Appendix G

Biological Assessment

Biological Assessment

Biological Assessment of the Environmental Impact Statement for the Lost Creek Uranium *In-Situ* Recovery Project

June 2012

BLM

Rawlins Field Office

The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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June 2012

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List of Acronyms and Abbreviations

APLIC	Avian Power Line Interaction Committee
BA	Biological Assessment
BLM	Bureau of Land Management
DEIS	Draft Environmental Impact Statement
ESA	Endangered Species Act
ISR	*In situ* recovery
LCI	Lost Creek ISR, LLC
LQD	Land Quality Division
LWR	LWR Consultants, Inc.
Permit Area	Lost Creek Permit Area
Project	Lost Creek Uranium *In-Situ* Recovery Project
UIC	Underground Injection Control
US	United States
USFWS	US Fish and Wildlife Service
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department

Introduction

The purpose of this Biological Assessment (BA) is to review the proposed project in sufficient detail to determine to what extent the proposed action may affect any threatened, endangered, or proposed species. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)) (USFWS and NMFS, 2002), and follows recommended U.S. Fish and Wildlife Service (USFWS) guidelines. Section 7 of the Endangered Species Act (ESA) requires the Bureau of Land Management (BLM) to determine if any action it completes or permits will impact threatened or endangered species.

Lost Creek ISR, LLC (LCI) is proposing the construction, commercial operation, and reclamation of facilities for *In-Situ* Recovery (ISR) operations within the Lost Creek Permit Area (Permit Area) of the Lost Creek Uranium ISR Project (Project). The following report summarizes the potential impacts the proposed Project could have on listed or proposed species and designated and proposed critical habitat within and near the Permit Area.

This BA considers eight threatened or endangered species listed on the USFWS's species list for Sweetwater County, Wyoming (USFWS, 2012a). These species and any designated Critical Habitat are summarized in Table 1-1. A request for an official Species List for the Lost Creek Uranium Mine was also submitted to the USFWS (BLM, 2012a). The BLM received this list from the USFWS in a letter dated June 28, 2012 (USFWS, 2012b). This formal list for the Lost Creek Uranium Mine included one federally listed species, the black-footed ferret, and one candidate species, the Greater sage-grouse. The USFWS did not identify any designated Critical Habitat for any species within the Lost Creek Uranium Mine project site. A detailed assessment of potential impacts from the Project on candidate species, such as the Greater sage-grouse and BLM sensitive species, such as the Wyoming Pocket Gopher and the Pygmy Rabbit, can be found in Section 4.9 of the DEIS for this Project (BLM, 2012b).

Consultation to Date

The USFWS commented on the Wildlife Protection Plan for the Project that was included in Attachment OP-6 of the WDEQ-LQD Permit to Mine (Lost Creek ISR, LLC., 2011). The USFWS was also a reviewing agency for the Lost Creek Draft Environmental Impact Statement (DEIS) prepared by the BLM (BLM, 2012b). The BLM initiated informal consultation with the USFWS for the project by requesting a list of potentially impacted species (BLM, 2012a). The species listed in the official response from the USFWS (USFWS, 2012b) included one federally listed species, the black-footed ferret and one candidate species, the Greater sage-grouse. This BA considers the black-footed ferret and seven additional species listed on the USFWS's county species list for Sweetwater County, Wyoming (USFWS, 2012a).

Table 1-1 Federally Listed Species, Critical Habitat, Candidate Species, and Species of Concern That May be Affected by Projects in Sweetwater County, Wyoming

Species/Critical Habitat	Scientific Name	Status	Habitat
Mammals			
Black-footed Ferret	*Mustela nigripes*	Endangered	Prairie dog towns
Canada Lynx	*Lynx canadensis*	Threatened	Montane forests
Colorado River Fish			
• Bonytail	*Gila elegans*	Endangered	Riverine habitat downstream of Wyoming in the Yampa, Green, and Colorado River systems
• Colorado Pikeminnow	*Ptychocheilus lucius*	Endangered	
• Humpback Chub	*Gila cypha*	Endangered	
• Razorback Sucker	*Xyrauchen texanus*	Endangered	
Colorado River Fish Critical Habitat	Designated for Colorado River Fish in riverine habitat downstream of Wyoming in the Yampa, Green, and Colorado River systems (see 50 CFR 17.95(e))		
Plants			
Blowout Penstemon	*Penstemon haydenii*	Endangered	Sand dunes or blowouts
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 ft. elevation

Source: USFWS, 2012a

Potential impacts for the proposed Project are discussed below in detail.

Project Location

The Permit Area is located in the northeast portion of Sweetwater County, south-central Wyoming. Figure 1-1 shows the regional location of the Permit Area. The Project is located in the following area:

Sixth Principal Meridian

Township 25 North, Range 92 West:

Section 17 - S1/2NE1/4NE1/4, S1/2NW1/4NE1/4, S1/2NE1/4NW1/4, S1/2NW1/4NW1/4, S1/2N1/2, and S1/2;

Section 18 - Lots 2 to 4, inclusive, S1/2NE1/4NE1/4, S1/2SW1/4NE1/4, SE1/4NE1/4, S1/2SE1/4NW1/4, E1/2SW1/4, and SE1/4;

Section 19;

Section 20 - N1/2N1/2, W1/2SW1/4NW1/4, and W1/2W1/2SW1/4;

Section 29 - NW1/4NW1/4NW1/4;

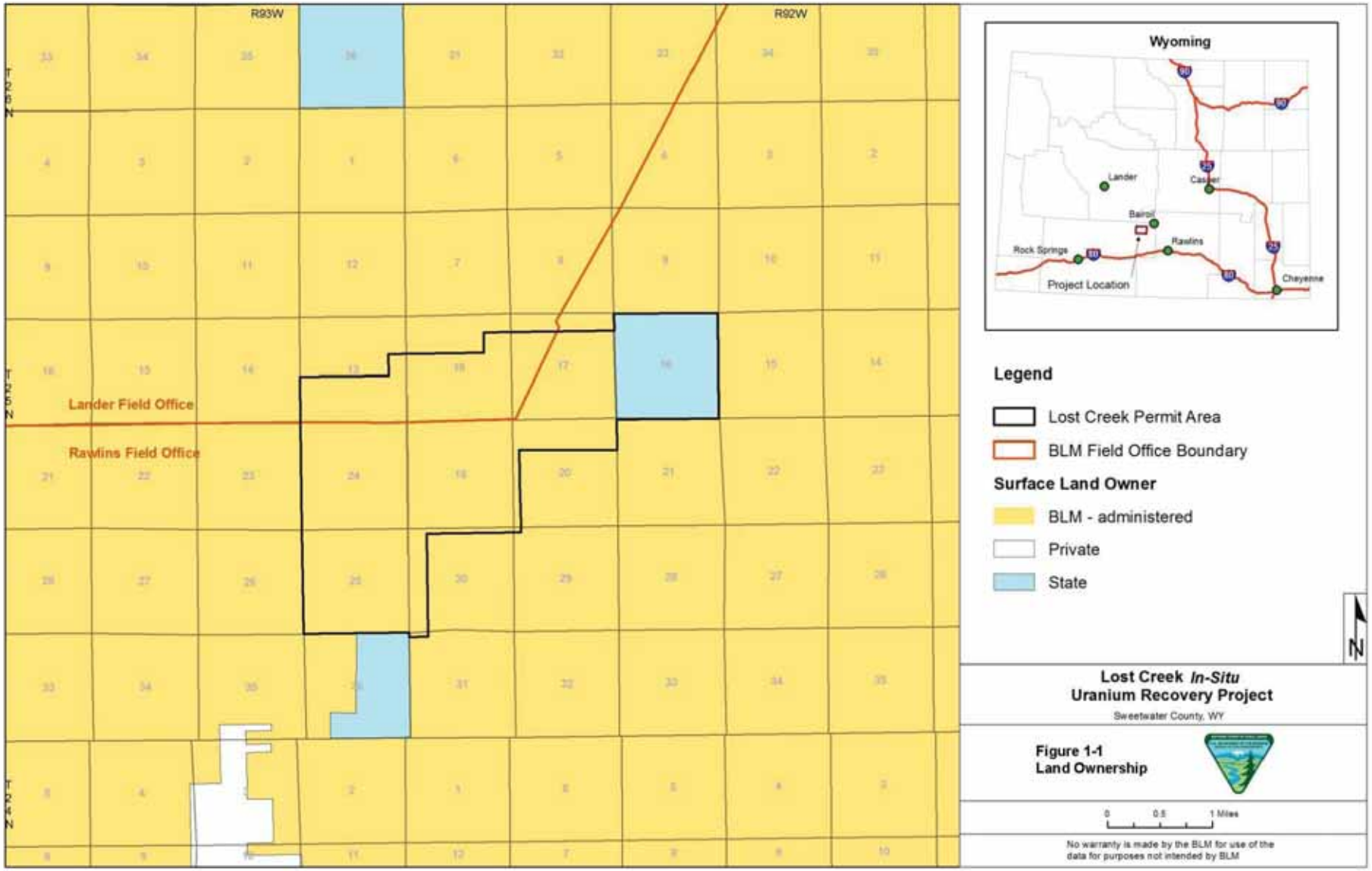
Section 30 - Lots 5 to 9, inclusive, and lots 16 and 17;

Section 31- Lot 8.
Township 25 North, Range 93 West,
Section 13 - SE1/4SE1/4NE1/4, S1/2S1/2, S1/2N1/2S1/2, and NE1/4NE1/4SE1/4;
Section 24;
Section 25.

