Appendix M
Biological Assessment

Biological Assessment
of
Threatened and Endangered Wildlife, Fish, and Plant Species
for the
Gateway West Transmission Line Project

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	best management practice
CFR	Code of Federal Regulation
CHU	Critical Habitat Unit
CWA	Clean Water Act
DPS	distinct population segment
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	element occurrence
EPM	environmental protection measure
ESA	Endangered Species Act
ESU	evolutionarily significant unit
Forest Service	U.S. Department of Agriculture, Forest Service
Gateway West	Gateway West Transmission Line Project
GIS	geographic information system
HIP	Habitat Integrity and Population
IDFG	Idaho Department of Fish and Game
IPaC	Information, Planning, and Conservation System
kV	kilovolt
LAU	lynx analysis unit
LWD	large woody debris
NEPA	National Environmental Policy Act
NF	National Forest
PCA	Primary Conservation Area
PCE	Primary Constituent Element
POD	Plan of Development
Project	Gateway West Transmission Line Project
Proponents	Idaho Power Company and Rocky Mountain Power
PRRIP	Platte River Recovery Implementation Program

RM	river mile
ROW	right-of-way
SPCC	Spill Prevention, Containment, and Countermeasures
SWPPP	Stormwater Pollution Prevention Plan
UCEFRP	Upper Colorado Endangered Fish Recovery Program
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WGFD	Wyoming Game and Fish Department

EXECUTIVE SUMMARY

This biological assessment (BA) assesses the effects of the Bureau of Land Management's (BLM's) approval of the right-of-way (ROW) for construction and operations of the Gateway West Transmission Line Project (Project) on threatened and endangered wildlife, fish, and plant species identified by the U.S. Fish and Wildlife Service (USFWS) as having the potential to be affected by the Project. The transmission line ROW would run from the Windstar Substation in Wyoming, just east of Glenrock, to the Hemingway Substation in Idaho, just west of Melba. The line would cross about 990 miles of private, state, and federal lands within Converse, Natrona, Carbon, Sweetwater, and Lincoln Counties in Wyoming; and Bear Lake, Franklin, Bannock, Power, Cassia, Twin Falls, Minidoka, Blaine, Lincoln, Jerome, Gooding, Owyhee, Elmore, and Ada Counties in Idaho. Table ES-1 summarizes the species considered in development of this BA, their statuses, and their corresponding determinations of effect.

Table ES-1. Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming, Their Effect Determinations, and the Rationale

Species	Status	Effect Determination	Rationale
Colorado River Species			
Colorado pikeminnow (*Ptychocheilus lucius*)	Endangered	May affect, likely to adversely affect	It is estimated that annual depletions would be 0.3 acre feet from the Colorado River basin for use by the Project. The Proponents have committed to purchasing enough water to cover the extent of estimated water withdrawals from the Colorado River system for which consultation has already occurred; however, because the Proponents cannot yet identify the exact location for sources or precise amount of water per location that they plan to purchase until these water source locations and amounts have been fully identified, current project estimates for water usage lead to a threat determination for this Project of "*may affect, likely to adversely affect*" for the Colorado River endangered fishes, and a "may affect, not likely to adversely affect" their designated critical habitat.
Razorback sucker (*Xyrauchen texanus*)	Endangered		
Bonytail chub *(Gila elegans)*	Endangered		
Humpback chub (*Gila cypha*)	Endangered		
Critical habitat for the four endangered Colorado River fish	Designated	May affect, not likely to adversely affect critical habitat	
Platte River Species			
Interior least tern (*Sterna antillarum athalassos*)	Endangered	May affect, likely to adversely affect	It is estimated that annual depletions would be 0.4 acre feet from the Platte River basin for use by the Project. The Proponents have committed to purchasing water from existing sources to cover the extent of estimated water withdrawals from the Platte River system and for which consultation has already occurred; however, the Proponents have not yet identified the sources or secured this water to date. Therefore, until these water sources
Piping plover (*Charadrius melodus*)	Threatened		
Whooping crane (*Grus americana*)	Endangered		

Table ES-1. Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming, Their Effect Determinations, and the Rationale (continued)

Species	Status	Effect Determination	Rationale
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	May affect, likely to adversely affect	and the precise amounts from each source have been fully identified, the threat determination for this Project is "may affect, likely to adversely affect" for these Platte River species, and "may affect, not likely to adversely affect" regarding their designated critical habitat.
Western prairie fringed orchid (*Platanthera praeclara*)	Threatened		
Whooping crane critical habitat	Designated	May affect, not likely to adversely affect critical habitat	
Mammals			
Black-footed ferret (*Mustela nigripes*)	Endangered	No effect	Based on recent determination by the U.S. Fish and Wildlife Service (USFWS March 6 Letter to Scott Talbott, Director - Wyoming Game and Fish Department), the entire State of Wyoming has been block cleared, relaxing the requirements of Section 7 Consultation. No surveys would be required based on the agreement for block clearance, and it is determined that because wild endangered black-footed ferret populations are no longer present outside of the reintroduced populations ferrets, wild, free-ranging endangered ferrets would not be impacted by this project
	10(j) Nonessential, experimental population	May affect, not likely to adversely affect	Unlikely to be encountered, and agency-required Environmental Protection Measures (EPMs) would be implemented. This species is included for agency coordination purposes.
Canada lynx (*Lynx canadensis*)	Threatened	May affect, not likely to adversely affect	Unlikely to be encountered, no critical habitat or LAUs impacted; however, two linkage areas would be crossed.
Grizzly bear (*Ursus arctos*)	Threatened	May affect, not likely to adversely affect	Unlikely to be encountered, species is highly mobile, and the Project would affect only small portion of any individual's home range which is located adjacent to an existing freeway.
Preble's meadow jumping mouse (*Zapus hudsonius preblei*)	Threatened	May affect, not likely to adversely affect	Unlikely to be encountered; however, surveys would be conducted in suitable habitat and occupied areas would be avoided during construction.
Fish			
Bull trout critical habitat	Designated	May affect, not likely to adversely affect	Critical habitat would be spanned by the transmission line, but no habitat disturbance would occur within the river and only limited disturbance in the riparian area (i.e., individual trees may be removed).

