

EXHIBIT 312A – FISH AND WILDLIFE PLAN

Appendix A:

**FISH AND WILDLIFE RESOURCES CONSERVATION PLAN
OTTER CREEK MINE
POWDER RIVER COUNTY, MONTANA**

Prepared for:

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1.0 Introduction

Otter Creek Coal, LLC (OCC) plans to develop the Otter Creek Mine, a surface coal mine located approximately six miles southeast of Ashland in Powder River County, Montana. In 2010 OCC initiated inventories of natural resources in the mine area. Field data collection for the fish and wildlife resources study began in August 2010 and continued through June 2013, as described in three reports (Farmer 2012, 2013, 2014).

The Montana Department of Environmental Quality (MDEQ) has requested that a conservation plan to address Montana Species of Concern, and federally listed endangered or threatened species, be included in the Fish and Wildlife Plan.

The Montana list of Species of Concern (SOC), Potential Species of Concern (PSOC) and Special Status Species (SS) (MTNHP and FWP 2014) includes species that are listed, proposed for listing or candidates for listing under the Endangered Species Act (ESA) of 1973, as amended (FWS 2014). For the purposes of this plan, all these species are vertebrates. No terrestrial invertebrate SOC are known to occur in or near the Otter Creek Mine area (Farmer 2014). As discussed by Stagliano (2014), only one aquatic invertebrate species (a mayfly, (*Caenis youngi*)) has been documented in the study area. For the purposes of this plan, it is assumed that conservation measures proposed for aquatic vertebrate species will serve a similar function for this invertebrate.

1.1 Objectives

The objectives of the Otter Creek Mine fish and wildlife resources conservation plan are:

- Determine fish and wildlife ESA, SOC, PSOC and SS present in and adjacent to the proposed permit area;
- Describe habitat relationships of these species; and
- Propose conservation measures to mitigate potential effects of the Otter Creek Mine to these species.

2.0 Species Occurrence

OCC has identified three tracts that could eventually be developed for the Otter Creek Mine (i.e., the potential life-of-mine area), but only Tract 2 is under consideration at present. For purposes of this plan, the “study area” comprises the Primary, Secondary and Aerial Survey study areas described in Baseline Report 304K – Fish and Wildlife Resources of the Otter Creek Mine Area 2010-2011:

- The Primary Study Area was Tract 2 (approximately 12 mi²) plus a one-mile buffer, which encompassed the proposed mine facilities area.
- The Secondary Study Area comprised Tracts 1 (approximately 8 mi²) and 3 (about 9 mi²); and
- The Aerial Survey Area was defined by a two-mile buffer around all three tracts; the area covered by aerial surveys was approximately 106 mi². Wildlife habitats within the Aerial Survey Area were mapped by Farmer (2012).

For the purposes of this plan, the “permit area” comprises the area within the study area boundary identified by OCC in its permit application to MDEQ, and is hereby incorporated by reference. Wildlife habitats within the permit area were mapped by Farmer (2012, 2014).

Farmer (2012, 2013, 2014) developed a list of ESA, SOC, PSOC and SS for the Otter Creek Mine, determined whether preferred habitat was available in the study area for each species, and estimated relative abundance of each species based on detection probabilities. The most recent list of 95 species (12 fish, 2 amphibians, 5 reptiles, 16 mammals and 60 birds) was derived from MTNHP and FWP (2014) and Farmer (2014), and is presented as Table 1. For the purposes of this plan, these species were divided into two categories:

Table 1. Vertebrate threatened or endangered species, and Montana Species of Concern, potentially occurring in the region encompassing the Otter Creek Mine.

