APPENDIX E

BIOLOGICAL ASSESSMENT,
USFS SENSITIVE SPECIES EVALUATION,
BLM SENSITIVE SPECIES EVALUATION,
AND STATE SPECIES OF SPECIAL CONCERN
FOR THE P&M LAND EXCHANGE EIS

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E-1.0 BIOLOGICAL ASSESSMENT INTRODUCTION

Threatened and endangered species are managed under the authority of the Endangered Species Act (ESA) of 1973 (PL 93-205, as amended). The ESA requires Federal agencies to ensure that all actions which they authorize, fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of their critical habitat.

This Biological Assessment was prepared to display the possible effects to endangered, threatened, experimental, proposed, or candidate wildlife or vegetative species (terrestrial and aquatic) known to occur, or that may occur within the area influenced by the Proposed Action, which is the Preferred Alternative of the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS). It was prepared in accordance with Section 7 of the ESA.

Biological Assessment objectives are:

1. To comply with the requirements of the ESA that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species.

2. To provide a process and standard by which to ensure that threatened, endangered, and proposed species receive full consideration in the decision making process.

In addition, the Regional Forester has identified sensitive plant and animal species that are known to be present or are potentially present on the Bridger lands which lie within the Bridger-Teton National Forest (BTNF). The USFS objective for sensitive species is to “develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions” (USFS Manual 2670.22).

The Wyoming BLM has also prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. The authority for this policy and guidance comes from the ESA of 1973, as amended; Title II of the Sikes Act, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; and the Department Manual 235.1.1A.

E-1.1 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

E-1.1.1 The Proposed Action

Pittsburg and Midway Coal Mining Company (P&M) has filed a proposal with BLM and USFS to exchange P&M-owned land and minerals in Lincoln, Carbon, and Sheridan Counties in Wyoming for federally–owned coal in northern

Sheridan County, Wyoming. Figure E-1 is a general location map showing all of the lands that have been proposed for exchange.

Under the Proposed Action, which is the preferred alternative of the BLM and the USFS, the USFS would acquire ownership of the Bridger lands which lie within the BTNF and BLM would acquire the Bridger lands which lie outside of BTNF, the JO Ranch lands, and the Welch lands. P&M would acquire an amount of federal coal underlying the PSO Tract that would be equivalent in value to the properties they are offering for exchange. P&M has indicated that if they acquire the coal, they propose to open a surface coal mine on the PSO Tract. For the purposes of this analysis, it is assumed that P&M would acquire all of the federal coal underlying the PSO Tract and that they would proceed with their proposal to open a surface coal mine. These lands proposed for exchange are described in more detail in subsequent sections of this appendix.

E-1.1.2 Alternatives To The Proposed Action

Alternative 1 is the No-Action Alternative. Under the No-Action Alternative, the exchange would not be completed.

Under the No-Action Alternative the federal coal in the PSO Tract would not be exchanged. Selection of this alternative would not preclude leasing of this federal coal in the future. The Bridger lands, JO Ranch lands, and Welch lands would remain in private ownership. If the exchange is not completed, P&M has indicated that it would consider subdividing these properties to maximize their value and marketing them for sale to the public. The No-Action Alternative is not the preferred alternative of the BLM or the USFS because the lands P&M is offering for exchange have important public resource values.

Other alternatives were considered but not analyzed in detail. These alternatives considered potential methods that BLM and USFS could use to purchase of the lands P&M is offering for exchange. These alternatives, which would have potentially similar impacts to the Preferred Action, were not selected as the preferred alternative of the BLM or the USFS because P&M has indicated that they are not offering the lands proposed for exchange for sale to the BLM or the USFS.

E-1.2 CONSULTATION TO DATE

Informal consultation on this exchange began with the BLM and USFS publication of a Notice of Exchange Proposal in newspapers in the areas where the lands are located in December 2000 and January 2001. On January 25, 2001, the U.S. Fish and Wildlife Service (USFWS) provided preliminary scoping comments related to the unsuitability of several areas included in the PSO Tract for coal leasing and development due to the presence of breeding habitat for the Lewis' woodpecker and a preliminary species list for the PSO Tract

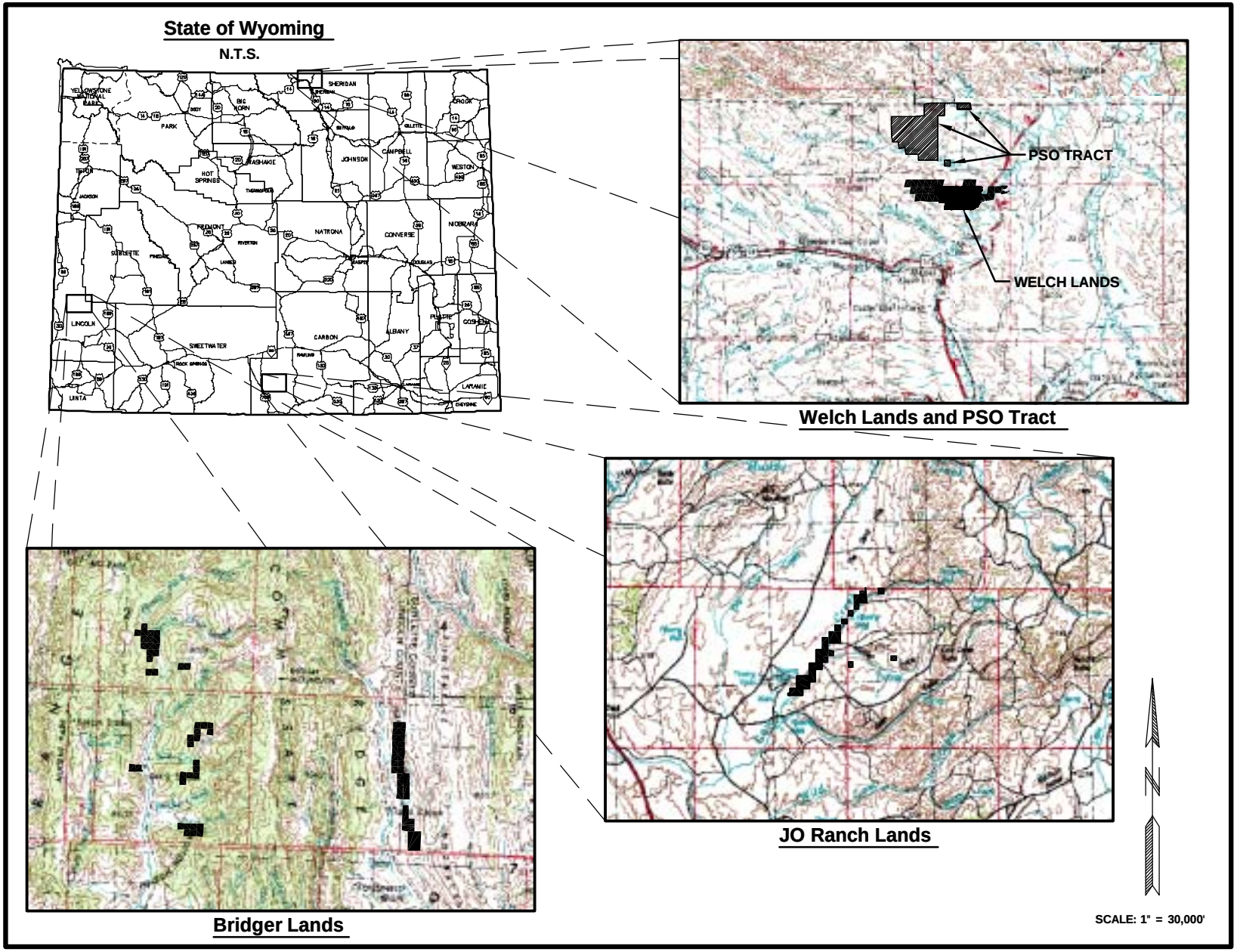


Figure E-1. General Location of Lands Being Offered for Exchange by P&M and the PSO Tract.

(USFWS 2001a). In July 2001, BLM requested USFWS concurrence with a determination that the unsuitability designation is no longer necessary because the Lewis' woodpecker is no longer considered a species of high federal interest in Sheridan County, Wyoming. On August 20, 2001, USFWS responded that they were willing to concur with the change in the unsuitability determination due to the change in status of the Lewis' woodpecker; however, USFWS requested that BLM consider excluding potential nesting areas for the Lewis' woodpecker from the land exchange (USFWS 2001b). BLM approved a maintenance action updating the Buffalo Resource Management Plan (RMP) with respect to the changed status of the Lewis' woodpecker in October 2001. The Draft P&M Land Exchange EIS was distributed in May, 2002. USFWS submitted comments on the Draft P&M Land Exchange EIS on July 19, 2002 (USFWS 2002a). In response to those comments, BLM requested updated species lists for Lincoln, Carbon, and Sheridan Counties, Wyoming. USFWS provided updated lists for these counties in writing on September 11, 2002 (USFWS 2002b) and verbally on April 4, 2003.

E-1.3 BIOLOGY AND HABITAT REQUIREMENTS

The following threatened, endangered, proposed, experimental, and candidate species have been identified by the USFWS in Carbon, Lincoln, and Sheridan Counties, Wyoming as having the potential to be affected by the proposed exchange (USFWS 2002b, verbally updated 4/2003). All of the following species were considered; however, not all species listed here necessarily occur within the proposed exchange areas.

Bald eagle (*Haliaetus leucocephalus*): Threatened (Proposed for delisting).

Canada lynx (*Lynx Canadensis*): Threatened

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

Mountain plover (*Charadrius montanus*): Proposed Threatened

Platte River Species: Threatened and Endangered

Black-footed ferret (*Mustela nigripes*): Endangered

Colorado River Fish Species: Endangered

Blowout Penstemon (*Penstemon haydenii*): Endangered

Gray wolf (*canis lupus*): Experimental

Black-tailed prairie dog (*Cynomys ludovicianus*): Candidate

Western boreal toad (*Bufo boreas boreas*): Candidate

Yellow-billed cuckoo (*Coccyzus americanus*): Candidate

Arctic grayling (*Thymallus arcticus*): Candidate

E-1.3.1 Threatened Species

E-1.3.1.1 Bald eagle (*Haliaetus leucocephalus*)

On February 14, 1978, the bald eagle was listed as endangered in all of the coterminous United States except Minnesota, Wisconsin, Michigan, Oregon, and Washington, where it was classified as threatened (43 F.R. 6233). The USFWS reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states on July 12, 1995 (60 F.R. 36000). The bald eagle was proposed for delisting on July 6, 1999 (64 F.R. 36454). Currently, the proposal has not been finalized or withdrawn.

Bald eagles nest primarily in remote areas free of disturbance, containing large trees that are within one mile of water bodies containing reliable fisheries. In Wyoming, this species builds large nests in the crowns of large mature trees such as cottonwoods or pines. Typically, there are alternate nests within or in close proximity to the nest stand. Snags and open-canopied trees near the nest site and foraging areas provide favorable perch sites. Old-growth stands with their structural diversity and open canopies are an important habitat for bald eagles. This species is an uncommon breeding resident in Wyoming utilizing mixed coniferous and mature cottonwood-riparian areas near large lakes or rivers as nesting habitat (Luce et al. 1999).

Food availability is probably the single most important determining factor for bald eagle distribution and abundance (Steenhof 1976). Fish and waterfowl are the primary sources of food. Big game and livestock carrion, as well as larger rodents (e.g., prairie dogs) also can be important dietary components where these resources are available (Ehrlich et al. 1988). Bald eagles are opportunistic foragers. They prefer to forage in areas with the least human disturbance (USFWS 1978, McGarigal et al. 1991).

Bald eagles that have open water or alternate food sources near their nesting territories may stay for the winter; other eagles migrate southward to areas with available prey. During migration and in winter, eagles often concentrate on locally abundant food resources and tend to roost communally. Communal roosts usually are located in stands of mature old growth conifers or cottonwoods. Large, live trees in sheltered areas provide a favorable thermal environment and help minimize the energy stress encountered by wintering eagles. Communal roosting also may facilitate food finding (Steenhof 1976) and pair bonding. Freedom from human disturbance is also important in communal roost site selection (Steenhof et al. 1980, U.S. Bureau of Reclamation 1981, USFWS 1986, Buehler et al. 1991). Continued human disturbance of a night roost may cause eagles to abandon an area (Hansen et

al. 1981, Keister 1981). The proximity of night roosts to the other habitats required by wintering eagles, such as hunting perches and feeding sites, is important (Steenhof et al. 1980). Roosts may be several miles from feeding sites. The absence of a suitable roost may limit the use of otherwise suitable habitat.

E-1.3.1.2 Canada lynx (*Lynx canadensis*)

The Canada lynx was listed as a threatened species in March 2000. Lynx habitat is closely associated with the habitat requirements of snowshoe hare (*Lepus americanus*), its primary prey. Hares prefer dense mixed conifer stands for cover, with meadows and other openings for feeding. Red squirrels, ground squirrels, and grouse can be alternate prey items. Mature forests with downed logs and windfalls provide denning and security cover for lynx. Lynx are found in high elevation areas with deep snows where lynx have a competitive advantage over other predators. It appears that historic tie hack areas are currently providing high quality lynx habitat within the Wyoming Range. These old tie hack areas contain multiple storied, mixed conifer stands with a dense understory of regenerating spruce and fir.

E-1.3.1.3 Platte River species: Bald eagle (*Haliaeetus leucocephalus*), Piping plover (*Charadrius melodus*), and Western prairie fringed orchid (*Platanthera praeclara*)

These species are associated with the Platte River drainage downstream in Nebraska. The different species require a variety of habitats ranging from the actual river for the fish and water birds to riparian and wetlands habitats for the waterbirds and plants. The orchid is indigenous to this river system, while the bird species range from migrants (plover) using the area during migration or for feeding and breeding, to year-long residents (bald eagle), breeding and wintering along the river. Any depletions of water in the Platte River drainage system in Wyoming could affect these species downstream (USFWS 2002b).

E-1.3.1.4 Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, and hydrological modifications of existing and potential habitat areas. At the time of listing, Ute ladies'-tresses was only known from Colorado, Utah, and extreme eastern Nevada. It was then discovered in Idaho in September 1996. It is currently known from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and central Washington.

Ute ladies'-tresses is a perennial herb with erect, glandular-pubescent stems 12 to 50 centimeters tall arising from tuberous-thickened roots. This species flowers from late July to September. Plants probably do not flower every year

and may remain dormant below ground during drought years. The total known population of this species is approximately 25,000 to 30,000 individuals. Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, rivers, or perennial streams at elevations between 1,780 and 6,800 feet (ft) in elevation (Fertig and Beauvais 1999). Suitable soils vary from sandy or coarse cobbley alluvium to calcareous, histic or fine-textured clays and loams. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine, Douglas-fir woodlands, sagebrush steppe, and streamside floodplains. Some occurrences are also found on agricultural lands managed for winter or early season grazing or hay production. Known sites often have low vegetative cover and may be subjected to periodic disturbances such as flooding or grazing. Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999).

The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbly edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995). The species occurs primarily in areas where the vegetation is relatively open and not overly dense, overgrown, or overgrazed. Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, and arrowgrass.

This species is known from four occurrences in Wyoming, within Converse, Goshen, Laramie, and Niobrara Counties, all discovered between 1993-1997 (Fertig and Beauvais 1999). One of these occurrences is recorded from northwestern Converse County, within the Antelope Creek watershed.

E-1.3.2 Endangered Species

E-1.3.2.1 Black-footed ferret (*Mustela nigripes*)

The black-footed ferret is a federally-listed endangered species. The black-footed ferret historically occurred throughout Texas, Oklahoma, New Mexico, Arizona, Utah, Kansas, North and South Dakota, Montana, Wyoming, Nebraska, and Colorado. The black-footed ferret, a nocturnally active mammal, is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. The decline in ferret populations has been

attributed to the reduction in the extensive prairie dog colonies that historically existed in the western United States. Ferrets may occur within colonies of white-tailed or black-tailed prairie dogs. The USFWS has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog colony of greater than 200 acres, or a complex of smaller colonies within a 4.3 mile (7 km) radius circle totaling 200 acres (USFWS 1989). Minimum colony size for black-tailed prairie dog is 80 acres (USFWS 1989). The last known wild population was discovered in Meeteetse, Wyoming. Individuals from this population were captured and raised in protective captive breeding facilities in an effort to prevent the species' extinction (Clark and Stromberg 1987).

Recent survey efforts in the Shirley Basin have identified a population at this former re-introduction site. This is the only known population in Wyoming.