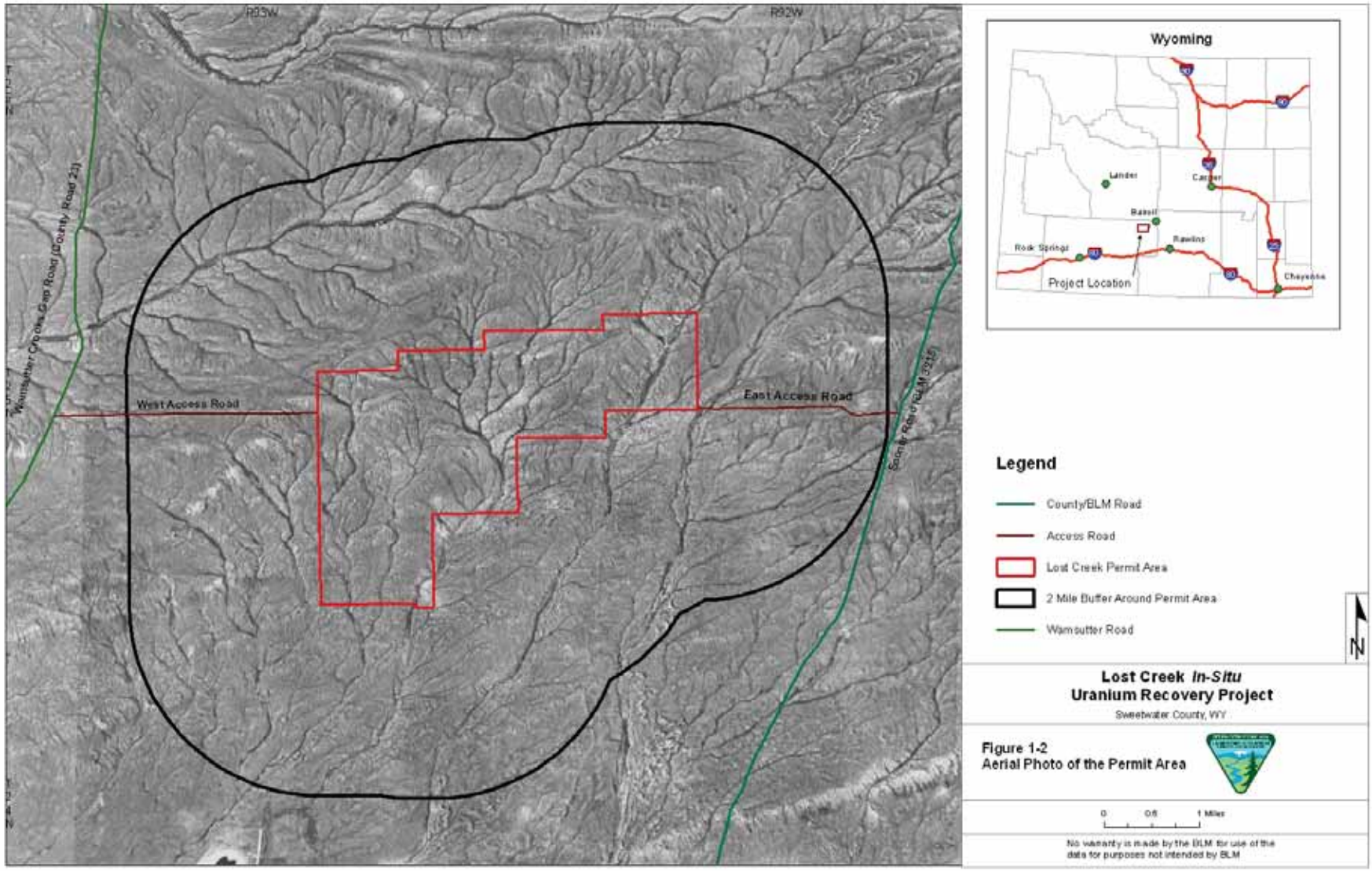
Rawlins is 38 miles southeast; Rock Springs is 80 miles southwest; Casper is 90 miles northeast; and Jeffrey City is 25 miles north of the Permit Area. The nearest population center, located 15 miles northeast of the Permit Area, is Bairoil, with a population of about 100 people.

A series of paved and unpaved county and BLM roads provide access to the Permit Area, which is located about 21 miles from the closest highway (US Highway 287/State Highway 789). There are no publicly maintained roads within the Permit Area. The road network in the Permit Area is comprised of unmaintained two-track roads, passable year-round by four-wheel-drive vehicles. The East and West Access Roads, which are existing two-track roads that would be upgraded by LCI for the Project, are shown on Figure 1-2. The proposed locations of the mine units, roads, Plant, pipelines, transmission line, and associated facilities within the Permit Area are shown on Figure 1-3.

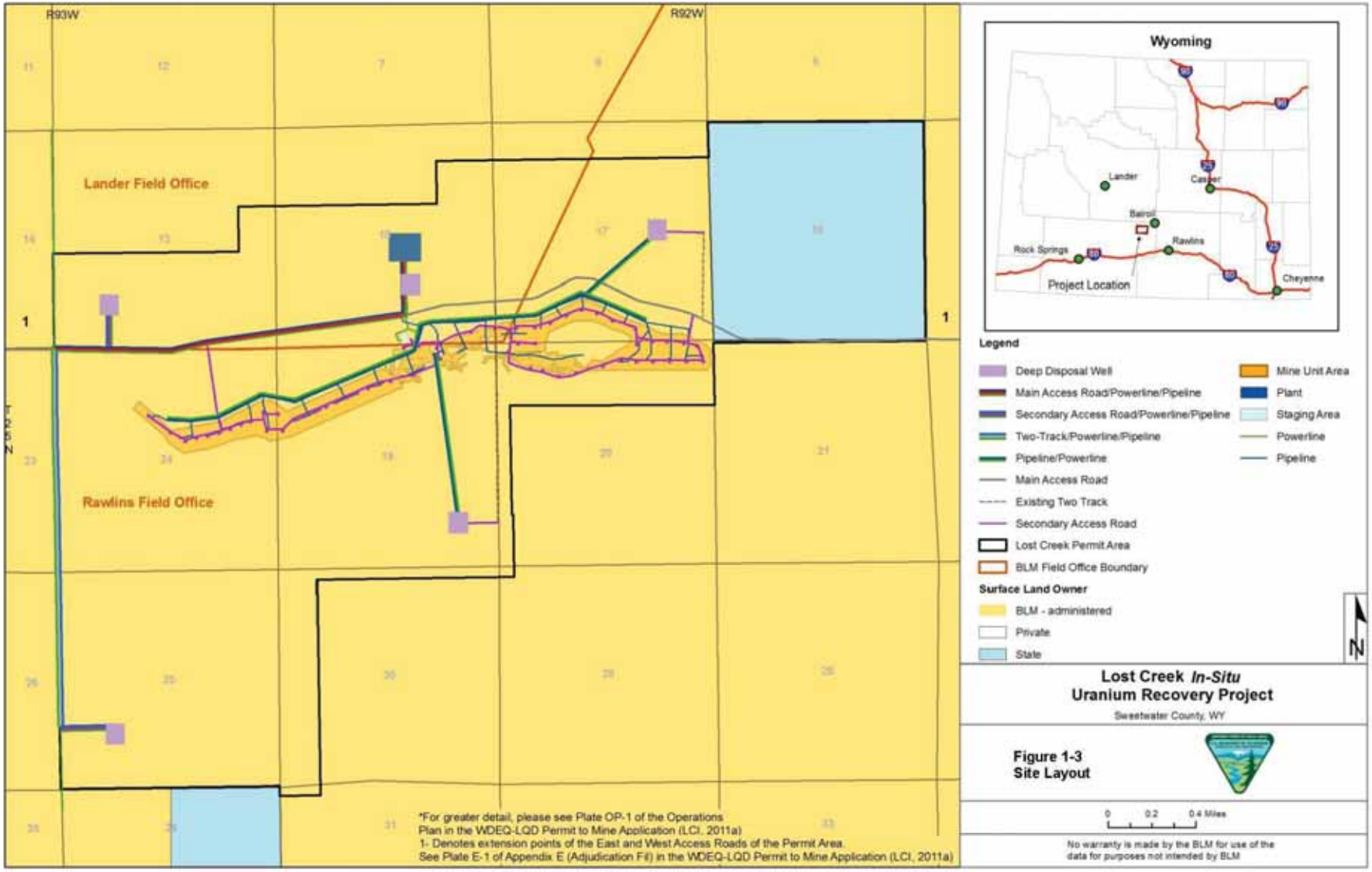
The Permit Area is geographically located in the north central portion of the Great Divide Basin. The regional rolling landscape has draws, rock outcroppings, ridges, and bluffs. The Permit Area is characterized by low relief (without notable geographic features), sagebrush-dominated plains, dissected by small, ephemeral drainage networks. The drainages are entirely ephemeral; there is no perennial surface water present. All Permit Area drainages connect to enclosed drainage basins to the south (Chain Lakes Flat, Battle Springs Flat). No drainage diversion is planned under the Proposed Action. The site elevation ranges from approximately 6,790 to 7,050 feet above mean sea level. No geologic outcrops are present within the Permit Area. The site is composed entirely of Big Sagebrush Shrublands; there are no forested portions of the Permit Area.