Species	Category		Preferred Habitat ^c	Preferred Habitat ^f		Recorded During Study ^e	Eliminated From Further Consideration
	I. ESA ^a /SOC ^b	II. PSOC/SS ^b		In Study Area ^d	In Mine Permit Area ^d		
FISH							
Pallid sturgeon (<i>Scaphirhynchus albus</i>)	LE/SOC		Large, turbid rivers over sand and gravel bottoms.	No	No		X
Paddlefish (<i>Polyodon spathula</i>)	SOC		Slow or quiet waters of large rivers or impoundments.	No	No		X
Blue sucker (<i>Cycleptus elongates</i>)	SOC		Rivers with low turbidity and swift current.	No	No		X
Sturgeon chub (<i>Macrhybopsis gelida</i>)	SOC		Turbid water with moderate to strong current over bottoms ranging from rocks and gravel to coarse sand.	No	No		X
Creek chub (<i>Spernotilis atromaculatus</i>)		PSOC	Streams and creeks.	Yes	Yes		
Brassy minnow (<i>Hybognathus hankinsoni</i>)		PSOC	Clear, slow streams with silt or mud bottoms.	Yes	Yes	X	
Plains minnow (<i>Hybognathus placitus</i>)		PSOC	Larger streams, mouths of small streams.	Yes?	No		
Yellowstone cutthroat trout (<i>Oncorhynchus clarkii bowleri</i>)	SOC		Relatively clear, cold streams, rivers and lakes.	No	No		X
Burbot (<i>Lota lota</i>)		PSOC	Large rivers and cold, deep lakes and reservoirs.	No	No		X
Brook stickleback (<i>Culaea inconstans</i>)		PSOC	Dense vegetation in slow, clear streams and lakes.	No	No		X
Sauger (<i>Sander canadensis</i>)	SOC		Large, turbid rivers.	No	No		X
Iowa darter (<i>Etheostoma exile</i>)	SOC		Cool, clear, slow-flowing streams with solid bottoms.	No	No		X
AMPHIBIANS							
Great Plains toad (<i>Anaxyrus cognatus</i>)	SOC		Sagebrush/grasslands, breeds in stream valleys and small waterbodies.	Yes	Yes; limited		
Plains spadefoot (<i>Spea bombifrons</i>)	SOC		Prairie ponds with sandy soils and/or gravel-loam.	Yes	Yes; limited		
REPTILES							
Snapping turtle (<i>Chelydra serpentina</i>)	SOC		Backwaters of major rivers, smaller streams and creeks with permanent flowing water and sandy or muddy bottoms.	Yes	Yes	X	
Spiny softshell (<i>Apalone spinifera</i>)	SOC		Large rivers and tributaries with sandy or muddy banks and a soft bottom.	Yes	Yes		
Greater short-horned lizard (<i>Phrynosoma hernandesi</i>)	SOC		Ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soils.	Yes	Yes	X	

Table 1 (continued).

Western hog-nosed snake (<i>Heterodon nasicus</i>)	SOC		Arid areas, particularly with sandy or gravelly soil.	Yes	Yes	X	
Milksnake (<i>Lampropeltis trinagulum</i>)	SOC		Open sagebrush-grassland, pine savannah and badlands, often near rock outcrops.	Yes	Yes		
MAMMALS							
Merriam's shrew (<i>Sorex merriami</i>)	SOC		Arid sagebrush-steppe, non-native grasses and forbs, poorly developed riparian habitat at creekside.	Yes	Yes		
Pallid bat (<i>Antrozous pallidus</i>)	SOC		Ponderosa pine savannah, sagebrush-grassland with rock outcrops.	Yes	Yes	X	
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SOC		Roosts in caves and abandoned mines in ponderosa pine and cottonwood stands.	Yes	Yes		
Silver-haired bat (<i>Lasionycteris noctivagans</i>)		PSOC	Coniferous forests with nearby water.	Yes	Yes	X	
Eastern red bat (<i>Lasiurus borealis</i>)		PSOC	Migrates through eastern Montana, particularly along wooded and riparian areas.	Yes	Yes	X	
Hoary bat (<i>Lasiurus cinereus</i>)	SOC		Forests; roosts in trees, sometimes in crevices.	Yes	Yes	X	
Little brown myotis (<i>Myotis lucifugus</i>)	SOC		Forages over water; roosts in cliffs, caves and human-made structures.	Yes	Yes	X	
Fringed myotis (<i>Myotis thysanodes</i>)	SOC		Ponderosa pine, cottonwood, sagebrush-grassland; roosts in crevices, caves, mines, buildings.	Yes	Yes	X	
Yuma myotis (<i>Myotis yumanensis</i>)		PSOC	Dry coniferous forests and shrublands; roosts in bridges, buildings, mines, caves and trees.	Yes	Yes		
Spotted bat (<i>Euderma maculatum</i>)	SOC		Open, arid habitats, ponderosa pine savannah; roosts in caves, cracks and crevices in cliffs and canyons; forages over water.	Yes	Yes		
Meadow jumping mouse (<i>Zapus hudsonius</i>)		PSOC	Dense, tall, lush grass and forbs, often near water.	Yes	Yes		
Porcupine (<i>Erethizon dorsatum</i>)		PSOC	Coniferous and deciduous forests, brushy and riparian habitats.	Yes	Yes	X	
White-footed mouse (<i>Peromyscus leucopus</i>)		PSOC	Riparian woodland, thickets, shrubs.	Yes; limited	Yes; limited		
Black-tailed prairie dog (<i>Cynomys ludovicianus</i>)	SOC		Flat, open grasslands and shrub/grasslands.	Yes	Yes	X	
Swift fox (<i>Vulpes velox</i>)	SOC		Extensive blocks (>100,000 acres) of open prairie and arid plains, with relatively level topography and less than 50% disturbed by agriculture.	No	No		X
Black-footed ferret (<i>Mustela nigripes</i>)	LE/SOC		Prairie dog colonies of appropriate size.	No	No		X
BIRDS							
Trumpeter swan (<i>Cygnus buccinator</i>)	SOC		Migrant; lakes and ponds.	No	No		X
Barrow's goldeneye (<i>Bucephala islandica</i>)		PSOC	Waterbodies in montane regions.	No	No		X
Hooded merganser (<i>Lophodytes cucullatus</i>)		PSOC	Rivers with adjacent riparian forests.	No	No		X