E-1.3.2.2 Colorado River fish species: Bonytail chub (*Gila elegans*), Colorado pikeminnow/squawfish (*Ptychocheilus lucius*), Humpback chub (*Gila cypha*), and Razorback sucker (*Xyrauchen texanus*)

These four species are native to the upper Colorado River Basin within mainstem river channels. Although once abundant throughout both the Green and Colorado River systems, all four species are now limited to reaches of river that are either relatively undisturbed or controlled to provide appropriate flows. Reservoir impoundments and water diversions are the main threats to these species. It is likely that the closest occurrence of these species is in the lower Little Snake River drainage of Colorado (Tyus and Karp 1989). Federal agency actions resulting in water depletions to the Colorado River system may affect these four endangered fish species downstream in the Colorado River systems. The USFWS has determined that where projects may lead to depletions of water to the Colorado River system, these species may be affected and formal consultation is required. In general, depletions include evaporative losses and/or consumptive use of surface or groundwater within the affected basin, often characterized as diversions less return flows. Project elements that could be associated with depletions include, but are not limited to ponds, lakes, reservoirs, pipelines, wells, diversion structures, and water treatment facilities. Any actions that may result in water depletions should be identified and include an estimate of the amount and timing of average annual water depletion (both existing and new), and describe methods of arriving at such estimates.

E-1.3.2.3 Blowout penstemon (*Penstemon haydenii*)

The blowout penstemon is a federally listed endangered species that is known to occur in south-central Wyoming and western Nebraska. In Wyoming this species has been recorded in Carbon County. This species is only found in blowout-like sand dunes in early successional stages where vegetation is very sparse. In Wyoming, blowout penstemon is found on steep, northwest facing

slopes of active sand dunes with less than five percent vegetative cover. Flowering in Wyoming generally occurs from late June to early July and seeds are released from late August to September. Blowout penstemon has declined due to stabilization of sand dunes through conservation and other management practices. Once a sand dune is stabilized, other plants invade and out-compete this penstemon. To a lesser extent, this species may be impacted from livestock grazing, prolonged drought and off-road vehicles (Fertig 2002).

E-1.3.2.4 Platte River species: Whooping crane (*Grus americana*), Interior least tern (*Sterna antillarum*), Pallid sturgeon (*Scaphirhynchus albus*), and Eskimo curlew (*Numenius borealis*)

These species are associated with the Platte River drainage downstream in Nebraska. The different species require a variety of habitats ranging from the actual river for the fish and water birds to riparian and wetlands habitats for the waterbirds and plants. The sturgeon are indigenous to this river system, while the bird species (crane, tern, curlew) are migrants, using the area during migration or for feeding and breeding along the river. Any depletions of water in the Platte River drainage system in Wyoming could affect these species downstream (USFWS 2002b).

E-1.3.3 Proposed Species

E-1.3.3.1 Mountain plover (*Charadrius montanus*)

The mountain plover is proposed for federal listing (USFWS 1999a). The USFWS has 60 days to seek input from three species experts, the public, scientific community, and Federal and State agencies. The USFWS published a 60-day extension to the comment period on April 19, 1999 (USFWS 1999b). In October 2001, the USFWS designated the mountain plover as a proposed threatened species (USFWS 2001c).

The mountain plover is a migratory species of the shortgrass prairie and shrub-steppe eco-regions of the arid West. This species utilizes high, dry, shortgrass prairie with vegetation typically shorter than four inches tall. Within this habitat, areas of blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*) are most often utilized, as well as areas of mixed-grass associations dominated by needle-and-thread (*Stipa comata*) and blue grama (Dinsmore 1983).

Mountain plovers often use black-tailed prairie dog towns for breeding, nesting, and feeding. Not all prairie dog towns offer suitable habitat for mountain plover, mostly due to topographic incompatibility. There are habitats other than prairie dog towns that provide nesting, feeding, and breeding habitat for mountain plover.

The nest of the mountain plover consists of a small scrape on flat ground in open areas. Most nests are placed on slopes of less than five degrees in areas where vegetation is less than three inches tall in April. More than half of identified nests occurred within 12 inches of old cow manure piles and almost twenty percent were found against old manure piles in similar habitats in Colorado. Nests in similar habitats in Montana (Dinsmore 1983) and other areas (Ehrlich et al. 1988) were nearly always associated with the heavily grazed shortgrass vegetation of prairie dog colonies.

Mountain plovers arrive on their breeding grounds in late March with egg-laying beginning in late April. Breeding plovers show close site fidelity, often returning to the same territory in subsequent years. Clutches are hatched by late June and chicks fledge by late July. The fall migration begins in late August and most birds are gone from the breeding grounds by late September.

E-1.3.4 Experimental Species

E-1.3.4.1 Gray wolf (*Canis lupus*)

In 1973, the northern Rocky Mountain wolf subspecies (then known as *Canis lupus irremotus*) was listed as endangered, and in 1978 the legal status of the gray wolf south of Canada was listed as endangered, while the Minnesota wolf population was listed as threatened. Then in 1994, the USFWS made the decision to reintroduce the gray wolf into Yellowstone National Park and classify this population as nonessential experimental wolves according to section 10(j) of the ESA as amended (USFWS 1994). All wolves occurring in the state of Wyoming are classified as nonessential experimental.

Although gray wolves are native to BTNF, human persecution resulted in the extirpation of wolves by the late 1920s. Unverified reports of wolves or wolf tracks have been received since the late 1960s within Grand Teton National Park (Grand Teton National Park wildlife observation files) and in and around BTNF (BTNF wildlife files). Human caused mortality is still a major factor limiting wolf numbers.

Reintroduction efforts in Yellowstone began in the winter of 1994-1995, and a total of 31 wolves were released over two years. The Recovery Plan for wolves in the Rocky Mountain area established a biological goal of a minimum of 10 breeding pairs of wolves in each of the three recovery areas (northwestern Montana, central Idaho, and Greater Yellowstone Area) for three successive years. After the wolf population reaches recovery levels and, as required by the ESA, the USFWS is assured that state management practices would adequately conserve the wolf population, the USFWS will propose that wolves be removed from the protection of the ESA. The delisting process includes extensive public involvement and the opportunity for comment which could begin in early 2003 (USFWS 2001d). Wolf recovery has progressed faster than predicted, and the USFWS announced that the three-year countdown to wolf recovery started in

2000 (USFWS 2001d). In 1999, at least 118 wolves were known to be present in the Greater Yellowstone Wolf Recovery Area, in 11 established packs averaging 9.2 wolves per pack. As of December 31, 2001, about 216 wolves inhabited the Yellowstone Ecosystem in about 24 packs or groups, most of which inhabited territories in Yellowstone or Grand Teton National Parks. The rough draft monitoring tally for 2002 was as follows:

- northwestern Montana – 116 wolves in 13 breeding pairs;
- central Idaho – 285 wolves in 10 breeding pairs, and;
- Greater Yellowstone Area – 280 wolves in 18 breeding pairs.

That is an estimate of 681 wolves in 41 breeding pairs, meaning the three-year count down was achieved on December 31, 2002 (USFWS 2003).

The USFWS also determined "when six or more breeding pairs are established in an experimental population area, no land-use restrictions may be employed outside of national parks or national wildlife refuges, unless wolf populations fail to maintain positive growth rates toward population recovery levels for two consecutive years" (USFWS 1994).

E-1.3.5 Candidate Species

E-1.3.5.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

The black-tailed prairie dog was added to the list of candidate species for federal listing on February 4, 2000 (USFWS 2000a). At that time, the USFWS concluded that listing the black-tailed prairie dog was warranted but precluded by other higher priority actions to amend the lists of threatened and endangered (T&E) species. No specific date for proposal for listing was given, but the USFWS committed to reviewing the status of the species one year after publication of the above-mentioned notice (i.e., on February 4, 2001) (USFWS 2000b). As of June 2002, the USFWS was listing the black-tailed prairie dog as a candidate (USFWS 2002c).

The black-tailed prairie dog is a highly social, diurnally active, burrowing mammal. Aggregations of individual burrows, known as colonies, form the basic unit of prairie dog populations. Found throughout the Great Plains in shortgrass and mixed-grass prairie areas (Fitzgerald et al. 1994), the black-tailed prairie dog has declined in population numbers and extent of colonies in recent years due to habitat destruction or disturbance and pest control activities. In Wyoming, this species is primarily found in isolated populations in the eastern half of the state (Clark and Stromberg 1987). Many other wildlife species, such as the black-footed ferret, swift fox, mountain plover, ferruginous hawk, and burrowing owl are dependent on the black-tailed prairie dog for some portion of their life cycle (USFWS 2000b).

The species is considered a common resident, utilizing shortgrass and mid-grass habitats in eastern Wyoming (Luce et al. 1999).

E-1.3.5.2 Western boreal toad (*Bufo boreas boreas*)

The western boreal toad was listed as a candidate species only in the "Southern Rocky Mountain Distinct Population Segment (DPS)" and has retained this listing for over eight years. The Southern Rocky Mountain DPS covers southeastern Wyoming, Colorado, and northern New Mexico. Dry, non-forested basins and valleys geographically separate this southern population from the northern population. The northern population, which does not bear the candidate species listing, is found in western and northwestern Wyoming and high elevations in states to the north and west.

This toad, which is a 3- to 4-inch long amphibian, is generally found in wet habitats in the foothills, montane, and subalpine areas including subalpine meadows, aspen and spruce-fir forests, and all riparian habitat types from 8,000-11,000 ft in elevation. Boreal toads have also been found in kettle ponds, beaver ponds, and old oxbow lakes with still, shallow water and a mud or silt bottom. Boreal toads eat a variety of insects. Breeding usually occurs from mid-May to mid-July depending on elevation and weather. Eggs hatch from late June to late September. Breeding and egg laying occur in shallow areas of ponds and lakes. Studies indicate that males do not breed until they are four years old and females do not breed until six years of age. Mortality is very high due to predation and infection by chytrid fungus (Keinath and Bennet 2000, Baxter and Stone 1985).

E-1.3.5.3 Yellow-billed cuckoo (*Coccyzus americanus*)

The "Western Yellow-billed Cuckoo DPS" was listed as a candidate species in 2001. This DPS is found west of the continental divide. The candidate listing does not include the yellow-billed cuckoo within its range east of the continental divide. Therefore in Wyoming, the range of the candidate listing encompasses the western portion of the state.

The western yellow-billed cuckoo is a medium-sized bird of about 12 inches in length and weighing about two ounces. This species breeds in large blocks of riparian habitats, primarily woodlands with cottonwoods and willows. Dense understory appears to be important for nest site selection, while cottonwoods provide important foraging habitat. Nesting usually peaks from mid-June through August and may be triggered by an abundance of cicadas, katydids, caterpillars, or other large prey, which form the bulk of the species' diet. The decline of the western yellow-billed cuckoo is generally attributed to loss of habitat (USFWS 2001e).

E-1.3.5.4 Arctic grayling (*Thymallus arcticus*)

The Arctic grayling has been classified as a candidate species since prior to 1982 only for the "Fluvial Arctic Grayling, Upper Missouri River DPS" where this species is indigenous. This generally covers the extreme northwestern portion of Wyoming and portions of southwestern Montana. Populations of Arctic grayling that were introduced into other areas of Wyoming are not included in this candidate species listing. Therefore, although Arctic grayling are not expected to occur in any of the areas addressed in this EIS, any Arctic grayling that may be found on these lands would not be included in the candidate species classification.

In Wyoming, the Arctic grayling is indigenous to the Madison River drainage in Yellowstone National Park. This species has also been introduced into a number of high plains habitats in other drainages in the state and has established viable populations in some of those areas. The Arctic grayling is a cold water salmonoid occurring in the northern regions of North America. Grayling generally prefer the clear waters of large rivers, creeks, and mountain lakes. This fish spawns in the spring, normally migrating into streams to spawn on gravel bars. Arctic grayling primarily feed on insects, with a high percentage of terrestrial insects, but diets sometimes include small fish (Baxter and Stone 1995).

E-1.4 SUMMARY OF DETERMINATIONS

Table E-1.1 summarizes the determinations for the federally listed threatened, endangered, proposed, experimental, and candidate species in the Bridger lands, JO Ranch lands, Welch lands, and PSO Tract if the exchange is completed.

E-1.5 BRIDGER LANDS

The location of the Bridger lands is shown in Figure E-2. The legal description of the Bridger lands and mineral interests that P&M is offering to exchange is as follows:

<u>Lands to be administered by BLM</u>:
T.26N., R.115W., 6th P.M., Wyoming
Tracts 49, 57, and 71.
Total: 638.37 acres more or less.

<u>Lands to be administered by USFS</u>:
T.26N., R.116W., 6th P.M., Wyoming
Tracts 39, 41, and 42;

T.26N., R.117W., 6th P.M., Wyoming
Tracts 37 through 43;

Table E-1.1. Effects Evaluation of Federal Threatened, Endangered, Proposed, Experimental, and Candidate Species in the Areas of the Bridger Lands, JO Ranch Lands, Welch Lands, and PSO Tract.

		Potential Effects by Area[1]			
Status	**Species Common Name**	**BL**	**JO**	**WL**	**PSO**
Threatened:	Bald eagle	May affect[2]	May affect[2]	May affect[2]	May affect[3]
	Canada lynx	May affect[2]	No effect[2]	May effect[2]	May effect[3]
	Ute ladies'-tresses	No effect	May affect[2]	May effect[2]	May effect[3]
Endangered:	Black-footed ferret	No effect	May affect[2]	May affect[2]	May affect[3]
	Bonytail chub	May affect[2]	May affect[2]	No effect[4]	No effect[4]
	Colorado pikeminnow	May affect[2]	May affect[2]	No effect[4]	No effect[4]
	Humpback chub	May affect[2]	May affect[2]	No effect[4]	No effect[4]
	Razorback sucker	May affect[2]	May affect[2]	No effect[4]	No effect[4]
	Blowout penstemon	No effect[4]	No effect	No effect[4]	No effect[4]
	Platte River Species	No effect[4]	No effect	No effect[4]	No effect[4]
Proposed:	Mountain plover	No effect	May affect[5]	May affect[5]	May affect[6]
Experimental:	Gray wolf	May affect[5]	No effect[4]	No effect[4]	No effect[4]
Candidate:	Black-tailed prairie dog	No effect	No effect	May affect[2]	Would affect[7]
	Western boreal toad	No effect[8]	No effect[8]	No effect[8]	No effect[8]
	Yellow-billed cuckoo	May affect[2]	May affect[2]	No effect[8]	No effect[8]
	Arctic grayling	No effect[8]	No effect[8]	No effect[8]	No effect[8]

[1] Potential Effects by Area: BL = Bridger Lands; JO = JO Ranch Lands; WL = Welch Lands; PSO = PSO Tract.
[2] Not likely to adversely affect individuals or populations. Any effects are likely to be beneficial.
[3] Not likely to adversely affect individuals or populations.
[4] USFWS does not list this species for this area.
[5] Not likely to jeopardize continued existence of proposed or experimental individuals or populations. Any effects are likely to be beneficial.
[6] Not likely to jeopardize continued existence of proposed individual or populations.
[7] Mining disturbance would have direct and indirect effects on individuals and populations
[8] Not within the range of the Distinct Population Segment (DSP) provided Candidate Status.

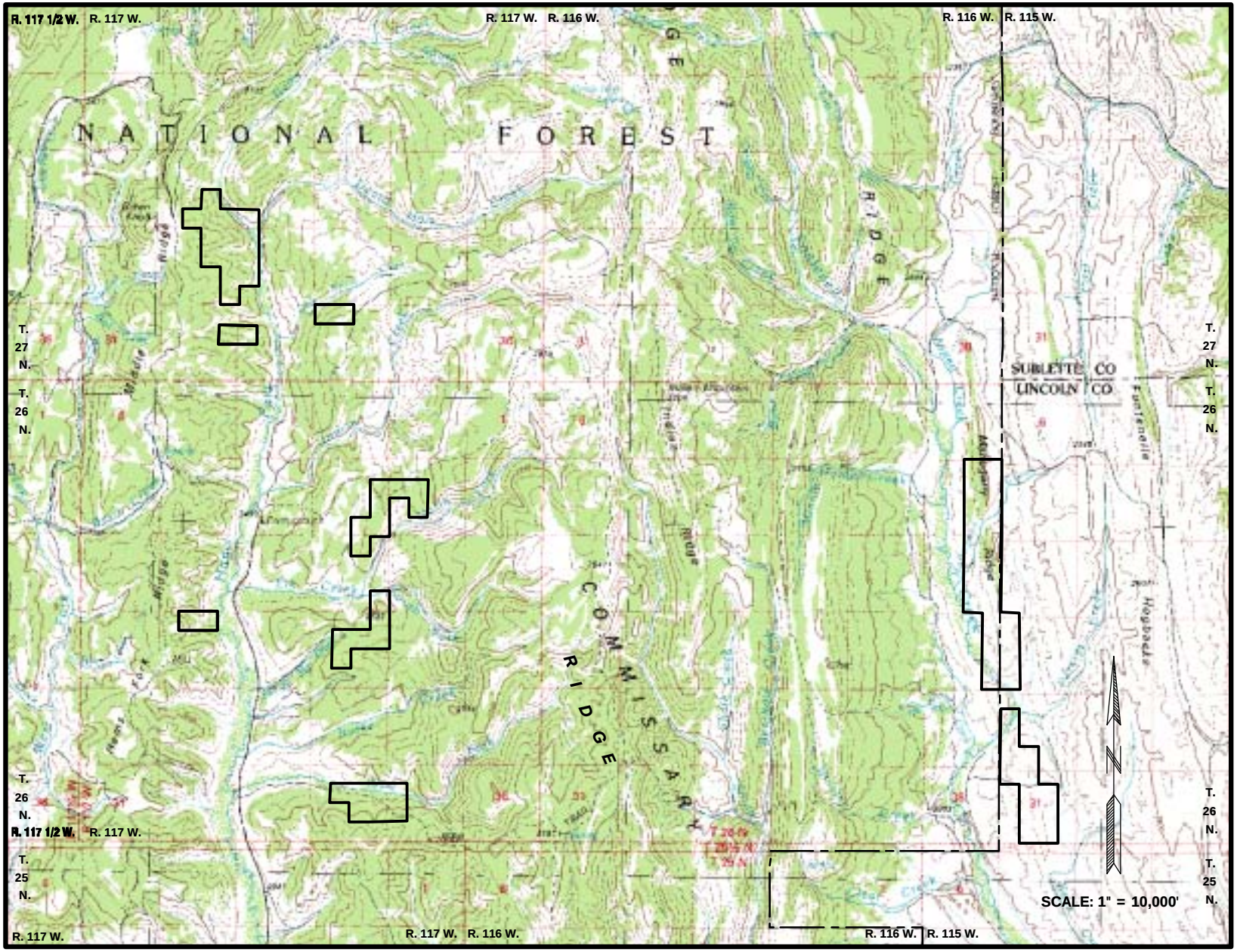


Figure E-2. Bridger Lands Location Map.

