean sea level (amsl). Substrates are shallow, typically calcareous, non-saline, and gravelly or sandy soils over sandstone or limestone bedrock, caliche, or limestone alluvium. The cover type also occurs in deeper soils on sandy plains where it may have invaded desert grasslands. Vegetation is characterized by extensive open shrublands dominated by blackbrush (*Coleogyne ramosissima*), often with Mormon tea (*Ephedra viridis*), Torrey's jointfir (*E. torreyana*), or spiny hopsage (*Grayia spinosa*). Sandy portions may include sand sagebrush (*Artemisia filifolia*) as co-dominant. The herbaceous layer is sparse and composed of graminoids such as Indian ricegrass (*Achnatherum hymenoides*), James' galleta, or sand dropseed (*Sporobolus cryptandrus*).

Colorado Plateau Pinyon-Juniper Shrubland

This ecological system is characteristic of the rocky mesa tops and slopes on the Colorado Plateau and western slope of Colorado, but these stunted tree shrublands may extend further upslope along the low-elevation margins of taller pinyon-juniper woodlands. Sites are drier than Colorado Plateau Pinyon-Juniper Woodland. Substrates are shallow/rocky and shaley soils at lower elevations (3,937–6,562 feet amsl). Sparse examples of the system grade into Colorado Plateau Mixed Bedrock Canyon and Tableland. The vegetation is dominated by dwarfed (usually <10 feet tall) twoneedle pinyon (*Pinus edulis*) and/or Utah juniper trees forming extensive tall shrublands in the region along low-elevation margins of pinyon-juniper woodlands. Other shrubs, if present, may include black sagebrush (*Artemisia nova*), Wyoming big sagebrush (*A. tridentata* ssp. *wyomingensis*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), or blackbrush. Herbaceous layers are sparse to moderately dense and typically composed of xeric graminoids.

Inter-Mountain Basins Big Sagebrush Shrubland

This ecological system occurs throughout much of the western United States, typically in broad basins between mountain ranges, plains, and foothills between 4,900 and 7,500 feet amsl. Soils are typically deep, well drained, and non-saline. These shrublands are dominated by big sagebrush (*Artemisia tridentata*). Scattered juniper (*Juniperus* sp.), greasewood (*Sarcobatus vermiculatus*), and saltbush (*Atriplex* sp.) may be present in some stands. Yellow rabbitbrush, rubber rabbitbrush, antelope bitterbrush (*Purshia tridentata*), and snowberry (*Symphoricarpos oreophilus*) may co-dominate disturbed stands. Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species include Indian ricegrass, blue grama (*Bouteloua gracilis*), thickspike wheatgrass (*Elymus lanceolatus)*, Idaho fescue (*Festuca idahoensis*), needle and thread (*Hesperostipa comata*), basin wildrye (*Leymus cinereus*), western wheatgrass (*Pascopyrum smithii*), James' galetta, Sandberg bluegrass (*Poa secunda*), or bluebunch wheatgrass (*Pseudoroegneria spicata*).

Inter-Mountain Basins Mixed Salt Desert Scrub

This extensive ecological system includes open-canopied shrublands of typically saline basins, alluvial slopes, and plains across the Intermountain western United States. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation

is characterized by a typically open to moderately dense shrubland composed of one or more saltbush species such as shadscale saltbush (*Atriplex confertifolia*), fourwing saltbush (*A. canescens*), cattle saltbush (*A. polycarpa*), or spinescale saltbush (*A. spinifera*). Other shrubs present to co-dominant may include Wyoming big sagebrush, yellow rabbitbrush, rubber rabbitbrush, Nevada jointfir (*Ephedra nevadensis*), spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), desert-thorn (*Lycium* sp.), bud sagebrush (*Picrothamnus desertorum*), or horsebrush (*Tetradymia* sp.). Greasewood is generally absent, but if present does not co-dominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as Indian ricegrass, blue grama, thickspike wheatgrass (*Elymus lanceolatus* ssp. *lanceolatus*), western wheatgrass, James' galleta, big galleta (*Pleuraphis rigida*), Sandberg bluegrass, or alkali sacaton (*Sporobolus airoides*). Various forbs are also present.