Table 1 (continued).

Greater sage-grouse (<i>Centrocercus urophasianus</i>)	C/SOC		Sagebrush in all seasons.	Yes	Yes	X	
Common loon (<i>Gavia immer</i>)	SOC		Migrant; lakes with adequate prey (small fish).	No	No		X
Clark's grebe (<i>Aechmophorus clarkia</i>)	SOC		Migrant; large lakes and rivers.	No	No		X
Horned grebe (<i>Podiceps auratus</i>)	SOC		Migrant; marshes and shallow ponds with emergent vegetation.	Yes; limited	Yes; very limited		
Great blue heron (<i>Ardea herodias</i>)	SOC		Riparian and aquatic habitats.	Yes	No	X	
American bittern (<i>Botaurus lentiginosus</i>)	SOC		Large wetlands with tall emergent vegetation.	No	No		X
Black-crowned night heron (<i>Nycticorax nycticorax</i>)	SOC		Migrant; marshes, swamps or wooded streams.	No	No		X
American white pelican (<i>Pelecanus erythrorhynchos</i>)	SOC		Migrant; rivers, lakes and other waterbodies.	No	No		X
White-faced ibis (<i>Plegadis chihi</i>)	SOC		Migrant; wetlands with islands of emergent vegetation. Feeds in grasslands and marshes.	No	No		X
Bald eagle (<i>Haliaeetus leucocephalus</i>)		SS	Nests in riparian forests surrounding lakes and rivers; forages in all habitats with suitable prey or carrion.	Yes	No	X	
Northern goshawk (<i>Accipiter gentilis</i>)	SOC		Mature coniferous forests with limited undergrowth.	Yes	No		
Ferruginous hawk (<i>Buteo regalis</i>)	SOC		Shrub-grasslands, grasslands, sagebrush steppe.	Yes	Yes		
Golden eagle (<i>Aquila chrysaetos</i>)	SOC		Prairies, sagebrush/grassland and open woodlands.	Yes	Yes	X	
Peregrine falcon (<i>Falco peregrinus</i>)	SOC		Cliffs near waterbodies.	No	No		X
Piping plover (<i>Charadrius melodus</i>)	LT, CH/SOC		Migrant through study area; unvegetated shorelines in freshwater and saline wetlands.	No	No		X
Mountain plover (<i>Charadrius montanus</i>)	SOC		Prairie dog colonies; heavily grazed shortgrass prairies (vegetation <3 inches high) on ≤5% slopes.	Yes	Yes; limited		
Black-necked stilt (<i>Himantopus mexicanus</i>)	SOC		Migrant; medium to large wetland complexes.	No	No		X
Long-billed curlew (<i>Numenius americanus</i>)	SOC		Dry grasslands.	Yes	Yes		
Red knot (<i>Calidrus canutus</i>)	PT		Migrant; sandy or pebbly beaches.	No	No		X
Franklin's gull (<i>Leucophaeus pipixcan</i>)	SOC		Migrant through study area; relatively large prairie marshes with emergent vegetation.	No	No		X
Common tern (<i>Sterna hirundo</i>)	SOC		Migrant through study area; islands of large lakes and reservoirs.	No	No		X
Forster's tern (<i>Sterna forsteri</i>)	SOC		Marshes with reed beds and muskrat houses.	No	No		X
Caspian tern (<i>Hydroprogne caspia</i>)	SOC		Migrant through study area; large lakes and reservoirs.	No	No		X
Black tern (<i>Chlidonias niger</i>)	SOC		Wetlands, ponds, prairie potholes and reservoirs with emergent vegetation; nests on islands.	No	No		X

Table 1 (continued).