Table ES-1. Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming, Their Effect Determinations, and the Rationale (continued)

Species	Status	Effect Determination	Rationale
Invertebrates			
Banbury Springs limpet (*Lanx* sp.)	Endangered	May affect, not likely to adversely affect	A recovery area is located within the Action Area; however, this area would not be crossed by the line or any roads.
Bliss Rapids snail (*Taylorconcha serpenticola*)	Threatened	May affect, not likely to adversely affect	A recovery area is located within the Action Area; however, it would be spanned, with no road crossings proposed.
Bruneau hot springsnail (*Pyrgulopsis bruneauensis*)	Endangered	May affect, not likely to adversely affect	A recovery area is located within the Action Area; however, this area would not be crossed by the line or any roads, and no water withdrawals would occur from hot-springs in the Bruneau River.
Snake River physa snail (*Physa natricina*)	Endangered	May affect, not likely to adversely affect	A recovery area is located within the Action Area; however, it would be spanned, with no road crossings proposed.
Plants			
Blowout penstemon (*Penstemon haydenii*)	Endangered	No Effect	The Action Area does not intercept this species' current distribution.
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	May affect; not likely to adversely affect	The Action Area does not intercept any known occurrences of this species; however, it would cross this species known range. Surveys would be conducted and all occupied areas would be avoided during construction.
Slickspot peppergrass (*Lepidium papilliferum*)	Proposed Endangered	May affect, likely to adversely affect	Action Area intersects occupied habitat, slickspot peppergrass habitat, and potential habitat for this species, and some impacts to the species and its habitat are anticipated.
Slickspot peppergrass critical habitat	Proposed	May affect, likely to adversely affect	Action Area intersects proposed critical habitat for this species, and some impacts to PCEs are anticipated.

1 PROJECT DESCRIPTION

This Biological Assessment (BA) discusses the potential effects of the proposed Gateway West Transmission Line Project (Gateway West or Project) in Idaho and Wyoming on threatened and endangered wildlife, fish, and plant species pursuant to the Endangered Species Act (ESA) of 1973, as amended. This BA has been prepared for the purpose of consultation with the U.S. Fish and Wildlife Service (USFWS) on the expected effects of the agency preferred alternative on species listed under the ESA. This BA also presents conservation measures that would be applied to avoid or minimize the likelihood of impacts to listed species or their designated critical habitats.

On May 7, 2007, Idaho Power Company and Rocky Mountain Power (the Proponents) applied to the Bureau of Land Management (BLM) for a right-of-way (ROW) grant to use public lands for portions of the Project. An Environmental Assessment (EA) and Environmental Impact Statement (EIS) have been prepared for this Project, and are incorporated into this BA by reference. The aboveground transmission line would supplement existing transmission lines to relieve existing congestion, capacity, and reliability constraints in the electric transmission grid, allowing for the delivery of up to 1,500 megawatts of energy. The Project would primarily serve future needs in Utah and Idaho.

The Project's construction is expected to begin after the Record of Decision is released in 2015, and be complete by December 2021, with multiple contractors working concurrently on the separate line segments and substations of the Project in order to meet the planned in-services dates. The last segment of the initial phase between Windstar and Populus would be completed by 2018. The second phase would extend from Populus to Hemingway with the last segment completed by the end of 2021.

The proposed federal action for consultation is the BLM's approval of the applied for ROW grant for the construction and operation of an electric transmission system reaching from the Windstar Substation at Glenrock, Wyoming, and the Hemingway Substation just west of Melba and approximately 30 miles southwest of Boise, Idaho (Figure 1-1). Although route and structure alternatives for the Project have been proposed, only the route and alternatives preferred by the BLM will be analyzed in this BA. The proposed ROW grant includes the following Proponent actions:

- Construction and operations of about 990 miles of new 230-kilovolt (kV) and 500-kV electric transmission lines in 10 segments, from Segment 1W at the eastern end in Wyoming to Segment 10 in Idaho;
- Construction of permanent and temporary access roads;
- Construction of permanent and temporary laydown and staging areas;
- Construction of three substations;
- Expansions or modifications of nine existing substations; and
- Construction or installation of other associated facilities including communication systems, optical fiber regeneration stations, and substation distribution supply lines.

