

# **Wildlife Survey**

**Rev. 1**

**Date: 02/12/09**

**OF THE  
ENVIRONMENTAL REPORT  
IN SUPPORT OF THE APPLICATION FOR  
LICENSE FOR SOURCE MATERIAL MILLING**

**PIÑON RIDGE URANIUM MILL  
Montrose County, Colorado**

**Submitted to:**

**Radiation Management Unit  
Colorado Department of Public Health and  
Environment**

**Prepared for:**



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**Project No. 83088  
DCN 83088.5.K-ALB08RP001**

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## 1.0 INTRODUCTION

Energy Fuels Resources Corporation (EFR) proposes to license, construct, and operate a conventional acid leach uranium and vanadium mill at the Piñon Ridge Mill site (the Site) in western Montrose County, Colorado. Site facilities will include an administration building, a 17-acre mill, tailing ponds totaling 90 acres, an 80-acre evaporation pond, a 5-acre ore storage pad, and an access road. The mill will process ore produced from mines within a reasonable truck-hauling distance. The mill will process up to 500 tons of ore per day but is designed to accommodate subsequent expanded production capacity of up to 1,000 tons per day. The expected operating life of the mill is 20 to 40 years.

The Piñon Ridge Mill is subject to regulation by the State of Colorado, and the mill license (Radioactive Source Material License) will be issued and administered by the Colorado Department of Public Health and Environment (CDPHE). The activities described in this document were performed as part of the baseline characterization required for the Environmental Report (ER) in accordance with Section 3.8.8, Part 3, 6 CCR 1007-1 (NRC, 2003). This report presents the results of the wildlife surveys conducted by Kleinfelder for EFR in support of the mill license application.

### 1.1 Site Location

The Site is located in the Paradox Valley at 16910 Highway 90, approximately 14 miles west of Naturita, near Bedrock in Montrose County, Colorado. The Site's legal description is the Southwest  $\frac{1}{4}$  of the Southeast  $\frac{1}{4}$  of Section 5, all of Section 8, the North  $\frac{1}{4}$  of Section 17, and the Southeast  $\frac{1}{4}$  of the Northwest  $\frac{1}{4}$  of Section 17, Township 46 North, Range 17 West, of the New Mexico Principal Base and Meridian. The Site is located on both the Davis Mesa Quadrangle (1994) and Bull Canyon Quadrangle (1994) 1:24,000 United States Geological Survey (USGS) topographic/geologic maps. The Site location with respect to major topographic features is shown in Figure 1.

The Site is located within the migratory bird Pacific Flyway. The Pacific flyway is the geographic area west of the continental divide to the Pacific Ocean. Montrose County, Colorado is located within the Principal Western Route (see Section 1.4.3) of the Pacific flyway. The Dolores River is located northwest of the Site within a few miles. Additionally, Paradox Creek is just north of the Site within one mile. Most waterways and water courses are utilized by wildlife species as travel corridors. Therefore, isolated occurrences of transitory species (i.e. terrestrial wildlife, eagles, hawks, owls, shorebirds, waterfowl and near-arctic birds) migrating through the Site would be expected to occur in addition to the wildlife species that occupy the Site.

### 1.2 Ecological Setting

The United States Forest Service (USFS) has developed a mapping framework to help understand the hierarchical order of all ecosystems. This framework is called the National Hierarchical Framework of Ecological Units (ECOMAP, 1993; Cleland et al., 1997). All ecosystems are recognized by differences in climatic regime. Therefore, parts of the same geographic areas may be located in different ecosystems due to differences in climatic regime. The underlying premise is that climate, as a source of energy and moisture, acts as the primary control for the ecosystem. The Site lies within the Colorado Plateau Ecoregion as shown in Figure 2.

The Colorado Plateau Ecoregion (Colorado Plateau) is classified as a Level III Ecosystem (Figure 2). This ecoregion is a physiographic province encompassing 130,000 square miles or 83.2 million acres of the Four Corners states, including Utah's southeastern quarter. The Colorado Plateau is a complex of badlands, sheer-walled canyons, buttes, mesas, plains, dunes, and isolated mountain ranges. It is characterized by its high elevation and arid to semi-arid climate. The Colorado Plateau has developed great relief through the erosive action of high-gradient, swift-flowing rivers that have down-cut and incised the plateau. Approximately 90 percent of the plateau is drained by the Colorado River and its tributaries. The Colorado, Little Colorado, San Juan, and Escalante Rivers carve large canyons as they pass through the Plateau.

The Colorado Plateau contains mostly public and tribal lands. Elevations range from 1,200 feet above Mean Sea Level (MSL) within the Grand Canyon to 12,700 feet above MSL in the La Sal Mountains. This wide range of elevations produces diverse habitats for wildlife species. The Plateau is bounded on the east by the southern Rocky Mountains, on the north by the central Rocky Mountains, and on the south and west by the Basin and Range Province.

The more prevalent habitats are piñon-juniper/juniper savanna, riparian, big sagebrush shrublands, steppe, and grasslands. The region has conspicuous but irregular vegetation zones. The woodland zone is the most extensive, dominated by what is often called a pygmy forest of piñon pine (*Pinus edulis*) and several species of juniper (*Juniperus* spp.). Between the trees, the ground is sparsely covered by gramma (*Bouteloua* spp.), other grasses, herbs, and various shrubs, such as big sagebrush (*Artemisia tridentata*) and mountain mahogany (*Cercocarpus montanus*) (Tuhy et al., 2002).

The mountain zone extends over broad areas on the high plateaus and mountains, but is actually much smaller than the piñon-juniper zone. The vegetation varies considerably, from ponderosa pine (*Pinus ponderosa*) in the south to lodgepole pine (*P. contorta* var. *latifolia*) and aspen (*Populus tremuloides*) farther north. Northern Arizona contains four distinct Douglas-fir (*Pseudotsuga menziesii*) habitat types (Hermann, 1982).

The lowest zone by elevation has arid grasslands but with many bare areas, as well as xeric shrubs and sagebrush. Several kinds of cacti and yucca are common at low elevations in the south.

The climate of the Colorado Plateau is often described as "desert" because annual precipitation averages less than 10 inches. Most of precipitation occurs in the winter as snow and subsequently infiltrates the soil (Tuhy et al., 2002). West (1983) suggests that most of the surface water comes from flows generated at higher, wetter elevations. Contribution to streamflow within the sagebrush semi-desert comes from the rapid melting of snow over frozen surface soil or intense rainfall (West, 1983).

### 1.2.1 Shale Deserts and Sedimentary Basins

The Site is located within the Shale Deserts and Sedimentary Basin ecoregion, a sub-region (Level IV Ecoregion) of the Colorado Plateau that encompasses 1,870,720 acres (Figure 3). Elevations range from 4,900 to 8,000 feet above MSL (Chapman et al., 2006). The Shale Deserts and Sedimentary Basins prevalent physiography is nearly level to rolling plains and basins with benches, low rounded hills, and badlands (Chapman et al., 2006).

Climate for the Shale Deserts and Sedimentary Basins includes a mean annual precipitation of 8 to 15 inches. The mean temperature in degree Fahrenheit (°F) in January is 6/36 (min/max) and in July the mean temperature °F is 48/92 (min/max). This ecoregion has a mean annual 90 to 120 frost free days (Chapman et al., 2006).

The more prevalent vegetation community in the Shale Deserts and Sedimentary Basins is a sparse cover of mat saltbrush, shrubland, and salt desert scrub: shadscale (*Atriplex confertifolia*), Nuttall's saltbrush (*A. nuttallii*), fourwing saltbrush (*A. canescens*), blackbrush (*Coleogyne ramosissima*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), desert trumpet (*Eriogonum inflatum*), galleta grass (*Pleuraphis rigida*), and other associated grasses. Floodplain areas support greasewood or creosotebush (*Larrea tridentata*), alkali sacaton (*Sporobolus airoides*), seepweed (*Suaeda suffrutescens*), and shadscale. Badland areas have little to no vegetation cover (Chapman et al., 2006).

Land uses and land cover include shrubland, rangeland, and areas of dryland and irrigated cropland with winter wheat, small grains, forage crops, and pinto beans. Orchards of apples, peaches, pears, and apricots line the Gunnison and Colorado River valleys. Shrublands provide important winter habitat for wildlife (Chapman et al., 2006).

### 1.2.2 Semiarid Benchlands and Canyonlands

The Site exhibits characteristics of Semiarid Benchlands and Canyonlands ecoregion as a sub-region (Level IV Ecoregion) of the Colorado Plateau that encompasses 5,810,560 acres within the Colorado Plateau (Figure 3). Elevations range from 5,400 to 9,200 feet above MSL (Chapman et al., 2006). The Semiarid Benchlands and Canyonlands prevalent physiography is benches, mesas, cuestras, alluvial fans, hillsides, cliffs, arches, and canyons with a few isolated peaks. The areas of low relief alternate with the areas of high relief (Chapman et al., 2006).

The southern portion of the Site has representative features that are prevalent to this sub-region of the Colorado Plateau. The features of this sub-region exhibited on the Site are benches, mesas, alluvial fans, cliffs and areas of low relief that alternate with areas of high relief.

Climate for the ecoregion includes a mean annual precipitation of 10 to 18 inches with 20 to 25 inches at the highest elevations. The mean temperature °F in January is 8/40 (min/max) and in July the mean temperature °F is 48/88 (min/max). This ecoregion has a mean annual 60 to 120 frost free days (Chapman et al., 2006).

The more prevalent vegetation community is the piñon/juniper woodland, Gambel oak woodland, and sagebrush steppe with black sagebrush (*Artemisia nova*), winterfat (*Krascheninnikovia lanata*), Mormon tea (*Ephedra viridis*), four-wing saltbrush, shadscale, galleta grass, and blue gramma (*Bouteloua gracilis*) (Chapman et al., 2006).

Land uses and land cover include woodland and shrubland, rangeland, recreation, coal mining, oil and gas production, and oil shale extraction (Chapman et al., 2006).