Black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	SOC		Riparian cottonwood and green ash with dense shrubby understory.	Yes; very limited	Yes; very limited		
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	SOC		Riparian woodland with dense shrubby understory.	Yes; very limited	Yes; very limited		
Eastern screech-owl (<i>Megascops asio</i>)		PSOC	River bottom cottonwood forests.	Yes; very limited	Yes; very limited	X	
Burrowing owl (<i>Athene cunicularia</i>)	SOC		Prairie dog colonies; grasslands, shrublands with abandoned burrows.	Yes	Yes	X	
Short-eared owl (<i>Asio flammeus</i>)		PSOC	Grasslands, plains and agricultural areas.	Yes	Yes	X	
Common poorwill (<i>Phalaenoptilus nuttallii</i>)		PSOC	Grasslands, shrublands, rocky foothills.	Yes	Yes	X	
Chimney swift (<i>Chaetura pelagica</i>)		PSOC	Chimneys, other man-made structures.	Yes	Yes; very limited		
Lewis' woodpecker (<i>Melanerpes lewis</i>)	SOC		River bottoms, mature ponderosa pine, forest edges, burned areas.	Yes	Yes		
Red-headed woodpecker (<i>Melanerpes erythrocephalus</i>)	SOC		Riparian forest, open pine savannah.	Yes	No	X	
Black-backed woodpecker (<i>Picoides arcticus</i>)	SOC		Early successional burned coniferous forest.	Yes?	No?		
Cassin's kingbird (<i>Tyrannus vociferans</i>)		PSOC	Open pine or riparian woodland.	Yes	Yes	X	
Loggerhead shrike (<i>Lanius ludovicianus</i>)	SOC		Willows, sagebrush, bitterbrush, greasewood.	Yes	Yes	X	
Plumbeous vireo (<i>Vireo plumbeus</i>)		PSOC	Warm, dry pine forests.	Yes	Yes		
Pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	SOC		Ponderosa and limber pine.	Yes	Yes	X	
Clark's nutcracker (<i>Nucifragacolumbiana</i>)	SOC		Coniferous forests.	Yes	Yes; limited	X	
Brown creeper (<i>Certhia americana</i>)	SOC		Mature coniferous and mixed forests.	Yes?	No?		
Eastern bluebird (<i>Sialia sialis</i>)		PSOC	Deciduous forests along rivers and streams.	Yes; limited	Yes; very limited	X	
Veery (<i>Catharus fuscescens</i>)	SOC		Riparian forests with dense understory; willows.	Yes?	No?		
Sage thrasher (<i>Oreoscoptes montanus</i>)	SOC		Dense sagebrush.	No	No		X
Sprague's pipit (<i>Antjus spragueii</i>)	SOC		Native, medium to intermediate height prairie.	Yes; limited	Yes; limited		
Chestnut-collared longspur (<i>Calcarius ornatus</i>)	SOC		Grazed or mowed grasslands, pastures.	Yes	Yes		
McCown's longspur (<i>Rhynchophanes mccownii</i>)	SOC		Shortgrass prairie, bare ground.	Yes	Yes		
Ovenbird (<i>Seiurus aurocailla</i>)		PSOC	Mature deciduous or deciduous/coniferous forests.	No	No		X
Black-and-white warbler (<i>Mniotilta varia</i>)		PSOC	Riparian habitat, mixed deciduous/coniferous woody draws.	No?	No		X
Tennessee warbler (<i>Oreothlypis peregrina</i>)		PSOC	Migrant; open woodlands.	Yes	Yes		
Green-tailed towhee (<i>Pipilo chlorurus</i>)	SOC		Thick, shrubby habitats.	Yes; very limited	Yes; very limited		
Brewer's sparrow (<i>Spizella breweri</i>)	SOC		Sagebrush.	Yes	Yes	X	
Baird's sparrow (<i>Ammodramus bairdii</i>)	SOC		Native prairie, tame pasture with no or little grazing.	Yes	Yes; limited	X	
Dickcissel (<i>Spiza americana</i>)		PSOC	Dense, moderate to tall herbaceous	No	No		X