T.27N., R.117W., 6th P.M., Wyoming
Tracts 37 through 42.
Total: 2,447.88 acres more or less.

Minerals to be administered by BLM:
T.26N., R.115W., 6th P.M., Wyoming
Tracts 49, 57, and 71.
Total: 638.37 acres more or less.

Minerals to be administered by USFS:
T.26N., R.116W., 6th P.M., Wyoming
Tracts 39, 41, and 42;

T.26N., R.117W., 6th P.M., Wyoming
Tracts 37 through 43;

T.27N., R.117W., 6th P.M., Wyoming
Tracts 37 through 42.
Total: 2,447.88 acres more or less.

The Bridger lands are surrounded by public lands and minerals administered by the BLM and the USFS. Under the Proposed Action, if these lands become public lands, the acquired surface and mineral estates would be managed like the surrounding public lands in accordance with the BLM *Pinedale Resource Management Plan* and the USFS *BTNF Land and Resource Management Plan*. USFS also provided general resource information for the Bridger parcels that lie within the BTNF, which is included as Appendix F of this EIS.

Within the analysis area, there is no "critical" habitat designated by USFWS for threatened or endangered species. Table E-1.2 is a list of threatened, endangered, proposed, experimental, and candidate species known or suspected to occur in the area of Bridger lands (Lincoln County, Wyoming) that was provided to the BLM by the USFWS in September 2002 (USFWS 2002b) and verbally updated in April 2003.

E-1.5.1 Threatened Species

E-1.5.1.1 Bald eagle (*Haliaetus leucocephalus*)

Existing Environment: There is bald eagle habitat available in the analysis area, however the majority of the Bridger parcels are not typically considered bald eagle habitat (lodgepole pine, aspen, sagebrush meadow). Eagles forage on gut piles and game parts leftover from hunters in the fall regardless of the habitat type where they occur.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect, bald eagles or their habitat. Any effects are likely to be

Table E-1.2. Occurrence of Threatened, Endangered, Proposed, Experimental, and Candidate Species in the Area of the Bridger Lands.

Status	Name	Occurrence*
Threatened:	Bald eagle (*Haliaetus leucocephalus*)	K
	Canada lynx (*Lynx canadensis*)	K
	Ute ladies'-tresses (*Sprianthes diluvialis)*	NS
Endangered:	Black-footed ferret (*Mustela nigripes*)	NS
	Bonytail chub (*Gila elegans*)	NS
	Colorado pikeminnow (*Ptychocheilus lucius*)	NS
	Humpback chub (*Gila cypha*)	NS
	Razorback sucker (*Xyrauchen texanus*)	NS
Proposed:	Mountain plover (*Charadrius montanus*)	NS
Experimental:	Gray wolf (*Canis lupus*)	S
Candidate:	Black-tailed prairie dog (*Cynomys ludovicianus*)	NS
	Western boreal toad (*Bufo boreas boreas*)	NS
	Yellow-billed cuckoo (*Coccyzus americanus*)	S
	Arctic grayling (*Thymallus arcticus*)	NS

*Occurrence Key: K = known, S = suspected in area of influence of Proposed Action, NS = not suspected in area of influence of Proposed Action

beneficial. If the exchange is completed, USFS and BLM would acquire surface and mineral ownership of the Bridger lands shown in Figure E-2, which would extend USFS and BLM management onto the Bridger parcels. This would facilitate habitat management and protection of T&E species on the tracts by the USFS and BLM. The lands and minerals would not be available for subdivision and/or private development that could potentially adversely affect bald eagles in this area in the future.

E-1.5.1.2 Canada lynx (*Lynx canadensis*)

Existing Environment: It appears that historic tie hack areas are currently providing high quality lynx habitat within the Wyoming Range. These old tie hack areas contain multiple storied, mixed conifer stands with a dense understory of regenerating spruce and fir. There was extensive tie-hacking within the Hams Fork drainage between 1881 and 1937. It appears wildfire effects were widespread because current stand structure tends to be single canopy and with limited ground vegetation or coarse woody debris. Also, mesic spruce/subalpine fir stands, which tend to produce complex structure favorable for snowshoe hares and lynx, appear to be smaller and more discontinuous than in areas further north in the Wyoming Range. There is a light scatter of historic lynx locations across the USFS Kemmerer District and recent radio telemetry locations have been recorded in the Hams Fork drainage. A winter track survey was conducted winter 2000/2001 on portions of the Kemmerer District although not in the project area. A resident population is present to the north on the Big Piney Ranger District. Although no lynx activity has been documented within the Bridger parcels, lynx are likely to travel through the project area.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect, Canada lynx and their habitat. Any effects are likely to be beneficial. If the exchange is completed, USFS and BLM would acquire surface and mineral ownership of the Bridger lands shown in Figure E-2, which would extend USFS and BLM management onto the Bridger parcels. This would facilitate habitat management and protection of T&E species on the tracts by the USFS and BLM. The lands and minerals would not be available for subdivision and private development that could potentially adversely affect Canada lynx if they do establish a presence in this area in the future.

E-1.5.1.3 Ute ladies'-tresses (*Spiranthes diluvialis*)

Existing Environment: Ute ladies'-tresses has not been located and is not expected to occur as the analysis area is above the expected elevation range of this plant. However, no survey work has occurred.

Effects of Proposed Project: The Proposed Action will have no effect on Ute ladies'-tresses. The elevation of the Bridger lands is above the expected range of the orchid.

E-1.5.2 Endangered Species

E-1.5.2.1 Black-footed ferret (*Mustela nigripes*)

Existing Environment: Black-footed ferrets are potential residents in prairie dog (*Cynomys* sp.) colonies. Based on USFS observations, there are no prairie dog colonies in or near the project area.

Effects of the Proposed Project: The Proposed Action will have no effect on black-footed ferrets. There is no identified habitat for black-footed ferrets on the Bridger lands.

E-1.5.2.2 Colorado River fish species: Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), Humpback chub (*Gila cypha*), and Razorback sucker (*Xyrauchen texanus*)

Existing Environment: Bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker are native to the Upper Colorado River Basin within mainstem river channels, not the project area's headwater streams. The streams in the area of the Bridger lands are Upper Colorado River headwater streams.

Effects of the Proposed Action: The Proposed Action may affect, but is not likely to adversely affect these four fish species and their habitat. Any effects are likely to be beneficial. If the exchange is completed, USFS and BLM would acquire surface and mineral ownership of the Bridger lands shown in Figure E-2, which would extend USFS and BLM management onto the Bridger parcels. The lands and minerals would not be available for private subdivisions and development, which could potentially lead to development of water depletion projects in the Colorado River System headwater streams in the area of the Bridger lands that could adversely impact these species inhabiting the downstream reaches of the basin.

E-1.5.3 Proposed Species

E-1.5.3.1 Mountain plover (*Charadrius montanus*)

Existing Environment: Mountain plover is a potential resident in shortgrass prairie and shrub-steppe landscapes. The Bridger lands are primarily forested. No potential habitat exists in the project area.

Effects of the Proposed Project: The Proposed Action will have no effect on mountain plover.

E-1.5.4 Experimental Species

E-1.5.4.1 Gray wolf (*Canis lupus*)

Existing Environment. Three of the Greater Yellowstone Area packs, the Teton, Gros Ventre, and Soda Butte packs, all included the BTNF within their home range in 1999. Two of these packs used the BTNF in 2000 and 2001 (Teton and Gros Ventre packs). Pack activity has been predominantly on the Teton Division of BTNF, a considerable distance north of the project area. Single wolves have been documented on the Pinedale Ranger District, Grey's River District, and as far south as Kemmerer. Conflicts have occurred between

wolves and domestic livestock and dogs both on USFS system lands and on private lands as far south as Kemmerer. No single wolf or pack activity has been documented on the Bridger parcels.

Effects of Proposed Project: The Proposed Action may affect but is not likely to jeopardize the continued existence of the experimental gray wolf population. If the exchange is completed, USFS and BLM would acquire surface and mineral ownership of the Bridger lands shown in Figure E-2, which would extend USFS and BLM management onto the Bridger parcels. This would facilitate habitat management and protection of gray wolves on the tracts by the USFS and BLM. The lands and minerals would not be available for private subdivision and development that could potentially adversely affect gray wolves if they do establish a presence in this area in the future.

E-1.5.5 Candidate Species

E-1.5.5.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

Existing Environment: Black-tailed prairie dogs are primarily found in the eastern half of Wyoming. Based on USFS observations, there are no prairie dog colonies in or near the project area.

Effects of the Proposed Project: The Proposed Action will have no effect on black-tailed prairie dogs as there are no prairie dog colonies on or near the Bridger lands.

E-1.5.5.2 Western boreal toad (*Bufo boreas boreas*)

Existing Environment: The western boreal toad is provided candidate status only in the "Southern Rocky Mountain DPS". In Wyoming, the southeastern portion of the state is where this DPS is located. The Bridger lands are not within the range of this western boreal toad DPS.

Effects of the Proposed Project: In the BTNF, the Proposed Action will have no effect on this western boreal toad DPS.

E-1.5.5.3 Yellow-billed cuckoo (*Coccyzus americanus*)

Existing Environment: The range of the western yellow-billed cuckoo encompasses the Bridger lands. This species prefers primarily riparian areas dominated by cottonwoods and willows. The Bridger lands provide only marginal habitat for this species. The yellow-billed cuckoo has never been recorded on these lands.

Effects of the Proposed Project: The Proposed Action may affect, but is not likely to adversely affect the yellow-billed cuckoo. Any effects would be likely to be beneficial. If the exchange is completed, the USFS and BLM would acquire

surface and mineral ownership of the Bridger Lands shown in Figure E-2, which would extend USFS and BLM management onto the Bridger parcels. The lands and minerals would not be available for private development that could potentially lead to loss of the marginal yellow-billed cuckoo habitat that is present on the Bridger lands.

E-1.5.5.4 Arctic grayling (*Thymallus arcticus*)

Existing Environment: The arctic grayling is provided candidate status within the "Fluvial Arctic Grayling, Upper Missouri River DPS". Within Wyoming, this range is confined to the extreme northwestern portion of the state and does not include these Bridger lands.

Effects of the Proposed Project: The Proposed Action for these BTNF and BLM lands will have no effect on this arctic grayling DPS.

E-1.5.6 Cumulative Effects

Acquisition of the Bridger lands would have small but beneficial cumulative effects on the threatened, endangered, proposed, and candidate plant and animal species in these areas because the tracts offered for exchange are relatively small inholdings of private land surrounded by USFS- and BLM-administered lands. Federal surface management would be extended onto the Bridger inholdings and the opportunity for private surface development, such as subdivisions and/or construction activities that could potentially impact threatened, endangered, proposed, and candidate species or their habitats on these lands and the surrounding public lands, would be eliminated.

E-1.6 JO RANCH LANDS

The location of the JO Ranch lands is shown in Figure E-3. The legal description of the JO Ranch lands and mineral interests that P&M is offering to exchange is as follows:

Lands
T.16N., R.90W., 6th P.M., Wyoming
Tract 46;
Section 6: Lots 20, 23, 24, 27, NE¼SW¼;
Section 17: SW¼SW¼;
Section 18: NE¼SE¼;

T.16N., R.91W., 6th P.M., Wyoming
Section 12: NE¼NE¼, SW¼NE¼, SW¼SW¼, E½SW¼, W½SE¼;

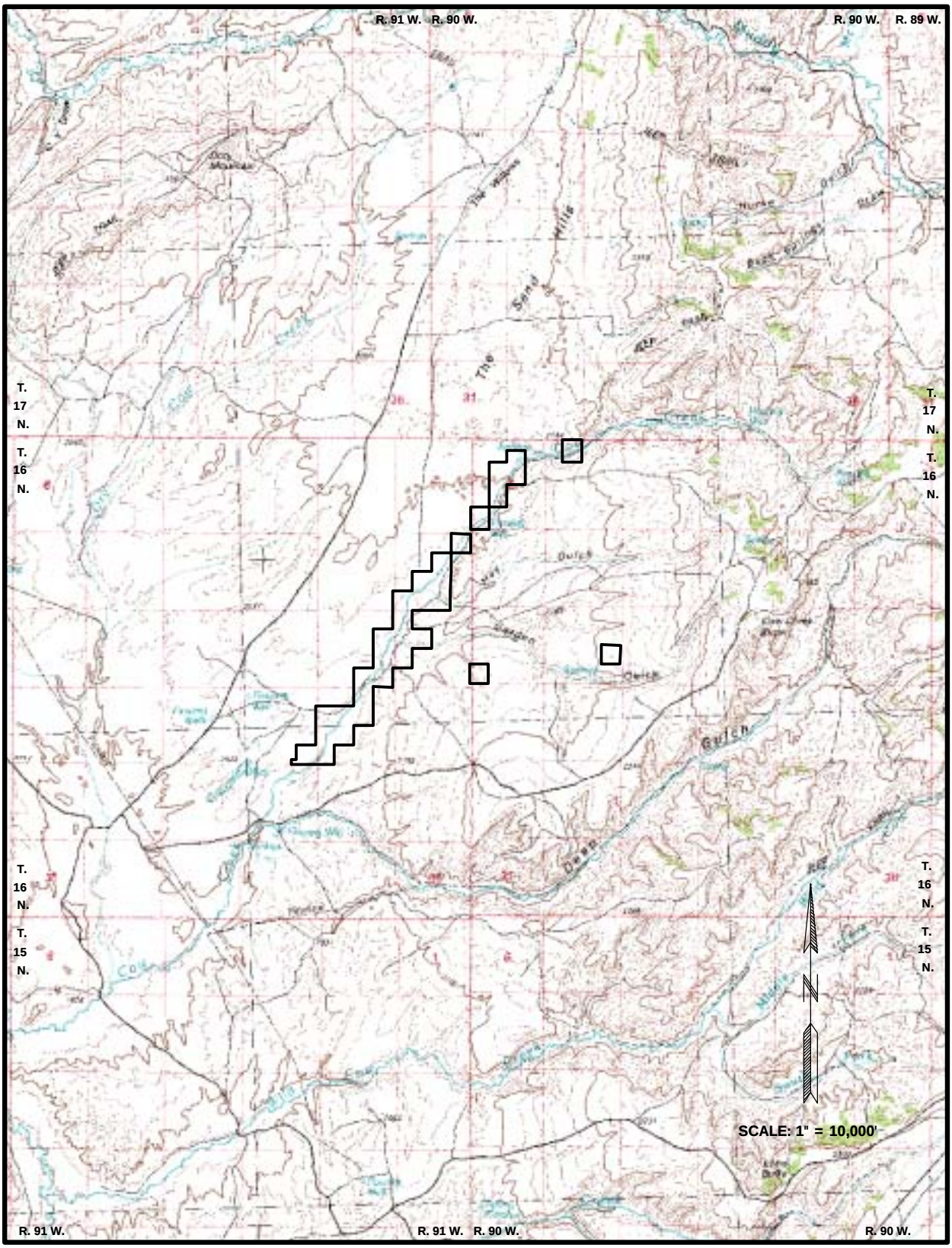


Figure E-3. JO Ranch Lands Location Map.

Section 13: W½NW¼,
SE¼NW¼,
NW¼SW¼;
Section 14: SE¼NE¼,
NE¼SE¼,
S½SE¼;
Section 22: SE¼SE¼,
SE¼SE¼SW¼SE¼;
Section 23: W½NE¼,
S½NW¼, N½SW¼,
SW¼SW¼.
Total: 1,233.55 acres more or less.