Historical land use of the Site exhibits characteristics of agricultural practices and cattle grazing on the flat portions of the Site. Past and current mining activities continue to the southeast and southwest of the Site. These activities are visually evident by road cuts, excavations, and overburden piles located adjacent to the Site.

### **1.3 Habitat Ecotones**

Three ecotones (areas where two distinctly different habitats converge) are relevant to the ecology and wildlife species of the Site. These ecotones include a piñon-juniper habitat along the bluffs in the southwest portion of the Site; a joining, narrow strip of big sage habitat; a native grassland habitat abuts both the big sage habitats throughout the central portion of the site extending centrally from the northwest corner of the site to the southwest portion of the Site; and another big sage habitat occupies the northeast half of the Site. Refer to the Vegetation Survey (Kleinfelder, 2009) for details of each ecotone and habitat found on the Site.

Habitat types are indicative of wildlife species expected to occupy those habitats. Terrestrial wildlife such as elk, deer, bear, coyote, fox, etc. prefers habitats that provide seasonal food, cover, and water. Avian species occupy habitats that provide nesting and fledging habits and adjacent feeding areas. Raptors i.e. eagles, hawks and owls prefer habitats that provide prey species for food and other habitats for nesting. The Site provides habitats and ecotones for wildlife that are associated with the big-sage habitat and grassland habitat. No waterfowl is expected to occur on the site due to the lack of perennial water or preferred nesting habitat. It would not be uncommon for types of waterfowl such as ducks to visit the site after a rain event to rest on ponded water.

### **1.4 Wildlife Species of Concern**

#### **1.4.1 Federally Threatened and Endangered Species**

The purpose of the Endangered Species Act of 1973 (ESA) is to conserve “the ecosystems upon which endangered and threatened species depend” and to conserve and recover listed species. Under the law, species may be listed as either “endangered”, “threatened”, or a “candidate” species. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. Candidate means a species is likely to decline in numbers due to habitat loss and that additional data are needed to warrant listing as an endangered or threatened species. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened.

The Federally listed threatened and endangered species list was updated for the State of Colorado in February of 2008. The current federally listed species in Colorado are provided in Table 1.

**Table1. Federally Listed Threatened, Endangered and Candidate Species Occurring in the State of Colorado (USFWS, 2008)**

<b>FEDERALLY LISTED SPECIES THAT OCCUR IN COLORADO</b>		
<b>Status</b>	<b>Common Name</b>	<b>Scientific Name</b>
<b>Birds</b>		
FE	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>
FE	Whooping crane	<i>Grus americana</i>
FE	Least interior tern	<i>Sterna antillarum</i>
FT	Piping plover	<i>Charadrius melodus</i>
FT	Mexican spotted owl	<i>Strix occidentalis lucida</i>
<b>Fish</b>		
FE	Humpback chub	<i>Gila cypha</i>
FE	Bonytail chub	<i>Gila elegans</i>
FE	Colorado pikeminnow	<i>Ptychocheilus lucius</i>
FE	Razorback sucker	<i>Xyrauchen texanus</i>
FT	Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>
C	Arkansas darter	<i>Etheostoma cragini</i>
<b>Insects</b>		
FE	Uncompahgre fritillary butterfly	<i>Boloria acrocneuma</i>
FT	Pawnee montane skipper	<i>Hesperia leonardus montana</i>
C	Coral Pink Sand Dunes tiger beetle,	<i>Cicindela albissima</i>
<b>Mammals</b>		
FE	Gray wolf	<i>Canis lupus</i>
FE	Black-footed ferret	<i>Mustela nigripes</i>
FT	Canada lynx	<i>Lynx canadensis</i>
FT	Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>
C	Gunnison's prairie dog	<i>Cynomys gunnisoni</i>

\*Status Codes:  
 FE = Federally Endangered  
 FT = Federally Threatened  
 C = Candidate Species

Descriptions of these species and their range can be found in Section 4.5

#### 1.4.2 Colorado Species of Concern

The State of Colorado has also identified species of wildlife that are of concern. Table 2 lists the Colorado State species of concern, which are known to historically or currently reside in Montrose County.

**Table 2. Colorado Species of Concern Listed as Known or Likely to Occur in Montrose County, Colorado (CDOW, 2008)**

<b>SPECIES LISTED IN MONTROSE COUNTY, COLORADO</b>			
<b>Status*</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Occurrence in County<sup>a</sup></b>
<b>Amphibians</b>			
SE	Boreal toad	<i>Bufo boreas boreas</i>	Likely to Occur
SC	Northern leopard frog	<i>Rana pipiens</i>	Known to Occur
<b>Birds</b>			
FE, SE	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Known to Occur
FE, SE	Whooping crane	<i>Grus americana</i>	Known to Occur
FT, ST	Mexican spotted owl	<i>Strix occidentalis lucida</i>	Known to Occur
SE	Plains sharp-tailed grouse	<i>Tympanuchus phasianellus jamesii</i>	Known to Occur
ST	Western burrowing owl	<i>Athene cunicularia</i>	Known to Occur
ST	Bald eagle	<i>Haliaeetus leucocephalus</i>	Known to Occur
SC	Ferruginous hawk	<i>Buteo regalis</i>	Known to Occur
SC	Gunnison sage grouse	<i>Centrocercus minimus</i>	Known to Occur
SC	Western snowy plover	<i>Charadrius alexandrinus</i>	Known to Occur
SC	American peregrine falcon	<i>Falco peregrinus anatum</i>	Known to Occur
SC	Greater sandhill crane	<i>Grus canadensis tabida</i>	Known to Occur
SC	Long-billed curlew	<i>Numenius americanus</i>	Known to Occur
<b>Fish</b>			
SC	Colorado roundtail chub	<i>Gila robusta</i>	Known to Occur
<b>Insects</b>			
FE	Uncompahgre fritillary butterfly	<i>Boloria acrocynema</i>	Likely to Occur
<b>Mammals</b>			
FE, SE	Black-footed ferret	<i>Mustella nigripes</i>	Likely to Occur
FT, SE	Canada lynx	<i>Lynx canadensis</i>	Known to Occur
SE	Wolverine	<i>Gulo gulo</i>	Likely to Occur
C	Gunnison's prairie dog	<i>Cynomys gunnisoni</i>	Known to Occur
SE	Kit fox	<i>Vulpes macrotis</i>	Known to Occur

SPECIES LISTED IN MONTROSE COUNTY, COLORADO			
Status*	Common Name	Scientific Name	Occurrence in County <sup>a</sup>
ST	River otter	<i>Lontra canadensis</i>	Known to Occur
SC	Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Known to Occur
SC	Botta's pocket gopher	<i>Thomomys bottae rubidus</i>	Known to Occur
SC	Northern pocket gopher	<i>Thomomys talpoides macrotis</i>	Known to Occur
Reptiles			
SC	Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	Known to Occur
SC	Longnose leopard lizard	<i>Gambelia wislizenii</i>	Likely to Occur

<sup>a</sup>According to Natural Diversity Inventory Source (NDIS)

\*Status Codes:

FE = Federally Endangered

FT = Federally Threatened

C = Candidate

SE = State Endangered

ST = State Threatened

SC = State Special Concern (not a statutory category)

Species likely to occur on the Site can be found in Table 3 (see Section 4.6). Detailed descriptions of those species that are likely to occur on the Site can be found following Table 3.

### 1.4.3 Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. 703-712) (MBTB) is the cornerstone for migratory-bird conservation and protection in the U.S. The MBTB was established in response to the unregulated and indiscriminate taking of birds.

Wording in the MBTB makes it very clear that most actions that result in "taking" or possession (permanent or temporary) of a protected species can be a violation. Specifically, the MBTB states:

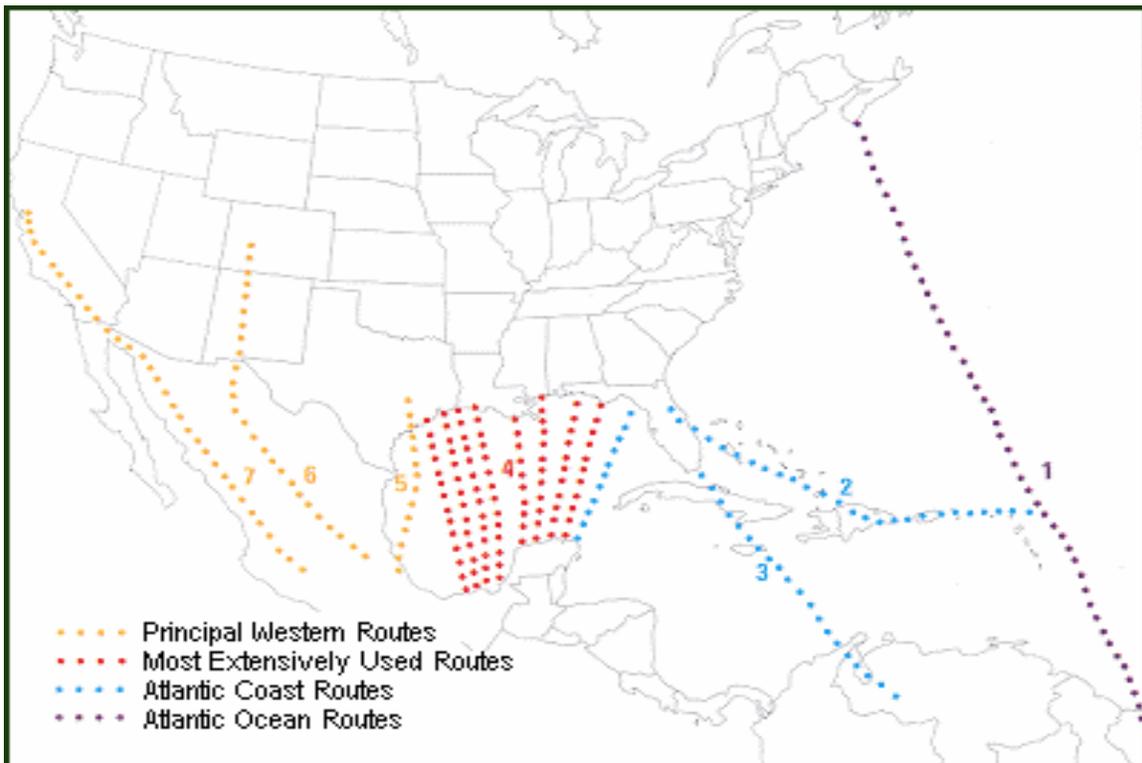
*Unless and except as permitted by regulations . . . it shall be unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, kill...possess, offer for sale, sell...purchase...ship, export, import . . .transport or cause to be transported . . . any migratory bird, any part, nest, or eggs of any such bird . . . included in the terms of the conventions between the United States and Great Britain (acting for Canada)...the United States and the United Mexican States . . . and the United States and the Government of Japan" (emphasis added (USGS, 2009)).*