Table 1 (continued).

			vegetation with moderate litter.				
Bobolink (<i>Dolichonyx oryzivorus</i>)	SOC		Tall and mixed grass prairies.	Yes?	No?		
Cassin's finch (<i>Haemorhous cassinii</i>)	SOC		Most forest types, particularly ponderosa pine.	Yes	Yes		
Gray-crowned rosy-finch (<i>Leucosticte tephrocotis</i>)	SOC		Nests in crevices above timberline; in winter, open fields.	No	No		X
Evening grosbeak (<i>Coccothraustes vespertinus</i>)	SOC		Mixed conifer, spruce-fir and deciduous forests.	Yes	Yes	X	

^aESA = Endangered Species Act (FWS (2014): LT = Listed threatened; LE = Listed endangered; PT = Proposed threatened; C = Candidate; CH = Designated critical habitat.

^bMTNHP and FWP (2014): SOC = Species of Concern; PSOC = Potential Species of Concern; SS = Special Status species.

^cMTNHP (2014).

^dFarmer (2012).

^eFarmer (2012, 2013, 2014).

^f“?” Indicates availability of preferred habitat uncertain.

- Category I comprises ESA and SOC. These species have legal status (ESA) and/or are Montana Species of Concern, defined as species that are “...considered to be “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution” (MTNHP and FWP 2014). Category I species met the criteria of MDEQ’s request for this plan, and Wildlife Habitat Enhancement Features (WHEFs) described in Exhibit 313G – Revegetation Plan were designed to create habitats for Category I species; and
- Category II comprises PSOC and SS. PSOC are defined as “...animals for which current, often limited, information suggests potential vulnerability or for which additional data are needed before an accurate status assessment can be made...” while SS are “...species that have some legal protections in place, but are otherwise not recognized as federally listed under the Endangered Species Act and are not (emphasis added) Montana Species of Concern” (MTNHP and FWP 2014). While Category II species technically did not meet the criteria of MDEQ’s request for this plan, they were included due to their potential for inclusion in the future. WHEFs designed for Category I species also create habitats for Category II species.

Preferred habitat for 34 of the 95 Category I and II species (9 fish, 2 mammals and 23 birds) is not available in the study area (Table 1), and therefore is not available in the permit area. Consequently these species (pallid sturgeon, paddlefish, blue sucker, sturgeon chub, Yellowstone cutthroat trout, burbot, brook stickleback, sauger, Iowa darter, swift fox, black-footed ferret, trumpeter swan, Barrow’s goldeneye, hooded merganser, common loon, Clark’s grebe, American bittern, black-crowned night heron, American white pelican, white-faced ibis, peregrine falcon, piping plover, black-necked stilt, red knot, Franklin’s gull, common tern, Forster’s tern, Caspian tern, black tern, sage thrasher, ovenbird, black-and-white warbler, Tennessee warbler, dickcissel and gray-crowned rosy finch) were eliminated from further discussion in this plan (Table 1). The remaining 61 species (3 fish, 2 amphibians, 5 reptiles, 14 mammals and 37 birds) potentially occur in the Otter Creek Mine study area, based on preferred habitat availability, and are therefore addressed with conservation measures.

3.0 Conservation Measures

Conservation measures for 61 Category I and II species are presented in Table 2, along with a brief discussion of potential impacts from construction and operation of the Otter Creek Mine. As used in this plan, the term “direct impact” refers to habitat altering effects, such as construction of facilities and roads, clearing and grading of mine areas, etc. “Will avoid direct impact” and “cannot avoid direct impact” refer to the ability of active adult SOC to avoid/escape such activities, i.e., more mobile species can be expected to more easily avoid such activities than less mobile species.

It is assumed that other life stages or activity periods (e.g., amphibian egg masses, reptile dens, hibernating or torpid mammals, bird eggs) would be unable to avoid direct impact. Due to the timing and/or seasonal nature of these life stages (e.g., reptile dens in winter, amphibian egg masses in spring/summer, roosting or torpid bats during various times of the day or during inclement weather, bird nests in spring/summer), specific conservation measures to avoid or minimize impacts to one species could result in increased impacts to another species. Consequently, practical conservation measures for such a wide range of species can only be habitat-based. Habitat-based conservation measures are pragmatic because: 1) after the mine is constructed and in operation, only a comparatively small amount (a few hundred acres) of habitat will be disturbed in a given year, while habitat in congruently reclaimed areas is revegetated in accordance with Exhibit 313G Revegetation Plan; and 2) as noted in Table 2, it is reasonable to assume that adjacent, undisturbed areas will act as sources for Category 1 and II species reoccupying reclaimed habitats.