Colorado Plateau Mixed Bedrock Canyon and Tableland

The distribution of this ecological system is centered on the Colorado Plateau where it is composed of barren and sparsely vegetated landscapes (generally <10% plant cover) of steep cliff faces, narrow canyons, and open tablelands of predominantly sedimentary rocks, such as sandstone, shale, and limestone. Some eroding shale layers similar to Inter-Mountain Basins Shale Badland may be interbedded between the harder rocks. The vegetation is characterized by very open tree canopy or scattered trees and shrubs with a sparse herbaceous layer. Common species includes twoneedle pinyon, ponderosa pine (*Pinus ponderosa*), juniper, littleleaf mountain mahogany (*Cercocarpus intricatus*), and other short-shrub and herbaceous species, utilizing moisture from cracks and pockets where soil accumulates.

ANALYSIS

USFWS-listed Species

All threatened, endangered, candidate, and proposed species identified by the USFWS for San Juan County are listed in Table 1. There are eight species listed as threatened or endangered, two species listed as candidate, and one species listed as proposed (non-essential experimental population). Detailed species accounts are provided immediately following Table 1. No listed species or proposed species for listing have the potential to occur within the PPA.

Table 1. Federally Listed and Candidate Species That Are Known to Occur or Have the Potential to Occur in San Juan County, Utah

Common Name (*Scientific Name*)	Federal Status	Potential to Occur in the PPA
Birds		
California condor (*Gymnogyps californianus*)	Experimental Population, Non-Essential*	No
Yellow-billed cuckoo (*Coccyzus americanus*)	Candidate	No
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened	No
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Endangered	No
Gunnison sage-grouse (*Centrocercus minimus*)	Candidate	No
Fishes		
Humpback chub (*Gila cypha*)	Endangered	No
Colorado pikeminnow (*Ptychocheilus lucius*)	Endangered	No
Greenback Cutthroat trout (*Oncorhynchus clarki stomias*)	Threatened	No
Bonytail chub (*Gila elegans*)	Endangered	No
Razorback sucker (*Xyrauchen texanus*)	Endangered	No
Plants		
Navajo sedge (*Carex specuicola*)	Threatened	No

*Non-essential, experimental populations are treated as a proposed species outside of national parks or national wildlife refuges.
Source: USFWS 2012a.

<u>Birds</u>

California Condor (*Gymnogyps californianus*)

The California condor is a federally listed species, with non-essential experimental status given to re-introduced populations in Utah and Arizona (USFWS 2012a). It is among the rarest birds in North America. Over the last century, populations declined (due to lead poisoning, cyanide poisoning, shooting, and DDT contamination) to the point that the few remaining birds were captured for captive breeding efforts in the 1980s. Since then, captive-reared birds have been released in California, northern Arizona, and Baja California, Mexico. In Utah, sightings were historically rare, noted only twice by pioneers in the 1800s, but sightings of birds that were released in northern Arizona have been made almost statewide since the late 1990s (Utah

Conservation Data Center [UCDC] 2012). Condors are extending the length of time they spend in areas away from the release site and are ever more proficient in finding carrion. A number of birds traveled to Utah to reside in the hills just outside Zion National Park in summer 2006. Condors prefer mountains, canyons, and cliffs, which create updrafts, thus providing favorable soaring conditions (UCDC 2012). Condors feed primarily on a variety of small, medium, and large mammal carcasses, including those of weasels, kangaroo rats, sheep, cattle, deer, ground squirrels, horses, coyotes, and rabbits (NatureServe 2012). Critical habitat has not been designated for the California condor in San Juan County (USFWS 2012a). The closest mapped critical habitat for the California condor is 485 miles from the PPA. Suitable cliff and canyon habitat for the California condor does exist within the PPA. However, little evidence of mammal species was observed within the PPA by SWCA biologists on July 11, 2012. Therefore, it is unlikely that condors will utilize the PPA due to lack of an adequate food source.

Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

The yellow-billed cuckoo is listed as a candidate species by the USFWS (2007, 2012a) and is protected under the Migratory Bird Treaty Act (MBTA). This species breeds in riparian woodlands and similar habitats at lower (2,800–5,500 feet) to middle (5,000–7,500 feet) elevations. Historically, cuckoos were probably common to uncommon summer residents in Utah. The current distribution of yellow-billed cuckoos in Utah is poorly understood, though they appear to be an extremely rare breeder in lowland riparian habitats statewide (Parrish et al. 1999; UCDC 2012). The greatest factors affecting the yellow-billed cuckoo have been the invasion of exotic woody plants into Southwest riparian systems and the clearing of riparian woodlands for agriculture, fuel, development, and attempts at water conservation (Howe 1986). There are no dense riparian thickets in or adjacent to the PPA to support this species.