Final EIS - Lost Creek Uranium In-Situ Recovery Project - Volume II Appendix G G-8



Final EIS - Lost Creek Uranium *In-Situ* Recovery Project - Volume II Appendix G G-9



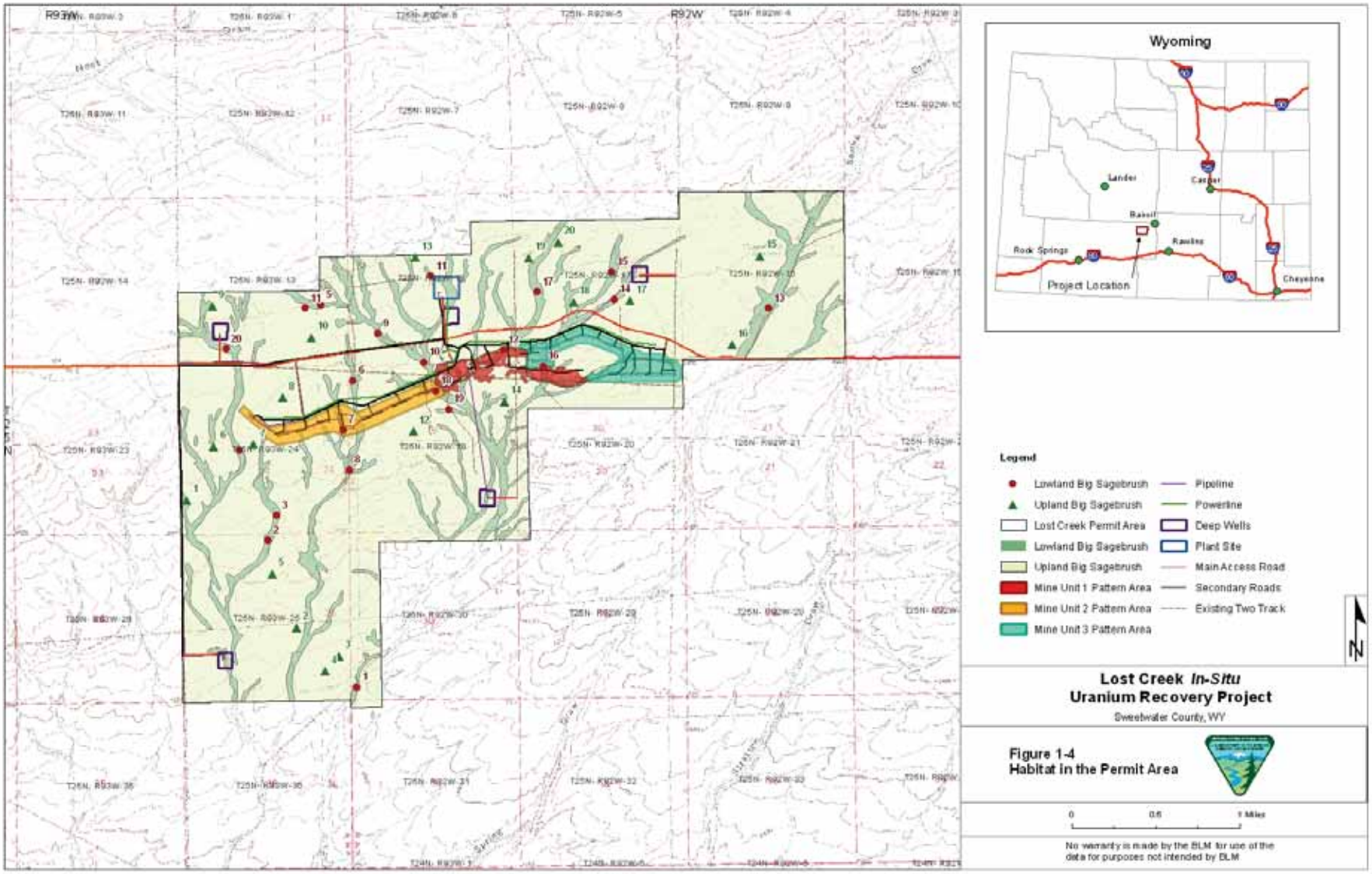
Final EIS - Lost Creek Uranium *In-Situ* Recovery Project - Volume II Appendix G G-10

Habitat Description

Two vegetation types were identified and delineated in the Permit Area: Upland Big Sagebrush Shrubland and Lowland Big Sagebrush Shrubland. No riparian, forested, or other habitats were identified in the Permit Area.

The Upland Big Sagebrush Shrubland type covers most of the Permit Area (Figure 1-4). Overall, this habitat covers approximately 85 percent of the main Permit Area and 96 percent of the area along the East and West Access Roads. It covers flat areas and the gently sloping south-facing slopes. Soils throughout the upland areas are mostly shallow and coarse textured. Cushion plants are common in this vegetation type, but collectively account for only six percent of the cover by all species. The percent cover by bare soil (52 percent) is a reflection of the sparseness of the vegetation in the Upland Big Sagebrush Shrubland type. Even though there is a considerable amount of bare soil, the vegetation development is homogeneous across the upland parts of the Permit Area. In general, vegetation development in the region is restricted because of the limited amount of annual precipitation. Shrubs are abundant and semi-shrubs are common in this vegetation type. In general, most of the plants are less than 0.5 meters in height and many are less than 0.25 meters in height.

The land that does not support the Upland Big Sagebrush Shrubland is covered with the Lowland Big Sagebrush Shrubland. The Lowland Big Sagebrush Shrubland type on the Permit Area occurs along and immediately adjacent to the ephemeral drainages that cross the Permit Area from north to south (Figure 1-4). Overall this type covers approximately 15 percent of the main Permit Area and four percent of the area along the East and West Access Roads. Along some of the drainages, there are individual big sagebrush plants that are more than two meters tall that have stem diameters greater than 20 centimeters. Big sagebrush and rabbitbrush are the two dominant shrub species in the Lowland Big Sagebrush Shrubland. All native perennial grasses combined had a total vegetation cover of 16 percent, and all forbs and cushion plants accounted for approximately three percent of the total vegetation cover. Shrubs are abundant in this vegetation type, and semi-shrubs occur in this type, but the overall densities are lower than the densities for semi-shrubs in the upland areas. The bare soil accounted for 23 percent of the surface, and the total ground cover (vegetation plus litter and rock) was 77 percent. Overall, the vegetation cover in the Lowland Big Sagebrush Shrubland type was 17 percent greater than the cover in the Upland Big Sagebrush Shrubland type.