Among the 1,043 bird species naturally occurring in the U.S. and its possessions, 868 species (83 percent) are protected by the MBTB, 75 species or subspecies (9 percent) are protected in all or a portion of their range by the Endangered Species Act (16 U.S.C.1531) (ESA), and 43 species (5 percent) are protected by both laws (USGS, 2009). All of the 175 species not protected by either the MBTB or the ESA belong to groups not covered by any of the migratory-bird treaties (e.g., all of the Galliformes and introduced species as well as island species belonging to groups not covered by the MBTB) (USGS, 2009).

Galliformes is a large and diverse group comprising about 70 genera and more than 250 species. Taxa within Galliformes are commonly referred to as 'gallinaceous birds' (meaning chicken-like) or game birds (as many species are hunted) (USGS, 2009).

### **Migratory Bird Routes**

USGS (2009) identified seven generalized routes for birds leaving the United States on their way to various wintering grounds see illustration below (USGS, 2009). Route 4 is the one used most extensively while only a few species make the 2,400 mile flight down Route 1 from Nova Scotia to South America. The routes by which birds return northward in the spring are not as well known.



USGS, 2009

The Site is located within route six (Principal Western Route) in the above illustration. Fall migration begins in southwest Colorado for Route 6. The southward route of long-distance migratory landbirds of the Pacific area (west of the continental divide) extends chiefly through the interior of California to the mouth of the Colorado River and on to winter quarters in western Mexico (USGS, 2009).

### **Migration Patterns**

Migration timing is species specific but spring migration generally begins in late March with fall migration beginning in late summer. Both length and duration of migratory journeys vary greatly between families, species, or populations within a species. Most woodpeckers that are likely to be observed on or near the Site are largely nonmigratory and considered year round residents. These species may live out their entire existence without going more than 10 miles from the nest where they were hatched.

Song sparrows, western meadowlarks, and scrub jays such as those observed on or near the Site make such short migrations that the movement is difficult to detect because individuals, possibly not the same ones, may be found in one area throughout the year while other individuals that move south may be replaced by individuals from the north (USGS, 2009).

Among many migratory species there is considerable variation among individuals and populations with respect to distances moved. Certain populations like the American crow observed on the Site may be quite sedentary while others are strongly migratory, and certain individuals in the same population can be more migratory than others. In dark-eyed juncos, adult females migrate the farthest south, while young males winter the farthest north. Adult male and young female dark-eyed juncos may winter at intermediate distances such as those observed on the Site during the winter point count survey.

### **Short Distance Migration**

Some species such as dusky flycatcher, mourning dove sparrows, and loggerhead shrike have extensive summer ranges. These were observed on the Site during the summer and fall season and concentrate during the winter season in the southern part of the breeding range or occupy additional territory only a short distance farther south. The entire species may thus be confined within a restricted area during winter, but with the return of warmer weather, the species spreads out to reoccupy the much larger summer range.

### **Long Distance Migration**

More than 300 breeding species leave the United States and Canada and spend the winter in the West Indies, Central America, or South America. Common species that are expected to occur at or near the Site, such as the barn swallows and cliff swallows may occupy the same general winter quarters in Brazil, but other barn swallows go farther south. Of all North American landbirds, these species probably travel the farthest; they are found north in summer to the Yukon Territory and Alaska, and south in winter to Argentina, 7,000 miles away (USGS, 2009).

### **Topography Influence on Migration**

Distinct features in the landscape, including rivers, mountain ridges, desert rims, or peninsulas appear to influence migratory travel by providing a landscape reference for orientation, especially when it is necessary to compensate for wind drift (USGS, 2009).

Thermal updrafts along the Dolores River, Paradox Creek, and canyon corridors such as those topographic features that characterize the area provide guiding lines for migratory birds. These conditions will often concentrate eagles and migrating hawks such as broad-winged, rough-legged, red-shouldered, and red-tailed hawks. It has been observed that maximum hawk flights occur when winds are from 10 to 25 miles per hour, but when winds exceed 35 miles per hour good soaring conditions are curtailed and hawk migration ceases (USGS, 2009). Mountain ridges that parallel the line of flight offer updrafts to soaring birds. The highest and longest ridges deflect the horizontal winds upward better than the shorter ridges less than 1,000 feet high and more birds are seen, on the average, along these higher ridges (USGS, 2009). It can be expected to see more soaring birds along the south portion of the Site or off the north portion of the Site where Paradox Creek is located.

For migrants not dependent upon soaring flight like passerines (sparrows, song birds, etc.) and near-arctic birds, topographic features such as the Dolores River and Paradox Creek do not

influence their migratory journey other than to provide resting and loafing areas during the migration (USGS, 2009).

In summary, topography may help or deter a migrant in its passage. It affects different birds in different ways. In North America, migratory movements are continent wide, and no evidence indicates any particular part of the landscape influences all birds in the same manner. Certain bird populations may use regular geographic routes during migration, but they are usually not rigidly restricted to them because of topography.

## 1.5 Wildlife Resources

The literature and database review showed that the Site is located within four identified and important wildlife habitat resource areas (CDOW, 2008, Knowles, 2002, USFWS, 2008). The important wildlife resource occurring on the Site include: severe winter range for mule deer and elk; potentially suitable Gunnison's sage grouse habitat; potentially suitable western burrowing owl habitat; and potentially occurring Gunnison's prairie dog and its associated habitat (Knowles, 2002). In February 2008 the USFWS (2008) listed the Gunnison's prairie dog as a candidate species. This listing provides protection under the ESA until a final ruling has been issued.

- Severe winter range for mule deer and elk as identified by the CDOW

The CDOW (2008) identified the Site as an area of severe winter range for mule deer and elk. Severe winter range is an area where mule deer and elk migrate to during severe winter conditions when snow depths at higher elevations are deeper than winter averages and force these wildlife species to lower elevations. The severe winter range is essential to the survival of the mule deer and elk. The severe winter range typically contains piñon-juniper, sagebrush, and grassland habitats. Wildlife typically concentrate in these areas until snow depths decrease in the higher elevations. Both deer and elk were observed on the Site during the Winter 2007/08 and Spring 2008 survey seasons, but not in high concentrations or during the point count surveys.

- Potentially suitable Gunnison sage grouse habitat as identified by the CDOW

The CDOW (2008) has identified potentially suitable habitat for the Gunnison's sage grouse in Colorado. The CDOW (2008) indicated that the Site is located within the potentially suitable habitat range of the Gunnison's sage grouse. A viable population of Gunnison's sage-grouse is located to the south and west of the Site on Monogram Mesa. Typical habitats preferred by this species are large expanses of sagebrush within grassland interfaces. The Site exhibits both of these characteristics. However, no Gunnison's sage grouse were observed on Site.

- Potentially suitable habitat for the western burrowing owls

Western burrowing owls (WBO) were observed adjacent to the Site. However, no WBO were observed on the Site. WBO prefer to utilize existing burrows dug by other small wildlife such as ground squirrel, rabbits and prairie dogs for nesting and fledging. WBO prefer grassland habitat. Both grassland habitat and existing small wildlife burrows were observed on the Site, but no WBO were observed.

- Potentially suitable habitat for the Gunnison's prairie dog

The FWS listed the Gunnison's prairie dog as a candidate species in February 2008. Knowles (2002) identified the range of the Gunnison's prairie dog to include the Paradox valley. The Site is centrally located in the Paradox valley and contains potential habitat for the Gunnison's prairie dog. However, the Gunnison's prairie dog was not observed on the Site. No prairie dog burrows, either active or abandoned, were observed on the Site.

## 2.0 PURPOSE AND SCOPE

The four season wildlife surveys are intended to address and characterize the environmental conditions present on the Site. As part of the mill licensing process, a wildlife survey is required by Section 5.3.5 of NUREG 1748, Environmental Guidance for Licensing Actions with NMSS Programs (NRC, 2003) to characterize principal ecological features of the site and vicinity, transportation corridors, and region, with emphasis on the plant and animal communities that may be affected by the proposed action.

The purpose of the wildlife survey was to identify potential environmental impacts to wildlife species associated with construction and operation of the proposed mill, and to provide a baseline for the current, pre-operational conditions of the site.

Section 2.5 of the Regulatory Guide 3.8, *Preparation of Environmental Reports for Uranium Mills* (NRC, 1982) requires wildlife survey information for inclusion in the Environmental Report (ER). The ER is required to be submitted to the Radiation Management Program of the CDPHE.

Field investigations were conducted in accordance with applicable Kleinfelder standard operating procedures (SOP), Quality Procedures (QP), and the work plan (Kleinfelder, 2007).

## 3.0 METHODS

The baseline ecological field data collected throughout the four seasons began in August 2007 (summer season) and continued through May 2008 (spring season).