Mexican Spotted Owl (*Strix occidentalis lucida*)

The Mexican spotted owl is federally listed as threatened by the USFWS (2012a) and is protected under the MBTA. Mexican spotted owls are rare residents of southern and eastern Utah, residing in steep-walled canyons of the Colorado Plateau ecoregions and adjacent portions of the Utah Mountains ecoregion (Howe 1998). Primary Mexican spotted owl habitat consists of mixed conifer dominated by Douglas-fir (*Pseudotsuga menziesii*), pine (*Pinus* sp.), or true fir (*Abies* sp.) and pine-oak forests. Secondarily selected habitats include such features as steep, narrow canyons with cliffs and a perennial water source. The Mexican spotted owl strongly selects for contiguous forests composed of old-growth or forests that have a more complex structure than surrounding forests (Gutierrez et al. 1995). The nearest critical habitat for the Mexican spotted owl is 13 miles northeast of the PPA. No suitable habitat for this species exists in the PPA.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher is listed as endangered by the USFWS and is also protected under the MBTA (USFWS 2012a). The species is rare in southern Utah, with the Virgin River supporting most of the breeding flycatchers within the state (Sogge et al. 2003). The southwestern willow flycatcher breeds in riparian habitats along rivers, streams, and other wetlands. These habitats are typically dominated by cottonwoods (*Populus* sp.), often with an understory of small trees or tall shrubs and surface water nearby. No critical habitat for this species is designated in San Juan County (USFWS 2012a). The two nearest areas of critical habitat are along the Virgin River, which is 180 miles west-southwest of the PPA, and along the

Rio Grande in New Mexico, which is 250 miles east-southeast of the PPA (USFWS 2012b). No suitable habitat for the southwestern willow flycatcher exists in the PPA.

Gunnison Sage-grouse (*Centrocercus minimus*)

The Gunnison sage-grouse is listed as a candidate species by the USFWS (2012a) and is protected under the MBTA. The Gunnison sage-grouse uses a variety of habitats throughout the year but the primary component necessary is sagebrush (*Artemisia* sp.), especially big sagebrush. Sagebrush is used for hiding from predators and thermal cover, as well as for food in the winter. From mid-March to early June males will display on leks, which are open areas with good visibility (for predator detection) and acoustics (for transmission of male display sounds). After mating, females will select nest sites, typically in relatively tall and dense stands of sagebrush from 600 feet to 5 miles from the leks. Nest sites also have grass and forbs that provide additional hiding cover. Females with young remain in sagebrush uplands if hiding cover is adequate and food (succulent forbs and insects) is available. As chicks mature and vegetation in the uplands desiccates, females will move their broods to wet meadow areas that retain succulent forbs and insects through the summer. Preferred wet meadow areas also contain tall grasses for hiding and sagebrush stands at least 500 feet wide along the periphery for hiding and foraging. From mid-September into November all individuals use upland areas with 20% or greater sagebrush cover and some green forbs. As winter progresses, individuals forage in tall sagebrush in valleys and lower flat areas and roost in shorter sagebrush along ridge tops. Roosting and foraging is typically restricted to south- or west-facing slopes where snow is typically shallower and less extensive (NatureServe 2012). This range of habitats does not exist within or adjacent to the PPA.

<u>Fishes</u>

Humpback Chub (*Gila cypha*)

The humpback chub is listed as endangered by the USFWS (2012a). It lives primarily in canyons with swift currents and white water. Historically, the species inhabited canyons of the Colorado River and four of its tributaries: the Green, Yampa, White, and Little Colorado Rivers. Now, there are two populations near the Colorado/Utah border—one at Westwater Canyon in Utah and one in an area called Black Rocks in Colorado (Upper Colorado River Endangered Fish Recovery Program [UCREFRP] 2006). Flow alterations within historical habitat have changed the turbidity, temperature, and flow of the river, which has negatively impacted the species. Critical habitat has been designated for the humpback chub in San Juan County, 33 miles north of the PPA in the Colorado River (USFWS 2012b). No habitat for the humpback chub exists within the PPA.

Colorado Pikeminnow (*Ptychocheilus lucius*)

The Colorado pikeminnow is listed as endangered by the USFWS (2012a). It is an endemic fish species that once thrived in the Colorado River system in warm, swift waters. Adults are migratory and inhabit pools and eddies just outside the main current. Young can be found in backwater areas. Dam installation and the introduction of non-native fish changed the river environment and put these fish at risk (UCREFRP 2006). Critical habitat has been designated for the Colorado pikeminnow in San Juan County, 17 miles south of the PPA in the San Juan River (USFWS 2012b). No habitat for the Colorado pikeminnow exists within the PPA.