Table 2. Conservation measures for vertebrate threatened or endangered species, and Montana Species of Concern, Otter Creek Mine.

Species	Discussion	Conservation Measures ^a
I. ESA^a/SOC^b		
AMPHIBIANS		
Great Plains toad (<i>Anaxyrus cognatus</i>)	Not known to occur in permit area; cannot avoid direct impact	Establish GL-CSG, GL-WSG, WHEF-SS, WHEF-P (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Plains spadefoot (<i>Spea bombifrons</i>)	Not known to occur in permit area; cannot avoid direct impact	Establish GL-CSG, GL-WSG, WHEF P (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
REPTILES		
Snapping turtle (<i>Chelydra serpentina</i>)	Small amount of habitat will be temporarily affected; common outside the permit area; will avoid direct impact	Retain stream channel and flow characteristics
Spiny softshell (<i>Apalone spinifera</i>)	Not known to occur in permit area; small amount of habitat will be temporarily affected; able to avoid direct impact	Retain stream channel and flow characteristics
Greater short-horned lizard (<i>Phrynosoma hernandesi</i>)	Patchily distributed in breaks and sandstone outcrops/sandy soils; cannot avoid direct impact	Establish WHEF-B/B and WHEF-TF habitats (Appendix 313-G1) with rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Western hog-nosed snake (<i>Heterodon nasicus</i>)	Uncommon in arid uplands with sandy or gravelly soil; cannot avoid direct impact	Establish variety of upland vegetation types, e.g. GL-CSG, GL-WSG, PL/C, WHEF-B/B, WHEF-SS, WHEF-TF, WHEF-TP, etc. (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Milksnake (<i>Lampropeltis trinagulum</i>)	Not known to occur in permit area; cannot avoid direct impact	Establish variety of upland habitats (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
MAMMALS		
Merriam's shrew (<i>Sorex merriami</i>)	Not known to occur in permit area; cannot avoid direct impact	Establish PL/C, WHEF-SS, WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Pallid bat (<i>Antrozous pallidus</i>)	Comparatively small amount of roosting habitat (ponderosa pine, rock outcrops) will be disturbed; will avoid direct impact	Establish WHEF-TP, WHEF-SS, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Not known to occur in permit area; no known roosting habitat affected; able to avoid direct impact	Establish WHEF-TP, WHEF-R/W (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Hoary bat (<i>Lasiurus cinereus</i>)	Comparatively small amount of roosting habitat (ponderosa pine, rock outcrops) will be disturbed; will avoid direct impact	Establish WHEF-TP, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Little brown myotis (<i>Myotis lucifugus</i>)	Comparatively small amount of roosting habitat (cliffs, rock outcrops, human structures) will be disturbed; will avoid direct impact	Establish variety of upland vegetation types, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Fringed myotis (<i>Myotis thysanodes</i>)	Comparatively small amount of roosting habitat (cliffs, rock outcrops, human structures) will be disturbed; will avoid direct impact	Establish variety of upland vegetation types, WHEF-TF, WHEF-SS, WHEF-R/W, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Spotted bat (<i>Euderma maculatum</i>)	Not known to occur in permit area; no known roosting habitat affected; able to avoid direct impact	Establish variety of upland vegetation habitats, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Black-tailed prairie dog (<i>Cynomys ludovicianus</i>)	Flat to gentle slopes in cool-season grasslands; common outside the permit area; cannot avoid direct impact	Establish gentle slopes with GL-CSG or PL/C (Appendix 313-G1); permit immigration from adjacent undisturbed areas only if consistent with other reclaimed land uses
BIRDS		
Greater sage-grouse (<i>Centrocercus urophasianus</i>)	Does not nest in permit area or study area; uncommon and sporadic in upland habitats; will avoid direct impact	Establish variety of upland vegetation types, particularly WHEF-SS (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas

Table 2 (continued).