Wyoming
Lander
Casper
Rawlins
Rock Springs
Cheyenne
Project Location
Legend
Lowland Big Sagebrush
Upland Big Sagebrush
Lost Creek Permit Area
Lowland Big Sagebrush
Upland Big Sagebrush
Mine Unit 1 Pattern Area
Mine Unit 2 Pattern Area
Mine Unit 3 Pattern Area
Pipeline
Powerline
Deep Wells
Plant Site
Main Access Road
Secondary Roads
Existing Two Track
N
Lost Creek In-Situ
Uranium Recovery Project
Sweetwater County, WY
Figure 1-4
Habitat in the Permit Area
0
0.5
1 Miles
No warranty is made by the BLM for use of the data for purposes not intended by BLM

Project Description

The LCI uranium ISR operation would extract mineral from permeable, uranium-bearing sandstones through a series of mine units. The mine units follow the ore deposits delineated by exploration drilling. The deposits generally occur at depths of 300 to 700 feet below the ground surface in long, narrow trends varying from a few hundred to several thousand feet long and 50 to 250 feet wide.

The ISR operation essentially reverses the natural processes that deposited the uranium. During mining (also called operation or production), lixiviant is pumped from a processing facility (the Plant) through buried pipelines to the injection wells in the operational mine unit(s). The lixiviant oxidizes the uranium mineral, allowing dissolution of uranium in groundwater. After circulation through the production zone (i.e., from the injection wells to the production wells), the resulting uranium-laden solution is pumped from the production wells in the mine unit(s) through buried pipelines to the Plant. There, the uranium is recovered by a series of circuits (e.g., ion exchange, elution, precipitation) and prepared for shipment as either a yellowcake slurry or dried yellowcake. The lixiviant is regenerated and pumped back to the mine unit(s) to recover additional uranium. Storage ponds are used in conjunction with Underground Injection Control (UIC) Class I wells for waste water disposal at depths between 6,139 and 9,590 feet below the ground surface.

After mining, groundwater restoration essentially reverses the effects of oxidation to re-establish the reducing conditions that were present prior to mining. Restoration methods include groundwater sweep, reverse osmosis, recirculation, and, if site conditions are suitable, groundwater transfer, reductant addition, and biorestoration. Groundwater monitoring during active restoration and during a subsequent stability phase is used to confirm that restoration criteria have been met.

The Project is described in three phases: Construction, Operation (Production), and Reclamation. These phases are sequential with respect to the Plant and each mine unit; however, because of the progressive development of the mine units, there is overlap among the mine units (e.g., the first mine unit is in reclamation when the third mine unit is in development). Therefore, the Project schedule includes:

- Construction
  - Initial Construction
  - Mine Unit Development
- Operation (Production)
- Reclamation
  - Mine Unit Restoration and Reclamation
  - Final Reclamation

Initial Construction would occur during the first year of the Project and includes: the major facility construction, in particular, the Plant (including the office, Storage Ponds, and other associated structures), equipment staging areas, main pipelines, and transmission line; improvement of the access roads; drilling of the UIC Class I wells (except the first deep well that

was drilled for testing in 2008); and installation of additional equipment for air and water quality monitoring.

Development of the first mine unit, which would take about two years, would overlap with the Initial Construction. The scale and number of the mine units for a given ISR operation depends on a variety of factors, including ore distribution, aquifer characteristics, plant capacity design, and operational feasibility. Three mine units are anticipated for the Proposed Action, and each mine unit has an expected production cycle of about two to three years. Development of the next mine unit would begin during production of the previous mine unit.

Each mine unit consists of patterns of production and injection wells within a ring of monitor wells. (In the Proposed Action, the injection wells are expected to be spaced 75 to 150 feet apart.) For mining efficiency and to avoid an excursion (unanticipated movement of lixiviant), a series of procedures would be in place, including regular balancing of the pattern production and injection rates, water level monitoring, and pressure and flow measurements. In addition to pattern balancing, water quality samples would be collected from the ring of monitor wells and analyzed to detect a horizontal excursion in the production zone. (In the Proposed Action, the monitor well ring is anticipated to be spaced about 500 feet from the pattern area. The distance between each monitor well in the ring is anticipated to be about 500 feet, although actual distances would be based on the aquifer characteristics of the mine unit to ensure any excursion can be detected in a timely manner.) Water quality samples would also be collected from monitor wells completed in overlying and underlying aquifers to detect a vertical excursion. (These wells would be located within the mine unit boundary at a density of about one overlying and one underlying well per four acres, depending on the hydrologic characteristics of each mine unit.) In addition, monitor wells located within the pattern area and completed in the production zone would provide information on the mining process.

During the Proposed Action, approximately 300 acres total within the 4,254-acre Permit Area would be fenced to keep out cattle and wild horses. The pattern area fencing under the Proposed Action would be standard wildlife friendly fencing based on BLM Manual Handbook 1741-1, to allow passage of smaller animals and ungulates, but exclude cattle and wild horses. The purpose of the fencing is to reduce damage to wells and subsequent risk of spills. The storage ponds, about 2 acres, would be Type II fencing per WDEQ-LQD Guideline No. 10 (1994c) and fenced to keep out wildlife, cattle, and wild horses.

Mine Unit Restoration and Reclamation begins when technical, economic, and operational criteria indicate uranium recovery in a mine unit is completed. Restoration and reclamation of each mine unit includes:

- groundwater restoration,
- radiological decontamination,
- equipment removal/decommissioning (e.g., well abandonment), and
- surface reclamation (e.g., well site reseeding).

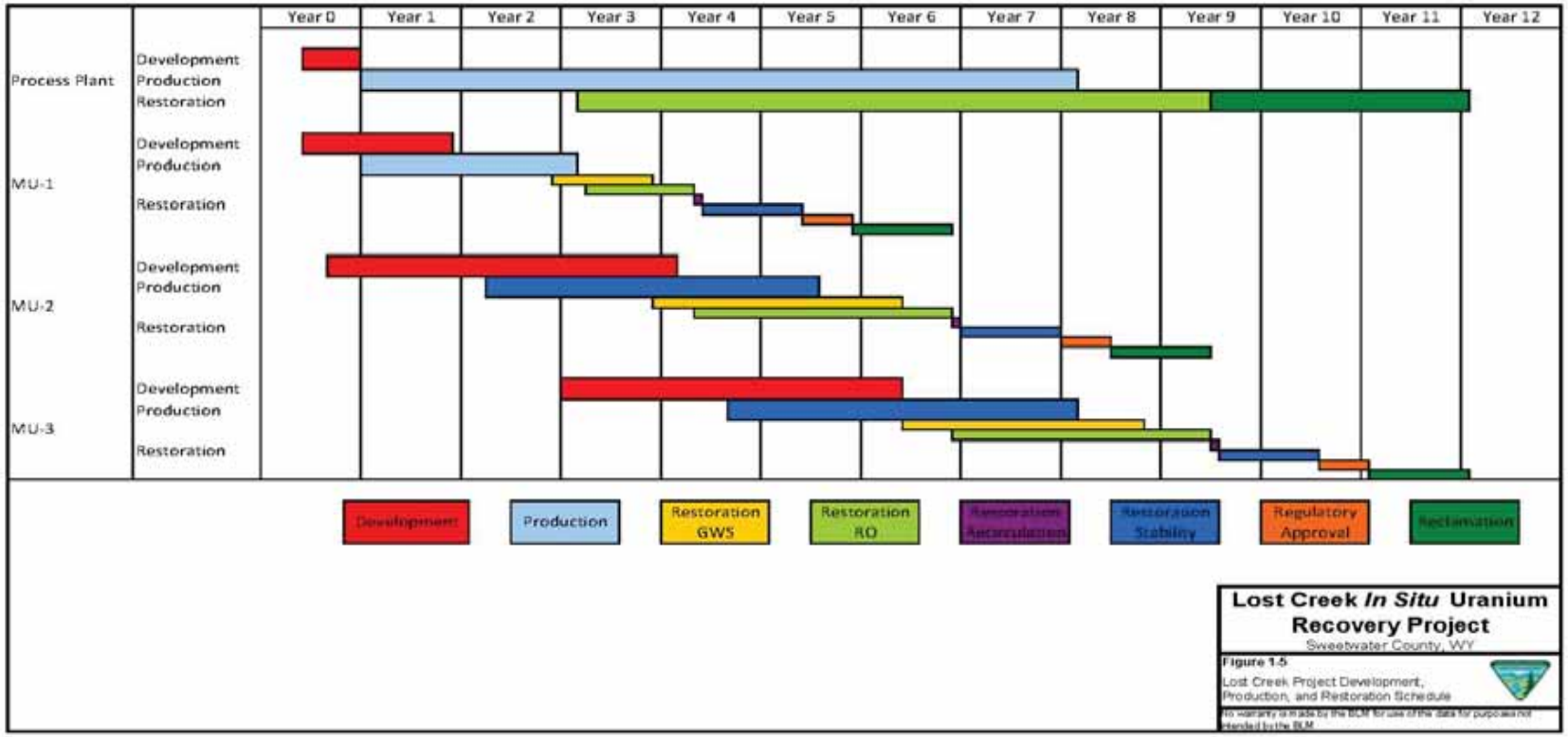
Groundwater restoration in each mine unit would require about two years, and decontamination and equipment removal and decommissioning would require about one year. Surface

reclamation would occur immediately afterwards, and monitoring to ensure revegetation success would be required until at least the fifth full growing season after seeding.