Greenback Cutthroat Trout (*Oncorhynchus clarki stomias*)
The greenback cutthroat trout is listed as threatened by the USFWS (2012a). This species inhabits cold water streams and lakes with adequate stream spawning habitat present during spring. Field studies, however, have indicated that water temperatures averaging 46 degrees Fahrenheit (7.8 degrees Celsius) or below in July may have an adverse effect on greenback fry (young fish) survival and recruitment. In general, trout require different habitat types for different life stages: juvenile (protective cover and low velocity flow, as in side channels and small tributaries), spawning (riffles with clean gravels), over-winter (deep water with low velocity flow and protective cover), and adult (juxtaposition of slow water areas for resting and fast water areas for feeding, with protective cover from boulders, logs, overhanging vegetation, or undercut banks). Both water quality and quantity are important. Greenbacks, like other cutthroat trout, generally require clear, cold, well-oxygenated water (USFWS 2012c). No critical habitat rules have been published for the greenback cutthroat trout (USFWS 2012a). No habitat for the greenback cutthroat trout exists within the PPA.

Bonytail (*Gila elegans*)
The bonytail is listed as endangered by the USFWS (2012a) and is a rare fish originally native to the Colorado River system. Bonytail prefer backwaters with rocky or muddy bottoms and flowing pools, although they have been reported in swiftly moving water. They are mostly restricted to rocky canyons today, but were historically abundant in the wide downstream sections of rivers. The near extinction of the bonytail can be traced to flow regulation, habitat loss/alteration, and competition with/predation by exotic fishes. Efforts to re-establish the species are underway (UCDC 2012). Critical habitat has been designated for the humpback chub in San Juan County, 33 miles north of the PPA in the Colorado River. No habitat for the bonytail exists within the PPA.

Razorback Sucker (*Xyrauchen texanus*)
The razorback sucker is listed as endangered by the USFWS (2012a). It is an endemic fish species that once thrived in the Colorado River system in medium to large rivers with swift turbulent waters, as well as slow backwater areas where it feeds on benthic fauna and flora, detritus, and plankton. Dam installation and the introduction of non-native fish changed the river environment and put these fish at risk (UCREFRP 2006). Critical habitat has been designated for the razorback sucker in San Juan County, 17 miles south of the PPA in the San Juan River (USFWS 2012b). No habitat for the razorback sucker exists within the PPA.

<u>Plants</u>

Navajo Sedge (*Carex specuicola*)
The Navajo sedge is listed as threatened by the USFWS (2012a). This plant occurs in the canyons of Kane and San Juan Counties, Utah, and in immediately adjacent Coconino County, Arizona. A member of the sedge family, this species is a loosely tufted perennial, 10 to 16 inches tall, with grass-like leaves that droop downward. Its flowers, seen in late June and July, are arranged in spikes, two to four spikes per stem. Navajo sedge is restricted to seep, spring, and hanging garden habitats in Navajo Sandstone, at elevations ranging from 3,800 to 6,000 feet amsl. Sheep grazing and groundwater pumping are the major threats to the species (UCDC 2012). Critical habitat has been designated for the Navajo sedge, 70 miles southwest of the PPA (USFWS 2012b). No suitable habitat for the Navajo sedge exists within the PPA.

BLM MFO Sensitive Species

The BLM MFO has identified three species in addition to raptors in general as sensitive wildlife with the potential to occur in San Juan County, Utah (personal communication, Amanda Scott, wildlife biologist, June 7, 2012). Of these, raptors have the potential to occur in the PPA and surrounding area (Table 2). Areas within and/or surrounding the PPA provide potential roosting habitat for raptors. No raptors, nests, or signs of nests (e.g., whitewash) were observed within or in the vicinity of the PPA during field reconnaissance. Detailed species accounts are provided immediately following Table 2.

