

## **3.15. WILDLIFE**

### **3.15.1. Analysis Methods**

The wildlife analysis for the proposed Project was conducted by reviewing current listed or special concern terrestrial species for Meagher County, Montana. Both a county list and a generated Information for Planning and Consultation (IPaC) resource list were referenced for this exercise. Wildlife studies conducted by WESTECH (2015) in the wildlife analysis area (approximately 5,290 acres) were also referenced. WESTECH conducted the baseline fieldwork irregularly from August 2014 to August 2015, though most fieldwork occurred from April to July of 2015. A list of species that could potentially occur in the wildlife analysis area was compared against occurrence records and whether preferred habitats were available. Species with a potential to occur in the wildlife analysis area and with suitable habitat were evaluated for potential impacts.

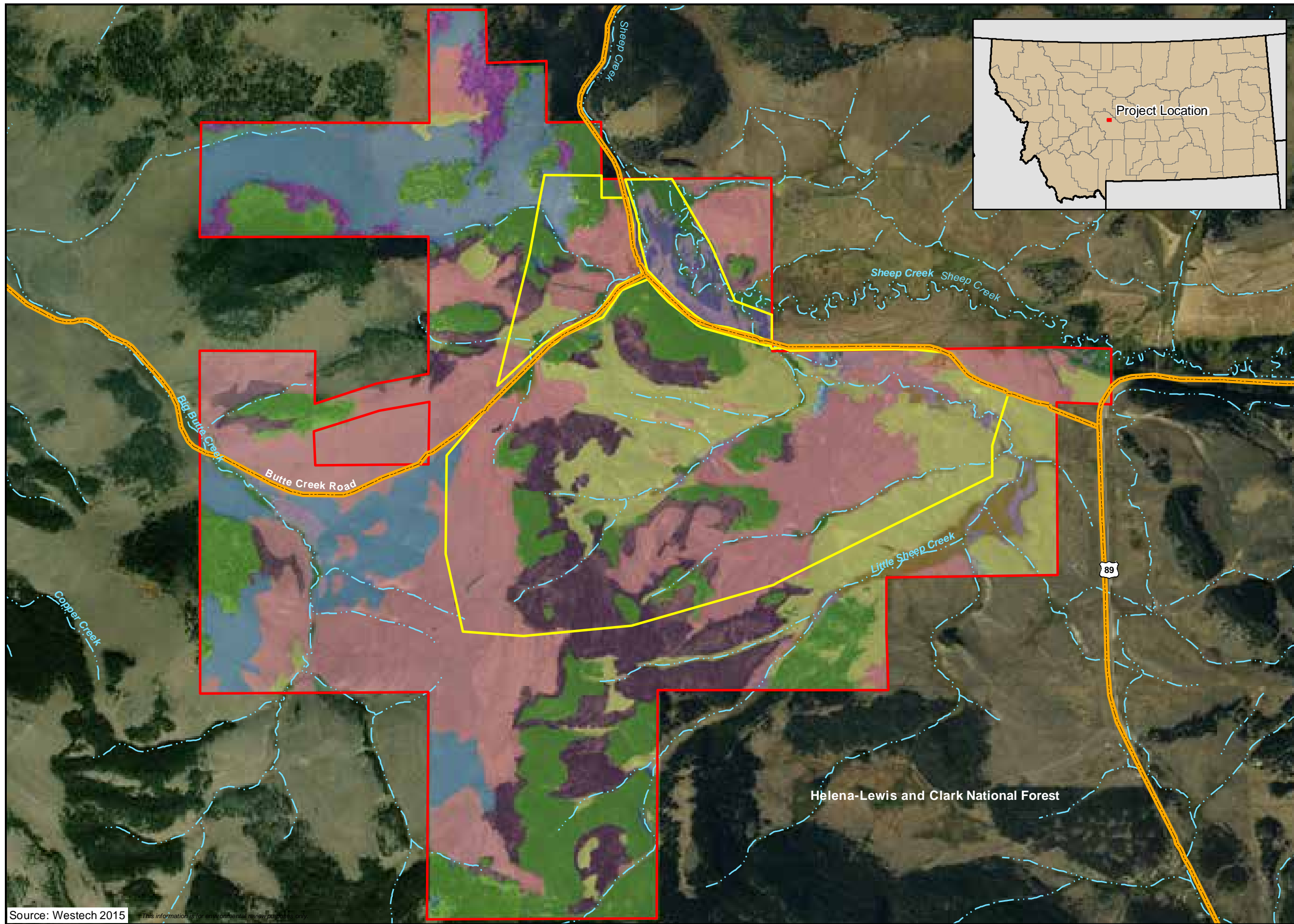
### **3.15.2. Affected Environment**

The wildlife analysis area (see **Figure 3.15-1**) includes the Project area (i.e., the MOP Application Boundary of approximately 1,888 acres) and an additional 3,402 acres surrounding the MOP Application Boundary. The wildlife analysis area takes into account the broader ranging habits of many of the wildlife species present or assumed to occur in the vicinity of the Project. Several wildlife species have large home ranges that could extend beyond the Project area.

Topography within the wildlife analysis area is level to steeply rolling and ranges from 5,400 to 6,200 feet amsl (WESTECH 2015). Sheep Creek flows through the analysis area. Little Sheep Creek (tributary to Sheep Creek) flows through and drains the eastern portion of the analysis area, while Big Butte Creek (tributary to Sheep Creek) drains the western portion of the analysis area. The land cover near Sheep Creek is mostly pasture and hayfield, while riparian areas associated with the stream and drainages include grasses and mesic (i.e., require a moderate amount of water to grow) shrubs as well. Higher elevation upland areas are predominantly sagebrush and grassland habitats mixed with coniferous forest. Habitat types are further discussed in Section 3.15.2.1. There are existing roads and some buildings in portions of the wildlife analysis area, mostly along the northern edge.

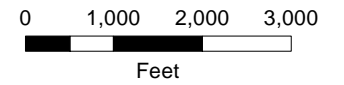
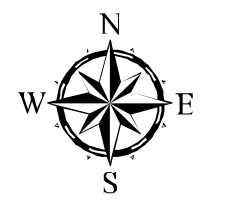
#### **3.15.2.1. Habitat**

Wildlife habitat consists of both biotic features (e.g., vegetation, animal species) and abiotic features (e.g., topography, climate). However, this analysis defines habitat as the types of vegetation or vegetative communities preferred by a particular species. Habitat components (e.g., water, food, cover, and space) and how they are spatially arranged can be used to estimate the presence of wildlife species potentially occurring in a given area.



**Figure 3.15-1**  
**Black Butte**  
**Copper Project**  
 Wildlife Analysis Area  
 Meagher County, Montana

- Road
  - Stream
  - Wildlife Analysis Area
  - Project Area
- Habitat**
- Aspen
  - Aspen/Douglas-fir
  - Buildings
  - Bunchgrass
  - Douglas-fir
  - Douglas-fir/Sagebrush
  - Hay/tame pasture
  - Low mesophytic shrub
  - Pond/impoundment/stream
  - Riparian grass
  - Rock outcrop
  - Sagebrush
  - Sagebrush/Bunchgrass
  - Willow



1:26,000

Source: Westech 2015 This information is for environmental review purposes only.

Additionally, terrestrial wildlife species require different habitats throughout the year or throughout their lifetime. For example, big game species may use a certain habitat type for calving/fawning during the spring and summer, but then migrate to winter habitat in the autumn. Additionally, migratory bird species spend the breeding season in northern areas and then migrate south for the winter.