The Kleinfelder team established and walked transects across the Site to observe and identify naturally occurring ecological resources. Both vegetation and wildlife observations were made during the transect observations. Kleinfelder biologists performed various field survey methods to collect site data. The methods included: wildlife spotlight surveys, continual wildlife observations while on the Site, point count bird surveys, and western burrowing owl surveys in accordance with the protocols set forth by the Colorado Division of Wildlife (CDOW, 2007).

Field activities were completed in accordance with Kleinfelder's SOP and Work Plan. A Health and Safety Plan (HASP) was reviewed and signed by all Kleinfelder representatives before entering the Site.

### **3.1 Pedestrial Wildlife Survey**

Pedestrial surveys were accomplished by walking established transects (Figure 4). Seven transects were systematically established north to south 300 yards apart from east to west. Sample points were positioned every 300 yards on each transect for a total of 60 sample points making up a sampling grid (Figure 4). Sample points were marked with yellow flagging and marked on a GPS device. All seven transects were observed during each of the four seasons. Half of the sample points were visited at each seasonal assessment, except during the Spring 2008 survey when all sample points were visited and data collected. During the Spring 2008 survey, all point count surveys were completed to determine seasonal variation.

The presence of wildlife and/or sign was documented continually while Kleinfelder biologists were onsite. Birds, mammals, reptiles, amphibians, and butterflies were observed along the survey routes and were identified to species (if possible) either by sight, call, song, tracks, or scat. The identification, location, and time of observation for wildlife were documented in a field book (Meyer, 2008).

### **3.2 Spotlight Survey**

Night-time observation points were located at each corner of the Site and one in the middle of the Site (Figure 4). Surveys were conducted during the Fall 2007 season, Winter 2007/08 season and Spring 2008 season. A handheld spotlight with the capability to illuminate up to 1,000,000 foot candles (fc) was utilized. A spotter completed a 360-degree sweep with the handheld spotlight, while a second field worker documented the results behind the spotter, saving the documenters' night vision.

### 3.3 Bird Survey

#### 3.3.1 Point Count Bird Surveys

A bird survey was conducted each season by means of point count surveys. Point counts allow for determination of species diversity. The point count survey methods outlined in Bibby et al. (1992) were followed for the Site point count surveys. The bird counts were split into three timed counts, 0-3 minutes, 3-5 minutes, and 5-10 minutes. Kleinfelder biologists identified the birds by sight and and/or calls. The position of each bird was recorded on a data form with respect to the observation point up to 100 yards away. Distances were visually estimated. Surveys were completed in the morning and late afternoon when birds are at their optimum activity levels (Bibby et al., 1992).

Point count survey data collected were used to determine biological diversity of the birds visiting the Site over four seasons. Two main factors are taken into account when measuring biological diversity: species richness and species evenness (OWWT, 2007). The number of species within a sample is the species richness. Species evenness is the relative abundance with which each species is represented in an area (OWWT, 2007). An ecosystem where all the species are represented by evenly distributed numbers of individuals has high species evenness. An ecosystem where some species are represented by many individuals, and other species are represented by very few individuals has low species evenness (OWWT, 2007). As species richness and evenness increases, diversity increases.

The Simpson's Diversity Reciprocal Index was utilized to determine the measure of biological diversity of birds found at the Site. The Simpson Diversity Reciprocal Index accounts for the number of bird species present, as well as the relative abundance of each bird species (OWWT, 2007).

#### 3.3.2 Western Burrowing Owls

The WBO survey was performed in accordance with the Colorado Division of Wildlife's "*Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls When Conducting Prairie Dog Control*" (CDOW, 2007).

WBO typically arrive on breeding grounds in Colorado in late March or early April, with nesting beginning a few weeks later. WBO surveys are required between 15 March and 31 October. Active nesting and fledging has been recorded and may be expected from late March through early August (CDOW, 2007). Adults and young may remain at nesting grounds until migrating to wintering grounds in late summer or early autumn (CDOW, 2007).

WBOs are active throughout the day; however, peaks in activity in the morning and evening make these the best times for conducting surveys (Conway and Simon, 2003). Surveys were conducted in the early morning (one half hour before sunrise until 2 hours after sunrise) and early evening (2 hours before sunset until one half hour after sunset).

To increase the likelihood of detecting WBO, if present, call-broadcast methods are used in WBO surveys. Conway and Simon (2003) detected 22% more WBO at point-count locations by broadcasting the primary male (*coo-coo*) and alarm (*quick-quick-quick*) calls during surveys. Although call-broadcast may increase the probability of detecting WBO, most owls will still be detected visually (CDOW, 2007).

Kleinfelder biologists scanned the area for WBO during the Summer 2007 season and Spring 2008 season survey periods. Calls were broadcasted from a portable CD player using the following recommended 10-minute timeline for incorporating call-broadcast methods (CDOW, 2007):

- 3 minutes of silence
- 30 seconds call-broadcast of primary call (*coo-coo*)
- 30 seconds silence
- 30 seconds call-broadcast of primary call (*coo-coo*)
- 30 seconds silence
- 30 seconds call-broadcast of alarm call (*quick-quick-quick*)
- 30 seconds silence
- 4 minute delay before repeating the sequence.

## 4.0 RESULTS

### 4.1 Summer Survey

Kleinfelder biologists were on site from August 20, 2007 through August 24, 2007, to establish survey transects and complete point count surveys for birds. A pedestrian survey of the southwestern bluffs was conducted to observe available habitats of the Site and to establish the survey transects. Spotlight surveys were not conducted during the Summer 2007 survey.

#### Wildlife Observations

Wildlife observed during the summer survey included black-tailed jackrabbits (*Sylvilagus floridanus*), eastern cottontails (*Sylvilagus floridanus*), coyotes (*Canis latrans*), a sharp-shinned hawk (*Accipiter striatus*), and various passerine (song) birds including lark sparrows (*Chondestes grammacus*), dusky flycatchers (*Empidonax oberholseri*), cliff swallows (*Petrochelidon pyrrhonota*), western meadowlarks (*Sturnella neglecta*), and mourning doves (*Zenaida macroura*). Reptiles and insects observed included eastern fence lizards (*Sceloporus undulatus*), five-lined skinks (*Eumeces fasciatus*), a greater short horned lizard (*Phrynosoma hernandesi*), and red harvester ants (*Pogonomyrmex barbatus*).

#### Point Count Surveys

Eight bird species were identified on site during the summer survey (Appendix A). These eight species are used as the baseline for the diversity rating. If additional species are observed the species richness count increases. The Simpson's Diversity Reciprocal Index yielded a 2.12 on a scale that ranges from zero to eight for the summer survey. This result suggests that the diversity of birds on the Site is low during the summer, as an index of one represents a population of one species.

There were 57 individual birds observed at 12 sample point locations during the summer observations (Appendix A). A total of 17 ten-minute point count surveys were completed (Appendix B).

The eight species observed during the point count surveys were lark sparrows, dusky flycatchers, cliff swallows, western scrub-jays (*Aphelocoma californicus*), ruby-throated hummingbird (*Archilochus columbris*), western meadowlarks, loggerhead shrike (*Lanius ludovicianus*) and mourning doves.

## **WBO Surveys**

Kleinfelder biologists conducted WBO surveys on the Site two hours before sunset to a half hour after sunset on August 23 and a half hour before sunrise to two hours after sunrise on August 24. No prairie dog burrows were observed on the Site, however, suitable rabbit burrow habitat was observed. Due to available WBO habitat, the WBO survey point was located approximately 414 feet north of sample point T1-8 centered in a group of rabbit burrows (Figure 4). Counts were conducted by sight observations every 10 minutes until one half hour after sunset. No WBO were observed (Meyer, 2008, p. 8-11)

### **4.2 Fall Survey**

Kleinfelder biologists were on site from September 17, 2007 through September 19, 2007, to conduct a pedestrian survey along established transects, complete point count surveys for birds and conduct spotlight surveys.

## **Wildlife Observations**

Kleinfelder biologists conducted a pedestrian survey of the Site while moving between point count survey points (Meyer, 2008, p. 13-14). Wildlife observed during the fall survey included eastern cottontails, black-tailed jackrabbits, cliff swallows, lark sparrows, American crows (*Corvus brachyrhynchos*), red harvester ants, banded Argiope spiders (*Argiope trifasciata*), and a praying mantis (*Stagmomantis carolina*).

## **Point Count Surveys**

Eight bird species were identified on site during the summer survey (Appendix A). These eight species are used as the baseline for the diversity rating. There were no new species observed during the fall survey. There were 13 individual birds observed at seven sample point locations (Appendix A). A total of 13 ten-minute point count surveys were completed (Appendix B). The two bird species observed during the fall survey were lark sparrow and cliff swallow.

The Simpson's Diversity Reciprocal Index yielded a 1.99 on a scale that ranges from zero to eight for the fall survey. This result suggests that the diversity of birds on site is low during the fall, as an index of one represents a population of one species.

## **WBO Surveys**

A WBO survey was not conducted during this field session due to seasonal timing. WBO migration to wintering grounds occurs in late summer and early fall (CDOW, 2007). It was not expected that WBO would be present in mid fall.

## **Spotlight Survey**

Kleinfelder biologists conducted spotlight surveys of the Site on September 17, 2007. The spotlight surveys were conducted after sunset to identify wildlife. Wildlife observed included black-tailed jackrabbits, eastern cottontails, and two unidentified bats most likely from the Families Vespertilionidae and Molossidae (Meyer, 2008, p. 12).

### **4.3 Winter Survey**

Kleinfelder biologists were on site January 16 and 17, 2008 to conduct a pedestrian survey along established transects, complete point count surveys for birds and conduct spotlight surveys.

#### **Wildlife Observations**

Wildlife observed during the winter survey included eastern cottontails, black-tailed jackrabbits, three dark-eyed juncos (*Junco hyemalis*), numerous elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and small mammal tracks.