Table 2. BLM MFO Sensitive Species That Are Known to Occur or Have the Potential to Occur in San Juan County, Utah

Common Name (*Scientific Name*)	Potential to Occur in the PPA
Mammals	
Bighorn sheep (*Ovis canadensis*)	No
Silky pocket mouse (*Perognathus flavus*)	No
Birds	
Raptors	Yes
Plants	
Cronquist's milkvetch (*Astragalus cronquistii*)	No

Bighorn Sheep (*Ovis canadensis*)

According to the Utah Division of Wildlife Resources (UCDC 2012), bighorn sheep in San Juan County belong to the subspecies *Ovis canadensis nelsoni*, or desert bighorn sheep. Desert bighorn sheep occur in open rocky areas of desert mountain ranges in the southwestern United States and northern Mexico (UCDC 2012). Bighorn sheep are primarily grazers of grass and forbs, but the diet can also include significant amounts of shrubs or cacti. Habitat that lacks grasses as a major component of the understory is unsuitable for bighorn sheep (NatureServe 2012). The grass understory was extremely sparse within the PPA, comprising less than 1% cover. Therefore, there is not suitable habitat for desert bighorn in the PPA.

Silky Pocket Mouse (*Perognathus flavus*)

The silky pocket mouse is a small rodent native to the southwestern and west-central United States, as well as parts of Mexico. The species is quite narrowly distributed in Utah, occurring only in the extreme southeastern corner of the state, in San Juan County. Preferred habitats include sandy soils in arid grassland, shrublands, pinyon-juniper woodland, and sagebrush areas in valley bottoms and on hillsides and mesas, sometimes in rather barren areas. Silky pocket mice feed almost exclusively on seeds, primarily those of grasses. They occupy underground burrows when inactive and occasionally burrow into old pocket gopher (Geomyidae) mounds or burrows of kangaroo rats (*Dipodomys* sp.) (NatureServe 2012; UCDC 2012). Very few small mammal burrows were observed in the PPA on July 11, 2012. The grass understory was extremely sparse within the PPA, comprising less than 1% cover. Therefore, there is no suitable habitat for the silky pocket mouse in the PPA.

Raptors

The PPA is characterized by deeply incised canyons, mesas, and cliff faces, which provide suitable habitat for various raptors to roost and nest. During the survey period on July 11 and October 25, 2012, surrounding areas within line-of-sight were visually inspected using binoculars for presence of raptors, their nests, or past signs of use (e.g., whitewash). No raptor sign was detected within the PPA. Additionally, few signs of prey species for raptors were observed during the survey period. There were few mammal burrows, few song birds, and little sign of mammal scat within the PPA. Raptors may use the PPA during flyovers, during migration, or for roosting, but their use of the area is likely low.

Cronquist's Milkvetch (*Astragalus cronquistii*)

Cronquist's milkvetch is endemic to the Colorado Plateau in San Juan County, Utah, and Montezuma County, Colorado. Habitat in Utah includes salt desert shrub and blackbrush communities on the Cutler and Morrison formations at 4,700 to 5,000 feet elevation. The appropriate survey period is late April to June (Utah Native Plant Society 2012). The PPA is on the Moenkopi and Chinle formations, and is therefore not suitable habitat for Cronquist's milkvetch.

Migratory Birds

The MBTA (16 USC 703–712), Executive Order 121186 for migratory bird protection, and the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668–668d) establish protections for migratory birds and their parts (e.g., eggs, nests, and feathers) from taking, hunting, capture, transport, sale, or purchase. Most species of birds are classified as migratory under the MBTA, except for upland game and introduced birds. Utah Partners in Flight (UPIF) has ranked those birds occurring in the Colorado Plateau physiographic region by priority of concern (Parrish et al. 2002). The following bird species are considered priority due to habitat availability surrounding the PPA. Three priority species are identified by UPIF for pinyon-juniper habitat: gray vireo (*Vireo vicinior*), black-throated gray warbler (*Dendroica nigrescens*), and ferruginous hawk (*Buteo regalis*). Two priority species are identified for shrub-steppe habitat: greater sage-grouse (*Centrocercus urophasianus*) and sage sparrow (*Amphispiza belli*). The potential exists for breeding birds protected by the MBTA to occur within the PPA. In order to avoid impacts to potential nesting birds within the PPA, vegetation removal should not occur during the breeding season (March through August) or nest surveys should be conducted within a 5-day window of vegetation removal to aid in nest avoidance.

Bald and golden eagles are protected under the MBTA and the BGEPA. Like the MBTA, the BGEPA also prohibits the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb (16 USC 668[c]; 50 CFR 22.3). Any eagle nest or evidence of eagle nesting in the PPA should be reported to the BLM to prevent any impacts from the project.

DISCUSSION

The Proposed Action would be in compliance with the ESA. No further consultation with the USFWS is required.