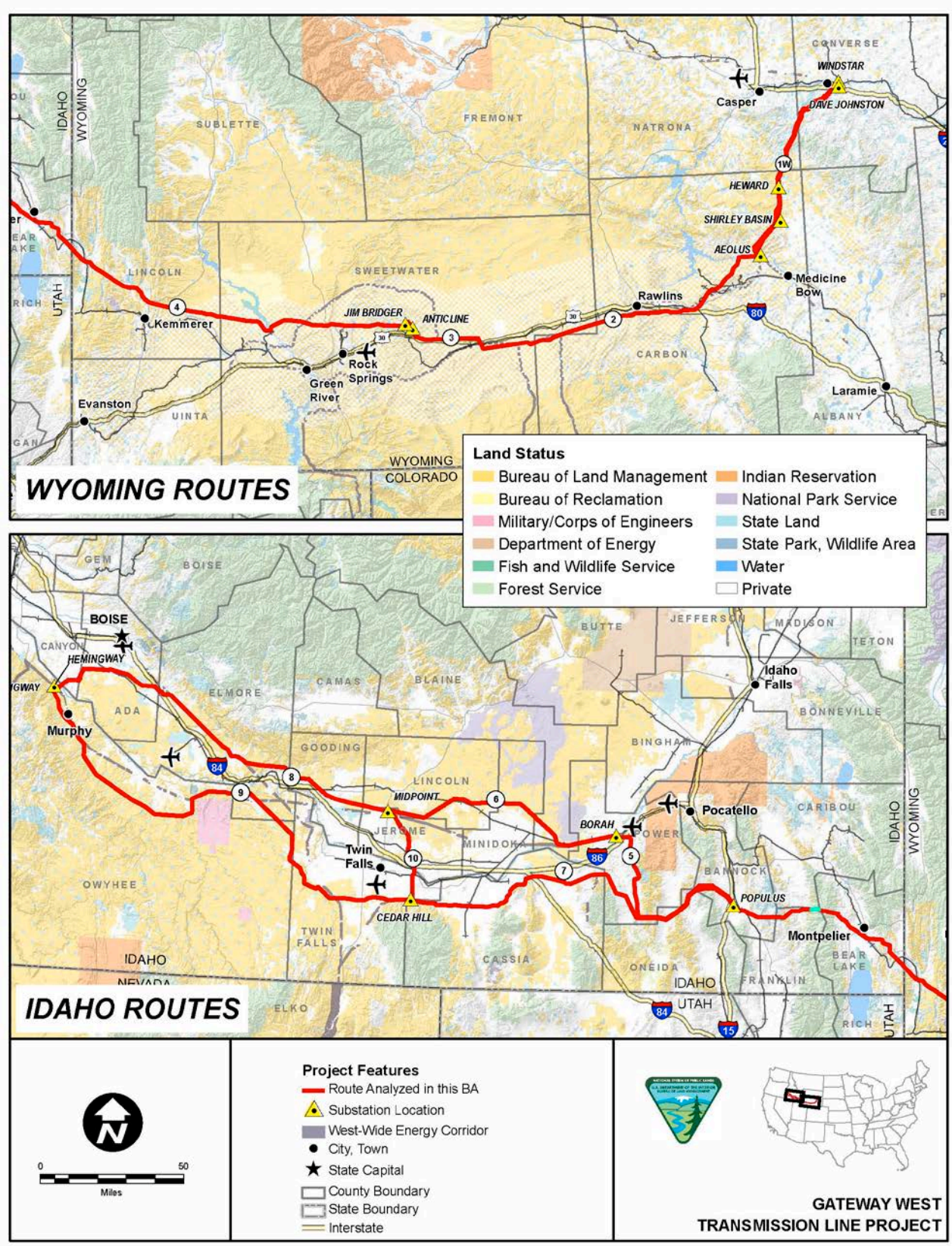

Figure 1-1. Gateway West Transmission Line Proposed Action – BLM Preferred Route

The Project would be supported by two types of transmission structures: steel H-frame 230-kV structures and single 500-kV lattice steel towers. The installation of these structures requires preparation of each site, including vegetation removal and grading in order to obtain a relatively flat surface (necessary for the operation of the large cranes used to install the structures). Clearing individual structure sites would be done using a bulldozer to blade the required area, which would be moved to staging areas by flatbed trucks along existing access roads. For construction laydown, tower assembly, and tower erection, areas measuring approximately 250 feet by 250 feet for each single-circuit 500-kV structure and 150 feet by 125 feet for each 230-kV structure would be required.

The 230-kV steel H-frames would be made of self-weathering steel. The average distance between H-frame structures would be approximately 700 feet. Typically, the 230-kV single-circuit H-frame structures would have pole lengths ranging between 70 and 100 feet. Embedment depths (for pole placements) are typically 10 percent of the pole length plus 2 feet (in the case of this Project, ranging from 9 to 12 feet). The structure heights above ground vary from 60 to 90 feet.