A single bald eagle (*Haliaeetus leucocephalus*) was observed flying along the portion of State Highway 90 (Figure 1) that transects the northern portion of the Site. It is suspected that the bald eagle occurrence was incidental due to the lack of habitat. The bald eagle observation occurred while driving to the entrance of the Site and is not included as an observation during the point count survey,

#### **Point Count Surveys**

Eight bird species were identified onsite during the summer survey. During the winter survey, Kleinfelder biologists observed an additional species, the dark-eyed juncos, increasing the species richness count to nine (Appendix A). There were three individual birds observed at one sample point location (Appendix A). A total of 17 ten-minute point count surveys were completed (Appendix B).

The dark-eyed junco was the only species observed during the winter survey. The Simpson's Diversity Reciprocal Index yielded a 1.0 on a scale that ranges from zero to nine for the winter survey. This result suggests that the diversity of birds on site is very low during the winter, as an index of one represents a population of one species.

#### **WBO Surveys**

A WBO survey was not conducted during winter season. Migration to the wintering grounds occurs in late summer and early fall (CDOW, 2007). It was not expected that WBO would be present in the winter.

#### **Spotlight Survey**

Kleinfelder biologists conducted spotlight surveys of the Site on January 17, 2008. The spotlight survey yielded few results. The wildlife observed included eastern cottontails and black-tailed jackrabbits.

### **4.4 Spring Survey**

Kleinfelder biologists were on site from May 19 through May 20, 2008 to conduct a pedestrian survey along established transects, complete point count surveys for birds and conduct spotlight surveys.

## **Wildlife Observations**

Wildlife observed during the spring survey included eastern cottontails, black-tailed jackrabbits, coyote, mourning doves, western meadow larks, lark sparrows, European starling (*Sturnus vulgaris*), American crows, eastern fence lizards, thirteen-lined skink and red harvester ants.

## **Point Count Surveys**

The nine bird species identified onsite during the summer, fall, and winter surveys were used as the baseline for the diversity rating during the 2008 spring survey. Kleinfelder biologists observed two additional bird species, the American crow and European starling. With the observation of these two additional species, the richness count increased to 11 (Appendix A). There were 123 individual birds observed at 30 sample point locations. A total of 30 ten-minute point count surveys were completed (Appendix B). The five species observed were lark sparrow, American crow, European starling, western meadow larks, and mourning doves.

The Simpson's Diversity Reciprocal Index yielded a 2.91 on a scale that ranges from zero to eleven for the spring survey. This result suggests that the diversity of birds on site is higher in the spring than in the summer, fall, and winter seasons, since those seasons yielded a diversity index of 2.12, 1.99, and 1.0, respectively. Overall, the Simpson's Diversity Reciprocal Index is still low, as an index of one represents a population of one species.

## **WBO Surveys**

Kleinfelder biologists conducted WBO surveys on the Site two hours before sunset to a half hour after sunset on May 19, 2008. The survey point was located at the same location as the summer survey (Figure 4). No WBO were observed on the Site, however, three WBO were heard broadcasting in response to the CDOW call-broadcast compact disc. The WBO were heard between one-eighth mile and one-half mile west to southwest of the observation point, off site (Meyer, 2008, p.23-25).

## **Spotlight Survey**

Kleinfelder biologists conducted spotlight surveys of the Site on May 20. Wildlife observed on the Site included a cow elk, eastern cottontails, black-tailed jackrabbits, kangaroo rats (*Dipodomys* spp.), and mice (*Peromyscus* spp.) (Meyer, 2008, p. 26).

## **Summary**

The four-season point count bird survey provided 196 individual birds observed at 30 sample point locations. In a total of 77 ten-minute point count surveys, the species observed were lark sparrows, dusky flycatchers, cliff swallows, western scrub-jays, a ruby-throated hummingbird, western meadowlarks, a loggerhead shrike, mourning doves, dark-eyed juncos, American crows, and a European starling.

The Simpson's Diversity Reciprocal Index yielded a 3.05 for the combined observations during the four seasonal surveys. The spring survey yielded a 2.91 on a scale that ranges from zero to eleven. This result suggests that the diversity of birds on site is higher in the spring than in the summer, fall, and winter seasons, because they yielded 2.12, 1.99, and 1.0, respectively.

#### 4.5 Threatened and Endangered Species

In accordance with Section 7 of the ESA (1973), specific attention was given to observations of federally threatened, endangered and candidate species for the county of Montrose, Colorado (USFWS, 2008). The list was previously provided in Table 1. The following species were evaluated during all four of the seasonal surveys.

##### **Southwestern Willow Flycatcher** (*Empidonax traillii extimus*)

The southwestern willow flycatcher (willow flycatcher) is a small passerine neotropical migratory bird that breeds in the riparian habitats of seven southwestern states including New Mexico, Arizona, California, Utah, Nevada, Colorado, and Texas (Sogge, 1997), and winters in Central and South America (NDOW, 2008).

Dense vegetation near watercourses or inundated wetlands is required for nesting, thus the species is considered a riparian obligate breeder. Preferred vegetation consists of willows (*Salix spp.*), cottonwoods (*Populus spp.*), tamarisk (*Tamarix spp.*), and Russian olive (*Elaeagnus angustifolia*), among others. Preferred watercourses may include rivers, streams, springs or marshes. At some sites the water source may be ephemeral over the course of a year, but the habitat must support riparian vegetation during the breeding season (NDOW, 2008).

Kleinfelder did not observe the presence of southwestern willow flycatcher on the Site. The Site is vegetated with arid halophytes and big sage, atypical of willow flycatcher habitat. Based upon the current conditions of the Site, Kleinfelder has determined that it is unlikely that southwest willow flycatcher habitat currently exists on site.

##### **Whooping Crane** (*Grus americana*)

The whooping crane was listed as Endangered on March 11, 1967. Historically, the whooping crane nested over a wide area from Lake Michigan northward to the Arctic coast, and wintered along the coast of Texas and Louisiana. Populations decreased dramatically throughout the 1800's and into the 1900's, mainly because of the loss of nesting and wintering habitat (USFWS, 2008). By 1941 the species had declined to about 16 individuals in a single wild flock that migrated between Canada and coastal Texas. Several factors contributed to the historic decline of the species, including habitat loss and alteration, coastal and marine pollution, illegal hunting, disease, predation, collision with utility lines, loss of genetic diversity within the population, and vulnerability to natural and human caused disturbances. Whooping crane habitat includes mudflats around reservoirs and in agricultural areas. While wintering, they live on salt flats that are dominated by coastal salt grass. Their nesting grounds are wetland communities dominated by bulrush.

Kleinfelder did not identify the presence of the whooping crane on the Site during the field activities. The migration path of the whooping crane is located in eastern Colorado (USFWS, 2008). Due to the arid habitat and lack of open water on the Site, potential whooping crane habitat is not present. Due to lack of habitat and based upon the known migration path of the whooping crane, no whooping cranes are anticipated to occur within the Site.

### **Least Interior Tern (*Sterna antillarum*)**

The least interior turn was listed as endangered on May 28, 1985 (50 Fed. Reg. 21792), primarily due to the loss of nesting habitat as a result of dramatic alterations (channelization and impoundment) of important river systems. Water level fluctuations, vegetation of nesting habitat and disturbance (from people, pets, predators, and livestock) continue to jeopardize nesting success (PRESP, 2008). Least terns are the smallest member of the gull and tern family. They are approximately 9 inches in length. Unlike gulls, terns will dive into the water for small fish. The body of least terns is predominately gray and white, with black streaking on the head. Least terns have a forked tail and narrow pointed wings. Least terns less than a year old have less distinctive black streaking on the head and less of a forked tail (USFWS, 2008).

The interior least tern historically nested along the Colorado (in Texas), Red, Rio Grande, Arkansas, Missouri, Ohio, and Mississippi River systems. It currently nests in the Mississippi and Rio Grande River basins from Montana south to Texas and from eastern New Mexico and Colorado to Indiana and Louisiana. This species is thought to overwinter in Central and South America. Approximately 400 least terns nest along the Cheyenne and Missouri Rivers in South Dakota, with the majority concentrated below the Gavins Point and Fort Randall Dams (PRESP, 2008).

Kleinfelder did not identify the presence of the least interior tern on the Site during the field activities. Due to the arid habitat and lack of open water on the Site, no least interior tern habitat is present on the Site.

### **Piping Plover (*Charadrius melodus*)**

Piping plovers (*Charadrius melodus*) are small shorebirds approximately seven inches long with sand-colored plumage on their backs and crown and white underparts. Breeding birds have a single black breastband, a black bar across the forehead, bright orange legs and bill, and a black tip on the bill. During winter, the birds lose the black bands, the legs fade to pale yellow, and the bill becomes mostly black (USFWS, 2008).

Piping plover populations were federally listed as threatened and endangered in 1986 (50 Fed. Reg. 50720-50733). The Northern Great Plains and Atlantic Coast populations are threatened, and the Great Lakes population is endangered (USFWS, 2008). The piping plover can be found on lakeshores and river sandbars. It nests on gravel shores of shallow, saline lakes and on the sandy shores of larger prairie lakes. It tends to use only unvegetated or sparsely vegetated areas for nesting.

Kleinfelder did not identify the presence of the piping plover on the Site during the field activities. Due to the arid habitat and lack of water in the arroyos, potential piping plover habitat is not present.

### **Mexican Spotted Owl (*Strix occidentalis lucida*)**

The Mexican spotted owl was listed as threatened on April 15, 1993 (58 Fed. Reg. 14248). The Mexican spotted owl is an ashy-chestnut brown color with white and brown spots on its abdomen, back and head. The spots of this subspecies of spotted owl are bigger than the spots of the other two subspecies, California and Northern spotted owls, making the Mexican spotted owls appear lighter than their relatives. Their brown tails are marked with thin white bands. This owl is one of the largest owls in North America (USFWS, 2008).

The Mexican spotted owl has the largest geographic distribution of any of the *S. occidentalis* subspecies (Heck 1993) Historically, the owl ranged from the southern Rocky Mountains in Colorado; the Colorado Plateau in southern Utah; southward through Arizona, New Mexico, and far western Texas; in Mexico through the Sierra Madre Occidental and Oriental mountains and the southern end of the Mexican Plateau. Presently, the owl's range reflects the historic range, but owl numbers are much reduced and habitat is patchy (USFWS, 2008).