Wildlife habitat within the wildlife analysis area was mapped according to dominant existing vegetation types and physical features (WESTECH 2015). From this mapping, six major habitat types were identified, each with various subtypes for a total of 15 subtypes (see **Table 3.15-1**).

**Table 3.15-1  
Habitat Types in Wildlife Analysis Area**

Habitat Type	Subtype	Acres	Percent
Xeric Shrub	Sagebrush	822	16
	Sagebrush/bunchgrass mosaic	1,669	32
	<b>Sub-total</b>	<b>2,491</b>	<b>48</b>
Woodland	Aspen	29	1
	Aspen/Douglas fir	88	2
	Willow	97	2
	Douglas fir	929	18
	Douglas fir/sagebrush	662	13
	<b>Sub-total</b>	<b>1,805</b>	<b>36</b>
Grassland	Bunchgrass	661	13
	Riparian grass	165	3
	<b>Sub-total</b>	<b>826</b>	<b>16</b>
Mesophytic Shrub	Low Mesophytic shrub	83	2
	<b>Sub-total</b>	<b>83</b>	<b>2</b>
Agriculture	Hay/tame pasture	38	1
	<b>Sub-total</b>	<b>38</b>	<b>1</b>
Miscellaneous	Rock outcrop	4	<1
	Pond/impoundment/stream	5	<1
	Road	28	1
	Buildings	10	<1
	<b>Sub-total</b>	<b>47</b>	<b>1</b>
<b>TOTAL</b>		<b>5,290</b>	<b>104<sup>a</sup></b>

Source: WESTECH 2015

Notes:

<sup>a</sup> Percent total is greater than 100% due to rounding.

The following are descriptions of the habitat types and subtypes listed in **Table 3.15-1**:

- Xeric Shrub includes dry sagebrush and sagebrush/bunchgrass mosaic subtypes. Combined, this habitat type comprised 48 percent of the wildlife analysis area and a large amount of the

“...wildlife species observed during the study were recorded at least once in this habitat” (WESTECH 2015).

- Woodland includes aspen, aspen/Douglas fir mix, willow, Douglas fir, and Douglas fir/sagebrush mix subtypes. The Douglas fir and Douglas fir/sagebrush habitats combined comprised about 31 percent of the wildlife analysis area, with the other subtypes comprising about 5 percent. The variety of structure in these woodland habitats provided a high species richness.
- Grassland includes bunchgrass and riparian grass subtypes, and comprised about 16 percent of the wildlife analysis area combined. Species recorded in the bunchgrass subtype were also recorded in the sagebrush subtype. Species recorded in the riparian grass subtype were also recorded in the water, willow, or sagebrush subtypes.
- Mesophytic Shrub includes low-growing moderately water-requiring shrubs and only occupied less than 2 percent of the wildlife analysis area. It contained a relatively small number of wildlife species.
- Agriculture includes hayfields or pasture and comprised less than 1 percent of the wildlife analysis area. This habitat type was found along Sheep Creek.
- Miscellaneous Features includes roads, buildings, water sources, and rock outcrops. Although this type comprised about 1 percent of the wildlife analysis area, the species richness was comparatively high (WESTECH 2015).

### **3.15.2.2. Endangered, Threatened, or Proposed Species**

According to the U.S. Fish and Wildlife Service county list (USFWS 2017) and IPaC resource list (IPaC 2018), there are three listed, proposed, or candidate species under the Endangered Species Act of 1973 for Meagher County: Canada lynx (*Lynx canadensis*; listed threatened), grizzly bear (*Ursus arctos horribilis*; listed threatened), and wolverine (*Gulo luscus*; proposed threatened).

According to WESTECH (2015), “the dominant vegetation that constitutes lynx habitat in the Northern Rocky Mountains is subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*) and lodgepole pine (*Pinus contorta*).” The forested portions of the wildlife analysis area consist mostly of ponderosa pine (*Pinus ponderosa*) and dry Douglas fir (*Pseudotsuga menziesii*). Therefore, preferred habitat for the Canada lynx is not available in the wildlife analysis area. Additionally, there is no listed Designated Critical Habitat for Canada lynx in the wildlife analysis area (WESTECH 2015; IPaC 2018). Any occurrences would likely include transient individuals, although no Canada lynx have been recorded within 10 miles of the Project area (WESTECH 2015). Typical home range sizes for Canada lynx are 6.2 to 7.7 square miles (MTNHP 2018). As such, the likelihood of Canada lynx occurrence within the wildlife analysis area is very low.

The grizzly bear primarily uses meadows, riparian zones, mixed shrub fields, and closed and open timber habitats (MTNHP 2018). There is potential preferred habitat in the wildlife analysis area for the grizzly bear. There have also been occurrences of the grizzly bear in the region.

According to FWP (FWP, Pers. Comm., November 30, 2017), “a sub-adult grizzly was detected on both 5/28/17 and 7/2/17 at the same location in the Big Belt mountains, approximately 35 air miles west of the [Project] location.” Additionally, two sub-adult male grizzly bears were lethally removed following a livestock depredation event north of the Little Belt Mountains (approximately 35 miles northeast of the Project location) on June 25, 2017 (FWP, Pers. Comm., November 30, 2017). The Project area is located between the Yellowstone and the Northern Continental Divide grizzly bear recovery zones (IGBC 2018). Although the wildlife analysis area is not located in either designated grizzly bear recovery zone, there is a potential for grizzly bears to occur in the wildlife analysis area. Typical home range sizes for grizzly bears are 48 to 297 square miles (MTNHP 2018).

The wolverine occupies primarily roadless wilderness areas in alpine tundra, boreal and mountain forests (primarily pine, fir, and larch), and riparian areas in the western mountains (MTNHP 2018). There is no preferred habitat in the wildlife analysis area for wolverines and there is a very low likelihood of occurrence (WESTECH 2015). Typical home range sizes for wolverines are 150 to 163 square miles (MTNHP 2018).

### **3.15.2.3. *Species of Concern***

FWP defines Montana SOC as “native animals breeding in the state that are considered to be ‘at risk’ due to declining population trends, threats to their habitats, and/or restricted distribution” (FWP 2018e). Montana maintains a list of vertebrate wildlife species that are of special concern. The wildlife analysis area includes potential habitat for 47 SOC, potential SOC, or special status species, although only 13 species (1 mammal and 12 birds) were recorded in the wildlife analysis area (see **Table 3.15-2**). For any wildlife SOC that were observed by WESTECH (2015), information about the species was recorded including habitat and location of the observation. Surveys for the species below occurred between August 2014 and August 2015, with most of the survey efforts occurring between April and August 2015.