The 500-kV lattice steel towers would be fabricated with galvanized steel treated to produce a dulled finish. The average distance between 500-kV towers would be 1,200 to 1,300 feet. Structure heights would vary depending on terrain and the requirement to maintain minimum conductor clearances from ground (i.e., clearance requirement between the transmission line and the ground is at least 100 feet and clearance requirement between the line and any vegetation is at least 50 feet; see Appendix B of the EIS). The 500-kV towers would vary in height from 145 to 180 feet. The permanent (for the 50-year life of the Project) foundations would be approximately 46 by 41 feet (0.43 acre).

Once the towers are assembled and in place, the conductors and the overhead ground wires would be strung. This is generally accomplished using a helicopter, but may be conducted from the ground if an access road that travels directly between towers is available or constructed. All areas not needed for normal transmission line maintenance, including fire and personnel safety clearance areas, would be graded following construction to blend as closely as possible with the natural contours and revegetated as required (Appendix B of the EIS contains the Proponents' Plan of Development [POD], which includes their Reclamation Plan, postconstruction monitoring plan, as well as the success criteria they would use to assess revegetation/restoration success).

A communication system is required to control the transmission line and manage the flow of electricity. The backbone of this proposed communication system is a fiber optic wire contained within one of the overhead grounding wires that would be carried along the length of the transmission system. The fiber optic signal needs to be "boosted" or regenerated about every 55 miles along the system, which requires and optical signal regeneration station. These stations consist of a building, a fenced yard, access road, and distribution power supply from the local distribution system and are typically housed within a substation control house. However, if new sites need to be constructed (e.g., in places where substations are not located at sufficient distances for a regeneration

station), then new lands will need to be developed. These optical fiber regeneration stations consist of a building 12 by 32 by 9 feet tall, a fenced yard, access road, and distribution power supply from the local distribution system. They would occupy a 100-foot by 100-foot cleared area, with a fenced area of 75 feet by 75 feet. They are typically built as close to the transmission line as land use and physical features allow (more details about the optical fiber regeneration stations can be found in the "Transmission Line and Substation Components" section in Appendix B of the EIS).

The Project would include three new substations and expansions or modifications at nine existing substations. Construction of the proposed Anticline, Aeolus, and Cedar Hill Substations would be needed to electrically connect the new transmission line segments. Expansions of the yards at the Windstar, Heward, Jim Bridger, Populus, Borah, and Midpoint Substations would be required in order to accommodate the new line. Modifications at the Dave Johnston Power Plant, Shirley Basin, and Hemingway Substations would also be required to accommodate the new line; however, no additional disturbance acreage would be needed.

The Project would require vehicular access to each structure during construction and periodically for inspection and live-line maintenance for the life of the Project (50 years). New access roads or improvements to existing access roads would be constructed using a bulldozer or grader, followed by a roller to compact and smooth the ground. Front-end loaders would be used to move the soil locally or off site. Typically, access to the transmission line ROW and tower sites requires a 14-foot-wide travel way for straight sections of road and a 16- to 20-foot-wide travel way at corners to facilitate safe movement of equipment and vehicles; however, construction disturbance along streambeds for crossings would disturb, on average, about 26 feet for the simpler crossings, up to 50 feet where permanent culverts would be installed. Wherever possible, new access roads would be constructed within the proposed transmission line ROW or existing roads would be used. In other cases, access roads would be required between the proposed transmission line and existing roads. Erosion control and sedimentation measures such as water bars, culverts, sediment basins, or perimeter control would be installed as required to minimize erosion on all lands, regardless of ownership, during and subsequent to construction of the Project. Roads retained for operations would be seeded with a native grass mix and allowed to revegetate. For normal maintenance activities, an 8-foot portion of the road would be used and vehicles would drive over the vegetation. For non-routine maintenance that requires access by larger vehicles, the full width of the access road (14 to 20 feet) may be used. Access roads would be repaired as necessary but not be routinely graded. Vegetation such as taller shrubs and trees that may interfere with the safe operation of equipment would be managed on a cyclical basis. A total of 872.9 miles of new roads would be constructed, and 914.6 miles of existing roads would be improved.

Areas used during construction but not needed during Project operation, for example staging areas, temporary roads, and fly yards, would be restored to their previous condition through reclamation procedures. Reclamation goals would include the replacement and stabilization of previously-existing vegetation, soil stabilization, and weed control. Methods used would include:

- stripping, stockpiling, and re-applying topsoil material at temporarily disturbed areas to restore soil horizons, use the existing seedbank, and establish surface conditions that would allow for the rapid re-establishment of vegetative cover;
- restore previously existing drainage patterns, minimize surface erosion and sedimentation, and facilitate plant establishment; and
- conducting post-construction weed monitoring for 3 years (see Appendix B of the EIS for more information on reclamation).

To ensure prompt restoration of vegetation following disturbance and to minimize the spread of weeds, the following environmental protection measure (EPM) would apply on all lands, regardless of ownership:

OM-15 To help limit the spread and establishment of noxious weed species in disturbed areas, desired vegetation needs to be established promptly after disturbance. The Proponents will rehabilitate significantly disturbed areas as soon as possible after ground-disturbing activities and during the optimal period. Seed and mulch will be certified "noxious weed free" and seed mix will be agreed to in advance by the landowner or land managing agency.