Minerals
P&M does not own and is not offering for exchange any of the mineral estate underlying the JO Ranch lands.

The JO Ranch lands are surrounded by public lands and minerals administered by the BLM. Under the Proposed Action, if these lands become public lands, future management of the acquired surface estate will be determined through additional NEPA analyses and planning decisions.

Table E-1.3 is a list of threatened, endangered, proposed, and candidate species that might be present in the area of JO Ranch lands (Carbon County, Wyoming) based on information provided to the BLM by the USFWS in September 2002 (USFWS 2002b) and verbally updated in April 2003.

E-1.6.1 Threatened Species

E-1.6.1.1 Bald eagle (*Haliaetus leucocephalus*)

Existing Environment: The JO Ranch lands are generally not considered bald eagle habitat due to the lack of large trees for nesting and/or large perennial streams for foraging. There is the potential for bald eagles to migrate through the area or to winter in the region.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect, bald eagles or their habitat. Any effects are likely to be beneficial. If the exchange is completed, the BLM would acquire the surface ownership of the JO Ranch lands shown on Figure E-3. This would extend BLM management onto the JO Ranch lands. The surface lands would not be readily available for private subdivision and development that could lead to habitat loss. The rights to develop the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

Table E-1.3. Occurrence of Threatened, Endangered, Proposed, and Candidate Species in the Area of the JO Ranch Lands.

Status	Name	Occurrence*
Threatened:	Bald eagle (*Haliaetus leucocephalus*)	K
	Canada lynx (*Lynx canadensis*)	NS
	Ute ladies'-tresses (*Spiranthes diluvialis*)	NS
	Platte River Species	NS
Endangered:	Black-footed ferret (*Mustela nigripes*)	NS
	Bonytail chub (*Gila elegans*)	NS
	Colorado pikeminnow (*Ptychocheilus lucius*)	NS
	Humpback chub (*Gila cypha*)	NS
	Razorback sucker (*Xyrauchen texanus*)	NS
	Blowout penstemon (*Penstemon haydenii*)	NS
	Platte River Species	NS
Proposed:	Mountain Plover (*Charadrius montanus*)	NS
Candidate:	Black-tailed prairie dog (*Cynomys ludovicianus*)	NS
	Western boreal toad (*Bufo boreas boreas*)	NS
	Yellow-billed cuckoo (*Coccyzus americanus*)	NS
	Arctic grayling (*Thymallus arcticus*)	NS

*Occurrence Key: K = known, S = suspected in area of influence of Proposed Action, NS = not suspected in area of influence of Proposed Action

E-1.6.1.2 Canada lynx (*Lynx canadensis*)

Existing Environment: Habitat for the Canada lynx does not occur on the JO Ranch lands. The Canada lynx has not been recorded in this area.

Effects of Proposed Project: If the exchange is completed as proposed, there should be no effect on Canada lynx because habitat for this species is not present on the JO Ranch lands or in the vicinity.

E-1.6.1.3 Platte River species: Bald eagle (*Haliaeetus leucocephalus*), Piping plover (*Charadrius melodus*), and Western prairie fringed orchid (*Platanthera praeclara*)

Existing Environment: Concerns for these species were presented in association with the Platte River drainage system. The JO Ranch lands are located within the Colorado River drainage system, on the opposite side of the continental divide from the Platte River drainage system.

Effects of Proposed Project: If the exchange is completed as proposed, there should be no effect on the Platte River species because the JO Ranch is not within the Platte River drainage system.

E-1.6.1.4 Ute ladies'-tresses (*Sprianthes diluvialis)*

Existing Environment: There is potential for Ute ladies'-tresses to occur on these lands; however, there are no known occurrences of the plant in Carbon County. The JO Ranch lands have not been surveyed for Ute ladies'-tresses.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect, Ute ladies'-tresses or their habitat. Any effects are likely to be beneficial. If the exchange is completed, the BLM would acquire the surface ownership of the JO Ranch lands shown on Figure E-3. This would extend BLM habitat management onto the JO Ranch lands. The surface lands would not be available for subdivision and/or private development that could lead to habitat loss. The rights to develop the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.6.2 Endangered Species

E-1.6.2.1 Black-footed ferret (*Mustela nigripes*)

Existing Environment: Black-footed ferrets are potential residents in prairie dog (*Cynomys* sp.) colonies. The JO Ranch lands could potentially be inhabited by prairie dogs, probably white-tailed prairie dogs (*Cynomys leucurus*), because black-tailed prairie dogs are primarily found in the eastern half of Wyoming. No occurrences of black-footed ferrets have been reported in this area.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect the black-footed ferret and its habitat. If the exchange is completed as proposed, the BLM would acquire the surface ownership of the JO Ranch lands shown in Figure E-3, which would extend BLM management onto the JO Ranch lands. This would allow habitat management and protection of T&E species on these lands by the BLM. These surface lands would not be available for subdivision and/or private development, which could possibly affect potential black-footed ferret habitat. The rights to develop the

mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.6.2.2 Colorado River fish species: Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), Humpback chub (*Gils cypha*), and Razorback sucker (*Xyrauchen texanus*)

Existing Environment: The bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker are native to the Upper Colorado River Basin within mainstream channels. Cow Creek, which flows through the JO Ranch lands, is a tributary of the Little Snake River. The Colorado River fish species do occur in the Little Snake River in Colorado.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect these four fish species or their habitat. Any effects are likely to be beneficial. These fish species do not inhabit the JO Ranch lands, although Cow Creek is a tributary to the Little Snake River. If the exchange is completed as proposed, the BLM would acquire the surface ownership of the JO Ranch lands shown in Figure E-3 and management of the portion of Cow Creek that crosses those lands. This would make any proposed water depletion project involving that stretch of Cow Creek a federal action, which would require formal consultation. These lands would not be available for subdivision and/or private development. The rights to develop the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.6.2.3 Blowout penstemon (*Penstemon haydenii*)

Existing Environment: Habitats suitable for the presence of the blowout penstemon consist of blowout-like sand dunes in early successional stages with very little vegetative cover. No suitable habitat exists on the JO Ranch lands.

Effects of Proposed Project: If the exchange is completed as proposed, there should be no effect on blowout penstemon because habitat for this species is not present on the JO Ranch lands.

E-1.6.2.4 Platte River species: Whooping crane (*Grus americana*), Interior least tern (*Sterna antillarum*), Pallid sturgeon (*Scaphirhynchus albus*), and Eskimo curlew (*Numenius borealis)*

Existing Environment: Concerns for these species were presented in association with the Platte River drainage system. The JO Ranch lands are located within the Colorado River drainage system, on the opposite side of the continental divide from the Platte River drainage system.

Effects of Proposed Project: The proposed action is not likely to affect the Platte River species because the JO Ranch is not within the Platte River drainage system.

E-1.6.3 Proposed Species

E-1.6.3.1 Mountain plover (*Charadrius montanus*)

Existing Environment: The mountain plover could potentially occur on the JO Ranch lands on level, sparsely vegetated sites. However, this species has never been recorded breeding on these lands.

Effects of Proposed Project: If the exchange is completed as proposed, the BLM would acquire the surface ownership of the JO Ranch lands. The proposed land exchange may affect, but is no likely to jeopardize the continued existence of the mountain plover. Any effects are likely to be beneficial. The acquisition of these lands by the BLM would allow protection of any mountain plover habitat that is present from surface development by the private sector. The rights to develop the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.6.4 Candidate Species

E-1.6.4.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

Existing Environment: The JO Ranch lands are generally out of the habitat range of the black-tailed prairie dog, which is primarily found in eastern Wyoming. Black-tailed prairie dogs have not been recorded on or adjacent to the JO Ranch lands.

Effects of Proposed Project: The proposed action should have no effect on black-tailed prairie dogs since they are not present in the area.

E-1.6.4.2 Western boreal toad (*Bufo boreas boreas*)

Existing Environment: The western boreal toad is provided candidate status only in the "Southern Rocky Mountain DPS". In Wyoming, the southeastern portion of the state is where this DPS is located. The JO Ranch lands are adjacent to, but not within, the range of this western boreal toad DPS. That is because the JO Ranch lands occur at elevations well below those required for this species and known suitable habitats for this species are not present.

Effects of the Proposed Project: The Proposed Action will have no effect on this western boreal toad DPS since known suitable habitats for this species will not be affected.

E-1.6.4.3 Yellow-billed cuckoo (*Coccyzus americanus)*

Existing Environment: The range of the western yellow-billed cuckoo DPS encompasses the JO Ranch lands. This species prefers primarily riparian areas dominated by cottonwoods and willows. The JO Ranch lands provide only marginal habitat for this species. The yellow-billed cuckoo has never been recorded on the JO Ranch lands.

Effects of the Proposed Project: The Proposed Action may affect, but is not likely to adversely affect the yellow-billed cuckoo. Any effects are likely to be beneficial. If the exchange is completed, the BLM would acquire surface ownership of the JO Ranch lands. The surface lands would not be available for private development that could potentially lead to the loss of the marginal yellow-billed cuckoo habitat present. The rights to develop the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.6.4.4 Arctic grayling (*Thymallus arcticus*)

Existing Environment: The arctic grayling is only provided candidate status within the "Fluvial Arctic Grayling, Upper Missouri River DPS". Within Wyoming, this range is confined to the extreme northwestern portion of the state and does not include these JO Ranch lands.

Effects of the Proposed Project: The Proposed Action for the transfer of the surface ownership of the JO Ranch lands to the BLM will have no effect on this arctic grayling DPS.

E-1.6.5 Cumulative Effects

Acquisition of the JO Ranch lands would have small but beneficial cumulative effects on the threatened, endangered, proposed, and candidate plant and animal species in these areas because the tracts offered for exchange are relatively small inholdings of private land surrounded by BLM-administered lands. Federal surface management in these areas would be consolidated and the opportunity for private surface development, such as subdivisions and/or construction activities that could potentially impact threatened, endangered, proposed, and candidate species or their habitats on these lands and the surrounding public lands, would be eliminated.

E-1.7 WELCH LANDS

The location of the Welch lands is shown in Figure E-4. The legal description of the Welch lands and mineral interests that P&M is offering to exchange is as follows:

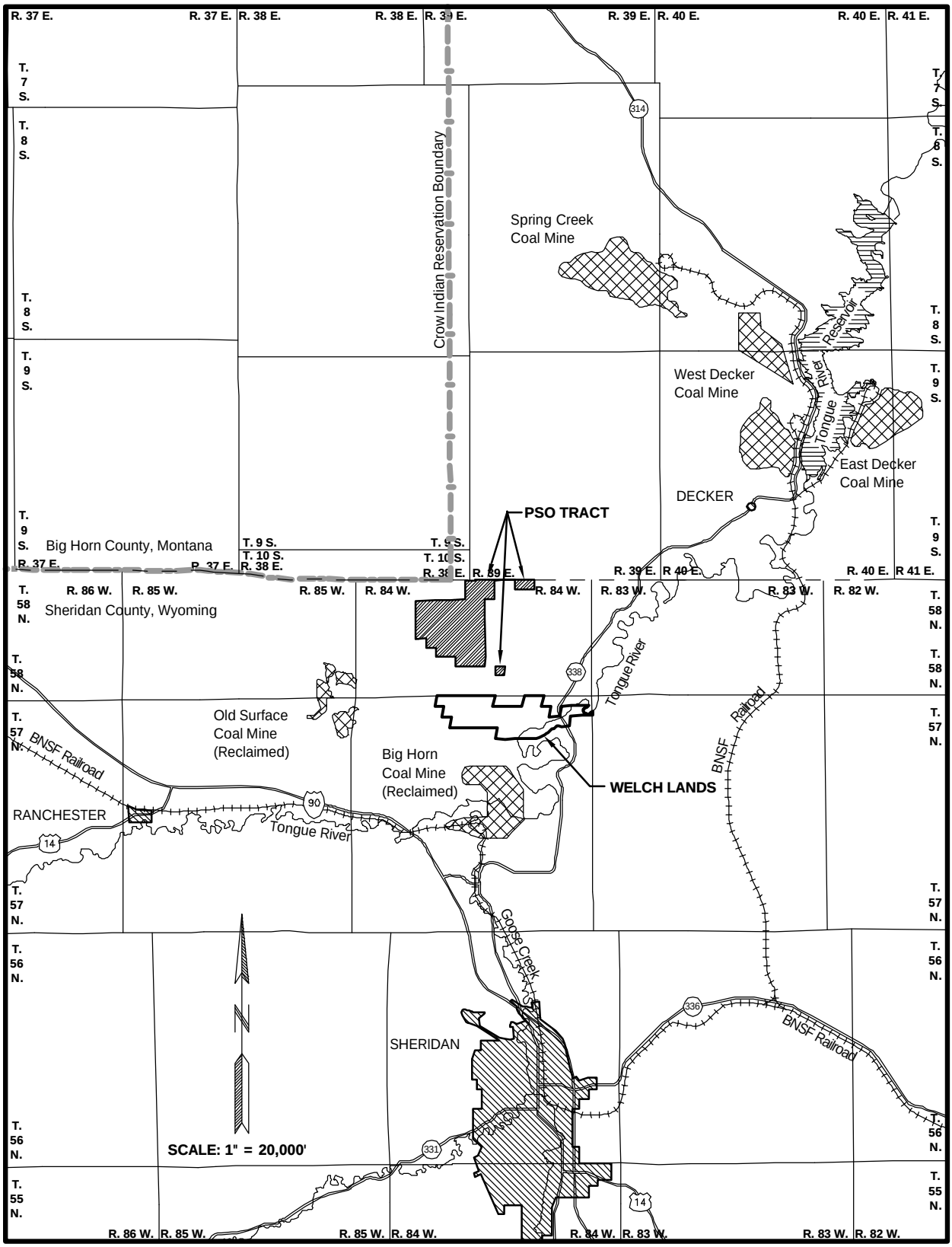


Figure E-4. Welch Lands and PSO Tract Location Map.

Lands

T.57N., R.84W., 6th P.M., Wyoming

Section 1:	S½NE¼	(minus a metes and bounds exclusion area of 25.51 acres),
	SE¼NW¼,	
	N½SW¼	(minus a metes and bounds exclusion area of 1.2 acres),
	SW¼SW¼	(minus a metes and bounds exclusion area of 10.6 acres);
Section 2:	Lots 2, 3,	
	S½N½,	
	S½	(minus a metes and bounds exclusion area of 5.6 acres);
Section 3:	Lots 3,4,	
	S½N½,	
	N½S½,	
	SE¼SE¼;	
Section 4:	Lots 1 through 4,	
	S½NE¼,	
	SE¼NW¼,	
	N½SE¼.	

Total: 1,538.70 acres more or less.

Minerals

P&M owns and is offering to exchange the coal rights underlying the following lands:

T.57N., R.84W., 6th P.M., Wyoming

Section 1:	S½NE¼	(excluding 25.51 acres),
	SE¼NW¼,	
	N½SW¼	(excluding 1.2 acres);
Section 2:	S½NW¼,	
	S½	(excluding 5.6 acres);
Section 3:	S½NE¼,	
	SE¼NW¼,	
	N½SE¼,	
	SE¼SE¼.	

Total: 807.69 acres more or less.

The remaining 731.01 acres of coal estate in the Welch lands are federally owned. P&M does not own and is not offering to exchange any non-coal mineral rights underlying the Welch lands.

The Welch lands are surrounded by private lands and private and federal minerals. The federal minerals are administered by the BLM. Under the Proposed Action, if these lands are acquired the BLM Buffalo Field Office would determine future management of these lands through additional NEPA analyses and planning decisions.

Table E-1.4 is a list of threatened, endangered, proposed, and candidate species known or suspected to occur in Sheridan County, Wyoming based on information provided to the BLM by the USFWS in September 2002 (USFWS 2002b) and verbally updated in April 2003. Both the Welch lands and the PSO Tract are in Sheridan County.

Table E-1.4. Occurrence of Threatened, Endangered, Proposed, and Candidate Species in the Area of the Welch Lands and the PSO Tract.

Status	Name	Occurrence*
Threatened:	Bald eagle (*Haliaetus leucocephalus*)	K
	Canada lynx (*Lynx canadensis*)	NS
	Ute ladies'-tresses (*Spiranthes diluvialis*)	NS
Endangered:	Black-footed ferret (*Mustela nigripes*)	NS
Proposed:	Mountain plover (*Charadrius montanus*)	NS
Candidate:	Black-tailed prairie dog (*Cynomys ludovicianus*)	K
	Western boreal toad (*Bufo boreas boreas*)	NS
	Yellow-billed cuckoo (*Coccyzus americanus*)	NS
	Arctic grayling (*Thymallus arcticus*)	NS

* Occurrence Key: K=known, S=suspected in area of influence of Proposed Action, NS=not suspected in area of influence of Proposed Action.