**Table 3.15-2  
Potential Occurrence of Listed Terrestrial Species or Species of Concern**

Species	Preferred and/or Breeding Habitat in the Wildlife Analysis Area	Recorded in or near the Wildlife Analysis Area	Recorded within 12 miles of Wildlife Analysis Area	Potential Occurrence in or near Wildlife Analysis Area
<b>Amphibians</b>				
Western toad	Yes		X	High
<b>Reptiles</b>				
Western milksnake	Yes			Low – on range periphery
<b>Mammals</b>				
Hayden’s shrew	Yes			Low – on range periphery
Merriam’s shrew	Yes			Low – on range periphery
Dwarf shrew	Yes			Moderate
Preble’s shrew	Yes			Moderate
Townsend’s big-eared bat	Yes			Moderate
Spotted bat	No			Low – no preferred roosting habitat and near elevation limit
Silver-haired bat	Yes			Moderate
Hoary bat	Yes			Moderate
Little brown myotis	Yes			Moderate
Fringed myotis	Yes			Moderate
Porcupine	Yes	X		Very high
Water vole	Yes			Low – on range periphery
White-footed mouse	Yes			Moderate
Swift fox	Yes			Low – on range periphery
Canada lynx	No			Low – limited habitat
Grizzly bear	Yes			Low

Species	Preferred and/or Breeding Habitat in the Wildlife Analysis Area	Recorded in or near the Wildlife Analysis Area	Recorded within 12 miles of Wildlife Analysis Area	Potential Occurrence in or near Wildlife Analysis Area
<b>Birds</b>				
Greater sage-grouse	Yes		X	Moderate
Great blue heron	Yes	X	X	Very high – no nesting habitat
Bald eagle	Yes	X	X	Very high – no nesting habitat
Northern goshawk	Yes	X	X	Very high
Ferruginous hawk	Yes	X		Very high
Golden eagle	Yes	X	X	Very high
Long-billed curlew	Yes		X	Moderate
Western screech-owl	Yes			Low – on range periphery
Northern hawk owl	Yes			Moderate
Great gray owl	Yes	X		Very high
Short-eared owl	Yes			Moderate
Common poorwill	Yes			Moderate
Rufous hummingbird	Yes	X		Very high
Pileated woodpecker	Yes			Low – limited habitat
Loggerhead shrike	Yes			Moderate
Plumbeous vireo	Yes			Low – on range periphery
Clark’s nutcracker	Yes	X	X	Very high
Brown creeper	Yes		X	Moderate – limited habitat
Varied thrush	Yes			Low – limited habitat
Sage thrasher	Yes			Moderate
Green-tailed towhee	Yes			Low – very limited habitat
Brewer’s sparrow	Yes	X	X	Very high
Sagebrush sparrow	Yes			Low – on range periphery
Baird’s sparrow	Yes	X		Very high – on range periphery
Bobolink	Yes	X	X	Very high – very limited habitat and near elevation limit

<b>Species</b>	<b>Preferred and/or Breeding Habitat in the Wildlife Analysis Area</b>	<b>Recorded in or near the Wildlife Analysis Area</b>	<b>Recorded within 12 miles of Wildlife Analysis Area</b>	<b>Potential Occurrence in or near Wildlife Analysis Area</b>
Gray-crowned rosy-finch	Yes			Moderate – no nesting habitat
Black rosy-finch	Yes			Moderate – no nesting habitat
Cassin’s finch	Yes	X	X	Very high
Evening grosbeak	Yes		X	Moderate

Source: WESTECH 2015



The following are descriptions of the species occurrences in the wildlife analysis area listed in **Table 3.15-2**:

- Sign of porcupine (*Erethizon dorsatum*) (i.e., chews) was occasionally observed within Douglas fir forest types (WESTECH 2015). There is suitable habitat within the wildlife analysis area for porcupines.
- Both bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are often seen in the wildlife analysis area, particularly during migration periods, and there is suitable habitat within the area. A juvenile bald eagle was observed over a hay field in August 2015. Three separate golden eagles were observed along Sheep Creek in September 2014, near Little Sheep Creek feeding on a Richardson's ground squirrel (*Urocitellus richardsonii*) in June 2015, and over Douglas fir forest in August 2015. The nearest bald and golden eagle nest observations are along the Smith River, about 11 to 12 miles from the Project area (WESTECH 2015). Although individuals were observed in the Project vicinity, potentially suitable nesting habitat within the wildlife analysis area was surveyed and no nests were found.
- There was one observation of a northern goshawk (*Accipiter gentilis*) in April 2015 between Douglas fir and sagebrush habitats. Although several nests have been recorded within 10 miles of the Project area and WESTECH (2015) surveyed suitable nesting habitat, no nests were found.
- Ferruginous hawks (*Buteo regalis*) were sighted on two occasions over sagebrush habitats in September 2014 and 2015, which suggests they were transients/migrants. Although there is suitable nesting habitat present, no nests are recorded within 10 miles of the Project area (WESTECH 2015).
- Great gray owl (*Strix nebulosa*) was observed by WESTECH (2015) in September 2014. Although there are several occurrence records within 25 miles of the Project area, there are no nest records within 10 miles and no nests were observed by WESTECH (2015). However, suitable nesting habitat is present within the wildlife analysis area.
- Great blue herons (*Ardea herodias*) have been observed along Sheep Creek, although nesting was not documented by WESTECH (2015). The wildlife analysis area elevation may be too high to support great blue heron nesting, as most Montana records occur below 5,000 feet (WESTECH 2015).
- Rufous hummingbird (*Selasphorus rufus*) is a potential SOC, meaning more information is needed about the species to determine its status. It was observed in July 2015 in aspen and willow habitats and there is suitable habitat in the wildlife analysis area (WESTECH 2015).
- Clark's nutcracker (*Nucifraga columbiana*) was observed multiple times within Douglas fir habitats of the wildlife analysis area. This nutcracker depends on conifer (especially pine) seeds. Loss of pine forests to fires, disease, and bark beetles could affect populations of the nutcracker (WESTECH 2015).

- Brewer's sparrow (*Spizella breweri*) was not observed by WESTECH (2015) during the 2014 to 2015 surveys, but they have been recorded in the wildlife analysis area before by the University of Montana's Avian Science Center monitoring (WESTECH 2015). They primarily occupy sagebrush habitat, and so loss of this habitat could affect the species.
- Baird's sparrow (*Ammodramus bairdii*) was observed in May 2015 by WESTECH (2015) in sagebrush habitat. Since the wildlife analysis area is located on the edge of the species' range, so it is possible the observed birds were migrating through wildlife analysis area and may not have been local residents.
- Bobolinks (*Dolichonyx oryzivorus*) were recorded in the wildlife analysis area near Sheep Creek in July 2015 in a hayfield/pasture habitat (WESTECH 2015). Its preferred habitat of old fields is limited in the wildlife analysis area.
- Cassin's finch (*Haemorhous cassinii*) was not observed by WESTECH (2015) during the 2014 to 2015 surveys, but they have been recorded in the wildlife analysis area before by the University of Montana's Avian Science Center monitoring (WESTECH 2015).

#### **3.15.2.4. Big Game Species**

Big game species include any large mammals defined as "game animals" by FWP (§ 87-2-101(4), MCA) that could potentially occur in the wildlife analysis area, including: pronghorn antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus*), moose (*Alces americanus*), mountain lion (*Puma concolor*), and black bear (*Ursus americanus*) (WESTECH 2015). The gray wolf (*Canis lupus*) is also included in this category since it is a large mammal that can be hunted or trapped in Montana (WESTECH 2015). Observed species were recorded by species, date, time, habitat, age, sex, and Global Positioning System location, if possible. All of these species except moose and mountain lion were recorded in 2014 and 2015 by WESTECH (2015). However, Proponent personnel have observed moose in the surrounding area (WESTECH 2015). Additionally, mountain lions have been harvested within a few miles of the Project area, and it is possible that they occasionally utilize the wildlife analysis area. FWP has a Crucial Areas Planning System (CAPS) that assesses the importance of land for wildlife. This system was used to assess winter habitat for several of the big game species, with the results further discussed below (WESTECH 2015).