Species	Discussion	Conservation Measures ^a
Horned grebe (<i>Podiceps auratus</i>)	Migrant, not known to occur in permit area; very small amount of preferred habitat will be affected; will avoid direct impact	Establish WHEF-P (Appendix 313-G1); possible occasional use by migrants
Great blue heron (<i>Ardea herodias</i>)	No nesting habitat will be affected; small amount of foraging habitat may be temporarily affected; common outside the permit area; will avoid direct impact	Retain stream channel and flow characteristics; establish WHEF-R/W and WHEF-P (Appendix 313G-1)
Northern goshawk (<i>Accipiter gentilis</i>)	Not known to occur in permit area; small amount of habitat will be affected; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Ferruginous hawk (<i>Buteo regalis</i>)	Not known to occur in permit area; will avoid direct impact	Establish variety of upland habitats (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Golden eagle (<i>Aquila chrysaetos</i>)	Common outside the permit area; all known nests are outside the permit area and will not be directly affected; mining will not approach within 0.25 mile of nest locations until Year 12	Monitor nest activity and bird behavior, particularly when mining approaches within 0.25 mile; confer with appropriate agencies if bird behavior suggest impact
Mountain plover (<i>Charadrius montanus</i>)	Not known to occur in permit area; specific to prairie dog colonies; will avoid direct impact	Establish gentle slopes with GL-CSG or PL/C (Appendix 313-G1); permit prairie dog immigration from adjacent undisturbed areas only if consistent with other reclaimed land uses
Long-billed curlew (<i>Numenius americanus</i>)	Not known to occur in permit area; will avoid direct impact	Establish GL-CSG, GL-WSG (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	Not known to occur in permit area; habitat very limited; very small amount of habitat will be affected; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Not known to occur in permit area; habitat very limited; very small amount of habitat will be affected; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Burrowing owl (<i>Athene cucularia</i>)	Patchily distributed in prairie dog colonies inside and outside the permit area; will avoid direct impact	Disturb known nest sites (prairie dog colonies) outside nesting season (mid-May to mid-August), if practicable. Immigration into prairie dog colonies from undisturbed adjacent areas
Lewis' woodpecker (<i>Melanerpes lewis</i>)	Not known to occur in permit area; small amount of habitat will be affected; will avoid direct impact	Establish WHEF-TP and WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Red-headed woodpecker (<i>Melanerpes erythrocephalus</i>)	Not known to occur in permit area; small amount of habitat will be affected; will avoid direct impact	Establish WHEF-TP and WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Black-backed woodpecker (<i>Picoides arcticus</i>)	Not known to occur in permit area; preferred habitat may not be available; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Loggerhead shrike (<i>Lanius ludovicianus</i>)	Uncommon in variety of riparian and upland shrub habitats; will avoid direct impact	Establish WHEF-R/W, WHEF-SS and upland habitats (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	Common and widely distributed in conifer habitats. comparatively small amount of nesting habitat will be disturbed; will avoid direct impact	Establish WHEF-TP habitat (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Clark's nutcracker (<i>Nucifragacolumbiana</i>)	Comparatively small amount of habitat (ponderosa pine, rock outcrops) will be disturbed; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Brown creeper (<i>Certhia americana</i>)	Not known to occur in permit area; preferred habitat may not be available; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Veery (<i>Catharus fuscescens</i>)	Not known to occur in permit area; preferred habitat may not be available; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Sprague's pipit (<i>Antjus spragueii</i>)	Not known to occur in permit area; habitat limited; will avoid direct impact	Establish GL-CSG, GL-WSG (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Chestnut-collared longspur (<i>Calcarius ornatus</i>)	Not known to occur in permit area; will avoid direct impact	Establish GL-CSG, GL-WSG (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas

Table 2 (continued).