Direct impacts on wildlife would be temporary during construction activities as a result of increased human presence and noise. The loss of breeding habitat for bird species would be negligible compared to the available habitat in the surrounding area. If bird species are nesting within the PPA, some direct mortality could occur due to construction activities. Although the destruction of nests remains unlikely due to small area to be impacted, nest surveys are recommended to minimize impacts to nesting birds.

Although there is no need for further consultation with the USFWS pertaining to federally listed species, all other state, county, and local regulations and permitting arrangements should be followed prior to construction activities.

CERTIFICATION

Within the limitations of schedule, budget, and scope of work, SWCA warrants that this study was conducted in accordance with accepted environmental science practices, including the technical guidelines, evaluation criteria, and species' listing statuses in effect at the time this evaluation was performed. The results and conclusions of this report represent the best professional judgment of SWCA scientists and are based on information provided by the project proponent and that obtained from agencies and other sources during the course of the study.

In the professional opinion of SWCA, the Proposed Action would not violate any provisions of the ESA.

Signature

Amanda M. Kuenzi **Date** January 29, 2013

SWCA Environmental Consultants
130 Rock Point Drive, Suite A
Durango, Colorado 81301
970.385.8566

LITERATURE CITED

Gutierrez, R.J., A.B. Franklin, and W.S. Lahaye. 1995. Spotted Owl. In *The Birds of North America*, No.179, edited by A. Poole and F. Gill. The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.

Howe, F. 1998. Endangered and Threatened Animals of Utah. Quinney Professorship for Wildlife Conflict Management. Available at: http://www.wildlife.utah.gov/habitat/pdf/endgspec.pdf. Accessed July 2012.

Howe, W.H. 1986. Status of the Yellow-Billed Cuckoo (*Coccyzus americanus*) in New Mexico. Unpublished report, New Mexico Department of Game and Fish, Santa Fe. Available at: http://www.nmpartnersinflight.org/yellowbilledcuckoo.html. Accessed July 2012.

Natural Resources Conservation Service (NRCS). 2012a. Web Soil Survey of San Juan County, Utah. Available at http://websoilsurvey.nrcs.usda.gov/app/. Accessed July 2012.

———. 2012b. The PLANTS Database. National Plant Data Team, Greensboro, North Carolina. Available at: http://plants.usda.gov. Accessed July 2012.

NatureServe. 2012. NatureServe Explorer: An Online Encyclopedia of Life [web application]. Version 4.7. NatureServe, Arlington, Virginia. Available at: http://www.natureserve.org/explorer. Accessed July 2012.

Parrish, J.R., F.P. Howe, and R.E. Norvell. 1999. *Utah Partners in Flight Draft Conservation Strategy*. UDWR Publication No. 99-40. Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City.

———. 2002. *Utah Partners in Flight Avian Conservation Strategy Version 2.0*. Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City, Utah, Publication Number 02-27.

Sogge, M.K., P. Dockens, S.O. Williams, B.E. Kus, and S.J. Sferra. 2003. *Southwestern Willow Flycatcher Breeding Site and Territory Summary - 2002*. U.S. Geological Survey.

SWCA. 2008. *Biological Survey Report, Daneros Project San Juan County, Utah.* Prepared for Utah Energy Corporation. SWCA Project No. 14462. June.

U.S. Fish and Wildlife Service (USFWS). 2007. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form. Yellow-billed Cuckoo, Western United States Distinct Population Segment. Available at: http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=B06R. Accessed July 2012.

———. 2012a. Endangered Species List for San Juan County, Utah. Available at: http://www.fws.gov/utahfieldoffice/endspp.html. Accessed July 2012.

———. 2012b. Critical Habitat Mapper. Available at http://criticalhabitat.fws.gov/crithab/. Accessed July 2012.

———. 2012c. Species Profile for Greenback Cutthroat Trout. Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E00F. Accessed July 2012.

U.S. Geological Survey (USGS). 2004. National Gap Analysis Program, Provisional Digital

Land Cover Map for the Southwestern United States. Version 1.0. RS/GIS Laboratory, College of Natural Resources, Utah State University.

———. 2012. Utah Geologic Map Data. Available at: http://mrdata.usgs.gov/geology/state/state.php?state=UT. Accessed July 2012.

Upper Colorado River Endangered Fish Recovery Program (UCREFRP). 2006. Upper Colorado River Endangered Fish Recovery Program. Available at: http://www.coloradoriverrecovery.org/. Accessed July 2012.