The Mexican spotted owl inhabits canyon and montane forest habitats across a range that extends from southern Utah and Colorado, through Arizona, New Mexico, and west Texas, to the mountains of central Mexico (USFWS, 2008).

Kleinfelder did not identify the presence of the Mexican spotted owls on the Site during the field activities. Kleinfelder believes Mexican spotted owl do not occur on the Site due to the lack of habitat.

### **Humpback Chub (*Gila cypha*)**

The humpback chub was added to the US list of endangered species on April 23, 1980 (59: Fed. Reg. 13375-13400). The humpback chub lives primarily in canyons with swift currents and white water. The pronounced hump behind its head gives the humpback chub a striking, unusual appearance. Like the Colorado pikeminnow and bonytail, the humpback chub is a member of the minnow family. It has an olive-colored back, silver sides, a white belly, small eyes and a long snout that overhangs its jaw. These fish spawn as young as 2-3 years and at lengths as small as 5 inches. Their spawning season is between March and July (CSU, 2008). 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. Though now smaller in number than they were historically, the two populations seem to be fairly stable in these two areas. Smaller numbers have been found in the Yampa and Green rivers in Dinosaur National Monument, Desolation and Gray canyons on the Green River in Utah, Cataract Canyon on the Colorado River in Utah and the Colorado River in Arizona The largest known population is in the Little Colorado River in the Grand Canyon, where there may be up to 10,000 fish. There are no population estimates available for the rest of the upper Colorado River basin (CDOW, 2008).

Kleinfelder did not identify the presence of the humpback chub on the Site during the field activities, as there are no perennial streams on the Site.

### **Bonytail Chub (*Gila elegans*)**

The bonytail chub was added to the US list of endangered species on April 23, 1980 (59 Fed. Reg. 13375-13400). The bonytail chub can grow to over 2 feet long. Like many other desert fishes, its coloring tends to be darker above and lighter below, serving as a camouflage. Breeding males have red fin bases. They have a streamlined body and a terminal mouth. The bonytail chub was once found in many states, including Arizona, California, Colorado, New Mexico, Utah, and Wyoming. This fish species experienced the most abrupt decline of any of the long-lived fishes native to the main-stems of the Colorado River system and, because no young individuals have been found in recent years, has been called functionally extinct. Bonytail chubs were one of the first fish species to reflect the changes that occurred in the Colorado River basin after the construction of Hoover Dam; the fish was extirpated from the lower basin between 1926 and 1950. They may still be found in the Green River of Utah and perhaps in the

larger Colorado River water bodies (CDOW, 2008). The species has been re-introduced to parts of its native range from captive stocks.

Kleinfelder did not identify the presence of the bonytail chub on the Site during the field activities, as there are no perennial streams on the Site.

#### **Colorado Pikeminnow (*Ptychocheilus lucius*)**

The Colorado pikeminnow chub was added to the US list of endangered species on March 11, 1967 (32 Fed. Reg. 4001). The Colorado pikeminnow (formerly Colorado squawfish) is a torpedo-shaped fish with an olive-green and gold back, silver sides and white belly. These fish spawn between late June and early September and when they are 5-6 years old and at least 16 inches long. Similar to salmon, Colorado pikeminnow can migrate more than 200 miles to spawn (CSU, 2008). Colorado pikeminnow grow up to five feet in length and can be found in the Colorado River basin as well as in southern Nevada. They have compressed bodies and their heads comprise nearly one quarter of their length. Their coloring ranges from a bluish-gray above to a silvery gold below. Squawfish are the largest fish in the minnow family. One of several endangered native species of fish, the Colorado pikeminnow is part of the Recovery Program agreement that was signed in 1988 (USFWS, 2008). The squawfish has become endangered for several reasons including the loss of habitat due to reservoirs, blockage of migration routes, the introduction of non-native fish, and changes in water temperature and stream flow (CDOW, 2008).

Kleinfelder did not identify the presence of the Colorado pikeminnow on the Site during the field activities, as there are no perennial streams on the Site.

#### **Razorback sucker (*Xyrauchen texanus*)**

The razorback sucker was placed on the U.S. federal list as endangered on October 23, 1991 (See, 56(205): 54957-54967). One of the largest suckers in North America, the razorback sucker can grow to up to 13 pounds and lengths exceeding 3 feet. The razorback is brownish-green with a yellow to white-colored belly and has an abrupt, bony hump on its back shaped like an upside-down boat keel (USFWS, 2008). The razorback sucker was once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. In the upper Colorado River Basin, they are now found only in the upper Green River in Utah, the lower Yampa River in Colorado and occasionally in the Colorado River near Grand Junction. Small numbers of razorback suckers also have been found in Lake Powell at the mouths of the Dirty Devil, San Juan, and Colorado rivers. In the lower Colorado River Basin, razorback suckers have been found primarily in Lake Mohave, with smaller numbers in the Colorado River below Hoover Dam (CDOW, 2008).

Kleinfelder did not identify the presence of the razorback sucker on the Site during the field activities, as there are no perennial streams on the Site.

#### **Greenback Cutthroat Trout (*Oncorhynchus clarki stomias*)**

Greenback cutthroat trout were listed as threatened on April 18, 1978 (43 Fed. Reg. 16343-16345). Greenback cutthroat trout are coldwater fish belonging to the trout, salmon, and whitefish family. They have dark, round spots on the sides and tail and two colorful blood-red stripes on each side of the throat under the jaw, hence the name "cutthroat." During the spring

spawning season the entire belly may become crimson red. The greenback was named Colorado's state fish in 1994 (CDOW, 2008).

Greenbacks originally lived in the mountain and foothill areas of the Arkansas and South Platte River systems in Colorado and part of Wyoming. Today, they exist in only about five percent of their original range (CDOW, 2008).

Kleinfelder did not identify the presence of the greenback cutthroat trout on the Site during the field activities, as there are no perennial streams on the Site.

#### **Arkansas Darter** (*Etheostoma cragini*)

The Arkansas darter, a candidate species, is a small perch. Arkansas darters live in shallow, clear, usually spring-fed streams with sandy bottoms. They prefer slow currents of cool water, partially overgrown with rooted aquatic vegetation, such as watercress. Localized populations occur in the Arkansas drainage in eastern Colorado, southern Kansas, northeastern and north-central Oklahoma, southwestern Missouri and northwestern Arkansas.

The species is uncommon across its range. Distribution of the Arkansas darter is shrinking in the western and central parts of the range. It is susceptible to habitat loss resulting from irrigation diversions and through lowering of the water table caused by ground water pumping associated with irrigation and other water uses. The Site does not support adequate habitat for this species.

Kleinfelder did not identify the presence of the Arkansas darter on the Site during the field activities, as there are no perennial streams on the Site.

#### **Uncompahgre Fritillary Butterfly** (*Boloria improba acrocneuma*)

The Uncompahgre fritillary is a small butterfly with a wingspan of 1 1/8 to 1 3/8 inches (3 - 3.5 cm). This species is believed to be broadly distributed near glacial margins during the Wisconsin glaciation, the Uncompahgre fritillary is now confined to small patches of habitat above 13,000 ft in the San Juan Mountains of southwestern Colorado where glacier-like environments have persisted from the Holocene to the present.

Suitable habitat for the Uncompahgre fritillary butterfly was not observed on the Site.

#### **Pawnee Montane Skipper** (*Hesperia leonardous montana*)

The Pawnee montane skipper is a member of the Hesperiidae family. The upper side of the wing is brownish red with distinct yellowish spots near the outer margins. Underside is brown with cream spots.

Pawnee montane skippers inhabit dry, open Ponderosa pine woodlands with sparse understory at 6,000 to 7,500 feet. Blue gramma grass (*Bouteloua gracilis*), the larval food plant and prairie gay feather, the primary nectar plant, are two necessary components of the ground cover. The Pawnee montane skipper occurs only on the Pikes Peak Granite Formation in the South Platte River drainage system in Colorado involving portions of Jefferson, Douglas, Teller, and Park counties. The total known habitat within the range is estimated to be 37.9 square miles.

No suitable occurs on the Site for the Pawnee montane skipper.

### **Coral Pink Sand Dunes Tiger Beetle (*Cicindela albissima*)**

The Coral Pink Sand Dunes tiger beetle, a candidate species, is a subspecies of the tiger beetle *Cicindela limbata*. It has striking coloration; the large wing cases (known as elytra) are predominantly white and much of the body and legs are covered in white hairs. This beetle is only found within the dune system from where it gets its common name, the Coral Pink Sand Dunes, in southern Utah in the United States. The subspecies is endemic to the region and has a highly restricted range in southern Utah. Adults range from the troughs between sand dunes to the upper slopes of the dunes, whilst larvae are found only in the damper, and more protected furrows between the dunes.

Due to the known range of this species, it is not expected to be found on the Site.

### **Gray Wolf (*Canis lupus*)**

The gray wolf ranges across Eurasia and in North America from the Arctic to Mexico and from coast to coast. Once distributed statewide, the wolf is gone from Colorado. The last ones were killed by about 1940 (CDOW, 2008). Sometimes called "timber wolf," to distinguish it from coyotes, or "prairie wolf," wolves actually occupy a wide range of habitats (CDOW, 2008).

Gray wolves have been eradicated from Colorado since the mid-1930s (CDOW, 2008). Over the past decade, the USFWS has reintroduced gray wolves into Wyoming, Idaho, Montana, New Mexico, and Arizona, and some observers believe it is only a matter of time before wolves start migrating into Colorado from the north and south (CDOW, 2008). In June 2004, a female gray wolf was hit and killed on Interstate 70 near Idaho Springs, Colorado. A radio collar showed that the wolf had migrated from Yellowstone National Park. There have been no confirmed sightings of gray wolves in Colorado in recent years.