E-1.7.1 Threatened Species

E-1.7.1.1 Bald eagle (*Haliaetus leucocephalus*)

Existing Environment: There is bald eagle habitat available in the analysis area. Bald eagles are a common winter resident along the Tongue River that flows through the Welch lands and have been observed and documented on the Welch lands. No roost locations or nest sites have been identified on the Welch lands; however, there is an active bald eagle nest approximately two miles downstream from the Welch lands on the Tongue River (Figure E-4).

Effects of the Proposed Project: The Proposed Action may affect, but is unlikely to adversely affect, bald eagles or their habitat on the Welch lands. Any effects are likely to be beneficial. If the exchange is completed, BLM would acquire ownership of the surface and remainder of the non-federal coal estate on the Welch lands. This would facilitate habitat management and protection of T&E species on these lands by the BLM. If the exchange is completed, future management of the land acquired in the Buffalo Field Office area would be determined through additional NEPA analysis/planning decisions. The surface lands and coal would not be available for subdivision and/or private development that could potentially adversely affect bald eagles utilizing this area in the future. The rights to develop the remainder of the mineral estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.1.2 Canada lynx (*Lynx canadensis*)

Existing Environment: The Canada lynx is listed by the USFWS as potentially occurring in the region; and the Bighorn National Forest has recorded five Canada lynx observations between 1969 and 1988. All of the sightings were northwest of Buffalo, Wyoming, and occurred at higher elevations than are present in the area of the Welch lands (Bills 2002). It is unlikely that habitat for this species exists in the area of the Welch lands.

Effects of the Proposed Project: If the exchange is completed as proposed, it may affect, but is not likely to adversely affect Canada lynx because it is not likely that suitable habitat for this species occurs in the area of the Welch lands. Any effect is likely to be beneficial. If the exchange is completed, the BLM would acquire ownership of the surface and the remaining non-federal coal estate on the Welch Ranch lands, shown on Figure E-4. The surface lands would not be available for subdivision and/or private development. The rights to develop the oil and gas estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.1.3 Ute ladies'-tresses (*Spiranthes diluvialis*)

Existing Environment: This species is known from four populations in Wyoming, within Converse, Goshen, Laramie, and Niobrara Counties. The occurrence on Antelope Creek in Converse County, which is the closest to the Welch lands, is located more than 100 miles southeast of the Welch lands. There is potential for Ute ladies'-tresses to occur in suitable habitats on these lands. The Welch lands have not been surveyed for Ute ladies'-tresses.

Effects of Proposed Project: The Proposed Action may affect, but is not likely to adversely affect, Ute ladies-tresses' or their habitat. Any effects are likely to be beneficial. If the exchange is completed, the BLM would acquire ownership of the surface and the remaining non-federal coal estate on the Welch lands, shown on Figure E-4. The surface lands would not be available for subdivision and/or private development that could adversely affect potential habitat for Ute ladies'-tresses. The rights to develop the oil and gas estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.2 Endangered Species

E-1.7.2.1 Black-footed ferret (*Mustela nigripes*)

Existing Environment: The Welch lands are within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. Surveys to identify any populations of this species within the area administered by the BLM Buffalo Field Office (Campbell, Johnson, and Sheridan Counties, Wyoming) have been unsuccessful, although suitable habitat exists. This endangered species is found almost exclusively living in prairie dog colonies. Black-tailed prairie dogs have been observed or documented on the Welch lands and there is a small (approximately 20 acre) black-tailed prairie dog town on the property. The colony is not large enough to support a black-footed ferret population.

Effects of the Proposed Project: If the exchange is completed as proposed, it may affect but is unlikely to adversely affect, black-footed ferrets. Any effect is likely to be beneficial. BLM would acquire ownership of the surface estate and the remainder of the non-federal coal estate on the Welch lands. Although suitable habitat for black-footed ferrets exists in this area, occurrence of black-footed ferrets in this area is unlikely, and the existing prairie dog colony on the Welch lands is not large enough to support a black-footed ferret population. The rights to develop the oil and gas estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.3 Proposed Species

E-1.7.3.1 Mountain plover (*Charadrius montanus*)

Existing Environment: Mountain plover could potentially occur on the Welch lands. The BLM Buffalo Field Office contracted two mountain plover nesting surveys in 2001 (Good et al. 2002, Keinath and Ehle 2001). Keinath and Ehle (2001) located one plover in southern Campbell County, while Good et al. (2002) located five plovers in Johnson County between Buffalo and Kaycee. Localized coalbed methane (CBM)-related mountain plover surveys documented nesting mountain plovers in southern Campbell County. Mountain plover have never been observed in the area of the Welch lands.

Both contracted surveys conclude mountain plover habitat within the Powder River Basin (PRB) may be sparse and fragmented (Good et al. 2002, Keinath and Ehle 2001). Much of the PRB is dominated by rolling sagebrush. Good et al. (2002) believe that bare ground and vegetation height are the limiting habitat components in the basin's prairie communities; the areas they detected mountain plovers within the PRB appeared to receive less precipitation and have greater amounts of short grass prairie than the rest of the basin. However, both surveys caution more suitable mountain plover habitat exists than they were able to survey, as they were limited to public roads (Good et al. 2002, Keinath and Ehle 2001).

Suitable habitat for this species potentially exists on the black-tailed prairie dog town on the Welch lands.

Effects of the Proposed Project: Federal acquisition of the Welch lands may affect but is unlikely to jeopardize the continuing existence of the mountain plover as there is little suitable habitat and there are no known populations of this species in this area. Any effects are likely to be beneficial. If the exchange is completed as proposed, BLM would acquire ownership of the surface and the remainder of the non-federal coal estate on the Welch lands. The rights to develop the oil and gas estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.4 Candidate Species

E-1.7.4.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

Existing Environment: There is black-tailed prairie dog habitat available in the analysis area. There is a small (approximately 20 acre) black-tailed prairie dog town on the Welch lands and black-tailed prairie dogs have been observed or documented in the area. Several other colonies are known to exist within several miles of the Welch lands.

Effects of the Proposed Project: The Proposed Action may affect, but is unlikely to adversely affect, black-tailed prairie dog individuals or populations or their habitat on the Welch lands. Any effects are likely to be beneficial. If the exchange is completed, BLM would acquire ownership of the surface estate and part of the coal estate on the Welch lands. This would facilitate habitat management and protection of T&E species on these lands by the BLM. If the exchange is completed, future management of the land acquired in the Buffalo Field Office area would be determined through additional NEPA analysis/planning decisions. The lands would not be available for subdivision and/or private development that could potentially adversely affect black-tailed prairie dogs in the future. The rights to develop the oil and gas estate would not be changed if the exchange is completed, but BLM would be involved in any proposed development projects as the surface owner.

E-1.7.4.2 Western boreal toad (*Bufo boreas boreas*)

Existing Environment: The western boreal toad is provided candidate status only in the "Southern Rocky Mountain DPS". In Wyoming, the southeastern portion of the state is where this DPS is located. The Welch lands are not within the range of this western boreal toad DPS.

Effects of the Proposed Project: The Proposed Action will have no effect on this western boreal toad DPS since this species does not occur on the Welch lands and known habitats for this species will not be affected.

E-1.7.4.3 Yellow-billed cuckoo (*Coccyzus americanus*)

Existing Environment: The range of the western yellow-billed cuckoo DPS does not encompass the Welch lands. The western yellow-billed cuckoo is listed as a candidate species in the portion of this species' range located west of the continental divide.

Effects of the Proposed Project: The Proposed Action will not affect the western yellow-billed cuckoo DPS because this DPS does not occur on the Welch lands.

E-1.7.4.4 Arctic grayling (*Thymallus arcticus*)

Existing Environment: The arctic grayling is provided candidate status within the "Fluvial Arctic Grayling, Upper Missouri River DPS". Within Wyoming, this range is confined to the extreme northwestern portion of the state and does not include these Welch lands.

Effects of the Proposed Project: The Proposed Action for the Welch lands will have no effect on this arctic grayling DPS.

E-1.7.5 Cumulative Effects

Acquisition of the Welch lands, which are surrounded by other private lands, would have a small but beneficial cumulative effect on threatened, endangered, proposed, and candidate species on these lands because the opportunity for private surface development, such as subdivisions or construction activities that could impact threatened, endangered, proposed, and candidate species or their habitat, would be eliminated. Under the Proposed Action, if these lands are acquired the BLM Buffalo Field Office would determine future management of these lands through additional NEPA analyses and planning decisions. Opportunities for recreational activities on the Welch lands would be increased if they become public lands, which may have impacts on threatened, endangered, proposed, and candidate species. Applications could be filed to lease the coal that would be acquired by the federal government on the Welch lands. Such a lease application would be reviewed for compliance with the Buffalo RMP and would be reviewed with respect to the four coal planning screens to determine if the coal is acceptable for further consideration for leasing. If the coal was determined to be acceptable for leasing, the application would be reviewed by the Powder River Regional Coal Team (PRRCT), as it would require a new mine start. If the PRRCT recommended BLM process the application, it would be processed as required under 43 CFR 3425, and a NEPA analysis would be prepared. Opportunities for oil and gas development would be unchanged on these lands because the oil and gas estate would remain in private ownership.

E-1.8 PSO TRACT

The location of the PSO Tract is shown in Figure E-4. If the exchange is completed under the Proposed Action, which is the preferred alternative of the BLM and USFS, P&M would acquire an amount of federal coal equivalent in value to the properties they are offering for exchange. For the purposes of this analysis, it is assumed that P&M would acquire all of the federal coal underlying the PSO Tract, which is described as follows:

T.58N., R.84W., 6th P.M., Wyoming

Section 15:	Lot 1;
Section 20:	SE¼;
Section 21:	E½NE¼, S½;
Section 22:	NW¼, W½SW¼;
Section 23:	Lots 3 and 4;
Section 27:	W½NW¼, W½SW¼;
Section 28:	All
Section 29:	NE¼, NE¼SE¼;
Section 33:	N½NE¼;

Section 34: SW¼NE¼,
NW¼NW¼.

Total: 2,045.53 acres more or less.

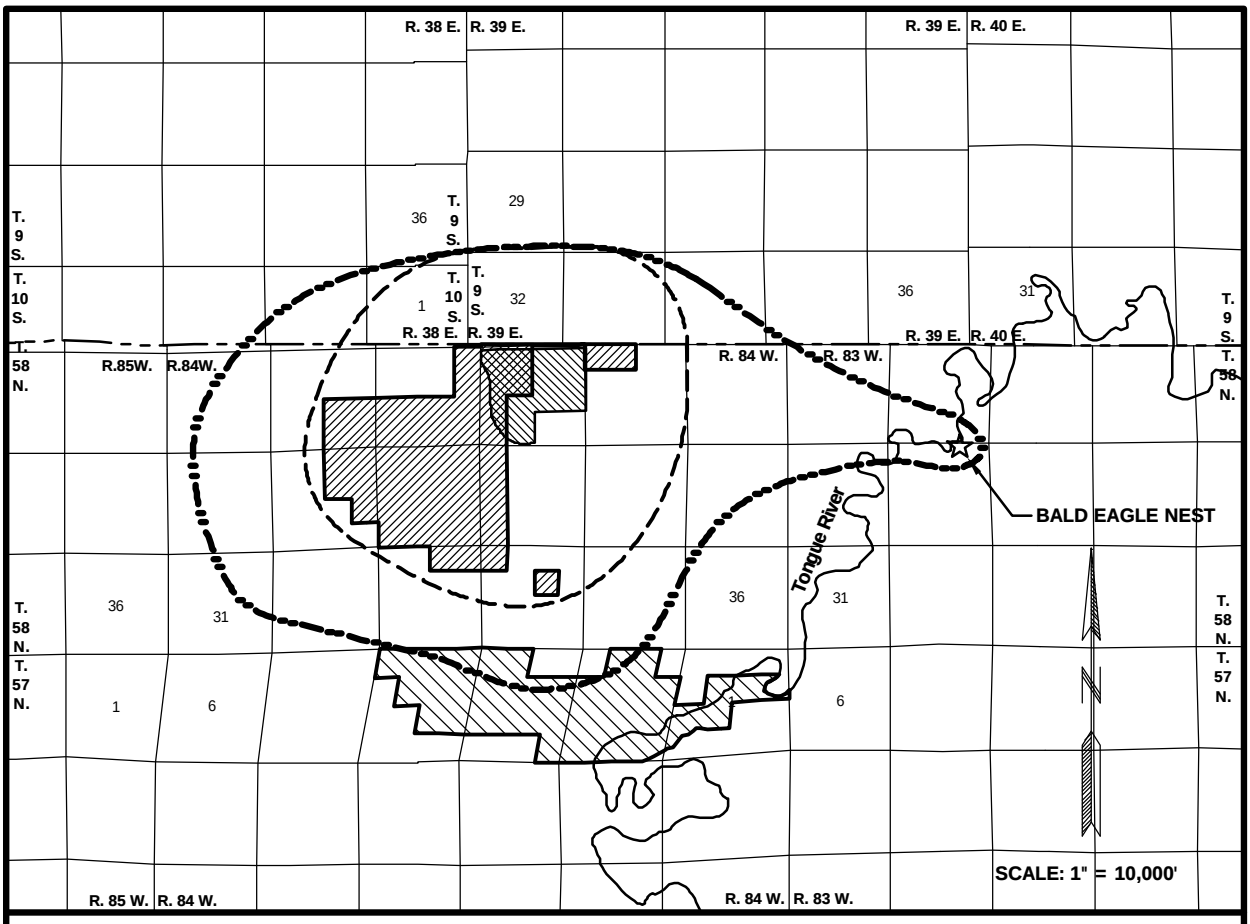
The majority of the surface of the PSO Tract is privately owned, and P&M is the primary private surface owner. There are 6.41 acres of BLM-administered public surface included in the PSO Tract.

If P&M acquires the coal included in the PSO Tract, they propose to open a surface coal mine and recover the coal in the tract. There is privately-owned coal adjacent to the PSO Tract that could be mined when the PSO Tract is mined. P&M does not own this coal, which could also be mined with other private or federal coal in this area. There are currently no federal coal leases in Sheridan County, Wyoming. Federal coal is being mined at two nearby active surface coal mines in Montana (Decker and Spring Creek, see Figure E-4).

Approval of this exchange would not constitute an authorization to mine, however this biological assessment considers the potential impacts of mining because that is a potential outcome of approving this exchange.

The P&M Ash Creek Mine is a surface coal mine located north of Sheridan that was permitted with the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) in 1976 as the PSO No. 1 Mine (Mine Permit No. 407) (Figure E-5). This was prior to the passage of the Surface Mining Control and Reclamation Act (SMCRA). This mine is located in the northeast quarter of Section 22, T.58N., R.84W., adjacent to the federal coal being considered for exchange (Figure E-5). An initial box cut, overlying privately owned coal, was opened in the late 1970s. The majority of the topsoil and overburden were removed between 1976 and 1978. The mine plan was contingent upon approval and construction of a proposed railroad spur for an adjacent proposed mine in Montana. No method of coal transportation was built and all operations ceased in 1980. All activities were suspended from 1980 to 1995, when reclamation began. Reclamation was completed and a full area bond release request by the Ash Creek Mining Company was granted by WDEQ/LQD in 1996. WDEQ Permit No. 407 was transferred from Central and Southwest Services, parent company of the Ash Creek Mining Company, to P&M in 1997.

Wildlife monitoring has been ongoing for the P&M Ash Creek Mine and the program was designed to meet the WDEQ/LQD and federal requirements for the annual monitoring and reporting of wildlife activity on coal mining areas (Figure E-5). Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The annual monitoring studies for a mine permit area of this size (less than 500 acres) involve the measurement and assessment of selected wildlife species, and studies are not as detailed as baseline inventories or monitoring programs for larger mines. The monitoring program has continued in accordance with Appendix B of the



LEGEND

Wyoming - Montana State Line

P & M Ash Creek Mine Permit Area

PSO Tract

Welch Lands

BALD EAGLE SURVEYS

Winter survey area. Includes Ash Creek Mine permit area and one-mile radius. PSO Tract area was included in 2001.

Spring survey area. Includes area of all previously inventoried raptor nests and potential nesting habitat on the Ash Creek Mine permit area and one-mile radius. PSO Tract area was included in 2001.

Late spring-early summer survey area. Includes all active raptor nests previously inventoried and potential habitat on the Ash Creek Mine permit area and one-mile radius. PSO Tract area was included in 2001.

BLACK-TAILED PRAIRIE DOG SURVEYS

Includes all previously inventoried towns on the Ash Creek Mine permit area and a one-mile radius. PSO Tract area was included in 2000 and 2001.

BLACK-FOOTED FERRET SURVEYS

Watch is kept for the presence of ferrets within and near active prairie dog towns during all prairie dog town surveys for the Ash Creek Mine (see description above). The PSO Tract area was included in 2000 and 2001. No surveys have been conducted specifically for black-footed ferrets since 1987 in the Ash Creek Mine area.