Final Reclamation, including facility decontamination and decommissioning and surface reclamation, would occur once the Plant is no longer in use and would require about two years. As with Mine Unit Reclamation, monitoring of revegetation success would be required until at the least the fifth full growing season.

Project Schedule

A generic schedule has been created to outline the activities of the twelve-year operation of the site (Figure 1-5). The schedule is subdivided into activities for each of the mine units as well as the general infrastructure necessary for production, such as the Process Plant.


Year 0
Year 1
Year 2
Year 3
Year 4
Year 5
Year 6
Year 7
Year 8
Year 9
Year 10
Year 11
Year 12
Process Plant
Development
Production
Restoration
MU-1
Development
Production
Restoration
MU-2
Development
Production
Restoration
MU-3
Development
Production
Restoration
Development
Production
Restoration GWS
Restoration RO
Restoration Reconstitution
Restoration Stability
Regulatory Approval
Reclamation
Lost Creek *In Situ* Uranium Recovery Project
Sweetwater County, WY
Figure 1.5
Lost Creek Project Development, Production, and Restoration Schedule
No warranty is made by the BLM for use of the data for purposes not intended by the BLM

Mitigation Measures included in Proposed Action

This section describes the mitigation measures which would be included in the Proposed Action for the protection of wildlife in and near the Permit Area. All wildlife management practices were established in conjunction with the BLM, WGFD and USFWS guidelines and are designed to be consistent with regional recommendations by land and wildlife management agencies (BLM, 2008; WGFD, 2008; and WGFD, 2009). The Wildlife Protection Plan for the Project is included in Attachment OP-6 of the WDEQ-LQD Permit to Mine, and correspondence with USFWS and WGFD about these Plans is provided in Addendum OP-A6-A of that attachment (LCI, 2011). Standard construction, erosion control, and other BMPs described in the Project DEIS would also help to minimize wildlife impacts. The following paragraphs summarize the specific steps that would be taken to mitigate potential impacts to wildlife in the area. A more detailed description of mitigation measures is available in Section 4.9.1 of the Project DEIS (BLM, 2012b).

Construction of Project components will be performed with consideration to wildlife in the area. Access roads will be constructed on existing two-track roads where possible to minimize new disturbance to habitat, and access to other two-track roads will be limited to prevent potential impacts from increased traffic. Fencing around Project components will be standard wildlife friendly fencing based on the BLM Manual Handbook 1741-1, Fencing (1989), with the exception of fencing around the Storage Ponds, which will be exclusion fencing. Power lines and pipelines would be placed near roads to minimize impacts where possible. Guidelines will be followed to prevent the electrocution of raptors (APLIC, 2006) and to discourage roosting and perching (Oles, 2007). Both the spatial and seasonal buffers identified by the WGFD for the protection of Greater sage-grouse and raptors (Mead, 2011; USFWS, 2010; and Wyoming Interagency, 2011) will be followed by LCI, during the construction phase, but not during the operational phase.

Mitigation will also be conducted during the operation and production phase of the Project, including training programs to educate on-site personnel about applicable wildlife laws and penalties, as well as what wildlife are present in the area and any potential impacts from Project activities (collisions with vehicles, sensitivity to human presence, etc.). Standing water resulting from Project activities will be eliminated where possible and treated where necessary to reduce the threat of mosquito-borne illnesses in wildlife. All liquid chemicals and petroleum products in and around the Plant would be managed and stored to prevent potential exposures. Monitoring will be performed at the Storage Ponds to examine water quality and any potential chemical exposures to wildlife. If selenium levels in Storage Ponds reach unsafe levels, measures will be taken to ensure no access of wildlife to the Storage Ponds. The mitigation measures used, would be approved by the BLM, and would be monitored as to their effectiveness in preventing the mortality of any protected birds in accordance with federal and state regulations. If mortalities or frequent habitation of the Storage Ponds are noted, LCI will work with WGFD to develop additional protective measures to ensure the protection of birds and other wildlife. Precautions and training programs will be implemented to reduce the possibility of wildfire or other emergencies.

Reclamation would be practiced throughout the Construction and Operation phases. Disturbed surfaces would be re-vegetated at the next appropriate season using a temporary or permanent

mix seed, depending on whether the area would be re-disturbed. Weed prevention measures, following the BLM guidelines and recommendations, would be implemented (BLM, 1996 and 2008).

LC ISR, LLC has completed Maximum Disturbance Process as outlined the Wyoming Governors Executive Order for Greater Sage Grouse Core Area Protection (Mead 2011). This includes the Density Disturbance/Calculation Tool (DDCT) as outlined by the Sage Grouse Implementation Team (Mead 2011) in order to evaluate potential effects of the Project on sage grouse. Results of the DDCT process are were reviewed and approved by WGFD.

Action Area

For this project the Action Area includes the Permit Area (Figures 1-1 and 1-2) for all terrestrial species. For aquatic species of concern, potential impacts to water systems downstream of the Permit Area were considered.

Status of Species and Critical Habitat in Action Area

The following is a discussion of federally proposed and listed species and critical habitats that may be present in the Permit Area (USFWS, 2012a) (Table 1-1). Wildlife inventories of the Permit Area were conducted in 2006 through 2011. Data from the 2010 and 2011 wildlife inventories can be found in the 2010 and 2011 Annual Wildlife Monitoring Reports (LWR, 2011 and 2012). The inventories provided baseline data for permitting the ISR Project and ensured that wildlife species and habitats would be afforded adequate protection during Construction, Operation, and Reclamation.

Mammals

Black-Footed Ferret

The black-footed ferret (*Mustela nigripes*) is federally listed as endangered, known populations occur in the Shirley Basin within the Rawlins BLM District. There are no known populations within Sweetwater County although there several sightings occurring between 1930 thru 2000 with most of the sightings occurring around Farson and Eden (BLM, 2005). The black-footed ferret is found in active prairie dog colonies, as they use the prairie dogs as a food source and the burrows as shelter (USFWS, 2011a). There are no active or inactive prairie dog colonies in the Action Area/Permit Area nor is the permit area in a FWS designated black footed ferret non-block cleared area. The nearest active prairie dog colonies are one to two miles south and southwest of the Action Area/Permit Area (WDEQ-LQD Permit to Mine, Appendix D9 [LCI, 2011])

Canada Lynx

The Canada lynx (*Lynx canadensis*) is federally listed as Threatened. Preferred habitat for the Canada lynx includes montane coniferous forests that support snowshoe hare populations. There are no known sightings of the species in or near the Action Area/Permit Area. There is no potential habitat for this species in the Action Area. The nearest potential habitat area are montane forests associated with Green Mountain approximately 17 miles north of the Action

Area/Permit Area. The best lynx habitat in Wyoming occurs in western and northwestern mountain ranges (Meaney and Beavais, 2004).

Colorado River Fish Species

The Action Area does not contain any perennial streams, or drainages. All drainages flow to enclosed drainage basins (Chain Lakes Flat, Battle Springs Flat) with no connections to Colorado River Tributaries. Project construction and operation will result in no water depletions or water quality impacts to Colorado River tributaries (BLM, 2012b).

Plants

Ute Ladies'-Tresses

The Ute ladies'-tresses orchid is federally listed as a Threatened Species. Ute ladies'-tresses are most commonly found in moist meadows, floodplains, and oxbow lakes (USFWS, 2012c). These plants can also be found in other moist environments including spring-fed areas or irrigated lands (USFWS, 2012c). No wetlands or wet meadows occur within the Action Area. This plant is not present within the Action Area.