#### **Pronghorn Antelope**

Pronghorn antelope were observed multiple times (12 sightings totaling 85 individuals) by WESTECH (2015) during the 2014 to 2015 surveys. Almost all of the sightings occurred in open habitats (sagebrush and bunchgrass) in the spring and summer seasons. Antelope were observed starting in April and steadily increased in number until June. It is possible that fawning occurred in the wildlife analysis area. The maximum number of antelope observed at one time was 23 individuals in July 2015.

There is no pronghorn antelope winter range within the wildlife analysis area, as the sagebrush habitat elevation is too high and results in prolonged snow depths. WESTECH (2015) observed

antelope numbers declining by October and there were no winter sightings. FWP's CAPS mapping identified winter range 7 to 8 miles southwest of the Project area, which is likely where the summer resident antelope moved to in the winter.

### **Mule Deer**

Mule deer are commonly observed within the wildlife analysis area year-round. WESTECH (2015) recorded nine different sightings, totaling 24 individuals. There was a single sighting in autumn 2014, and two sightings that winter. Three sightings were recorded in spring 2015 followed by three sightings in summer 2015. Mule deer were observed in sagebrush, riparian grass, Douglas fir, bunchgrass, aspen, and low mesic shrub habitats. According to WESTECH (2015), CAPS mapping identified the wildlife analysis area as Class 3 mule deer winter range (Class 1 is highest and Class 4 is lowest for winter range quality).

The wildlife analysis area lies within FWP's Prairie/Mountain Foothills population management unit and Hunting District 416. The 2017 hunting regulations (FWP 2018a) would be considered restrictive (antlered buck only), indicating that mule deer numbers are less than desired.

### **White-tailed Deer**

White-tailed deer were observed eight different times (totaling nine individuals) by WESTECH (2015). Evidence of white-tailed deer (e.g., tracks, scat) was observed in stream bottom habitats along Sheep Creek and Little Sheep Creek. The sightings occurred in hayfields/pastures, along riparian areas, and in willows and riparian grass habitats. It is possible that fawning occurred within the wildlife analysis area as a fawn was observed with a doe in July 2015. Generally, white-tailed deer use the stream drainage areas within the wildlife analysis area, although they may also utilize the upland areas as well.

The high elevation, deep snow, and lack of suitable thermal cover and/or food sources in the wildlife analysis area likely prevent its use by white-tailed deer in winter (WESTECH 2015). Additionally, FWP's CAPS mapping did not identify the wildlife analysis area as white-tailed deer winter range. However, the Smith River to the west of the wildlife analysis area may contain enough habitat to support white-tailed deer in winter.

The wildlife analysis area lies within FWP's Prairie/Mountain Foothills population management unit and Hunting District 416. The 2017 hunting regulations (FWP 2018a) would be considered standard (either sex), indicating that white-tailed deer numbers are stable.

### **Elk**

WESTECH (2015) observed elk on five different occasions (totaling 23 individuals). One sighting occurred in October 2014, and the other four occurred in April and May 2015. The autumn sighting occurred in Douglas fir habitat, while the spring sightings occurred in Douglas fir, sagebrush, bunchgrass, and riparian grass habitats. Elk tracks were also observed at water features (e.g., seasonal or permanent ponds). It is possible that calving takes place in the wildlife analysis area, as calves were observed with cows in May.

FWP's CAPS mapping did not identify the wildlife analysis area as elk winter range. However, elk winter range is mapped within 2 to 3 miles west of the Project area. Since the sightings occurred in spring and autumn, it is likely that the wildlife analysis area is located in a transitional area between summer and winter elk ranges (WESTECH 2015).

The wildlife analysis area lies within FWP's elk Hunting District 416. According to WESTECH (2015), "FWP flies a winter aerial survey of approximately the western two-thirds of the district" including the wildlife analysis area. In 2017, FWP observed 913 elk in Hunting District 416, but the population objective for the district is 475 observed wintering elk (FWP 2018d). Therefore, the population is significantly over objective in this district.

### **Moose**

As mentioned above, no moose or their sign were observed by WESTECH (2015) during the 2014 to 2015 surveys. However, the Proponent personnel have reported that moose are occasionally observed in the wildlife analysis area (WESTECH 2015). Moose primarily occupy river valleys, mountain meadows, clear-cuts, willow flats, and swampy areas during the summer, but transition to closed canopy coniferous forests adjacent to willow flats during the winter (MTNHP 2018). It is likely that the closed canopy provides thermal protection from the wind and reduced snow depths. The riparian areas of Sheep Creek and Little Sheep Creek, along with the Douglas -fir stands, may offer potential habitat for moose.

The wildlife analysis area occurs within moose Hunting District 494. There were only four licenses available in this district in 2017, eligible for an either sex moose. Moose harvest in this district since 2010 has averaged about three to four moose per season (FWP 2018b).

### **Mountain Lion**

Though no sightings or sign were observed by WESTECH (2015) during the 2014 to 2015 surveys, a few mountain lions have been harvested within a few miles of the Project area between 2008 and 2017, and several have been taken within 6 miles of the wildlife analysis area. There is potential habitat (e.g., foothills, forests, shrublands) and prey species (e.g., deer, elk, porcupine) present. The wildlife analysis area is located in mountain lion Management Unit 416 (FWP 2018c). In 2015, there were five mountain lions harvested in this unit (FWP 2018b). As such, it is likely that some individuals occasionally occur in the wildlife analysis area.

### **Black Bear**

Black bears were observed four different times (totaling four individuals) within the wildlife analysis area by WESTECH (2015). The sightings occurred near a building site in autumn 2014, in Douglas fir habitat in spring 2015, and in aspen and Douglas fir habitats in summer 2015. Black bear tracks and scat were also observed near water features, and in aspen, Douglas fir, and riparian grass habitats. No evidence of denning was observed on the wildlife analysis area.

FWP records black bear harvest locations in the area. For the period of 2008 to 2017, there were more than 30 harvests within 6 miles of the Project area, including a few within the wildlife

analysis area. These harvest data appear to indicate that black bears are relatively common in the wildlife analysis area.

### **Gray Wolf**

The gray wolf has potential habitat (e.g., forests, shrublands, riparian areas) within the wildlife analysis area. Additionally, the year-round presence of ungulates (e.g., deer, elk) is one of the primary requirements for population occurrence (MTNHP 2018). However, no individuals or their sign were observed by WESTECH (2015) during the 2014 to 2015 surveys. Wolf packs occur primarily in western Montana, and the nearest known pack in 2015 was located more than 50 miles west of the Project area (FWP 2018g).

The wildlife analysis area is located within wolf Management Unit 390, and up to five wolves can be harvested per person per season (FWP 2018f). However, only one wolf was harvested via hunting within approximately 30 miles of the wildlife analysis area in 2016 (FWP 2018f). The majority of wolf harvests occurred further west and south of the wildlife analysis area, and more wolves were taken via hunting than trapping.

#### **3.15.2.5. Migratory Birds**

Migratory birds; parts, nests, or eggs of any such bird; or any products made from these are protected under the Migratory Bird Treaty Act. Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act. Neotropical migratory birds are species that spend their spring and summer breeding season in northerly latitudes until their chicks are fledged, but migrate south in the autumn to spend the winter months in warmer environments. FWP and § 87-2-101(7), MCA define migratory game birds as “waterfowl, including wild ducks, wild geese, brant, and swans; cranes, including little brown and sandhill; rails, including coots; Wilson's snipes or jacksnipes; and mourning doves.” Additionally, many nongame land birds are migratory species. According to WESTECH (2015), “the University of Montana’s Avian Science Center conducted long-term land bird monitoring throughout western Montana,” including land near the western edge of the wildlife analysis area, with the resulting observations included in the species list of WESTECH’s report (WESTECH 2015).