Operations and maintenance activities would include transmission line patrols, climbing inspections, tower and wire maintenance, insulator washing in selected areas as needed, and access roads repairs. The Proponents would keep necessary work areas around structures clear of vegetation and would limit the height of vegetation along the ROW. Periodic inspection and maintenance of each of the substations and communications facilities is also a key part of operating and maintaining the electrical system.

Impacts from construction on listed fish, plant, and wildlife species would include habitat removal, fragmentation, and alteration; ecological changes such as changes in predator or prey densities; noise and visual disturbance to foraging, breeding, and migrating animals; increased sedimentation in waterbodies; trampling; and vehicle collisions. Impacts from operations on listed fish, plant, and wildlife species would include noise and visual disturbance from project personnel and other human presence in the Action Area (Action Area defined in Section 1.1), habitat fragmentation, alteration of hydrological regimes, spread of invasive plants, potential alterations to the local fire regime (due to project-related ignitions as well as increased extent of invasive weeds increasing the rate and intensity of fire regimes), blockage of stream passage for fish, and reductions in large woody debris (LWD) input in streams and on the forest floor. These impacts would be minimized or avoided through EPMs and best management practices (BMPs). These are listed in Section 5, Conservation Measures to Avoid or Reduce Adverse Impacts, and in Table 2.7-1 of the EIS.

In addition, revegetated and restored areas would be monitored for 3 years to ensure that successful revegetation occurs, and to identify areas where additional measures would be required if successful revegetation/restoration does not occur (see REC-1 through REC-15 and REC-17 in Table 2.7-1 of Chapter 2 in the EIS). This effort was not deemed sufficient on federally managed lands, however, and thus the following measures would be required on federally managed lands (as well as state managed and privately owned lands in Wyoming; see Table 2.7-1 of Chapter 2 in the EIS):

VEG-8 Annual post-construction monitoring and treatment of invasive plants on closed roads (access roads dedicated for use by Proponents only), temporary roads, fly yards, and other disturbed areas in the ROW shall continue for 3 years in areas where infestations or populations of noxious weeds have been identified. If after 3 years post-construction conditions are not equivalent to or better than pre-construction conditions (in accordance with applicable permit), monitoring and treatment will continue until these conditions are met. If adjacent land uses are contributing to the introduction and/or persistence of invasive plant species within areas disturbed by the project, then Proponents will not be required to treat noxious weeds for more than three years.

The permitted life of the Project would be 50 years. The assessment of this Project includes the construction of the Project, the 50-year permitted life of the Project, as well as the10 years it is estimated to take for substantial site rehabilitation following decommissioning. Impacts resulting from decommissioning would be identical to those described for construction, such as habitat removal, fragmentation, and alteration; ecological changes such as changes in predator or prey densities; noise and visual disturbance to foraging, breeding, and migrating animals; increased sedimentation in waterbodies; trampling; and vehicle collisions

1.1 Project Location and Action Area

The total length of the proposed, BLM Preferred Route of the transmission line is about 990 miles on private, state, and federal lands. The route is located in Converse, Natrona, Carbon, Sweetwater, Uinta, and Lincoln Counties in Wyoming; and Bear Lake, Franklin, Bannock, Oneida, Power, Cassia, Twin Falls, Minidoka, Blaine, Lincoln, Jerome, Gooding, Owyhee, Elmore, Ada, and Canyon Counties in Idaho (Figure 1-1).

The Action Area must include all areas where any direct and indirect effects to the environment may be documented regardless of the presence or absence of a listed species (50 Code of Federal Regulations [CFR] §402.02). Therefore, it includes the ROW; access roads (both new roads and existing roads requiring improvement); substations (both proposed substations and existing substations requiring expansion); and yards for material storage, helicopter operations, and other purposes; and a 0.5-mile buffer around these areas. Although they do not occur in the Action Area, certain listed species that occur in the Colorado River and Platte River basins downstream of the Wyoming portions of the Project will be assessed in this BA due to impacts from Project-related water withdrawals, as required by the Upper Colorado Endangered Fish Recovery Program (UCEFRP) and the Platte River Recovery Implementation Program (PRRIP).

2 METHODS

The assessments and recommendations contained within this BA are based upon information obtained from several sources: published literature, unpublished agency reports and data, state and federal agency biologists, and field surveys.

2.1 Published Literature and Agency Data

Preliminary investigations included review of information and literature obtained from the USFWS, Wyoming Game and Fish Department (WGFD), Idaho Department of Fish and Game (IDFG), U.S. Department of Agriculture, Forest Service (Forest Service), and the BLM. The USFWS, BLM, Forest Service, and the state wildlife agencies in Idaho and Wyoming work closely together to develop, maintain and update a database of known occurrences of many wildlife and plant species, including all listed species described here; however, there are still important occurrence, habitat, and potential habitat data insufficiencies. Additional information was obtained from independent literature searches, examination of aerial photographs, and queries of Geographic Information System databases including IDFG's Natural Heritage Program, the Wyoming Natural Diversity Database, and other databases maintained by the BLM, Forest Service, IDFG, and WGFD regarding known and potential locations of listed species and their habitats within the Action Area.