Utah Conservation Data Center (UCDC) 2012. State of Utah Natural Resources, UCDC home page. Available at: http://dwrcdc.nr.utah.gov/ucdc/default.asp. Accessed July 2012.

Utah Geological Survey. 2011. Interactive Geologic Map. Department of Natural Resources. Salt Lake City. Available at: http://geology.utah.gov/maps/geomap/interactive/viewer/index.html. Accessed July 2012.

Utah Native Plant Society. 2012. Utah Rare Plant Guide. A.J. Frates editor/coordinator. Utah Native Plant Society, Salt Lake City. Available at: http://www.utahrareplants.org. Accessed July 2012.

APPENDIX A
PROJECT MAP

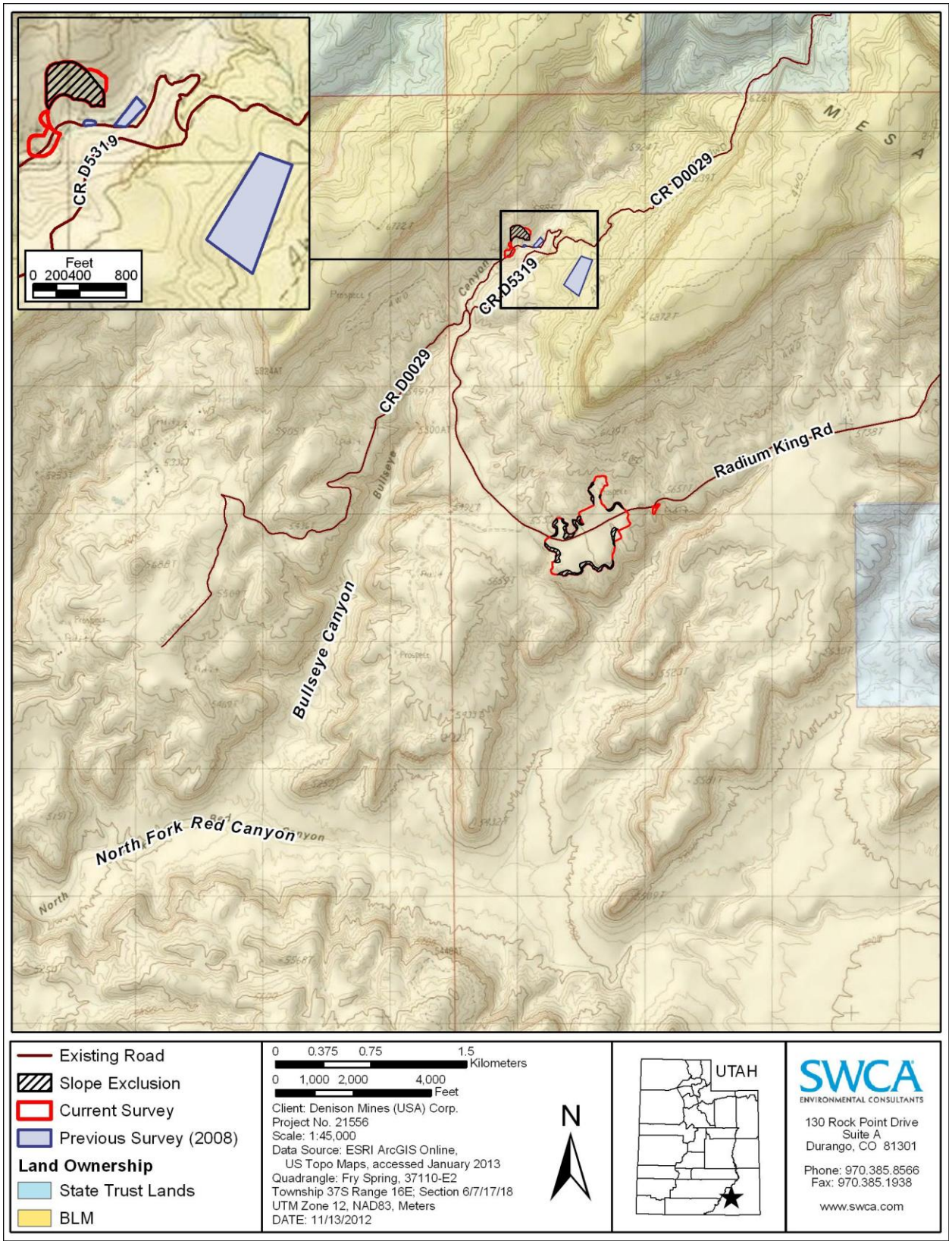


Figure A.1. Project location map.