Blowout Penstemon

The blowout penstemon (*Penstemon haydenii*) is federally listed as Threatened. The plant's current known range in Wyoming consists of the Ferris Dunes area in northwest Carbon County, where the plant is restricted to two habitat types: steep, northwest facing slopes of active sand dunes with less than 5 percent vegetative cover; and north-facing sandy slopes on the lee side of active blowouts with 25-40 percent vegetative cover. Known populations in Wyoming are found between 6,680-7,440 feet (USFWS, 2012d). Sand dunes and sand blowouts are not found within the Action Area/Permit Area. Botanical surveys did not locate this plant or potential habitat for this plant within the Action Area/Permit Area (WDEQ-LQD Permit to Mine, Appendix D8 [LCI, 2011]).

Effects and Conclusions

Undetected Species, Not Likely to Exist in the Project Area

As described above, several species listed for Sweetwater County do not occur within the Action Area. Baseline surveys either did not locate these species or potential habitat for these species within the Action Area. Conclusions regarding impacts to these species are summarized in Table 3-1. Project construction, operation, and reclamation are expected to have no effect on these species.

Table 3-2 Species that were Not Observed and Not Likely to Exist in the Action Area

Species	Status	Effect/Impacts	Conclusion
Mammals			
Black-footed Ferret	BLM Sensitive Species, Endangered	No prairie dog colonies in Action Area	No effects
Canada Lynx	Threatened	No montane forests in or near Action Area	No effects
Fish			
Colorado River Fish Species	Endangered and Threatened	No water in Permit Area, no water depletions to the Colorado River system, no effects	No effects
Plants			
Blowout Penstemon	Endangered	No potential habitat present not found in Action/Permit Area, no effects	No effects
Ute Ladies'-tresses	Threatened	No potential habitat present in Action Area, no effects	No effects

Species Observed in the Project Area

There are no federally listed or proposed species known to occur within the Action Area.

Cumulative Impacts

There are no expected cumulative impacts to federally listed or proposed species

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United States Fish and Wildlife Service

Official Species List for the Lost Creek Uranium *In-Situ* Recovery Project

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009

JUN 28 2012

In Reply Refer To:
06E13000/WY12SL0255

Memorandum

To: Field Manager, Bureau of Land Management, Rawlins Field Office, Rawlins, Wyoming

From: Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: Request for Species List for Lost Creek Uranium Mine, Sweetwater County, Wyoming

Thank you for the IPaC request for a species list on May 14, 2012, and subsequent request for an official species list on June 18, regarding the Lost Creek Uranium Mine project (Project) located at 42.122239 N, -107.855473 W in Sweetwater County, Wyoming. The Wyoming Ecological Services Field Office of the U.S. Fish and Wildlife Service (Service) understands that you are seeking an official species list for this project, and that Pete Ramirez of this office is currently reviewing an environmental impact statement for this project.

You have requested information regarding species listed under the Endangered Species Act of 1973, as amended (Act), 16 U.S.C. 1531 *et seq*. In response to your request, the Service is providing recommendations for protective measures for threatened and endangered species in accordance with the Act. We are also providing recommendations concerning migratory birds in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 *et seq.*, and the Fish and Wildlife Act of 1956, as amended, 16 U.S.C. 742a-742j.

In accordance with section 7(c) of the Act, we have determined that the following species or their designated habitat may be present in the proposed project area. We would appreciate receiving information as to the current status of each of these species within the proposed project area.

Endangered, Threatened, Proposed, and Candidate Species
And Their Designated and Proposed Critical Habitat That May Occur
In or May Be Affected by Actions in the Proposed Project Area
June 2012

Species/Critical Habitat	Scientific Name	Status	Habitat
Black-footed Ferret	*Mustela nigripes*	Endangered	Prairie dog towns
Greater Sage-grouse	*Centrocercus urophasianus*	Candidate	Sagebrush communities

Black-footed Ferret: Black-footed ferrets (*Mustela nigripes*) may be affected if prairie dog towns are impacted. Please be aware that black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns statewide. If white-tailed prairie dog towns or complexes greater than 200 acres will be disturbed, please contact our office to determine if surveys for ferrets are recommended. Surveys may be recommended even if only a portion of the white-tailed prairie dog town or complex will be impacted. According to the Service's Black-Footed Ferret Survey Guidelines, a prairie dog complex consists of two or more neighboring prairie dog towns less than 7 kilometers (4.3 miles) from each other. We encourage project proponents to protect all prairie dog towns or complexes for their value to the prairie ecosystem and the many species that rely on them. We further encourage you to analyze potentially disturbed prairie dog towns for their value to future black-footed ferret reintroduction.

Greater Sage-grouse: The Service has determined that the greater sage-grouse (*Centrocercus urophasianus*) warrants listing under the Act, but the development of a proposed listing rule is precluded by other higher priority listing actions. As a result, the greater sage-grouse has been placed on the list of candidate species. Candidates are reviewed annually to determine if they continue to warrant listing or to reassess their listing priority. Ideally, sufficient threats can be removed to eliminate the need for listing, in which case sage-grouse would no longer be a candidate. If threats are not addressed or the status of the species declines, a candidate species can move up in priority for a listing proposal.

Please see our recent *Federal Register* notice (75 FR 13910; March 23, 2010: available at http://www.fws.gov/wyominges/Pages/Species/Findings/GrtSageGrouse_CandidateBulletin.html) on greater sage-grouse for detailed information concerning the status of the species. Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation, as well as loss of population connectivity have been identified as important factors contributing to the decline of greater sage-grouse populations rangewide. Therefore, any activities that result in loss or degradation of sagebrush habitats that are important to this species should be closely evaluated for their impacts to sage-grouse.

The Project is located within the Greater South Pass Core Area, and two lek locations are within the perimeter of the Project area. We recommend you contact the Wyoming Game and Fish Department to identify important greater sage-grouse habitats, recommended seasonal restrictions within the project area, and appropriate measures to minimize potential impacts from the proposed project. The Service recommends surveys and mapping of important greater sage-grouse habitats where local information is not available. The results of these surveys should be

used in project planning to minimize potential impacts to this species. No project activities that may exacerbate habitat loss or degradation should be permitted in important habitats. The State of Wyoming has adopted a "Greater Sage-grouse Core Area Protection" Executive Order 2011-5 to ensure greater sage-grouse conservation. The recommendations of the State Sage-grouse Implementation Team and State of Wyoming's Greater sage-grouse "Greater Sage-grouse Core Area Protection" Executive Order 2011-5 state that development of any type in the identified core areas is done only when no decline to the species can be demonstrated. Executive Order 2011-5 further states the burden of proof for showing development does not affect sage-grouse rests with the industry or proponent in question, and any research they feel is necessary to convey this, should be conducted outside of core areas. Therefore, we recommend you pursue additional consultation with the Wyoming Game and Fish Department on the core area strategy as appropriate.

Species and Resource Concern

Migratory Birds: The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations, and does not require intent to be proven. Section 703 of the MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird...." The BGEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing.

Work that could lead to the take of a migratory bird or eagle, their young, eggs, or nests (e.g., if you are going to erect new roads, or power lines in the vicinity of a nest), should be coordinated with our office before any actions are taken. Removal or destruction of such nests, or causing abandonment of a nest could constitute violation of one or both of the above statutes. Removal of any active migratory bird nest or nest tree is prohibited. For golden eagles, inactive nest permits are limited to activities involving resource extraction or human health and safety. Mitigation, as determined by the local Service field office, may be required for loss of these nests. No permits will be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety. Therefore, if nesting migratory birds are present on or near the project area, timing is a significant consideration and needs to be addressed in project planning. If nest manipulation is proposed for this project, the project proponent should contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued for this project. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur.

In Situ Uranium: With *in situ* uranium mining, the potential for selenium and other contaminants to impact migratory birds should be assessed if the proposed facility will use ponds to store or dispose of the wastewater or if the wastewater will be disposed of in such a manner as to potentially expose migratory birds or other wildlife to contaminants. Accidental releases/spills of uranium in situ production water can result in the ponding or pooling of this production water, which could be ingested by wildlife, including migratory birds thus exposing

them to uranium, radionuclides, and selenium. Spills or releases of production water could also reach surface waters, which could impact aquatic organisms inhabiting the affected waters.

The following safeguards or management actions should be incorporated into the permit to prevent or minimize the adverse impacts from contaminants to our trust resources:

- Leak detection systems should be installed in all injection wells and production wells to enable operators to immediately respond to releases of injection or production water onto the environment.
- A spill contingency plan should be prepared for the project area.
- Land application of *in situ* wastewater through irrigation or other disposal methods should not be allowed if this disposal option presents a risk for selenium bioaccumulation in the food chain and adverse effects to migratory birds, and a risk for soil, surface water and ground water contamination.
- Annual monitoring of wastewater evaporation ponds should be conducted to determine waterborne selenium concentrations and to determine if submerged aquatic vegetation and/or aquatic invertebrates are present and provide a pathway for selenium bioaccumulation by birds using the evaporation ponds. If submerged aquatic vegetation and/or aquatic invertebrates are present and waterborne selenium is > 2 g/L, please contact our office for further guidance.