2.2 Agency Input

Agency personnel who provided input on the preparation of this BA included Ms. Barbara Chaney (USFWS, Idaho), Ms. Julie Reeves (USFWS, Wyoming), Ms. Jeri Wood (USFWS, Idaho), Ms. Patricia Sweanor (USFWS, Wyoming), Mr. Frank Blomquist (BLM Biologist, Rawlins), Mr. Tim Carrigan (BLM Biologist, Idaho), Mr. Chris Keefe (BLM Biologist, Cheyenne), Ms. Kate Forster (BLM Biologist, Twin Falls), Mr. Jeff Carroll (BLM Biologist, Wyoming), Mr. Brandon Knapton (BLM Resource Coordinator, Boise), Ms. Lorraine Keith (BLM, Rock Springs), Mr. Paul Makela (BLM Wildlife Biologist, Boise), Ms. Ann Keysor (Forest Service, Caribou-Targhee National Forest [NF]), and Mr. Dennis Duehren (Forest Service, Caribou-Targhee NF).

2.3 Field Surveys

Surveys for Ute ladies'-tresses were completed in portions of the Action Area in 2009, 2010, 2011, 2012 by Tetra Tech and URS (Tetra Tech 2010, 2011, 2013), using USFWS protocol for this species (USFWS 1992a). Based on review of habitats and elevations in the Action Area and information provided from the BLM, USFWS, Forest Service, Wyoming Natural Diversity Database, and IDFG, it was determined that portions of Segment 1W in Wyoming and Segment 5 in Idaho had the highest likelihood of containing suitable potential habitat for Ute ladies'-tresses. Prior to conducting field surveys, 27 areas, 22 along Segment 1W and 5 along Segment 5, were identified for surveys. Meandering pedestrian surveys were conducted along accessible stream features or other areas of potential habitat and habitat characteristics were assessed. Areas containing suitable potential habitat for Ute ladies'-tresses were noted; no individuals of this species were observed during surveys.

Surveys in 2010 and 2012 were conducted during the USFWS interim survey protocol window (July 20–August 31), while surveys conducted in both 2009 and 2011 occurred between August 31 and September 4, just after the end of the period recommended by the USFWS' interim survey protocol for Ute ladies'-tresses (USFWS 1992a). The 2009 and 2011 surveys, however, were conducted during the range (mid-July to mid-September) suggested in the Ute ladies'-tresses survey protocol published in 2011 by the BLM (BLM 2011a). Additionally, the timing of the surveys likely did not impact the results because little or no suitable habitat was documented within most of the areas surveyed during these years. Most of the areas surveyed in 2009 and 2011 were too heavily vegetated and/or disturbed by grazing to support the species. Other sites either lacked a floodplain or did not exhibit suitable hydrological characteristics.

2.4 Cumulative Effects

Cumulative impacts, in regard to an ESA analysis, include those effects of future state, private, or tribal activities (not involving Federal activities) that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR §402.02). Research was carried out to determine such projects that, when taken together with Gateway West, could have cumulative environmental impacts. Projects included in the assessment were those already in operation (i.e., existing projects that contribute to the existing environment), and those expected to take place during the 50-year life of Gateway West plus the 10 years it is estimated to take for substantial site rehabilitation following decommissioning. This list of projects includes activities that are known to the public through formal announcement and includes projects that have applied for a permit from a state or local agency. In some cases these projects are "on hold" and are not being actively pursued because of financial uncertainty; however, these projects are still listed in this section and considered in this analysis if the project proponent has not withdrawn the permit application from the state or local permitting entity. Note that federal actions are included in the list of past and existing projects, as these projects contribute to the existing baseline conditions of the area; however, reasonable foreseeable actions/projects in this analysis are limited to private and state actions as required by 50 CFR §402.02.

This cumulative effects analysis used the ranges for the species evaluated in the BA for its Analysis Area. These ranges were limited to the specific populations of interest (e.g., the distinct population segment assessed). Some species' ranges were broken out for this assessment to encompass differences in species use or management designations. Table 2-1 details the species ranges used for the analyses.

Streams were buffered during the analyses for aquatic species. For the Colorado, and North Platte Rivers, a 1-mile-wide buffer was analyzed from the stream centerline. This allowed the buffer to account for errors in stream digitization and variation in stream widths due to reservoir operations while still maintaining at least a 0.25-mile analysis distance from the river bank as a way to account for projects with potential water withdrawal activities in the stream corridor. The 0.25-mile minimum distance was selected as it is used in the North Platte Special Recreation Management Area for managing surface disturbing activities. Once projects were selected, they were reviewed for likelihood of impact to the area. Transmission line, pipeline, and road

crossings were not evaluated for impacts to Colorado and Platte River species, as the cumulative concern is regarding water withdrawals impacting flows downstream. Because the Snake River varies in width, a 0.25-mile buffer was used to capture the majority of the river and associated wetland habitat. The BLM uses this distance for restriction of surface disturbance from rivers as well. The Bruneau River centerline was buffered by 0.25 mile to conservatively estimate cumulative impacts to the Bruneau hot springsnail. The 0.25-mile distance is used by the BLM for surface disturbing activities. For the Bruneau River, this distance approximates the rim-to-rim distance of the canyon. Roads and stream crossings of all project types were evaluated for local impacts to the species.