MOUNTAIN PLOVER SURVEYS

Watch is kept for the presence of plovers during all wildlife surveys for the Ash Creek Mine, particularly within and near active prairie dog towns during all prairie dog town surveys (see description above). PSO Tract area was included in 2000 and 2001.

Figure E-5. T & E Animal Species Survey Areas for the Ash Creek Mine and PSO Tract.

WDEQ/LQD Rules and Regulations. For the Ash Creek Mine, all wildlife species coincidentally observed during wildlife surveys are recorded. Any signs of species that are not visually sighted are also recorded.

The most recent annual wildlife monitoring program for the P&M Ash Creek Mine was conducted by Intermountain Resources of Laramie, Wyoming and the results are included Ash Creek Mine's 2002 Annual Mining and Reclamation Report to the WDEQ/LQD (P&M 2002).

Background information on T&E species in the vicinity of the PSO Tract was drawn from the Intermountain Resources' Ash Creek Mine annual wildlife surveys, WGFD and USFWS records, and personal contacts with WGFD and USFWS biologists. The majority of the PSO Tract has been surveyed during annual wildlife monitoring for the Ash Creek Mine. Surveying efforts were expanded as necessary to include the entire PSO Tract in July 2000 through July of 2001, the results of which are included in this EIS.

Table E-1.4 is a list of threatened, endangered, proposed, and candidate species known or suspected to occur in Sheridan County, Wyoming based on information provided to the BLM by the USFWS in September 2002 (USFWS 2002b) and verbally updated in April 2003.

E-1.8.1 Threatened Species

E-1.8.1.1 Bald eagle (*Haliaetus leucocephalus*)

Existing Environment: Three major wildlife surveying periods for the reclaimed Ash Creek Mine occur every year. Bald eagle surveys are basically conducted separately from, but in conjunction with, raptor surveys as follows:

- On the mine's permit area and a one-mile radius during the winter surveys (January and February) observations are made to specifically record bald eagles' and all other raptors' winter use of the area. Suitable roost habitat within the same area is surveyed for possible new roosts.

- All previously inventoried nests are checked during the spring survey (March and April) to determine whether they are active. Potential nesting habitat on the mine's permit area and a one-mile radius is surveyed for any new nests.

- All active nests are again observed in the late spring-early summer (June and early July) to determine nesting success. Potential nesting habitat on the mine's permit area and a one-mile radius is also resurveyed for any new nests and late nesting species.

Opportunistic observations noting the eagle's general use of the area are ongoing during all wildlife monitoring activities for the Ash Creek Mine. The

bald eagle is a common winter resident and migrant, although bald eagles are typically observed during all surveys. Eagles were not observed in 1994-1996, but have been observed from 1997-2002 during all surveys, either foraging on the area or as a transient. This species nests along the Tongue River and the closest active bald eagle nest to the PSO Tract and Ash Creek Mine is located about three miles east (Figure E-5). This nest has been active in many of the years since its discovery in 1983, including 1999 and 2000. Surveillance of this nest and the area between the nest and the Ash Creek Mine for the possible establishment of a new nest has been part of the Ash Creek Mine's monitoring program for the last 20 years. A new nest is unlikely in this area because optimum nesting habitat does not exist.

Within the BLM Buffalo Field Office Area, bald eagle nests tend to be associated with forested riparian areas that have mature cottonwood trees (Bills 2002). The bald eagle is the only federally listed species that has been observed on the Ash Creek Mine survey area in recent years (Intermountain Resources 2002).

An abundant, readily available food supply, in conjunction with a suitable roost sites, is the primary feature of winter habitat. The majority of wintering eagles are found near open water where they feed on fish and waterfowl. In addition, eagles are known to feed on carrion, small mammals, and game birds. Eagles prefer to forage in areas with the least human disturbance (USFWS 1978, McGarigal et al. 1991). Food availability is probably the single most important factor affecting winter bald eagle distribution and abundance (Steenhof 1976). Although streams are locally important winter foraging habitat, within the BLM Buffalo Field Office area (which includes Sheridan County) small mammals and carrion are the primary food resources. Domestic sheep carrion is the most important winter food resource, and winter bald eagle numbers have correlated with domestic sheep populations (Bills 2002). Bald eagles are opportunistic foragers, and the PSO Tract could provide foraging opportunities.

<u>Effects of the Proposed Project:</u> The proposed land exchange may affect, but is unlikely to adversely affect, bald eagles and their habitat. Freedom from disturbance is important in forage, nest, and roost site selection. Disturbance to nesting eagles can cause nest failure, nest abandonment, and unsuccessful fledging of young. If P&M acquires the federal coal in the PSO Tract and opens a surface coal mine, there would be new levels of human disturbance on the tract that could impact nesting and wintering bald eagles in the area. There are no nests on the PSO Tract or on adjacent areas that are proposed for mining related facilities, which is where disturbance associated with the PSO Tract would be concentrated. Eagles may alter foraging patterns as they fly around areas of active mining activity. Bald eagle foraging habitat would be lost on the tract during mining. This loss of potential prey habitat would be short-term; foraging habitat lost during mining would be replaced as reclamation proceeds on mined-out areas. The potential for eagles to collide with or be electrocuted by electric power lines on the mine site would be

expected to be minimal; utilization of raptor-safe power lines is required under SMCRA [30 CFR 816.97 (e)(1)] and state regulations. An increase in the volume and frequency of traffic on the roads accessing the PSO Tract may result in an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area, which would increase the potential for road kills of foraging bald eagles to occur.

Cumulative Effects: Mineral development, including CBM development and surface coal mining, is the leading cause of habitat loss within the BLM Buffalo Field Office area, which includes Sheridan County. CBM development has occurred and is proposed in this area in both Montana and Wyoming. There are two operating surface coal mines in Big Horn County, Montana (Figure E-4) The Decker Coal Mine and the Spring Creek Coal Mine are located approximately six miles and seven and one-half miles, respectively, northeast of the PSO Tract. The West Decker mine was opened in 1972, the East Decker mine was opened in 1977, and the Spring Creek mine was opened in 1979. Both the Decker and Spring Creek mines are currently producing around 10 million tons of coal annually.

E-1.8.1.2 Canada lynx (*Lynx canadensis*)

Existing Environment: The Canada lynx is listed by the USFWS as potentially occurring in the region and the Bighorn National Forest has recorded five Canada lynx observations between 1969 and 1988. All of the sightings were northwest of Buffalo, Wyoming, and occurred at higher elevations than are present in the area of the PSO Tract (Bills 2002). It is unlikely that suitable habitat for this species exists in the area of the PSO Tract.

Effects of the Proposed Project: If the exchange is completed as proposed, it may affect, but is unlikely to adversely affect Canada lynx because it is not likely that suitable habitat for this species is present in the area of the PSO Tract. Lynx sightings in this area have been reported at higher elevations than are found in the area of the PSO Tract.

Cumulative Effects: Human activities, associated with motorized access, result in the greatest known mortality of adult lynx. Usually this is the result of trapping, poaching, or road kills.

Other factors impacting lynx and their habitat include vegetation management, increasing recreational activities (winter in particular), and increased competition from other predators. Packed ski and snowmobile trails enable predators such as bobcats (*Felis rufus*) and coyotes (*Canis latrans*) to access high elevation areas traditionally occupied only by lynx (Ruediger et al. 2000).

Predator control activities may also affect Canada lynx. Bobcat and coyote control may reduce competition between lynx and these species. However, unintentional take of lynx would be detrimental to lynx recovery.

Potential Canada lynx habitat within the BLM Buffalo Field Office is outside the coal seam and CBM development area. Mineral activities within the BLM Buffalo Field Office do not affect Canada lynx habitat (Bills 2002).

E-1.8.1.3 Ute Ladies'-tresses (*Spiranthes diluvialis*)

Existing Environment: This species is known from four populations in Wyoming, within Converse, Goshen, Laramie, and Niobrara Counties.

There is potential for Ute ladies'-tresses to occur on the PSO Tract; however, suitable habitat is very limited because there are no perennial or ephemeral streams with subirrigation into late July or August within the tract area. Potential habitat for the orchid is limited to those areas on the tract that have been identified as wetlands, which are the 6.2 acres of jurisdictional wetlands associated with man-made stock ponds. Intermountain Resources surveyed all potential habitat areas on the PSO Tract during blooming season in July 2001 and no orchids were found. The two perennial streams that cross the proposed Ash Creek Mine area, Little Youngs Creek and Youngs Creek, provide more potential habitat for Ute ladies'-tresses, although these areas, which are outside of the PSO Tract, have not yet been surveyed. The existing P&M Ash Creek mine permit area (Figure E-5) was surveyed for Ute ladies'-tresses in 1980 and none were found at that time.

Effects of the Proposed Project: Approval of the exchange may affect, but is unlikely to jeopardize the continued existence of the Ute ladies'-tresses. The nearest known population occurrence of this species lies more than 100 miles southeast of the PSO Tract on Antelope Creek in Converse County.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002e). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBM development and discharged on the surface may also alter stream morphology and hydrology. Jurisdictional wetlands located in the PSO Tract and adjacent lands proposed for mining that are destroyed by mining operations would be replace in accordance with COE requirements. The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands, but replacement would be in accordance with the requirements of Section 404 of the Clean Water Act, as determined by COE.

E-1.8.2 Endangered Species

E-1.8.2.1 Black-footed ferret (*Mustela nigripes*)

Existing Environment: The BLM Buffalo Field Office area is within the historical range of the black-footed ferret, although no black-footed ferrets are

presently know to occur in northeastern Wyoming (Bills 2002). This endangered species is found almost exclusively living in prairie dog colonies. Several small black-tailed prairie dog towns occur on the PSO Tract and several other colonies are known to exist within several miles of the PSO Tract area (Figure E-6). The existence of these towns means that potential habitat for the black-footed ferret exists and ferrets could potentially occur in the PSO Tract area. As required by the Ash Creek Mine's wildlife monitoring commitments, observations are made to determine the presence of any rare or endangered species within and near active prairie dog towns during the surveys that are within a one-mile radius of the permit area. The potential presence of black-footed ferrets has been considered by wildlife surveyors (Intermountain Resources) during Ash Creek Mine's surveys within active prairie dog towns. Watch is kept during all wildlife monitoring surveys for signs of ferrets but specific surveys have not been conducted for ferrets since 1987 in the Ash Creek Mine area.

The larger towns that occur south and southeast of the Ash Creek Mine permit area were surveyed for ferrets during baseline inventories done in 1976 and again in 1987 according to the then-accepted ferret survey techniques. No sign of ferrets have ever been observed on the entire black-tailed prairie dog complex in the general area.

Effects of the Proposed Project: Approval of the exchange may affect, but is not likely to adversely affect, black-footed ferrets. There is potential black-footed ferret habitat on the tract (several prairie dog towns) that would be affected if a surface coal mine is opened as proposed, but there are no known populations of this species in this area. P&M proposes to mine the coal if they acquire it. Ferret searches of the small prairie dog towns located on the PSO Tract have found no indication of ferrets.

Cumulative Effects: Sylvatic plague, an introduced disease, can infect and eliminate entire prairie dog colonies. Recreational prairie dog shooting may locally reduce prairie dog populations, but seldom eliminates colonies.

Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat

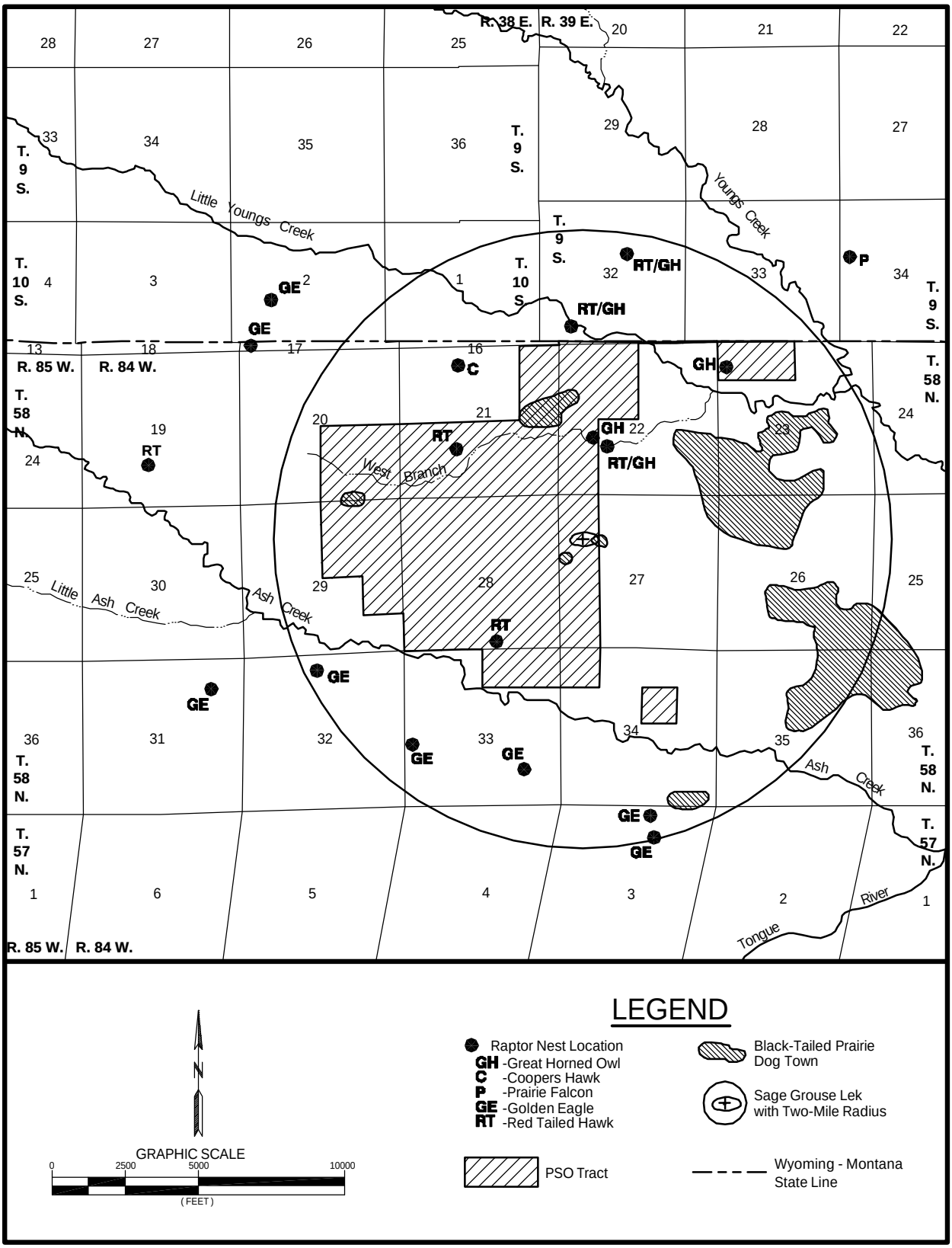


Figure E-6. Raptor Nest Sites, Sage Grouse Leks, and Prairie Dog Towns Within and Adjacent to the PSO Tract.

composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs in this area.

E-1.8.3 Proposed Species

E-1.8.3.1 Mountain plover (*Charadrius montanus*)

Existing Environment: The BLM Buffalo Field Office contracted two mountain plover nesting surveys in 2001 (Good et al. 2002, Keinath and Ehle 2001). Keinath and Ehle (2001) located one plover in southern Campbell County, while Good et al. (2002) located five plovers in Johnson County between Buffalo and Kaycee. Localized CBM-related mountain plover surveys documented nesting mountain plovers in southern Campbell County. Mountain plover have never been observed in the area of the PSO Tract.

Both contracted surveys conclude mountain plover habitat within the PRB may be sparse and fragmented (Good et al. 2002, Keinath and Ehle 2001). Much of the PRB is dominated by rolling sagebrush. Good et al. (2002) believe that bare ground and vegetation height are the limiting habitat components in the basin's prairie communities; the areas they detected mountain plovers within the Powder River Basin appeared to receive less precipitation and have greater amounts of short grass prairie than the rest of the basin. However, both surveys caution more suitable mountain plover habitat exists than they were able to survey, as they were limited to public roads (Good et al. 2002, Keinath and Ehle 2001).

Several small black-tailed prairie dog towns occur on the PSO Tract and several other colonies are known to exist within several miles of the PSO Tract (Figure E-6). The existence of prairie dog towns means that potential habitat exists for mountain plovers. As required by the Ash Creek Mine's wildlife monitoring commitments, observations are made to determine the presence of any rare or endangered species within and near prairie dog towns during the prairie dog town surveys that are within a one-mile radius of the permit area (Figures E-5 and E-6). Surveys of previously recorded prairie dog towns are conducted on the Ash Creek Mine's permit area and a one-mile perimeter during the spring survey (March and April) and the late spring-early summer survey (June and early July). Watch is kept for plovers during all wildlife monitoring surveys conducted for the Ash Creek Mine. Suitable habitat on the PSO Tract was surveyed in 2001, but no mountain plovers were observed. Mountain plovers have never been observed on any of these black-tailed prairie dog towns and have not been documented on or near the PSO Tract (Intermountain Resources 2002).