Eagle/Raptor: Enclosed please find our general recommendations for the protection of eagles and other raptor species. We strongly encourage project proponents to fully implement the protective measures described in the enclosures in order to help ensure compliance with the MBTA and the BGEPA. We are also available to assist you in developing a project specific plan to address the MBTA and BGEPA concerns.

Mountain Plover: On May 12, 2011, the Service announced the decision to withdraw the proposed listing of the mountain plover (*Charadrius montanus*) as a threatened species under the Act (76 FR 27756). The mountain plover is a migratory, terrestrial shorebird averaging 8 inches (21 centimeters) in body length. Mountain plovers are light brown above and white below but lack the contrasting band characteristic of other plovers. They feed on invertebrates, primarily beetles, crickets, and ants. Mountain plovers arrive at their breeding grounds in the western Great Plains and Rocky Mountain states in the spring. Southbound migration is prolonged, starting in late June and continuing through October.

Mountain plover occurrences have been documented in the vicinity of the project area. We encourage project planners to develop and implement protective measures if mountain plovers, or suitable mountain plover habitat, occur within project areas. Measures to protect the mountain plover from further decline may include: (1) avoidance of suitable habitat during the plover nesting season (April 10 through July 10), (2) prohibition of ground disturbing activities in prairie dog towns, and (3) prohibition of any permanent above ground structures that may provide perches for avian predators or deter plovers from using preferred habitat. Suitable habitat for nesting mountain plovers includes grasslands, mixed grassland areas and short-grass prairie, shrub-steppe, plains, alkali flats, agricultural lands, cultivated lands, sod farms, and prairie dog towns.

Pygmy Rabbit: The pygmy rabbit (*Brachylagus idahoensis*) is the smallest member of the Leporidae (rabbit) family and it occurs in portions of many western states including southwestern Wyoming. Pygmy rabbits are sagebrush obligate species that are primarily found in areas with deep soils that support dense big sagebrush (*Artemisia tridentata*) communities, often where other species of sagebrush and forbs occur as well. Conversion of sagebrush grasslands, habitat fragmentation, fire, invasive plants, and overgrazing are considered potential threats to pygmy rabbits. We encourage planners to analyze project areas for potential effects to pygmy rabbits and their habitats. Project planning measures that retain large tracts of suitable habitat and corridors to adjacent habitat will aid in the conservation of this species.

White-tailed Prairie Dog: The white-tailed prairie dog (*Cynomys leucurus*) is approximately 13 to 15 inches long and weighs 1 to 3 pounds. It is a small, stout rodent within the squirrel family. White-tailed prairie dogs have a short, white-tipped tail, large eyes, a blackish-brown cheek patch above and below each eye, and a tan-brown pelt. They typically inhabit moderately sloped grasslands, desert grasslands, and shrublands at altitudes ranging from 5,500 to 9,800 feet. While the white-tailed prairie dog occurs over much of its historic range, colonies are more widely dispersed and population sizes have declined. The white-tailed prairie dog inhabits areas across western and central Wyoming, northwest Colorado, northeastern Utah, and a small area in south-central Montana. The majority of the range of this species is encompassed by Wyoming.

We encourage the conservation of prairie dog colonies for their value to the many species that rely on them. Prairie dogs serve as the primary prey species for the black-footed ferret (*Mustela nigripes*) and several raptors, including the golden eagle (*Aguila chrysaetos*) and ferruginous hawk (*Buteo regalis*). Prairie dog colonies and burrows also provide shelter or nest sites for species like the mountain plover (*Charadrius montanus*) and the burrowing owl (*Athene cunicularia*). Please note we are currently updating our list of black-footed ferret 'block-cleared areas' – areas of prairie dog colonies for which black-footed ferret surveys are no longer required. If white-tailed prairie dog towns or complexes greater than 200 acres will be disturbed, please contact our office to determine if surveys for ferrets are recommended.

For our internal tracking purposes, the Service would appreciate notification of any decision made on this project (such as issuance of a permit or signing of a Record of Decision or Decision Memo). Notification can be sent in writing to the letterhead address or by electronic mail to FW6_Federal_Activities_Cheyenne@fws.gov.

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If you have questions regarding this letter or your responsibilities under the Act and/or other authorities or resources described above, please contact Julie Proell Reeves of my office at the letterhead address or phone (307) 772-2374, extension 232.

Attachment: (1)

cc: BLM, RECO Project Manager, Rawlins, WY (J. Russell) (jdrussel@blm.gov)
BLM, RECO Wildlife Biologist, Rawlins, WY (C. Morton) (cgmorton@blm.gov)
BLM, Endangered Species Program Lead, Cheyenne, WY (C. Keefe) (e-mail)
WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

Attachment

U.S. Fish and Wildlife Service, Wyoming Ecological Services Field Office

Protections for Raptors

Raptors, or birds of prey, and the majority of other birds in the United States are protected by the Migratory Bird Treaty Act, 16 U.S.C. 703 (MBTA). A complete list of migratory bird species can be found in the Code of Federal Regulations at 50 CFR 10.13. Eagles are also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. 668 (Eagle Act).

The MBTA protects migratory birds, eggs and nests from possession, sale, purchase, barter, transport, import, export, and take. The regulatory definition of take, defined in 50 CFR 10.12, means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect a migratory bird. Activities that result in the unpermitted take (e.g., result in death, possession, collection, or wounding) of migratory birds or their eggs are illegal and fully prosecutable under the MBTA. Removal or destruction of active nests (i.e., nests that contain eggs or young), or causing abandonment of an active nest, could constitute a violation of the MBTA, the Eagle Act, or both statutes. Removal of any active migratory bird nest or any structure that contains an active nest (e.g., tree) where such removal results in take is prohibited. Therefore, if nesting migratory birds are present on or near a project area, project timing is an important consideration during project planning. As discussed below, the Eagle Act provides additional protections for bald and golden eagles and their nests. For additional information concerning nests and protections under the MBTA, please see the U.S. Fish and Wildlife Service's (Service) Migratory Bird Permit Memorandum, MBMP-2.

The Service's Wyoming Ecological Services Field Office works to raise public awareness about the possible occurrence of birds in proposed project areas and the risk of violating the MBTA, while also providing guidance to minimize the likelihood that take will occur. We encourage you to coordinate with our office before conducting actions that could lead to the take of a migratory bird, their young, eggs, or active nests (e.g., construction or other activity in the vicinity of a nest that could result in a take). If nest manipulation is proposed for a project in Wyoming, the project proponent should also contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued. Permits generally are not issued for an active nest of any migratory bird species, unless removal of the nest is necessary for human health and safety. If a permit cannot be issued, the project may need to be modified to ensure take of migratory birds, their young or eggs will not occur.

For infrastructure (or facilities) that have potential to cause direct avian mortality (e.g., wind turbines, guyed towers, airports, wastewater disposal facilities, transmission lines), we recommend locating structures away from high avian-use areas such as those used for nesting, foraging, roosting or migrating, and the travel zones between high-use areas. If the wildlife survey data available for the proposed project area and vicinity do not provide the detail needed to identify normal bird habitat use and movements, we recommend collecting that information prior to determining locations for any infrastructure that may create an increased potential for avian mortalities. We also recommend contacting the Service's Wyoming Ecological Services office for project-specific recommendations.

Additional Protections for Eagles

The Eagle Act protections include provisions not included in the MBTA, such as the protection of unoccupied nests and a prohibition on disturbing eagles. Specifically, the Eagle Act prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagle or their body parts, nests, chicks or eggs, which includes collection, possession, molestation, disturbance, or killing. The term "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.3 and see also 72 FR 31132).

The Eagle Act includes limited exceptions to its prohibitions through a permitting process. The Service has issued regulations concerning the permit procedures for exceptions to the Eagle Act's prohibitions (74 FR 46836), including permits to take golden eagle nests which interfere with resource development or recovery operations (50 CFR 22.25). The regulations identify the conditions under which a permit may be issued (i.e., status of eagles, need for action), application requirements, and other issues (e.g., mitigation, monitoring) necessary in order for a permit to be issued.