Table 2-1. Cumulative Effects Analysis Areas, by Species

Species[1/]	Description
Grizzly bear	The Greater Yellowstone Distinct Population Segment range
Lynx linkage habitat	Generalized area to encompass lynx migration pathways within the population area near the project
Lynx habitat	Includes Critical Habitat and Lynx Analysis Units within the population area near the project
Preble's meadow jumping mouse	Known range in Wyoming
Black-footed ferret 10J	10J population range and distribution
Bull trout	Critical Habitat in the Upper Snake Recovery Unit, buffered 500 feet
Bruneau hot springsnail	Bruneau River with 0.25 mile buffer from stream centerline
Snake River invertebrate species	Snake River with 0.25 mile buffer from stream centerline
Colorado River species	Colorado River with 1 mile buffer from stream centerline
Platte River species	North Platte and Platte Rivers with 1 mile buffer from stream centerline
Slickspot peppergrass critical habitat	Area considered for Critical Habitat designation
Slickspot peppergrass habitat	Occupied and potential habitat areas

1/ Some species are broken out due to habitat/management use (Canada lynx and black-footed ferret), while others are grouped together (species in the Colorado, Snake and Platte Rivers), as effects are assessed in the BA as a unit.

Bull trout critical habitat is designated in Washington, Oregon, Idaho, and Montana, however only the Recovery Unit that would be crosses by the Project is the Upper Snake Recovery Unit. Therefore the cumulative effects analysis examined existing and potential projects within 500 feet of the designated critical habitat for bull trout in the Upper Snake Recovery Unit. The 500-foot buffer is reflective of the maximum riparian buffer distance used in many BLM management prescriptions. Roads and stream crossings of all project types were evaluated for local impacts to the species.

Additionally, while blowout penstemon and Ute's ladies tresses are both species considered in the BA, specific data on existing habitat and occurrence were not available for cumulative assessment so data related to existing or reasonable foreseeable project in their range/habitat is not available. Potential projects such as additional development of mineral leases have the potential to impact these plant species by direct disturbance and water withdrawals, in addition to proposed actions such as wind farms and transmission line projects.

Existing and potential projects that could occur within these ranges were quantified using the best available information. Data for power generation facilities, transmission lines, pipelines, roads, and mining were incorporated into this analysis. As oil wells are

extensive, the area for the leases and extent of oil and gas fields was assessed for additional impacts within the species' ranges. Table 2-2 lists the data sources used in the cumulative effects analyses.

Table 2-2. Data Sources of the Cumulative Effects Analysis

Resource	File Name	Source Information
Mining Extraction	FEIS_Coal_Deposits_20121217	GIS file provided by Bothell office - source is listed as Daniel Earnest
	FEIS_Cumulative_Coal_Leases_20121217	BLM GeoCommunicator and LR2000
	FEIS_Cumulative_OG_Leases_20121217	BLM GeoCommunicator and LR2000
	FEIS_OG_Fields_20121217	Wyoming State Geologic Survey
	FEIS_OG_Wells_IGS_20120709	Idaho Geologic Survey
	FEIS_OG_Wells_WOGCC_20120709	Wyoming Oil and Gas Conservation Commission
	FEIS_SM_Auth_20120722	BLM GeoCommunicator and LR2000
	FEIS_Trona_Deposits_20121217	GIS file provided by Bothell office - source is listed as Daniel Earnest
	FEIS_Uranium_Permit_Areas_20121217	Parcels extracted from BLM GCDB based on BLM map of Lost Creek Project
Power Generation	FEIS_Power_Generators_20130108	Various - see "Source" field in attribute table
	wind_farms_region	Ventyx 2012
Transmission lines	Ventyx_Tlines_Existing	Ventyx 2012
	Ventyx_Tlines_Proposed	Ventyx 2012
	Zephyr	Digitized from online map originally at http://www.datcllc.com/datc-projects/zephyr/
Pipelines	ng_pipe_polyline maj_oil_pipe_polyline	Ventyx 2012
Roads	Mjrrds	ESRI

Only projects occurring within the selected species ranges were considered for the cumulative effects analysis. Projects were categorized by status (proposed or existing), project-type, jurisdiction, footprint, and species affected. Projects classified as "Federal" include those that trigger the National Environmental Policy Act (NEPA) process, usually by virtue of being sited on federal lands, including those owned or managed by the BLM, Forest Service, Bureau of Reclamation, and USFWS. NEPA may also be triggered by non-land-based permitting or licensing, such as FERC licensing of hydropower plants. Federal nexus is not always inferable through raw geographic information system (GIS) data, though reasonable additional research was performed when necessary in order to ensure accurate reporting. Projects classified as "State" include projects existing or proposed for siting on lands owned or managed by a State agency (IDFG, for instance). The "Tribal" land, or Indian Reservation classification was based directly on the GIS data, and projects classified as "Private" are understood to be sited entirely on privately-owned lands, though in the case of proposed projects as the project proceeds, federal or state nexus may be triggered, thereby requiring a NEPA analysis. As described above, this is not always clear based on GIS data.