According to Appendix A of WESTECH (2015) and other wildlife surveys in the vicinity, there have been 76 bird species recorded in the wildlife analysis area. These include land birds, migratory game birds, upland game birds, and raptors. The majority of these species are protected under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act (in the case of bald and golden eagles).

#### **3.15.2.6. General Wildlife**

In addition to the species discussed above, several other reptiles/amphibians, bats, and furbearers were observed by WESTECH (2015), as described below.

## Reptiles and Amphibians

No amphibians were recorded by WESTECH (2015) during the 2014 to 2015 study. However, the Columbia spotted frog (*Rana luteiventris*) was incidentally observed along Sheep Creek and Little Sheep Creek by Stagliano (2018) during an aquatic survey. A juvenile western toad (*Anaxyrus boreas*), a Montana SOC, was incidentally recorded during 2016 summer surveys along Sheep Creek (Stagliano 2018). This species had been previously recorded by Stagliano (2018) within 1 mile of Sheep Creek sampling site SH22.7 (located approximately 0.5 mile east of the intersection of U.S. Route 89 and County Road 119), but had not been observed during the 2014 or 2015 surveys until summer 2016, and was not observed again in 2017.

The common garter snake (*Thamnophis sirtalis*) was the only reptile observed by WESTECH (2015) during the 2014 to 2015 study. This species was sighted several times in stream bottom habitats. Stagliano (2018) also observed common garter snakes during summer surveys in 2016 and 2017 along Tenderfoot Creek and Moose Creek.

## Upland Game Birds

Upland game birds, as defined under § 87-2-101(13), MCA, could also occur in the wildlife analysis area, including: gray partridge (*Perdix perdix*), ring-necked pheasant (*Phasianus colchicus*), ruffed grouse (*Bonasa umbellus*), greater sage-grouse (*Centrocercus urophasianus*), dusky grouse (*Dendragapus obscurus*), sharp-tailed grouse (*Tympanuchus phasianellus*), and wild turkey (*Meleagris gallopavo*).

WESTECH (2015) observed a dusky grouse during the 2014 to 2015 study, and ruffed grouse have also been observed in the area. Although there is suitable habitat for both species, displaying males were not heard in spring 2015, and so it is assumed that both species are uncommon in the wildlife analysis area (WESTECH 2015).

## Raptors

WESTECH (2015) recorded 11 raptor species in the wildlife analysis area: bald eagle, golden eagle, red-tailed hawk (*Buteo jamaicensis*), ferruginous hawk, rough-legged hawk (*Buteo lagopus*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), northern goshawk, American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and great gray owl. A Swainson's hawk (*Buteo swainsoni*) was also separately observed in the wildlife analysis area in late August 2011 (WESTECH 2015). Five of these species are discussed above in Section 3.15.2.3, Species of Concern, while the rest are discussed below:

- Red-tailed hawks were the most observed buteo (broad-winged) raptor in the wildlife analysis area (WESTECH 2015). One individual was observed in autumn 2014, four were observed in spring 2015, and one was recorded in summer 2015, all in Douglas fir habitat. Although there is suitable nesting habitat in the wildlife analysis area and the wildlife analysis area is at the right elevation for nesting in Montana, no active or inactive nests were found during the survey (WESTECH 2015).

- A single rough-legged hawk was observed in mid-October 2014, perched on a rock outcrop in grassland habitat. They are considered a migrant species/winter resident in Montana, but the deep snow in open habitats of the wildlife analysis area may limit prey availability.
- WESTECH (2015) observed two adult male northern harriers, one in spring 2015 and one in summer 2015. The hawks were recorded flying over sagebrush and riparian grass habitats. Although the wildlife analysis area contains suitable nesting habitat, most Montana records of the species are from below 5,500 feet in elevation and it is assumed northern harriers do not nest in the area.
- One sharp-shinned hawk was recorded in September 2014 in Douglas fir habitat (WESTECH 2015). Although suitable nesting habitat is available in the wildlife analysis area, it is likely that the observed individual was a migrant since there were no observations during the 2015 nesting season.
- WESTECH (2015) observed one female American kestrel flying over grassland habitat in late June 2015. Although the wildlife analysis area contains suitable nesting habitat, most Montana records of the species are from below 5,500 feet in elevation and it is assumed American kestrels do not nest in the area.
- One great horned owl was observed by WESTECH (2015) flushing from willow habitat in mid-July 2015. However, no other individuals were observed during surveys in late April, mid-May, and mid-June. As such, it is likely that the great horned owl is a transient or uncommon species in the wildlife analysis area.
- Although not observed by WESTECH during the 2014 to 2015 survey, a Swainson's hawk was recorded in the wildlife analysis area in August 2011 (WESTECH 2015). Potential foraging habitat, but no nesting habitat, is available in the wildlife analysis area for this species.

### **Furbearers and Other Mammals**

Fur bearing mammals, as defined under § 87-2-101(3), MCA, include beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), bobcat (*Lynx rufus*), northern river otter (*Lontra canadensis*), marten (*Martes americana*), and American mink (*Mustela vison*). Fur bearing mammals also include “predatory animals” (§ 87-2-101(11), MCA), such as coyote (*Canis latrans*), weasels (*Mustela* spp.), and striped skunk (*Mephitis mephitis*). Other medium and small-sized mammals are considered “nongame wildlife” by FWP (§ 87-2-101(8), MCA).

Medium-sized mammals observed in the wildlife analysis area included white-tailed jackrabbit (*Lepus townsendii*), mountain cottontail (*Sylvilagus nuttallii*), beaver, porcupine, yellow-bellied marmot (*Marmota flaviventris*), Richardson's ground squirrel, coyote, bobcat, and badger (*Taxidea taxus*). Evidence of beavers (i.e., chewed tree trunks) was observed along Big Sheep Creek, but beavers were considered uncommon in the wildlife analysis area (WESTECH 2015). Similarly, porcupine chews were occasionally observed in Douglas fir habitats. Yellow-bellied marmots were commonly observed in rock outcrops and nearby grasslands. Richardson's ground squirrels were common in several open habitats throughout the wildlife analysis area.

White-tailed jackrabbits were recorded in sagebrush and between sagebrush and Douglas fir habitats (WESTECH 2015), although they were considered uncommon in the wildlife analysis area. The mountain cottontail or its sign (e.g., pellets, hair) was recorded in several habitats and it was considered common. One badger was observed digging in the U.S. Route 89 barrow pit on the east side of the wildlife analysis area (WESTECH 2015). Badger sign (i.e., diggings) was commonly observed in sagebrush and bunchgrass habitats, especially near Richardson's ground squirrel locations.

Coyotes were observed three separate times in sagebrush and bunchgrass habitat subtypes. Coyote sign (e.g., tracks, scat, hair) was commonly recorded in several habitats throughout the wildlife analysis area.

WESTECH (2015) observed one bobcat in Douglas fir habitat on the southern edge of the wildlife analysis area. For the period of 2008-2017, FWP reported more than 10 bobcat harvests within 6 miles of the Project area, including a few within the wildlife analysis area. Female bobcats in western Montana frequently have average home ranges of 23 square miles, while males occupy home ranges closer to 31 square miles (WESTECH 2015). While bobcats appear somewhat common in this region, the wildlife analysis area would represent about 25 to 35 percent of the home range of a single bobcat.