The black-tailed prairie dog towns southeast of the Ash Creek Mine and PSO Tract have not been surveyed specifically for mountain plovers, although they have never been observed during past prairie dog town surveys.

Effects of the Proposed Project: The proposed land exchange may affect, but is unlikely to jeopardize the continued existence of the mountain plover. If the exchange is completed and P&M acquires and mines the coal in the PSO Tract, potentially suitable habitat for mountain plovers on the tract would be disturbed during mining operations. Mountain plovers have not been documented on or near the tract and mountain plovers were not observed during surveys of suitable habitat for this species in 2001 or in any of the past prairie dog town surveys conducted on the PSO Tract.

Cumulative Effects: Mineral development is likely to have both beneficial and detrimental effects on mountain plover. Mining activities tend to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Surface disturbance within suitable habitat will likely result in temporary habitat loss in areas to be reclaimed, and permanent or long-term loss where roads and permanent or long-term facilities are located. Powerpoles, conveyors, and other structures are likely to provide perch sites and hiding cover for mountain plover predators. Vehicle traffic may occasionally run over mountain plovers or their nests. Mineral development may benefit plovers where surface disturbance provides bare ground and reduces shrub cover (Dechant et al. 2001).

Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area, however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs in this area, which could lead to an increase or decrease in potential habitat for mountain plovers in this area.

E-1.8.4 Candidate Species

E-1.8.4.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

Existing Surveys: There is black-tailed prairie dog habitat available in the analysis area. Surveys of previously recorded prairie dog towns and for the presence of any new colonies are conducted on the Ash Creek Mine's permit area and a one-mile perimeter during the spring survey (March and April) and the late spring-early summer survey (June and early July) by Intermountain Resources (Figure E-5). Several small black-tailed prairie dog towns have been observed on the PSO Tract (Figure E-6). These colonies are located in the NE¼ Section 21, NW¼ Section 22, SE¼ Section 20, NE¼ Section 29, and NW¼

Section 27, T.58N., R.84W. Several other colonies are known to exist within several miles of the PSO Tract area. The small town in Sections 21 and 22 has been gradually expanding over the past few years. Prairie dog activity at the larger town located in Sections 22, 23, 26, and 27, T.58N., R.84W. was reduced in 2000 due to apparent control efforts by landowners (Intermountain Resources 2002).

Effects of the Proposed Project: If the exchange is completed as proposed, P&M would acquire ownership of the federal coal included in the PSO Tract. If P&M acquires the federal coal in the PSO Tract and opens a surface coal mine, there would be new levels of human disturbance on the tract and there would be direct and indirect effects on individuals and populations of the black-tailed prairie dog. Individuals and colonies on the tract would be impacted by mine disturbance. Increased vehicle traffic would increase the potential for vehicle collisions, reducing population levels in colonies adjacent to existing and new roads.

E-1.8.4.2 Western boreal toad (*Bufo boreas boreas*)

Existing Environment: The western boreal toad is provided candidate status only in the "Southern Rocky Mountain DPS". In Wyoming, the southeastern portion of the state is where this DPS is located. The PSO Tract is not within the range of this western boreal toad DPS.

Effects of the Proposed Project: The Proposed Action will have no effect on this western boreal toad DPS since this species does not occur on the PSO Tract and known habitats for this species will not be affected.

E-1.8.4.3 Yellow-billed cuckoo (*Coccyzus americanus)*

Existing Environment: The range of the western yellow-billed cuckoo DPS does not encompass the PSO tract. The western yellow-billed cuckoo is only listed as a candidate species in the portion of this species range located west of the continental divide.

Effects of the Proposed Project: The Proposed Action will not affect the western yellow-billed cuckoo DPS because this DPS does not occur on the PSO Tract.

E-1.8.4.4 Arctic grayling (*Thymallus arcticus*)

Existing Environment: The arctic grayling is only provided candidate status within the "Fluvial Arctic Grayling, Upper Missouri River DPS". Within Wyoming, this range is confined to the extreme northwestern portion of the state and does not include the PSO Tract.

Effects of the Proposed Project: The Proposed Action for the PSO Tract will have no effect on this arctic grayling DPS.

E-1.8.5 Regulatory Requirements and Mitigation for the PSO Tract

If the exchange is completed, P&M would acquire ownership of the federal coal included in the PSO Tract. Ownership of the coal would not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of SMCRA and Wyoming State regulations. SMCRA gives OSM primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. Pursuant to Section 503 of SMCRA, the WDEQ developed, and in November 1980 the Secretary of the Interior approved, a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of SMCRA, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of SMCRA.

If an exchange is completed and ownership of the coal is transferred to P&M, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations. WDEQ/LQD reviews the permit application package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ issues the applicant a permit to conduct coal mining operations.

Protection of fish, wildlife, and related environmental values is required under the SMCRA regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended.".

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals. Additional mitigation measures to ensure compliance with the ESA and SMCRA are developed when a detailed mining plan, which identifies

the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. That plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine at this time.

E-1.8.6 Cumulative Impacts

If the exchange is completed as proposed and P&M acquires and mines the coal in the PSO Tract, the mining operations would contribute to cumulative effects to threatened, endangered, proposed, and candidate plant and wildlife species in the PRB. Other activities that are contributing to cumulative effects to threatened, endangered, proposed, and candidate plant and wildlife species in this area include active surface coal mining operations in Big Horn County, Montana; existing and proposed conventional oil and gas and CBM development in Wyoming and Montana; sand, gravel, and scoria mining; grazing; agriculture; recreational activities; and rural and urban housing development. Mining and construction activities and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short-term, this means a reduction in the available habitat for threatened, endangered, proposed, and candidate plant and wildlife species. In the long-term, habitat will be restored as reclamation proceeds.

Cumulative effects would also occur to threatened, endangered, proposed, and candidate plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on threatened, endangered, proposed, and candidate plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved species are native to the area, however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Establishment of noxious weeds and alteration of vegetation on reclaimed areas has the potential to alter threatened, endangered, proposed, and candidate plant and wildlife habitat composition and distribution. As a result, shifts in habitat composition or distribution may

affect threatened, endangered, proposed, and candidate plant and wildlife species in the PRB.

E-2.0 USFS INTERMOUNTAIN REGION SENSITIVE SPECIES

The following paragraphs summarize the available information on USFS sensitive species that are known to be present or potentially present on the Bridger lands which lie within the BTNF. Sensitive species are defined as those plants and animal species identified by the Regional Forester for which population viability is a concern as evidenced by: 1) significant current or predicted downward trends in population numbers or density, or 2) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (USFS Manual 2670.5).

The USFS objective for sensitive species management is to "develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions" (USFS Manual 2670.22). There are numerous sensitive species that do or could occur within the Bridger lands analysis area.

E-2.1 FISH AND WILDLIFE

Table E-2.1 lists fish and wildlife species that have been designated as Sensitive by the Intermountain Region of the USFS and may occur in the Bridger lands analysis area.

Table E-2.1 USFS Intermountain Fish and Wildlife Sensitive Species.

Name	**Occurrence***
Fish:	
Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*)	K
Snake River fine spotted cutthroat trout (*Oncorhynchus clarki* sp.)	NS
Wildlife:	
Spotted frog (*Rana pretiosa*)	S
Common loon (*Gavia immer*)	NS
Harlequin duck (*Histrionicus histrionicus*)	NS
Trumpeter swan (*Cygnus buccinator*)	NS
Boreal owl (*Aegolius funereus*)	S
Flammulated owl (*Otus flammeolus*)	S
Three-toed woodpecker (*Picoides tridactylus*)	S
Townsend's big-eared bat (*Plecotus townsendii*)	NS
Wolverine (*Gulo gulo*)	K
Fisher (*Martes pinnanti*)	NS
Northern goshawk (*Accipiter gentilis*)	S
Great gray owl (*Strix nebulosa*)	S
Spotted bat (*Euderma maculatum*)	NS
Peregrine falcon (*Falco pergrinus*)	NS

*Occurrence Key: K = known, S = suspected in area of influence of proposed action, NS = not suspected in area of influence of Proposed Action.

Suitable habitat exists for spotted frog, flammulated owl, boreal owl, three-toed woodpecker, great gray owl, northern goshawk, wolverine, and fisher.

E-2.1.1 Spotted frog: Population and Habitat Status

No spotted frogs have been located on the Kemmerer Ranger District although suitable habitat exists. The most recent survey work was conducted in Ham's Fork in 1999 (Patla 2000). No survey work has been done on the Bridger lands. Range maps for spotted frogs conflict; some include the Kemmerer Ranger District while others do not.

Spotted frog habitat primarily includes oxbow ponds (without fish) with emergent sedges (*Carex* spp.) located in wet meadows at the edge of lodgepole pine (*Pinus contorta*) forest. Frogs move considerable distances from water after breeding, often frequenting mixed conifer and subalpine forests, grasslands, and shrublands of sagebrush and rabbitbrush. Beaver ponds also provide good spotted frog habitat.

E-2.1.2 Flammulated owl: Population and Habitat Status

Flammulated owls have not been documented on the Kemmerer Ranger District, but no survey work has occurred. This owl prefers ponderosa pine habitat, but will also utilize Douglas-fir, aspen, and/or limber pine. Douglas-fir, aspen, and limber pine are present within the Bridger parcels but in limited quantities. The flammulated owl requires cavities for nesting and forages primarily on forest insects. This owl is suspected to be present, but rare.

E-2.1.3 Boreal owl, Three-Toed woodpecker, Great gray owl, Northern goshawk: Population and Habitat Status

These species inhabit montane stands of coniferous, deciduous and mixed trees. No survey work has been done within the Bridger lands analysis area, but suitable habitat exists, and the lack of documented sightings is probably the result of a lack of survey efforts.

Boreal owls have been documented to the north along the Grey's River. All breeding sites were above 2,100 meters or approximately 6,900 ft (Clark 1994). The boreal owl prefers the high elevation spruce-fir forests or aspen for foraging and nesting. Nesting habitat structure consists of forest with a relatively high density of large trees, open understory, and multilayered canopy. Boreal owls are cavity nesters and are dependent on the presence of primary excavators such as the northern flicker.

No documented sightings of three-toed woodpeckers exist for the Kemmerer Ranger District. These woodpeckers require snags in coniferous forests for nesting, feeding, perching, and roosting. In Wyoming forests, the three-toed woodpecker is found in only large, unbroken stands of mature spruce-fir and

lodgepole pine. Snags with diameters of 12 to 16 inches and heights of 19.6 to 39.4 ft are preferred (USFS 1991). This woodpecker forages on insects, mainly in dead trees, but will also feed in live trees. Wood boring beetles are preferred, and this woodpecker is adapted to shift foraging areas to capitalize on high concentrations of these beetles.

No documented sightings of great gray owls exist for the Kemmerer Ranger District. The great gray owl uses mixed coniferous forests usually bordering small openings or meadows. Semi-open areas where small rodents are abundant, near dense coniferous forests for roosting and nesting, is optimum habitat for the great gray owls. Broken top snags, stumps, dwarf-mistletoe platforms, or old hawk and raven nests are utilized for nesting.

The Wyoming Game and Fish Department (WGFD) Wildlife Observation System contains 38 northern goshawk records since 1979 for the Kemmerer Ranger District. The goshawk prefers old growth forests for nesting but forages in a variety of habitats. Goshawk habitat was modeled for the Commissary Ridge/Tunp Range Landscape Scale Assessment (2001) utilizing the following factors: conifer vegetation, northerly aspects between 270 and 90 degrees, and slopes less than 30 percent. Potential habitat was mostly located in the lower elevations along Hams Fork and Fontenelle Creek.

E-2.1.4 Wolverine and Fisher: Population and Habitat Status

Wolverines inhabit high mountain forests of dense conifers; primarily in true fir (Abies) cover types as well as subarctic-alpine tundra. They are widespread, but occur in low densities. They are difficult to observe so frequency of sightings may not reflect population size. Maintenance of wolverine populations is dependent on large areas free from land-use activities that permanently alter their habitat (USFS 1994). Wolverines have been documented in several locations near the Bridger lands analysis area.

Fishers use closed coniferous and mixed forests. They prefer extensive, mature to old growth spruce-fir forests with high canopy closure. There are no documented sightings on the Bridger parcels, either historic or recent.

E-2.2 PLANT SPECIES

Table E-2.2 lists plant species that have been designated as Sensitive by the Intermountain Region of the USFS that potentially occur in the BTNF.

E-2.2.1 Population and Habitat Status

Four sensitive plant species are known to occur on the Kemmerer Ranger District according to the Wyoming Natural Diversity database: creeping twinpod, Payson's milkvetch, Payson's bladderpod, and Starveling milkvetch.

Table E-2.2. Region 4 - BTNF Potential Sensitive Plant Species.

Species	**Habitat/ Community**	**Elevation (ft)**	**Succession**
Pink agoseris (*Agoseris lackschewitzii*)	Subalpine wet meadow, saturated soils	8,500-10,600	Mid to late
Sweet-flowered rock jasmine (*Androsace chamaejasme* var. *carinata*)	Montane rock crevices in rocky limestone or dolomite soils	8,500-10,800	Mid to late
Soft aster (*Aster mollis*)	Sagebrush grasslands and mountain meadows in calcareous soils	6,400-8,500	Early to mid
Meadow milkvetch (*Astragalus diversifolius* var. *diversifolius*)	Moist, often alkaline meadows and swales in sagebrush valleys	4,400-6,300	Mid
*Starveling milkvetch (*Astragalus jejunus* var. *jejunus*)	Dry barren ridges and bluffs of shale and stone, clay or cobblestones	6,000-7,100	Early to late
*Payson's milkvetch (*Astragalus paysonii*)	Disturbed areas and recovering burns on sandy soil	6,700-9,600	Early
Seaside sedge (*Carex incurviformis*)	Alpine and subalpine moist tundra and wet rock ledges	10,000-12,200	Late
Seaside sedge (*Carex incurviformis*)	Alpine and subalpine moist tundra and wet rock ledges	10,000-12,200	Late
Black and purple sedge (*Carex luzulina* var. *atropurpurea*)	Subalpine wet meadows and stream sides	10,000-10,600	Mid
Wyoming tansymustard (*Descuraania torulosa*)	Sparsely-vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone	8,300-10,000	Early to mid

Table E-2.2. Region 4 - BTNF Potential Sensitive Plant Species.

Species	**Habitat/ Community**	**Elevation (ft)**	**Succession**
Boreal draba (*Draba borealis*)	Moist north-facing limestone slopes and cliffs and shady stream sides	6,200-8,600	Mid
Rockcress draba (*Draba densifolia* var. *apiculata*)	Moist gravelly alpine meadows and talus slopes, often on limestone-derived soils	10,400-12,000	Mid to late
Wooly fleabane (*Erigeron lanatus*)	Alpine or subalpine limestone talus slopes	11,000	Mid to late
Narrowleaf goldenweed (*Haplopappus macronema* var. *linearis*)	Semi-barren, whitish clay flats and slopes, gravel bars, and sandy lake shores	7,700-10,300	Mid to late
*Payson's bladderpod (*Lesquerella paysonii*)	Rocky, sparsely-vegetated slopes, often calcareous substrates	6,000-10,300	Mid to late
Naked-stemmed parrya (*Parrya nudicaulis*)	Alpine talus, often on limestone substrates	10,700-11,400	Early to late
*Creeping twinpod (*Physaria integrifolia* var. *monticola*)	Barren, rocky, calcareous hills and slopes	6,500-8,600	Mid
Greenland primrose (*Primula egaliksensis*)	Wet meadows along streams and calcareous montane bogs	6,600-8,000	Mid
Weber's saw-wort (*Saussurea weberi*)	Alpine talus and gravel fields, often on limestone	10,200-11,200	Mid to late

* Present on Kemmerer Ranger District as per the Wyoming Natural Diversity database

These plants are not documented within the Bridger lands analysis area, although no survey work has occurred.

The following sensitive plant species are probably not present as their habitat requirements are outside the elevation range of the project area (7,200 to 9,300 ft): meadow milkvetch, seaside sedge, black and purple sedge, rockcress draba, wooly fleabane, naked-stemmed parrya, and Weber's saw-wort.

Status of the following species is unknown; they may or may not occur in the Bridger lands analysis area: pink agoseris, sweet-flowered rock jasmine, soft aster, Wyoming tansymustard, boreal draba, narrowleaf goldenweed, and Greenland primrose.

E-2.3 EFFECTS OF THE PROPOSED PROJECT ON USFS INTERMOUNTAIN REGION SENSITIVE SPECIES

The Proposed Action would consolidate USFS management in the area of the Bridger parcels. This would facilitate habitat management and protection of USFS Intermountain Region sensitive species on the tracts by the USFS and ensure that the privately-owned Bridger lands would not be sold to another private party and potentially subdivided in the future.