APPENDIX B
PHOTOGRAPHS OF THE SURVEY AREA

Figure B.1. View of the southern portion of the proposed Operations South Site from the eastern boundary, facing southwest. Radium King Road is visible to the right.

Figure B.2. Proposed Operations South Site, view of drainage that flows in a southeasterly direction into a southwesterly flowing tributary of North Forth Red Canyon, view to the northwest.

Figure B.3. Overview of the northern portion of the proposed Operations South Site, facing northwest.

Figure B.4. Operations Daneros Site, southern portion, looking south-southwest at drainage along southeast side of existing road (CR D0029).

Figure B.5. Operations Daneros Site, southern portion, facing south at existing sediment pond in area of proposed temporary sediment pond.

Figure B.6. Operations Daneros Site, southern segment, facing northeast at narrowed stream channel of tributary of Bullseye Canyon. The sediment pond is on the right, out of the frame of the photo.

Figure B.7. Operations Daneros Site, southern segment, facing southwest at point where narrowed tributary stream channel meets the natural channel of Bullseye Canyon. The sediment pond is on the left, out of the frame of the photo.

APPENDIX C
PLANTS AND WILDLIFE OBSERVED IN THE SURVEY AREA

Table C.1 lists common plant species observed during both site visits. This does not represent a comprehensive summary of all species that may occur in the PPA.

Table C.1. Common Plant Species Observed in the Proposed Project Area

Common Name	Scientific Name
Beardtongue	*Penstemon* sp.
Blazingstar	*Mentzelia* sp
Broom snakeweed	*Gutierrezia sarothrae*
Cheatgrass*	*Bromus tectorum*
Crispleaf buckwheat	*Eriogonum corymbosum*
Desert trumpet	*Eriogonum inflatum*
Dropseed	*Sporobolus* sp.
Fendler's sandmat	*Chamaesyce fendleri*
Fourwing saltbush	*Atriplex canescens*
Golden princesplume	*Stanleya pinnata*
Green molly	*Bassia americana*
Indian ricegrass	*Achnatherum hymenoides*
James' galleta	*Pleuraphis jamesii*
Kingcup cactus	*Echinocereus triglochidiatus*
Milkvetch	*Astragalus* spp. (various species)
Mormon tea	*Ephedra viridis*
Narrowleaf yucca	*Yucca angustissima*
Pricklypear	*Opuntia* spp. (various species)
Purple threeawn	*Aristida purpurea*
Rock goldenrod	*Petradoria pumila*
Rose heath	*Chaetopappa ericoides*
Roundleaf buffaloberry	*Shepherdia rotundifolia*
Rubber rabbitbrush	*Ericameria nauseosa*
Russian thistle*	*Salsola tragus*
Saltbush	*Atriplex* sp
Saltcedar*	*Tamarix* sp.
Saltlover*	*Halogeton glomeratus*
Shadscale saltbush	*Atriplex confertifolia*
Skunkbush sumac	*Rhus trilobata*
Slender buckwheat	*Eriogonum microthecum*
Small wirelettuce	*Stephanomeria exigua*
Stansbury cliffrose	*Purshia stansburyana*
Thrift mock goldenweed	*Stenotus armerioides*
Torrey's jointfir	*Ephedra torreyana*
Twoneedle pinyon	*Pinus edulis*
Utah juniper	*Juniperus osteosperma*

* Non-native species.
Source for nomenclature: NRCS 2012b.

Table C.2 lists those animal species detected directly (i.e., by sight) or indirectly (i.e., through sound or sign) during both site visits. This list does not represent a comprehensive summary of all species that may occur in the PPA.

Table C.2. Common Animal Species Observed in the Proposed Project Area

Common Name	Scientific Name
Birds	
Black-throated sparrow	*Amphispiza blineata*
Common raven	*Corvus corax*
Dark-eyed junco	*Junco hyemalis*
Horned lark	*Eremophila alpestris*
House finch	*Carpodacus mexicanus*
Pinyon jay	*Gymnorhinus cyanocephalus*
Rock wren	*Salpinctes obsoletus*
Say's phoebe	*Sayornis saya*
White-crowned sparrow	*Zonotrichia leucophrys*
Mammals	
Bat sign (guano in Jim Butts Portal)	Unknown
Cow (scat)	*Bos taurus*
Mule deer (scat)	*Odocoileus hemionus*
Pack rat (middens and animal)	*Neotoma* spp.
Rodents (burrows)	Unknown