Small mammals were not quantitatively sampled by WESTECH (2015), but readily observed species were recorded. Small mammals commonly observed in the wildlife analysis area included northern pocket gopher (*Thomomys talpoides*), red squirrel (*Tamiasciurus hudsonicus*), and chipmunks (*Tamias* spp.). A bushy-tailed woodrat (*Neotoma cinerea*) midden (i.e., collection of branches, twigs, grasses, or leaves surrounding a nest) was observed in a rock outcrop subtype habitat. Additionally, weasels have been observed near building sites by Proponent personnel (WESTECH 2015).

## **Bats**

Though no acoustic surveys were conducted as part of the 2014 to 2015 surveys, bat species occurrences were recorded when observed (WESTECH 2015). There are 11 bat species that could potentially occur in the wildlife analysis area (WESTECH 2015). WESTECH (2015) recorded unidentified bat species in several different habitats at dusk in June 2015.

### **3.15.3. Environmental Consequences**

#### ***3.15.3.1. No Action Alternative***

Under the No Action Alternative, the Project as described above would not occur. No underground mine or associated infrastructure would be built. The Project area consists of privately owned surface rights, so the existing land uses of cattle ranching, hay production, and recreational use (i.e., hunting and fishing) would continue to occur. There would be an ongoing risk of wildlife-vehicle collisions from traffic along County Road 119 and U.S. Route 89 due to residential use and exploration activities. The Proponent may continue other exploration activities in the Project area under their updated and approved exploration license, which could



displace wildlife near the portal entrance during construction and exploration activities. The habitat in the wildlife analysis area would likely continue to be used as it is currently used by the various species discussed in Section 3.15.2 until exploration activities cease.

### **3.15.3.2. Proposed Action**

Under the Proposed Action, the Project area would be developed during construction and operated throughout the life of the mine. Primary (direct) impacts to wildlife species would occur in the same area and at the same time as the disturbance, while secondary impacts are further impacts to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action.

The Project is modeled to comply with primary and health-based air quality standards, and so it would be protective of wildlife and vegetation. Though dust would be likely during dry conditions over the course of the Project, the dust would comply with standards. Additionally, dust control measures (i.e., spraying roads) would be implemented in the Project area to reduce the impacts of fugitive dust. As such, any fugitive dust impacts on wildlife or habitat within the Project area would be negligible.

Mine-related water discharged to the Sheep Creek alluvial infiltration gallery would be treated and required to meet non-degradation criteria throughout operations. Impacts on base flow of Sheep Creek as a result of mine dewatering and disposal of treated water to the alluvial UIG are expected to be negligible and to partially offset one another. As such, surface water quantity would not adversely change during the life of the mine as a result of the Proposed Action. It is unlikely that the Project would affect habitat for aquatic wildlife or species that drink from the creek. Therefore, secondary impacts on animals or habitat in the Project area (due to a change in surface water quality or quantity) would be negligible.

Baseline investigations identified 9 seeps and 13 springs in the Project area, and some of the sites are located within the area that could be affected by the mine drawdown cone, including springs developed for stock use (**Figure 3.5-3**). Many of the springs and seeps appear to be connected to perched groundwater bodies and may only flow seasonally; these would not likely be directly affected by creation of the deeper groundwater drawdown cone. Wetland vegetation and wildlife utilizing these areas as habitat may be affected, if springs or seeps are depleted by dewatering. Spring flow would be anticipated to reestablish when shallow groundwater recovers to baseline conditions, within two years after the cessation of dewatering.

The PWP would have a footprint of 23.9 acres, and would contain slightly acidic process water (pH of approximately 5.8)<sup>1</sup>. The PWP would primarily store thickener overflow from the mill, as well as contact water from precipitation and run-on, and collected water from the foundation drain collection ponds (Tintina 2017). The overall chemistry of the PWP is dominated by the thickener overflow, which provides 93 percent of the flow (Tintina 2017). The predicted solution

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<sup>1</sup> The pH scale is a logarithmic scale used to measure the acidity or alkalinity of a system. Distilled or pure water (not exposed to CO<sub>2</sub> in the atmosphere) has a neutral pH of 7. Liquids with a pH less than 7 are acidic (gastric acid, pH=1; orange juice, pH=3), while liquids with a pH greater than 7 are alkaline, or basic (ammonia, pH=11; bleach, pH=13). Rainfall, not affected by air pollutant emissions, typically has a pH of 5.3-5.6 in the western United States.

has a pH of 5.81, moderate sulfate (903 mg/L), and elevated concentrations of nitrates and metals, including copper, nickel, lead, antimony, and thallium (Enviromin 2017, Table 7-1). However, the predictive model for the PWP is based on the principle of mass balance and does not include likely geochemical processes that would occur *in situ* to attenuate metal concentrations (e.g., sorption of metals to ferrihydrite, or metals removal via flocculation and settling of particulate matter). Thus, concentrations of these parameters may be overestimated. It is possible that bird species may drink from the PWP and ingest the slightly acidic water with elevated concentrations of salts and metals. Ongoing operational monitoring has been proposed to validate model predictions and identify potential impacts to water resources in a timely manner and trigger the implementation of operational changes or mitigation measures.

The CWP would have a footprint of approximately 8.9 acres, and would contain surface run-off from the mill area, portal pad, WRS pad, copper-enriched rock storage pad, CTF road north of the mill, and from the CWP itself, as well as water from underground mine dewatering. This water could come into contact with potentially contaminated source material from the facilities. Additionally, brine generated as a byproduct from the WTP would be stored in a sub-cell brine pond (approximately 3 acres in size) in the western portion of the CWP. The brine cell may contain elevated metals and would have a high salinity (approximately like seawater). It is possible that bird species may drink from the CWP and ingest the water with elevated concentrations of salts and metals. As a mitigation measure, the Proponent proposes to place bird netting over the CWP brine pond, which would deter bird species from landing on the brine pond or consuming water from it.

Noise levels from the Project during construction and operations are modeled to attenuate to ambient levels within 1 to 2 miles of the disturbance. For example, **Table 3.11-7** states that there would be a maximum increase of +5 dBA  $L_{eq}$  over ambient levels during construction, and a maximum increase of +2 dBA  $L_{eq}$  during operations. Similarly, **Table 3.11-8** shows there would be a +3 dBA  $L_{eq}$  increase over ambient levels due to traffic within 300 feet of U.S. Route 89, and a +2 dBA  $L_{eq}$  increase from 400 feet out to 10,000 feet. Wildlife species within the Project area would occasionally be disturbed by construction, blasting, or other Project noise. There would be a negligible effect to individuals further than 2 miles away from the disturbances because the noise would be similar to ambient levels past this distance. The Proponent proposed mitigation measures to reduce noise impacts near the mine site (Tintina 2017), including:

- On all diesel-powered construction equipment, replace standard back-up alarms with approved broadband alarms that limit the alarm noise to 5 to 10 dBA above the background noise.
- Install high-grade mufflers on all diesel-powered equipment.
- Restrict the surface and outdoor construction and operation activities to daytime hours (7:00 a.m. to 7:00 p.m.).
- Combine noisy operations to occur for short durations during the same periods.
- Turn idling equipment off.

A potential secondary impact of the Proposed Action would include the introduction of invasive plant species to the site during construction or operations. This could affect habitat and foraging for small mammals and grazing species in the future. However, the Proponent would utilize a weed management plan to reduce any of these impacts.