For additional recommendations specific to Bald Eagles please see our Bald Eagle information web page (http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html).

Recommended Steps for Addressing Raptors in Project Planning

Using the following steps in early project planning, agencies and proponents can more easily minimize impacts to raptors, streamline planning and permitting processes, and incorporate measures into an adaptive management program:

1. Coordinate with appropriate Service offices, Wyoming Game and Fish Department, Tribal governments, and land-management agencies at the earliest stage of project planning.
2. Identify species and distribution of raptors occurring within the project area by searching existing data sources (e.g., Wyoming Game and Fish Department, Federal land-management agencies) and by conducting on-site surveys.
3. Plan and schedule short-term and long-term project disturbances and human-related activities to avoid raptor nesting and roosting areas, particularly during crucial breeding and wintering periods
4. Determine location and distribution of important raptor habitat, nests, roost sites, migration zones and, if feasible, available prey base in the project impact area.
5. Document the type, extent, timing, and duration of raptor activity in important use areas to establish a baseline of raptor activity.
6. Ascertain the type, extent, timing, and duration of development or human activities proposed to occur, and the extent to which this differs from baseline conditions.
7. Consider cumulative effects to raptors from proposed projects when added to past, present, and reasonably foreseeable actions. Ensure that project mitigation adequately addresses cumulative effects to raptors.
8. Minimize loss of raptor habitats and avoid long-term habitat degradation. Mitigate for unavoidable losses of high-valued raptor habitats, including (but not limited to) nesting, roosting, migration, and foraging areas.
9. Monitor and document the status of raptor populations and, if feasible, their prey base post project completion, and evaluate the success of mitigation efforts.
10. Document meaningful data and evaluations in a format that can be readily shared and incorporated into wildlife databases (contact the Service's Wyoming Ecological Services office for details).

Protection of nesting, wintering (including communal roost sites), and foraging activities is considered essential to conserving raptors. In order to promote the conservation of migratory bird populations and their habitats, Federal agencies should implement those strategies directed by Executive Order 13186, "Responsibilities of Federal Agencies To Protect Migratory Birds" (66 FR 3853).

Recommended Seasonal and Spatial Buffers to Protect Nesting Raptors

Because many raptors are particularly sensitive to disturbance (that may result in take) during the breeding season, we recommend implementing spatial and seasonal buffer zones to protect individual nest sites/territories (Table 1). The buffers serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or

replacement nest trees. The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there is little or no forested or topographical separation, distance alone must serve as the buffer. Adequate nesting buffers will help ensure activities do not take breeding birds, their young or eggs. For optimal conservation benefit, we recommend that no temporary or permanent surface occupancy occur within species-specific spatial buffer zones. For some activities with very substantial auditory impacts (e.g., seismic exploration and blasting) or visual impacts (e.g., tall drilling rig), a larger buffer than listed in Table 1 may be necessary, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

As discussed above, for infrastructure that may create an increased potential for raptor mortalities, the spatial buffers listed in Table 1 may not be sufficient to reduce the incidence of raptor mortalities (for example, if a wind turbine is placed outside a nest disturbance buffer, but inadvertently still within areas of normal daily or migratory bird movements); therefore, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

Buffer recommendations may be modified on a site-specific or project-specific basis based on field observations and local conditions. The sensitivity of raptors to disturbance may be dependent on local topography, density of vegetation, and intensity of activities. Additionally, individual birds may be habituated to varying levels of disturbance and human-induced impacts. Modification of protective buffer recommendations may be considered where biologically supported and developed in coordination with the Service's Wyoming Ecological Services Field Office.

Because raptor nests are often initially not identified to species (e.g., preliminary aerial surveys in winter), we first recommend a generic raptor nest seasonal buffer guideline of January 15th – August 15th. Similarly, for spatial nesting buffers, until the nesting species has been confirmed, we recommend applying a 1-mile spatial buffer around the nest. Once the raptor species is confirmed, we then make species-specific and site-specific recommendations on seasonal and spatial buffers (Table 1).

Activities should not occur within the spatial/seasonal buffer of any nest (occupied or unoccupied) when raptors are in the process of courtship and nest site selection. Long-term land-use activities and human-use activities should not occur within the species-specific spatial buffer of occupied nests. Short-term land use and human-use activities proposed to occur within the spatial buffer of an occupied nest should only proceed during the seasonal buffer after coordination with the Service, State, and Tribal wildlife resources management agencies, and/or land-management agency biologists. If, after coordination, it is determined that due to human or environmental safety or otherwise unavoidable factors, activities require temporary incursions within the spatial and seasonal buffers, those activities should be planned to minimize impacts and monitored to determine whether impacts to birds occurred. Mitigation for habitat loss or degradation should be identified and planned in coordination with applicable agencies.

Please contact the Service's Wyoming Ecological Services Field Office if you have any questions regarding the status of the bald eagle, permit requirements, or if you require technical assistance regarding the MBTA, Eagle Act, or the above recommendations. The recommended spatial and seasonal buffers are voluntary (unless made a condition of permit or license) and are not regulatory, and they do not supersede provisions of the MBTA, Eagle Act, Migratory Bird Permit Memorandum (MBMP-2), and Endangered Species Act. Assessing legal compliance with the MBTA or the Eagle Act and the implementing regulations is ultimately the authority and responsibility of the Service's law enforcement personnel. Our recommendations also do not supersede Federal, State, local, or Tribal regulations or permit conditions that may be more restrictive.

Attachment

Table 1. Service's Wyoming Ecological Services Field Office's Recommended Spatial and Seasonal Buffers for Breeding Raptors

Raptors of Conservation Concern (see below for more information)

Common Name	Spatial buffer (miles)	Seasonal buffer
Golden Eagle	0.50	January 15 - July 31
Ferruginous Hawk	1.00	March 15 - July 31
Swainson's Hawk	0.25	April 1 - August 31
Bald Eagle	see Bald Eagle information web page[1]	
Prairie Falcon	0.50	March 1 - August 15
Peregrine Falcon	0.50	March 1 - August 15
Short-eared Owl	0.25	March15- August 1
Burrowing Owl	0.25	April 1 – September 15
Northern Goshawk	0.50	April 1 - August 15

Additional Wyoming Raptors

Common Name	Spatial buffer (miles)	Seasonal buffer
Osprey	0.25	April 1 - August 31
Cooper's Hawk	0.25	March 15 – August 31
Sharp-shinned Hawk	0.25	March 15 – August 31
Red-tailed Hawk	0.25	February 1 – August 15
Rough-legged Hawk (winter resident only)	----	----
Northern Harrier	0.25	April 1 - August 15
Merlin	0.50	April 1 - August 15
American Kestrel	0.125	April 1 – August 15
Common Barn Owl	0.125	February 1 – September 15
Northern Saw-whet Owl	0.25	March 1 - August 31
Boreal Owl	0.25	February 1 – July 31
Long-eared Owl	0.25	February 1 – August 15
Great Horned Owl	0.125	December 1 – September 30
Northern Pygmy-Owl	0.25	April 1 – August 1
Eastern Screech -owl	0.125	March 1 – August 15
Western Screech-owl	0.125	March 1 – August 15
Great Gray Owl	0.25	March 15 – August 31

[1] http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html

Raptors of Conservation Concern

The Service's Birds of Conservation Concern (2008) report identifies "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing" under the Endangered Species Act (16 U.S.C 1531 et seq.). This report is intended to stimulate coordinated and proactive conservation actions among Federal, State, and private partners. The Wyoming Partners in Flight Wyoming Bird Conservation Plan identifies priority bird species and habitats, and establishes objectives for bird populations and habitats in Wyoming. This plan also recommends conservation actions to accomplish the population and habitat objectives.

We encourage project planners to develop and implement protective measures for the Birds of Conservation Concern as well as other high-priority species identified in the Wyoming Bird Conservation Plan. For

additional information on the Birds of Conservation Concern that occur in Wyoming, please see our Birds of Conservation Concern web page.

Additional Planning Resources

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Edison Electric Institute and the Raptor Research Foundation. 1996. Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1996. Washington, D.C.

Edison Electric Institute's Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service. 2005. Avian Protection Plan Guidelines.

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U.S. Fish and Wildlife Service. 2000. Siting, Construction, Operation and Decommissioning of Communications Towers and Tower Site Evaluation Form (Directors Memorandum September 14, 2000), Arlington, Virginia.

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. United States Department of Interior, Fish and Wildlife Service, Arlington, Virginia. 23 pp.

Wyoming Game and Fish Department Internet Link to Raptor Information

References

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