E-3.0 BLM SENSITIVE SPECIES EVALUATION

BLM Wyoming has prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. The authority for this policy and guidance comes from the ESA, as amended; Title II of the Sikes Act, as amended; the Federal Land Policy Management Act (FLPMA); and the Department Manual 235.1.1A., General Program Delegation, Director, BLM.

The goals of the sensitive species policy are to:

- Maintain vulnerable species and habitat components in functional BLM ecosystems.
- Ensure sensitive species are considered in land management decisions.
- Prevent a need for species listing under the ESA.
- Prioritize needed conservation work with an emphasis on habitat.

The following paragraphs summarize the available information on BLM sensitive species that are known to be present or potentially present on the lands that would be acquired by the BLM under the Proposed Action.

E-3.1 DESCRIPTION OF THE PROPOSED ACTION

Under the Proposed Action, BLM would acquire the Bridger lands which lie outside of the BTNF, the JO Ranch lands, and the Welch lands (see Figures E-1, E-2, E-3, and E-4 and the land descriptions in Section 1 of this appendix). The Bridger and JO Ranch lands are private inholdings surrounded by lands administered by the USFS and BLM. The Welch lands are surrounded by private lands. The current owner of the lands being offered for exchange is P&M. P&M is offering to exchange the surface estate of the lands and the portion of the mineral estate that they own on those lands. P&M's ownership of the mineral estate, which is described in Section 1 of this appendix, varies from tract to tract.

If the exchange is completed under the Proposed Action, P&M would acquire an amount of federal coal equivalent in value to the properties they are offering for exchange. For the purposes of this analysis, it is assumed that P&M would acquire all of the federal coal underlying the PSO Tract (see Figures E-4 and the land description in Section E-1.8 of this appendix). The majority of the surface of the PSO Tract is privately owned, and P&M is the primary private surface owner. There are 6.41 acres of BLM-administered public surface included in the PSO Tract. If P&M acquires the coal included in the PSO Tract, they propose to open a surface coal mine and recover the coal in the tract as well as some privately-owned coal adjacent to the tract.

E-3.2 SPECIES OCCURRENCE AND HABITAT DESCRIPTIONS

Sensitive species were listed for the BLM field offices within their range. Numerous sensitive species do or could occur within the tracts being exchanged. Specialized habitat requirements (i.e., caves, cliffs, calcareous rock outcrops) make occupation for other sensitive species unlikely. Table E-3.1 lists BLM sensitive species and summarizes their habitat requirements.

E-3.3 DETERMINATION OF EFFECTS

E-3.3.1 Bridger Lands, JO Ranch Lands, and Welch Lands

The proposed land exchange will be a beneficial effect for sensitive species management on the lands being acquired by BLM.

The BLM will acquire surface ownership of the Bridger lands outside the BTNF, the JO Ranch lands, and the Welch lands. Mineral estates owned by P&M within these tracts would also be exchanged to BLM. Development rights would not remain in private ownership, and the lands would not be available for private development that could impact sensitive species. Future management of the lands acquired by BLM would be determined through additional NEPA analysis/planning decisions where sensitive species management will be considered.

E-3.3.2 PSO Tract

If the exchange is completed, P&M would acquire ownership of the federal coal included in the PSO Tract. The majority of the surface estate of the PSO Tract is privately owned, and P&M is the majority land owner. The PSO Tract does include 6.41 acres of public surface estate, which is administered by BLM. If P&M acquires the federal coal underlying their private surface, they proposed to open a surface coal mine. Surface coal mining operations on the PSO Tract mineral estate may impact individuals and habitat, but is unlikely to lead towards federal listing of BLM sensitive species. BLM would be involved, as the surface managing agency, in reviewing proposed mining operations on the public surface estate included in the PSO Tract.

Table E-3.1. Bureau of Land Management Sensitive Species, Habitat Requirements, and Occurrence by Field Office.

Common Name (*scientific name*)	**Habitat**	**Kemmerer Field Office[1]**	**Rawlins Field Office[2]**	**Buffalo Field Office[3]**
Amphibians				
Boreal toad (*Bufo boreas boreas*)	Pond margins, wet meadows, riparian areas	Yes	Yes	No
Great Basin Spadefoot (*Spea intermontana*)	Spring seeps, permanent and temporary water	Yes	Yes	No
Northern leopard frog (*Rana pipiens*)	Beaver ponds, permanent water in plains and foothills	Yes	Yes	Yes
Spotted frog (*Ranus pretiosa*)	Ponds, sloughs, small streams	Yes	No	Yes
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Grasslands, weedy fields	No	Yes	Yes
Brewer's sparrow (*Spizella breweri*)	Basin-prairie shrub	Yes	Yes	Yes
Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub	Yes	Yes	Yes
Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)	Grasslands	No	Yes	No
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rock outcrops	Yes	Yes	Yes
Greater sage-grouse (*Centrocercus urophasianus*)	Basin-prairie shrub, mountain-foothill shrub	Yes	Yes	Yes
Loggerhead shrike (*Lanius ludovicianus*)	Basin-prairie shrub, mountain-foothill shrub	Yes	Yes	Yes
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows	Yes	Yes	Yes

[1] Bridger lands to be managed by the Kemmerer Field Office.
[2] JO Ranch lands to be managed by the Rawlins Field Office.
[3] Welch lands to be managed by the Buffalo Field Office and the PSO Tract to be exchanged.

Table E-3.1. Bureau of Land Management Sensitive Species, Habitat Requirements, and Occurrence by Field Office (continued).

Common Name (*scientific name*)	**Habitat**	**Kemmerer Field Office[1]**	**Rawlins Field Office[2]**	**Buffalo Field Office[3]**
Northern goshawk (*Accipiter gentiles*)	Conifer and deciduous forests	Yes	Yes	Yes
Peregrine falcon (*Falco peregrinus*)	Cliffs	Yes	Yes	Yes
Sage sparrow (*Amphispiza billneata*)	Basin-prairie shrub, mountain-foothill shrub	Yes	Yes	Yes
Sage thrasher (*Oreoscoptes montanus*)	Basin-prairie shrub, mountain-foothill shrub	Yes	Yes	Yes
Trumpeter swan (*Cygnus buccinator*)	Lakes, ponds, rivers	Yes	Yes	Yes
White-faced ibis (*Plegadis chihi*)	Marshes, wet meadows	Yes	Yes	Yes
Yellow-billed cuckoo (*Coccyzus americanus*)	Open woodlands, streamside willow and alder groves	Yes	Yes	Yes
Fish				
Bluehead sucker (*Catostomus discobolus*)	Bear, Snake, and Green river drainages, all waters	Yes	Yes	No
Bonneville cutthroat (*Oncorhynchus clarki utah*)	Bear River drainage	Yes	No	No
Colorado cutthroat (*O. clarki pleuriticus*)	Colorado River drainage	Yes	Yes	No
Fine-spotted cutthroat (*O. clarki spp.*)	Snake River drainage	Yes	No	No
Flannelmouth sucker (*Catostomus latipinnis*)	Colorado River drainage, large rivers, streams and lakes	Yes	Yes	No
Leatherside chub (*Gila copei*)	Bear, Snake, and Green river drainages	Yes	No	No

[1] Bridger lands to be managed by the Kemmerer Field Office.
[2] JO Ranch lands to be managed by the Rawlins Field Office.
[3] Welch lands to be managed by the Buffalo Field Office and the PSO Tract to be exchanged.

Table E-3.1. Bureau of Land Management Sensitive Species, Habitat Requirements, and Occurrence by Field Office (continued).

Common Name (*scientific name*)	**Habitat**	**Kemmerer Field Office[1]**	**Rawlins Field Office[2]**	**Buffalo Field Office[3]**
Roundtail chub (*Gila robusta*)	Colorado River drainage, mostly large rivers, streams and lakes	Yes	Yes	No
Yellowstone cutthroat (*O. clarki bouvieri*)	Mountain streams and rivers in Yellowstone drainage	No	No	Yes
Mammals				
Dwarf Shrew (*Sorex nanus*)	Mountain foothill shrub, grasslands	Yes	Yes	Yes
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines	No	Yes	Yes
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forest, caves and mines	Yes	Yes	Yes
Pocket gopher (*Thomomys spp.*)	Grasslands and shrublands	Yes	Yes	No
Pygmy rabbit (*Brachylagus idahoensis*)	Basin-prairie and riparian shrub	Yes	No	No
Spotted bat (*Euderma maculatum*)	Cliffs over perennial water, basin-prairie shrub	No	No	Yes
Swift fox (*Vulpes velox*)	Grasslands	No	Yes	Yes
Townsend's big-eared bat (*Corynorhinus townsendii*)	Forests, basin-prairie shrub, caves and mines	No	Yes	Yes
White-tailed prairie dog (*Cynomys leucurus*)	Basin-prairie shrub, grasslands	Yes	Yes	No

[1] Bridger lands to be managed by the Kemmerer Field Office.
[2] JO Ranch lands to be managed by the Rawlins Field Office.
[3] Welch lands to be managed by the Buffalo Field Office and the PSO Tract to be exchanged.

Table E-3.1. Bureau of Land Management Sensitive Species, Habitat Requirements, and Occurrence by Field Office (continued).

Common Name (*scientific name*)	**Habitat**	**Kemmerer Field Office[1]**	**Rawlins Field Office[2]**	**Buffalo Field Office[3]**
Plants				
Beaver Rim phlox (*Phlox pungens*)	Sparsely vegetated slopes on sedimentary substrates; 6,000 to 7,400 ft	Yes	No	No
Cary beardtongue (*Penstemon caryi*)	Calcareous rock outcrops and rocky soil in sage, juniper, Douglas-fir and limber pine communities; 5,200 to 8,500 ft	No	No	Yes
Cedar Rim thistle (*Cirsium aridum*)	Chalky hills, gravelly slopes, & fine textured sandy-shale draws; 6,700 to 7,200 ft	No	Yes	No
Dorn's twinpod (*Physaria dornii*)	Dry, calcareous-shaley soils in mountain mahogany and rabbitbrush communities; 6,500 to 7,200 ft	Yes	No	No
Entire-leaved peppergrass (*Lepidium integrifolium integrifolium*)	Greasewood communities on clay hummocks and moist alkaline meadows; 6,200 to 6,770 ft	Yes	No	No
Gibbens' beardtongue (*Penstemon gibbensii*)	Sparsely vegetated shale or sandy-clay slopes; 5,500 to 7,700 ft	No	Yes	No
Laramie columbine (*Aquilegia laramiensis*)	Crevices in granite; 6,400 to 8,000 ft	No	Yes	No
Laramie false sagebrush (*Sphaeromeria simplex*)	Cushion plant communities on rocky limestone; 7,500 to 8,600 ft	No	Yes	No
Large-fruited bladderpod (*Lesquerella macrocarpa*)	Gypsum-clay hills, benches, and flats; 7,200 to 7,700 ft	Yes	No	No
Nelson's milkvetch (*Astragalus nelsonianus*)	Specialized habitats in sparsely vegetated shrubland and cushion plant communities; 5,200 to 7,600 ft	No	Yes	No
Pale blue-eyed grass (*Sisyrinchium pallidum*)	Wet meadows, streambanks, roadside ditches, and irrigated meadows; 7,000 to 7,900 ft	No	Yes	No

[1] Bridger lands to be managed by the Kemmerer Field Office.
[2] JO Ranch lands to be managed by the Rawlins Field Office.
[3] Welch lands to be managed by the Buffalo Field Office and the PSO Tract to be exchanged.

Table E-3.1. Bureau of Land Management Sensitive Species, Habitat Requirements, and Occurrence by Field Office (continued).

Common Name (*scientific name*)	**Habitat**	**Kemmerer Field Office[1]**	**Rawlins Field Office[2]**	**Buffalo Field Office[3]**
Persistent sepal yellowcress (*Rorippa calycina*)	Riverbanks and shorelines on sandy soils	No	Yes	No
Porter's sagebrush (*Artemisia porteri*)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft	No	No	Yes
Prostrate bladderpod (*Lesquerella prostrata*)	Sparse communities on slopes and rims of clay & soft sandstones with fine gravel surface; 7,200 to 7,700 ft	Yes	No	No
Trelease's milkvetch (*Astragalus racemosus treleasei*)	Sagebrush communities on shale or limestone outcrops or barren clay slopes; 6,500 to 8,200 ft	Yes	No	No
Tufted twinpod (*Physaria condensata*)	Sparsely vegetated shale slopes and ridges; 6,500 to 7,000 ft	Yes	No	No
Weber's scarlet gilia (*Ipomopsis aggregata weberi*)	Coniferous forest openings and scrub oak woodlands; 8,500 to 9,600 ft	No	Yes	No
William's wafer parsnip (*Cymopterus williamsii*)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft	No	No	Yes

[1] Bridger lands to be managed by the Kemmerer Field Office.
[2] JO Ranch lands to be managed by the Rawlins Field Office.
[3] Welch lands to be managed by the Buffalo Field Office and the PSO Tract to be exchanged.

E-4.0 STATE SPECIES OF SPECIAL CONCERN

The coal mining unsuitability criteria, which are listed in the federal coal management regulations at 43 CFR 3461, were applied to federal coal lands in Sheridan County in the early 1980s and in the mid 1990s by the BLM. The 1980s results were included in the 1985 Buffalo Resource Area RMP (BLM 1985). The results of the mid-1990s unsuitability criteria application are summarized in the 2001 Approved RMP for Public Lands Administered by the BLM Buffalo Field Office (BLM 2001).

The unsuitability findings for the PSO Tract according to the BLM's1985 and 2001 RMPs are summarized in Appendix C of this EIS. The 1985 findings for Criteria 14 and 15 are discussed in more detail below.

Portions of the PSO Tract totaling about 520 acres were found to be unsuitable for coal leasing and development under Criterion 14 (Habitat for Migratory Birds) when the unsuitability criteria were applied in the early 1980s. The designation was applied due to the presence of important breeding habitat for the Lewis' woodpecker. This species is known to breed in the ponderosa pine habitat in the area of Ash Creek. BLM has reviewed this unsuitability finding and determined that Lewis' woodpeckers have been dropped from the list of "Migratory Non-Game Birds of Management Concern in the U.S." BLM advised USFWS of their intent to drop the unsuitability designation for Lewis' woodpecker habitat under Criterion 14 within this area and to complete a land use plan maintenance action to reflect this. In a letter dated August 20, 2001, USFWS indicated their willingness to concur with the proposed change in unsuitability designation for Criterion 14 and acknowledged that this species has been found to be more widely distributed in Wyoming than when the original designation of unsuitability was applied. The Lewis' woodpecker is not listed within the 2002 USFWS "Migratory Bird Species of Management Concern in Wyoming, Coal Mine List" (USFWS 2002d). However, USFWS requested that the scoria hillsides on the western edge of the exchange area (which contain primary breeding habitat for the woodpeckers) be removed from the exchange. If those areas remain in the exchange tract, the USFWS will require monitoring of the Lewis' woodpecker as part of their mining permit (USFWS 2001b).

The 1985 BLM Buffalo Resource Area RMP found approximately 1,200 acres of federal coal to be unsuitable due to the presence of the Lewis' woodpecker under Criterion 15, Habitat for State High-Interest Species, and some of this acreage overlaps with the western edge of the PSO Tract. The WGFD submitted comments in response to the land exchange notice identifying the Lewis' woodpecker as a state species of special concern that is found in the Ash Creek area in a letter dated January 30, 2001 (WGFD 2001). In their comment letter, WGFD stated that they believe the exchange "will not significantly impact Lewis' woodpeckers, and that any concerns related to the Lewis' woodpecker could be adequately addressed during mine planning if active coal mining is proposed." When contacted, WGFD indicated that, due to the extent of their

occurrence in Wyoming, Lewis' woodpeckers are not considered rare or in need of management emphasis.

On October 24, 2001, the Buffalo Resource Area RMP designation of a portion of the Sheridan Review Area as "unsuitable pending further study" for Lewis' woodpecker habitat was removed in a plan maintenance action signed by the Buffalo Field Office Manager.

E-5.0 CREDENTIALS OF SURVEY PERSONNEL

Intermountain Resources of Laramie, Wyoming

Jim Orpet

Mr. Orpet obtained a Master of Science degree in Range Management from the University of Wyoming and has accumulated 24 years of field experience in vegetation and plant surveys. This experience includes preparation of plant species lists for over 100 projects throughout Wyoming. Mr. Orpet was qualified in 1987 by the WDEQ/LQD to conduct T&E species and other plant and animal surveys on WDEQ/Abandoned Mine Land projects within the state. Qualification at that time was based on review and approval of Mr. Orpet's credentials by the WGFD and the USFWS. Mr. Orpet has also completed numerous wetland surveys that have been approved by the U.S. Corps of Engineers.

Russel Tait

Mr. Tait obtained a Bachelor of Science degree in Wildlife Management from the University of Wyoming and has accumulated 11 years of field experience in vegetation and plant surveys in Wyoming. Mr. Tait has assisted Mr. Orpet in conduction of T&E species surveys for over six years on coal mines and other resource development projects in Wyoming.

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