During construction and operations, approximately 311 acres of wildlife habitats would be altered or removed due to surface disturbances (see **Table 3.15-3**), which would make them unsuitable for wildlife use during the life of mine. However, reclamation efforts would take place to stabilize disturbed areas on a simultaneous schedule. At the end of mine life, permanent reclamation and closure would occur. Disturbed areas within the Project area would be recontoured to topography similar to the pre-mine conditions and revegetated in accordance with § 82-4-336, MCA. Stockpiled subsoil and topsoil from onsite would be used to prepare the seedbed. Three native revegetation seed mixes would be used to reclaim the disturbed areas to either upland shrub, conifer forest, or upland grass communities depending on the pre-mining vegetative communities present. Grassland and shrubland communities reclaimed on various Project feature areas would be available for wildlife use within three to five growing seasons, offering a similar level of habitat as currently exists. However, forested communities could take decades to provide a similar habitat structure to pre-mining conditions. Individual animals would likely be displaced into surrounding habitats during this time.

### **Habitat**

The Proposed Action, including a 10 percent construction buffer area, would disturb approximately 311 acres within the Project area. This disturbance includes new access roads, stockpiles, ponds, the mill and plant site, tailings facilities, and other associated mine facilities. Disturbance associated with construction and operations of these facilities would primarily affect wildlife habitat in the immediate vicinity, and the largest habitat losses would include sagebrush, sagebrush/bunchgrass, and Douglas fir/sagebrush habitats. However, road construction, maintenance, and use would also result in the loss of wildlife habitat and additional activity within the wildlife analysis area. **Table 3.15-3** lists the habitat types affected by the Proposed Action.

**Table 3.15-3  
Proposed Action Habitat Impacts in Wildlife Analysis Area**

<b>Habitat Type</b>	<b>Disturbed Acres</b>
Aspen	0.5
Buildings	0.4
Bunchgrass	1.9
Douglas fir	23.9
Douglas -fir/sagebrush	59.3
Hay/pasture	0.1
Low mesophytic shrub	0.0
Riparian grass	1.4
Road	0.5
Sagebrush	110.7
Sagebrush/bunchgrass	83.2
Willow	0.6
<b>Sub-total</b>	<b>282.5<sup>a</sup></b>
Construction buffer (10%)	28.3
<b>TOTAL</b>	<b>310.8<sup>a</sup></b>

Source: WESTECH 2015

<sup>a</sup> Acreage total is less than reported in **Table 2.2-1** due to rounding.

### **Endangered, Threatened, or Proposed Species**

As discussed in Section 3.15.2.2, there is no identified preferred habitat for Canada lynx or wolverine in the wildlife analysis area, but both species could potentially occur as transients in the area. The approximately 311 acres of surface disturbances from the Project would represent 6 to 8 percent of a single home range for Canada lynx and approximately 0.3 percent of a single home range for wolverines. An increase in traffic due to employees, support vehicles, or concentrate trucks along haul roads, access roads, and main roads would likely represent the largest potential impact to transient individuals due to potential wildlife-vehicle collisions or avoidance behavior. However, given the lack of occurrences and large home ranges of both species, it is unlikely that the Proposed Action would affect the Canada lynx or wolverine.

The grizzly bear has potential preferred habitat in the wildlife analysis area. Given the large home ranges of the grizzly bear, the surface disturbances from the Project would represent about 0.2 to 1.0 percent of an individual's home range. Although no individuals have been observed in the wildlife analysis area, three sub-adult individuals were observed within 35 miles of the Project area in 2017. Transient grizzly bears may use the wildlife analysis area's grassland, sagebrush, and riparian areas along Sheep Creek and Little Sheep Creek. There would be a minor reduction of bunchgrass or riparian grass habitats, while 1.5 percent of sagebrush/bunchgrass habitats and 2 percent of sagebrush habitats would be impacted within the wildlife analysis area (see **Table 3.15-3**). This would be a relatively small and temporary loss of habitat since the area would be reclaimed at closure. Post-closure, the reclaimed Project area would not offer similar

habitat structure as pre-mining conditions for several years or decades, but the removal of structures and human activity would likely eliminate the displacement effect on grizzly bears.

There would be an increase of approximately 160 daily vehicle trips by employees and 8 truck round trips per day during construction. During operations, there would be an increase of 18 concentrate truck round trips per day, 6 supply truck round trips per day, and 477 employee vehicle trips per day. Linear features and roads, along with associated traffic, have historically had a displacement effect on grizzly bears (McLellan and Shackleton 1988; Lamb et al. 2018). As such, it is expected that grizzly bears using the wildlife analysis area in the future would avoid haul roads, access roads, and main roads during construction, operations, and reclamation and closure, and there would be a low likelihood of vehicle collisions. Given the low likelihood but severity of a collision (for human safety and taking a listed species), there could be a potential effect on the grizzly bear.

Additionally, noise impacts throughout construction, operations, and reclamation could disturb individual bears and result in changes in animal movement through the area. However, Project-related noise during construction and operations is modeled to attenuate to ambient noise levels within 1 to 2 miles of the Project features. Since there is suitable habitat surrounding the Project area and mitigation measures would be used to reduce the noise impacts, individual bears could likely avoid Project activities that generate noise during the life of the mine (2 years of construction and development mining, 13 years of active production mining, and 4 years of reclamation and closure).

All water-bearing lined ponds would be surrounded with eight-foot-tall chain-link fencing within the Project area, which would exclude grizzly bears from accessing the PWP, CWP, or TWSP.

### **Species of Concern**

The Montana SOC that were observed in the wildlife analysis area (see **Table 3.15-2**) would likely be affected by habitat loss and noise during construction and operations (approximately 15 years). During reclamation activities (approximately four years), Project features would be reclaimed and revegetated, but the displacement would likely be similar to construction and operations. Ground-nesting birds and small mammals may face individual mortalities due to construction, operations, and reclamation activities, but it is unlikely there would be population level effects. They would likely also be displaced from the disturbance areas and may avoid habitats within 1 mile of the Project features due to noise. However, the wildlife analysis area is part of a contiguous, montane, sagebrush steppe habitat where wildlife densities are generally low, especially in the fall and winter. There is likely sufficient habitat adjacent to the disturbance areas to supply most of the habitat needs for the wildlife species observed by WESTECH (2015). Further, the Proponent would implement mitigation measures to reduce noise impacts on sensitive wildlife species. For example, construction activities and operations would be restricted to daytime hours to avoid impacts on sensitive nocturnal species (e.g., bats, owls). To reduce effects on species active during the day, equipment would be muffled, idling engines would be turned off, and loud activities would be scheduled to occur simultaneously for short durations.

All water-bearing lined ponds would be surrounded with eight-foot-tall chain-link fencing within the Project area, which would exclude medium and large mammals from using the PWP, CWP, or TWSP. However, avian, small mammal, or amphibian SOC's may drink water from these ponds. These wildlife species could potentially be exposed to water with elevated concentrations of metals, sulfate, and salts in the PWP or CWP. An increase in the surface water area of almost 24 acres for the PWP, almost 9 acres for the CWP, and approximately 20 acres for the TWSP would likely attract waterfowl, water birds, and songbirds in an area lacking large surface water features. Avian species not adapted to encountering saline fluids can suffer from sodium toxicity at very high doses, although it is unlikely that the PWP or CWP would reach salinity levels that high. Predicted water quality in the PWP would pose little acute threat to waterfowl that may land on the pond, precluding the need for netting to limit avian access. However, water quality in the PWP would be monitored and mitigation measures would be implemented if impacts to wildlife are expected. The TWSP would store treated water, and it is not expected to be an issue for SOC. As a mitigation measure, the Proponent proposes to place bird netting over the CWP brine pond, which would deter bird species from landing on the brine pond or consuming water from it.