Kleinfelder did not identify the presence of the gray wolves during the field activities.

### **Black-footed Ferret (*Mustela nigripes*)**

The black-footed ferret was federally listed on March 11, 1967 (32 Fed. Reg. 4001,). The black-footed ferret is 18 to 24 inches long, including a 5 to 6 inch tail. It weighs only one-and-a-half to two-and-a-half pounds, with males slightly larger than females. The black-footed ferret is well adapted to its prairie environment. Its color and markings blend so well with grassland soils and plants that it is hard to detect until it moves. It is a slender, wiry animal with a black face mask, black feet, and a black-tipped tail. The rest of its short, sleek fur is a yellow-buff color, lighter on the belly and nearly white on the forehead, muzzle, and throat. It has short legs with large front paws and claws developed for digging. The ferret's large ears and eyes suggest it has acute hearing and sight, but smell is probably its most important sense for hunting prey underground in the dark (USFWS, 2008).

Black-footed ferrets rely on prairie dogs for food and shelter. Prairie dogs make up 90% of their diet. Ferrets hunt mostly at night, so they are rarely seen. They live in burrows made by prairie dogs. Ferrets require about 100 acres of prairie dog colony to support one ferret family (a female and her young). Predators such as owls, eagles, hawks, coyotes, badgers, foxes, and bobcats are the main cause of death for wild ferrets (CDOW, 2008).

Kleinfelder did not identify the presence of the black-footed ferrets on the Site during the field activities. Due to lack of habitat and prairie dogs as a prey species onsite, the black-footed ferret is not anticipated to occur on the Site.

### **Canada lynx (*Lynx canadensis*)**

On March 24, 2000, the contiguous U.S. population of the Canada lynx was listed as threatened under the Endangered Species Act (See, 65 Fed. Reg. 16052-16086). The Canada lynx is a large, bob-tailed cat, three feet long with a black-tipped tail only about one-eighth the total length, and only about half the length of its huge hind foot. Weights are 20-30 pounds. The coat is grayish, with obscure spots. The magnificent ear tufts may be nearly as long as the actual ears (CDOW, 2008).

The lynx lives in North America and Eurasia. Lynx may have disappeared from Colorado by about 1973 (CDOW, 2008). Sightings prior to that time were few, scattered throughout mountainous areas of the state. In 1999, an ambitious program of lynx restoration began in the remote San Juan Mountains, and by 2005 more than 200 animals had been released, a number of litters of kittens had been born, and lynx were expanding throughout the high country and occasionally beyond.

Throughout the year, Engelmann spruce/subalpine fir was the dominant cover used by lynx. A mix of Engelmann spruce, subalpine fir and aspen (*Populus tremuloides*) was the second most common cover type used throughout the year. Various riparian and riparian-mix areas were the third most common cover type where lynx were found during the daytime flights (Shenk, 2008).

Kleinfelder did not identify the presence of the Canada lynx on the Site during the field activities. Canada lynx has been reintroduced in the San Juan Mountain Range to the southeast of the Site. The piñon-juniper habitat combined with the semi arid big sage habitat is atypical of Canada lynx.

### **Preble's meadow jumping mouse (*Zapus hudsonius preblei*)**

The Preble's meadow jumping mouse is a relatively small rodent with an extremely long tail, large hind feet and long hind legs. It inhabits the foothills in southeastern Wyoming, southward along the eastern edge of the front range of Colorado to Colorado Springs. It has a distinct dark, broad stripe on its back that runs from head to tail and is bordered on either side by gray to orange-brown fur. The hair on the back of all jumping mice appears coarse compared to other mice. The underside is white and much finer in texture. Total length of an adult Preble's mouse is approximately 8-10 inches with over 60 percent of its length in its tail (USFWS, 2008). On May 13, 1998, the contiguous U. S. population of the Preble's meadow jumping mouse (PMJM) was listed as threatened under the Endangered Species Act (63 Fed. Reg. 26517-26530).

Typical habitat for the PMJM is comprised of well-developed plains riparian habitat with a dense understory of shrubs. Such areas include daybed and feeding habitat consisting of dense riparian shrubs adjacent to grassland communities (Choate et al., 1991). The riparian habitat must be adjacent to relatively undisturbed upland areas, which can be variable, ranging from grassland communities to ponderosa pine (*Pinus ponderosa*) woodlands (Corn et al., 1995). Understory shrubs that PMJM prefers include, but are not limited to, willow (*Salix* sp.), gray alder (*Alnus incana*), Gamble's oak (*Quercus gambelii*), three-leafed sumac (*Rhus trilobata*), dogwood (*Cornus cericea*), hawthorn (*Crataegus* spp.), river birch (*Betula fontinalis*), and

chokecherry (*Prunus virginiana*). It is thought the abundance of PMJM is not driven by the diversity of the plant species, but by the density of the riparian vegetation (Bakeman, 1997).

Meadow jumping mice are among the smallest mammals that hibernate. The PMJM usually begins hibernating in mid-September to mid-October and does not emerge until mid-May, after a potential hibernation period of 210 days (Meaney et al., 2003). The PMJM cannot travel long distances since it is only active for 155 days, and it is dependent on a highly diverse plant community for feeding purposes.

Kleinfelder did not identify the presence of the PMJM on the Site during the field activities. PMJM habitat is specific to the front range of Colorado and Wyoming.

#### **Gunnison's prairie dog (*Cynomys gunnisoni*)**

The Gunnison's prairie dog was listed as a candidate species in February of 2008. The Gunnison's prairie dog is one of the three species of prairie dogs that occurs in Colorado (Hoogland, 1995). The Gunnison's prairie dog occurs in the Four Corners area of Arizona, New Mexico, Colorado, and Utah and is considered a keystone species of the sagebrush habitat. Knowles (2002) mapped the Paradox valley as suitable habitat for the Gunnison's prairie dog.

The Gunnison's prairie dog habitat is located in montane habitats of Colorado, which includes the Gunnison, South Park, San Luis Valley, and Southeast population areas. The La Plata/Archuleta and Southwest population areas are considered prairie habitat. Montane habitat comprises 80 percent of all available habitats in the state and prairie habitat comprises 20 percent. Gunnison's prairie dog populations have declined across their Colorado range, in part due to historic and current poisoning and shooting, sylvatic plague (*Yersinia pestis*), and habitat destruction (Miller et al., 1994).

The Site is located within suitable habitat for the Gunnison's prairie dogs and is mapped as suitable habitat by (Knowles, 2002). Kleinfelder did not observe the presence of the Gunnison's prairie dog on the Site or burrows that showed activity or historic use by this species.

#### **4.6 State Species of Concern**

The State of Colorado has also identified species of wildlife that are of concern. Table 3 lists Colorado Species of Concern likely to occur on the Site.

**Table 3. Colorado Species of Concern Likely to Occur on Site**

SPECIES LISTED IN MONTROSE COUNTY, COLORADO			
Status*	Common Name	Scientific Name	Occurrence
<b>Birds</b>			
ST	Western burrowing owl	<i>Athene cunicularia</i>	Likely to occur, not observed on the Site
ST	Bald eagle	<i>Haliaeetus leucocephalus</i>	Likely to occur, not observed on the Site
SC	Ferruginous hawk	<i>Buteo regalis</i>	Likely to occur, not observed on the Site
SC	Gunnison sage-grouse	<i>Centrocercus minimus</i>	Likely to occur, not observed on the Site
SC	Western snowy plover	<i>Charadrius alexandrinus</i>	Likely to occur, not observed on the Site
SC	American peregrine falcon	<i>Falco peregrinus anatum</i>	Likely to occur, not observed on the Site
<b>Mammals</b>			
SC	Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Likely to occur, not observed on the Site
SC	Botta's pocket gopher	<i>Thomomys bottae rubidus</i>	Likely to occur, not observed on the Site
SC	Northern pocket gopher	<i>Thomomys talpoides macrotis</i>	Likely to occur, not observed on the Site
<b>Reptiles</b>			
SC	Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	Likely to occur, not observed on the Site
SC	Longnose leopard lizard	<i>Gambelia wislizenii</i>	Likely to occur, not observed on the Site

\*Status Codes:  
 ST = State Threatened  
 SC = State Special Concern (not a statutory category)  
 SE = State Endangered

### **Western Burrowing Owl (*Athene cunicularia*)**

The western burrowing owl is one of the smallest species of owls. Unlike many forest-dwelling owls, burrowing owls are found in open, dry grasslands and inhabit the abandoned underground burrows of other animals, such as the ground squirrels rabbits or prairie dogs. They can dig their own burrows, but usually prefer the deserted excavations of other animals. The owls commonly perch on fence posts or on top of mounds outside their burrows.

There is suitable habitat on the western side of the Site, but no western burrowing owls were observed on the Site. Western burrowing owls were observed on the property adjacent to the west side of the Site.

### **Bald Eagle (*Haliaeetus leucocephalus*)**

Bald eagles live near large bodies of open water such as lakes, marshes, seacoasts and rivers, where there are plenty of fish to eat and tall trees for nesting and roosting. Bald eagles have a presence in every U. S. state except Hawaii. Bald eagles use a specific territory for nesting, winter feeding or a year-round residence. Its natural domain is from Alaska to Baja, California, and from Maine to Florida. Bald eagles that reside in the northern U. S. and Canada migrate to the warmer southern climates of the U. S. during the winter months to obtain easier access to food, especially fish. Some bald eagles that reside in the southern U. S. migrate slightly north during the hot summer months.

A bald eagle was observed passing through the Site during the winter survey along Highway 90, but no suitable habitat for foraging or nesting was observed.

#### **Ferruginous Hawk (*Buteo regalis*)**

The ferruginous hawk is the largest buteo in North America. Ferruginous hawks are birds of open country and occur in semiarid grasslands with scattered trees, rocky mounds or outcrops, and shallow canyons that overlook open valleys. They may occur along streams or in agricultural areas during migration.