Species	Discussion	Conservation Measures ^a
McCown's longspur (<i>Rhynchophanes mccownii</i>)	Not known to occur in permit area; will avoid direct impact	Establish GL-CSG, GL-WSG (Appendix 313-G1); possible use of bare ground; immigration into reclaimed areas from adjacent undisturbed areas
Green-tailed towhee (<i>Pipilo chlorurus</i>)	Not known to occur in permit area; habitat very limited; very small amount of habitat will be affected; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Brewer's sparrow (<i>Spizella breweri</i>)	Uncommon in sagebrush habitats; will avoid direct impact	Establish WHEF-SS (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Baird's sparrow (<i>Ammodramus bairdii</i>)	Uncommon in ungrazed grassland and tame pasture; will avoid direct impact	Establish GL-CSG and PL/C (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Bobolink (<i>Dolichonyx oryzivorus</i>)	Not known to occur in permit area; preferred habitat may not be available; will avoid direct impact	Establish GL-CSG, GL-WSG and PL/C (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Cassin's finch (<i>Haemorhous cassinii</i>)	Not known to occur in permit area; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Evening grosbeak (<i>Coccothraustes vespertinus</i>)	Uncommon in conifer forest; will avoid direct impact	Establish WHEF-TTP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
II. PSOC/SS^b		
FISH		
Creek chub (<i>Spermotilis atromaculatus</i>)	Not known to occur in permit area; small amount of habitat will be temporarily affected; will avoid direct impact	Retain stream channel and flow characteristics
Brassy minnow (<i>Hybognathus hankinsoni</i>)	Small amount of habitat will be temporarily affected; common outside the permit area; will avoid direct impact	Retain stream channel and flow characteristics
Plains minnow (<i>Hybognathus placitus</i>)	Not known to occur in permit area; preferred habitat may not be available; small amount of habitat will be temporarily affected; will avoid direct impact	Retain stream channel and flow characteristics
MAMMALS		
Silver-haired bat (<i>Lasionycteris noctivagans</i>)	Comparatively small amount of roosting habitat (ponderosa pine, rock outcrops) will be disturbed; will avoid direct impact	Establish WHEF-TP, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Eastern red bat (<i>Lasiurus borealis</i>)	Migrant; comparatively small amount of roosting habitat (wooded and riparian areas) will be disturbed; will avoid direct impact	Establish WHEF-R/W, WHEF-P (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Yuma myotis (<i>Myotis yumanensis</i>)	Comparatively small amount of roosting habitat (ponderosa pine, rock outcrops) will be disturbed; will avoid direct impact	Establish WHEF-TP, WHEF-P (Appendix 313-G1), rock piles; immigration into reclaimed areas from adjacent undisturbed areas
Meadow jumping mouse (<i>Zapus hudsonius</i>)	Not known to occur in permit area; very small amount of preferred habitat will be affected; cannot avoid direct impact	Establish PL/C, WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Porcupine (<i>Erethizon dorsatum</i>)	Widely distributed across a variety of habitats; common outside the permit area; may avoid direct impact	Establish diverse habitats, particularly WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
White-footed mouse (<i>Peromyscus leucopus</i>)	Not known to occur in permit area; very small amount of preferred habitat will be affected; cannot avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
BIRDS		
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Does not nest in permit area or study area; uncommon in summer, common in winter; will avoid direct impact	Establish variety of upland vegetation types, WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Eastern screech-owl (<i>Megascops asio</i>)	Does not nest in permit area or study area; uncommon and sporadic in wooded riparian habitats; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Short-eared owl (<i>Asio flammeus</i>)	Not known to nest in permit area; uncommon and sporadic in upland habitats; will avoid direct impact	Establish variety of upland vegetation types; PL-C for nesting (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas

Table 2 (continued).

Species	Discussion	Conservation Measures ^a
Common poorwill (<i>Phalaenoptilus nuttallii</i>)	Uncommon in upland habitats and over ponds; will avoid direct impact.	Establish variety of upland vegetation types, particularly WHEF-B/B, WHEF-SS and WHEF-TF (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Chimney swift (<i>Chaetura pelagica</i>)	Not known to occur in permit area; preferred habitat not affected; will avoid direct impact	Immigration from adjacent undisturbed areas
Cassin's kingbird (<i>Tyrannus vociferans</i>)	Small amount of habitat will be affected; will avoid direct impact	Establish WHEF-TP and WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Plumbeous vireo (<i>Vireo plumbeus</i>)	Not known to occur in permit area; small amount of habitat will be affected; will avoid direct impact	Establish WHEF-TP (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Eastern bluebird (<i>Sialia sialis</i>)	Rare in riparian woodland and shrub habitats; comparatively small amount of habitat will be affected; will avoid direct impact	Establish WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas
Tennessee warbler (<i>Oreothlypis peregrina</i>)	Migrant, not known to occur in permit area; will avoid direct impact	Establish WHEF-TP and WHEF-R/W (Appendix 313-G1); immigration into reclaimed areas from adjacent undisturbed areas

^aESA = Endangered Species Act (FWS (2014): LT = Listed threatened; LE = Listed endangered; PT = Proposed threatened; C = Candidate; CH = Designated critical habitat.

^bMTNHP and FWP (2014): SOC = Species of Concern; PSOC = Potential Species of Concern; SS = Special Status species.

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