### **Big Game Species**

Big game species are somewhat common, but not abundant in the wildlife analysis area. Approximately 311 acres of habitat would be directly disturbed by the Project, which would remove potential habitat for several big game species. The Project area may be located in a transitional zone for migrating ungulate species (e.g., deer, elk). According to WESTECH (2015), the area is mapped as mule deer winter range, though mule deer were only observed twice in winter. Brown et al. (2012) observed that ungulates (e.g., elk and pronghorn) in northwest Wyoming quickly became accustomed to human disturbance and were less responsive to increasing levels of vehicle traffic and noise. There could also be an increased possibility of wildlife-vehicle collisions due to the increased traffic associated with the Project. As mentioned above, all water-bearing lined ponds would be surrounded with eight-foot-tall chain-link fencing within the Project area, which would exclude big game mammals from using the PWP, CWP, or TWSP.

The predatory big game species (e.g., mountain lions, black bears, and gray wolves) tend to be more reclusive and may be displaced by habitat disturbance and increased human activity in the Project area. This avoidance effect may also reduce the likelihood of wildlife-vehicle collisions. There is abundant adjacent habitat for big game predators.

### **Migratory Birds**

The Proposed Action would disturb potentially suitable foraging or nesting habitat for several migratory bird species. Noise and light disturbance would likely disturb songbirds and raptors within 1 mile of the Project features, as noise pollution can stress birds and interfere with mating calls and light pollution can interrupt activity cycles. However, there is adjacent suitable habitat within the wildlife analysis area such that the Project features could be avoided. Further, the Proponent would implement mitigation measures to reduce impacts due to noise, including

scheduling loud activities to occur simultaneously for short durations and restricting outdoor operations to daytime hours.

Avian species may drink water from the PWP, CWP, or TWSP. These wildlife species could potentially be exposed to water with elevated concentrations of metals, sulfate, and salts in the PWP or CWP. An increase in the surface water area of almost 24 acres for the PWP, almost 9 acres for the CWP, and approximately 20 acres for the TWSP would likely attract migratory waterfowl species in an area lacking large surface water features. Avian species not adapted to encountering saline fluids can suffer from sodium toxicity at very high doses, although it is unlikely that the PWP or CWP would reach salinity levels that high. Predicted water quality in the PWP would pose little acute threat to waterfowl that may land on the pond, precluding the need for netting to limit avian access. However, water quality in the PWP would be monitored and mitigation measures would be implemented if impacts to wildlife are expected. The TWSP would store treated water, and it is not expected to be a concern to migratory bird species. As a mitigation measure, the Proponent proposes to place bird netting over the CWP brine pond, which would deter bird species from landing on the brine pond or consuming water from it.

### **Other Animals**

Direct impacts on other animals in the Project area would be similar to those discussed above for listed species or SOC. Approximately 311 acres would be disturbed, which would displace noise-sensitive species and reduce the available nesting, roosting, and foraging habitat for several wildlife species. However, there is adjacent suitable habitat within the wildlife analysis area such that the Project features could likely be avoided.

Reptiles, amphibians, game birds, raptors, bats, and small mammals could potentially be impacted from consuming water from the PWP or CWP. Water quality in the PWP would be monitored and mitigation measures would be implemented if impacts to wildlife are expected. As a mitigation measure, the Proponent proposes to place bird netting over the brine pond portion of the CWP, which would deter most species from accessing the brine pond or consuming water from it.

Mine-related discharge water would eventually flow to surface waters, but it would not negatively affect amphibian populations, such as the Columbia spotted frog or western toad. Discharge water would be treated to meet non-degradation criteria and surface water standards that are protective of amphibians. Surface water quantity would not adversely change during the life of the mine as a result of the Proposed Action, and it is unlikely to affect habitat for aquatic wildlife. Amphibians and small animals that utilize seeps and springs affected by the Project may experience a loss of water until shallow groundwater recovers to baseline conditions.

### **Smith River Assessment**

The Smith River is located approximately 12 miles west of the Project area. Wildlife species with large home ranges or highly mobile species may travel between the two areas seasonally, and they are discussed below. Small mammals, reptiles, and amphibians are unlikely to migrate between the two areas and are not discussed further.

All water discharges from the Project would be required to meet water quality standards and non-degradation criteria. As such, it would not negatively affect wildlife species along Sheep Creek or downstream to the Smith River. Surface water quantity would vary seasonally but would not adversely change during the life of the mine as a result of the Proposed Action. Consequently, there would likely be no effect to wildlife and riparian habitat along the Smith River.

Noise levels from the Project during construction and operations are modeled to attenuate to ambient levels within 1 to 2 miles of the disturbance. As such, wildlife species near the Smith River would not be affected by noise from the Project.

The Project is modeled to comply with primary and health-based MAAQS and NAAQS, and so they are expected to also be protective of wildlife and vegetation. Dust control measures (e.g., spraying roads) would be implemented in the Project area to reduce the impacts of fugitive dust. As such, any fugitive dust effects on wildlife near the Smith River would be negligible.

#### *Potential Secondary Impacts to Wildlife Species*

Grizzly bears typically have large home ranges that could potentially include the wildlife analysis area and the Smith River. There is a potential for grizzly bears to occur in the wildlife analysis area. However, if individual grizzly bears were displaced from the Project area due to disturbances and human activity, there is adequate adjacent habitat for them to avoid the area. There would be a negligible effect on grizzly bears that occur near the Smith River due to the Project.

Both the bald eagle and golden eagle have mapped nest sites along the Smith River, approximately 11 to 12 miles from the wildlife analysis area. Since habitat along Sheep Creek would not be directly disturbed and there is adjacent habitat for migrating individuals, there would likely be negligible impacts to the bald or golden eagles that nest along the Smith River. There would also be negligible impacts to other raptors and migratory bird species that travel between the wildlife analysis area and the Smith River seasonally.

Big game species may seasonally travel between the wildlife analysis area and the Smith River. While not formally mapped as white-tailed deer winter range, it is likely that white-tailed deer observed near the wildlife analysis area winter in bottomlands near the Smith River (WESTECH 2015). Because the Proposed Action is unlikely to affect big game species, impacts to the white-tailed deer or other big game species near the Smith River would be negligible.

Other wildlife species that could potentially travel between the two areas would face the same conditions, and it is unlikely they would be affected.

#### **3.15.3.3. Agency Modified Alternative**

Under the AMA, the Project would include all the same components as the Proposed Action with one exception: backfilling additional mine workings, access ramps, and ventilation shafts. The additional backfill component of the AMA would not impact any additional habitat because the surface disturbance footprint would not change. However, it would likely result in longer periods



of time where mining and milling equipment would operate to accomplish backfilling. This operational noise could affect terrestrial wildlife within 1 to 2 miles of the Project, as with the Proposed Action. It is possible, although unlikely, that this increase in operational machinery within the Project footprint could result in additional wildlife-vehicle collisions, as well. Fencing around the facilities would exclude large mammals from this impact, but birds and small mammals may still be impacted.

### **Smith River Assessment**

The AMA modifications would result in impacts similar to those described for the Proposed Action. Noise levels from the Project during operations under the AMA are expected to attenuate to ambient levels within 1 to 2 miles of the disturbance. As such, wildlife species near the Smith River would not be affected by noise from the Project.