No ferruginous hawks were observed on the Site, although suitable foraging habitat was present.

#### **Gunnison Sage Grouse (*Centrocercus minimus*)**

The Gunnison sage grouse is a newly-classified, unique species of sage grouse found south of the Colorado River. Historically, the Gunnison sage grouse were found throughout the southwestern portion of Colorado and southeastern Utah. Approximately 3,500 breeding Gunnison sage-grouse occur among seven separate populations throughout southwestern Colorado and southeastern Utah. The largest population, about 2,500 birds, inhabits the Gunnison Basin. The separate populations in Colorado are: Pinion Mesa, Crawford, San Miguel Basin, Gunnison Basin, Dove Creek and Poncha Pass. The Utah population is near Monticello. The Gunnison sage grouse requires a variety of habitats such as large expanses of sage with a diversity of grasses and forbs and healthy riparian ecosystems.

According to the CDOW (2008), the Site is within potentially suitable habitat for the Gunnison sage grouse. No Gunnison sage grouse or leks (breeding grounds) were observed on the Site.

#### **Western Snowy Plover (*Charadrius alexandrinus nivosus*)**

The western snowy plover is a small, threatened shorebird, approximately the size of a sparrow. During the breeding season (March through September), plovers can be seen nesting along the shores, peninsulas, offshore islands, bays, estuaries, and rivers of the United States' Pacific Coast.

No suitable habitat was observed on the Site.

#### **American Peregrine Falcon (*Falco peregrinus anatum*)**

The peregrine falcon is a medium to large bird of prey, or raptor. The falcon's breeding range in North America extends from Alaska east to Baffin Island, southern Greenland, and northern Newfoundland and south along mountain ranges and urban areas to South America. The peregrine falcon winters from southern Canada to South America. These falcons naturally nest on cliffs; however, other nest sites may include old raptor or raven nests.

Suitable habitat for nesting was observed on the southern portion of the Site, but no peregrine falcons were observed.

### **Townsend's Big-Eared Bat** (*Corynorhinus townsendii pallescens*)

The Townsend's big-eared bat can be distinguished from all other vespertilionids by the presence of prominent, bilateral nose lumps and large "rabbit-like" ears. Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, including abandoned mines. Population centers occur in areas dominated by exposed, cavity or caverniculous forming rock and/or historic mining districts. Its habit of roosting pendant-like on open surfaces makes it readily detectable, and it can be the species most readily observed, when present (commonly in low numbers) in caves and abandoned mines throughout its range.

Although there is suitable habitat in abandoned mines in the vicinity of the Site to the southwest, Townsend's big-eared bats were not observed on the Site.

### **Botta's Pocket Gopher** (*Thomomys bottae rubidus*)

The Botta's pocket gopher is a medium-sized rodent. The Botta's pocket gopher occurs in southern Colorado, where several local species have evolved. This species can be found in a variety of vegetation types, including agricultural, grassland, along roadsides, parks, piñon-juniper woodlands, open montane forest, montane shrublands, and semidesert shrublands.

There is suitable habitat on the Site, but no Botta's pocket gophers were observed.

### **Northern Pocket Gopher** (*Thomomys talpoides macrotis*)

The color of this small gopher varies geographically from dark brown to grayish yellow. This gopher is found in many different habitat types including agricultural and pasture lands, semi-desert shrublands, and grasslands at lower elevations upwards into alpine tundra.

Although there is suitable habitat on the Site, no northern pocket gophers were observed.

### **Midget Faded Rattlesnake** (*Crotalus viridis concolor*)

The midget faded rattlesnake is a subspecies of the western rattlesnake that is found in western Colorado, eastern Utah, and southern Wyoming. Midget faded rattlesnakes are primarily found on the ground, but will occasionally climb into trees and shrubs. When inactive during cold weather, individuals occupy mammal burrows, crevices, or caves, where they sometimes congregate in large numbers. This rattlesnake is typically tan, cream, or yellowish in color, with faint oval blotches on the back. The midget faded rattlesnake is usually less than 24 inches in length.

Although there is suitable habitat on the Site, no midget faded rattlesnakes were observed.

### **Longnose Leopard Lizard** (*Gambelia wislizeni*)

Longnose leopard lizards have large muscular heads and bodies. They have granular scales with a light cream or tan ground color dorsally, and this is marked by a pattern of brown or black spots. The dark spots form two rows, which become more apparent on the long rounded tail. The tail can be more than twice the lizard's body length. The coloration of longnose leopard

lizards can vary dramatically depending on the time of day (or their temperature). When cool, they appear very dark, and the dark spots are less prominent while light transverse lines become much more apparent. The ventral surface has a light coloration of white or cream that contrasts with the dark lines on the throat. The inside lining of the mouth and throat are black and when threatened, these lizards will readily reveal this by gaping their mouth and attempting to bite. Longnose leopard lizards inhabit arid regions of the Northwest. The soil is generally sandy, but may be other types (e.g. gravel or loess) as long as numerous rodent burrows are available. These lizards utilize burrows frequently and if the soil is suitable, they are capable of digging their own burrows. The surrounding vegetation is usually sparse and consists of desert shrubs and patchy clumps of grass. These lizards run after their prey and consequently thick vegetation is an impediment.

Although there is suitable habitat on the Site, no longnose leopard lizards were observed.

## 5.0 CONCLUSIONS

A four-season survey for wildlife and other natural resources began in the summer of 2007 and was completed in the spring of 2008 for the Site. In addition, a literature and database review was conducted to identify species common to the natural habitats occurring on the Site. No federally threatened, endangered or candidate species were observed during the surveys. In addition, no State species of concern were observed on the Site. A bald eagle was observed flying along the portion of Highway 90 that bisects the northern portion of the Site.

Four habitats of interest to the CDOW were located and identified on the Site that are of importance to the area's wildlife resources:

- Severe winter range for mule deer and elk as identified by the CDOW;
  - The CDOW (2008) identified the Site as an area of severe winter range for mule deer and elk. Severe winter range is an area where mule deer and elk migrate to during severe winter conditions when snow depths at higher elevations are deeper than winter averages and force these wildlife species to lower elevations. The severe winter range is essential to the survival of the mule deer and elk. The severe winter range typically contains piñon-juniper, sagebrush, and grassland habitats. Wildlife typically concentrate in these areas until snow depths decrease in the higher elevations. Both deer and elk were observed on the Site during the Winter 2007/08 and Spring 2008 survey seasons, but not in high concentrations or during the point count surveys.
- Potentially suitable Gunnison sage grouse habitat as identified by the CDOW;
  - The CDOW (2008) has identified potentially suitable habitat for the Gunnison's sage-grouse in Colorado. The CDOW (2008) indicated that the Site is located within potentially suitable habitat of the Gunnison's sage grouse. A viable population of Gunnison's sage-grouse is located to the south and west of the Site on Monogram Mesa. Typical habitats preferred by this species are large expanses of sagebrush within grassland interfaces. The Site exhibits both of these characteristics. However, no Gunnison's sage grouse were observed on Site.

- Potentially suitable habitat for the WBO.
  - Western burrowing owls were observed adjacent to the Site. However, no WBO were observed on the Site. WBO prefer to utilize existing burrows dug by other small wildlife such as ground squirrel, rabbits and prairie dogs for nesting and fledging. WBO prefer grassland habitat. Both grassland habitat and existing small wildlife burrows were observed on the Site, but no WBO were observed.
- Potentially suitable habitat for the Gunnison's prairie dog;
  - The FWS listed the Gunnison's prairie dog as a candidate species in February 2008. Knowles (2002) identified the range of the Gunnison's prairie dog to include the Paradox valley. The Site is centrally located in the Paradox valley and contains potential habitat for the Gunnison's prairie dog. However, the Gunnison's prairie dog was not observed on the Site. No prairie dog burrows, either active or abandoned, were observed on the Site.

#### 5.1.1 Mammals Observed

Mammals observed during the four season surveys include coyotes, black-tailed jackrabbit, eastern cottontail, elk, mule deer, and domestic cattle. The above listed mammals are typical for the habitat and ecosystems found on the Site.

#### 5.1.2 Birds Observed

Birds observed during the four-season point count survey include lark sparrows, dusky flycatchers, cliff swallow, western meadowlarks, mourning dove, western scrub-jay, ruby-throated hummingbird, loggerhead shrike, dark-eyed junco, European starling and American crow. The above listed birds are typical for the habitat and ecosystem found on the Site.

The above listed birds are seasonal visitors or resident birds of the Site. No species of concern was observed on the Site. However, the bald eagle and the WBO were both observed near the Site, but not during the point count bird survey. Therefore, the bald eagle and the WBO are not included in the survey but they are mentioned as observations.

Overall, the data collected during the four seasons of point count surveys revealed that the Simpson's Diversity Reciprocal Index is low in relation to diversity.

#### 5.1.3 Reptiles

Reptiles observed during the four season surveys included Eastern fence lizard, five-lined skink, and greater short horned lizard. The above listed reptiles are typical for the habitat and ecosystem found on the Site.

#### 5.1.4 Insects and Spiders

Insects and spider observed during the four season surveys included red harvester ant, praying mantis, and Argiope spider. The above listed insects and spider are typical for the habitat and ecosystem on the Site.

## 5.2 Species of Federal and State Concern

No federal threatened, endangered or candidate species (see Table 1) were observed on the Site. No Colorado Species of Concern (see Table 3) were observed on the Site. The literature and database review and the four season surveys support this finding.

## 6.0 LIMITATIONS

Kleinfelder prepared this report in accordance with generally accepted standards of care that exist in Montrose County, Colorado at this time. This report may be used only by Energy Fuels Resources Corporation and only for the purposes stated. All information gathered by Kleinfelder is considered confidential and will be released only upon written authorization by Energy Fuels Resources Corporation or as required by law. Non-compliance with these requirements by Energy Fuels Resources Corporation or anyone else, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and Energy Fuels Resources Corporation agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

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