3 ENVIRONMENTAL BASELINE, CURRENT STATUS, AND HABITAT USE

The proposed Project would cross two major ecological zones: Temperate Steppe and Temperate Mountain. Ecoregions crossed are (from east to west): Northwestern Great Plains, Southern Rockies, Wyoming Basin, Wasatch and Uinta Mountains, Middle Rockies, and Northern Basin and Range. The most common vegetation types crossed by the Project are sagebrush/grasslands (41 percent of miles crossed), disturbed grassland (14 percent), disturbed sagebrush/grasslands (10 percent), and agriculture (10 percent). Other vegetation types present are dwarf shrub and greasewood (5 percent each); juniper and saltbush (3 percent each); deciduous forest and conifer forest (2 percent each); wetland/riparian and disturbed/developed (1 percent each); and native grass, other shrub, water, and miscellaneous (less than 1 percent each). Most native shrublands and grasslands in the Action Area have had some level of disturbance due to agriculture and rangeland practices, fire, residential developments, as well as industrial development (e.g., oil, gas, mining, wind-farms, pipelines, transmission lines). The existing baseline conditions of the general habitat along the Project are addressed in Sections 3.6.1.5, 3.7.1.5, 3.8.1.5, 3.9.1.5, 3.10.1.5, and 3.11.1.5 of the EIS.

The list of threatened and endangered species considered for this Project was compiled for Wyoming by querying the Information, Planning, and Conservation System (IPaC), part of the Environmental Conservation Online System run by USFWS (list was generated on June 12, 2012); for Idaho, the list was compiled using “Endangered, Threatened, Proposed, and Candidate Species With Associated Proposed and Critical Habitats (Updated August 17, 2011),” from the USFWS Idaho Office (printed June 14, 2012).

The Proponents, in coordination with the USFWS, have determined that some of the threatened and endangered species from this query do not have the potential to occur in the Action Area and therefore will not be fully analyzed in this BA. Table 3-1 lists the threatened and endangered species in Idaho and Wyoming that were determined not to have a potential to occur in the Action Area. The Project would have no effect to these species as they are not located within the Action Area, and as a result, they will not be addressed further within the BA.

Table 3-1. Federally Threatened and Endangered Wildlife and Plant Species in Idaho and Wyoming that were determined to not have the Potential to Occur in the Action Area

Species	Status	Fully Analyzed in this Biological Assessment?	Rationale
Mammals			
Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*)	Threatened	No	This species has a very restricted range, and is only found in Adams and Valley Counties in west-central Idaho. The Project is not located in either one of these counties, and so does not overlap this species' current range. The closest know occurrence of this species is located about 60 miles north of the Project's Segment 8. As a result, the Project is not expected to impact Northern Idaho ground squirrel.
Selkirk Mountains woodland caribou (*Rangifer tarandus caribou*)	Endangered	No	This population of caribou is found in extreme northeastern Washington, northern Idaho, and southern British Columbia (48 *Federal Register* 1722). The closest this subspecies is found to the Project is along the Pend Oreille River in northern Idaho, approximately 300 miles to the north. As a result, the Project is not expected to impact Selkirk Mountains woodland caribou.
Fish			
Bull trout (*Salvelinus confluentus*)	Threatened	No	The Project crosses the Bruneau River, which has the potential to be used for foraging, migration, and overwintering by the Jarbidge River DPS of bull trout (USFWS 2004). At this time, bull trout have not been documented to use the Bruneau River, although the Bruneau River has been designated as bull trout critical habitat. Use of the Bruneau River by bull trout remains unconfirmed; therefore, the Project is not expected to impact bull trout.
Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened	No	Two evolutionarily significant units (ESUs) of Chinook salmon occur in the vicinity of the Action Area: Snake River fall Chinook, and Snake River spring/summer Chinook. Snake River fall Chinook occur along the mainstem Snake River from the mouth in Washington to Hells Canyon Dam on the Oregon-Idaho border, and in the first few river miles of certain large tributaries, including the Tucannon, Grande Ronde, and Clearwater Rivers (Waples et al. 1991). Adult fall Chinook migrate past Bonneville Dam on the Columbia River from August to October (Waples et al. 1991). Adult spring/summer Chinook migrate past Bonneville Dam from early March through August (Good et al. 2005). Passage for both of these ESUs is blocked at Hells Canyon Dam on the Snake River, over 100 miles north of the Action Area. Hells Canyon Dam is the closest location of Snake River fall Chinook, while the Salmon River basin, approximately 70 miles to the north of the Action Area, is the closest occurrence of Snake River spring/summer Chinook.; therefore, the Project is not expected to impact Chinook salmon.

Table 3-1. Federally Threatened and Endangered Wildlife and Plant Species in Idaho and Wyoming that were determined to not have the Potential to Occur in the Action Area (continued)

Species	Status	Fully Analyzed in this Biological Assessment?	Rationale
Kendall warm springs dace (*Rhinichthys osculus thermalis*)	Endangered	No	This species is restricted to Kendall Warm Springs, which is approximately 80 miles north of Segment 4 of the Project, and no Project activities would be taking place upstream of this species' range. Therefore, the Project is not expected to impact Kendall Warm Springs dace.
Sockeye salmon (*Oncorhynchus nerka*)	Endangered	No	The closest ESU of sockeye salmon to the Action Area is Snake River sockeye. The only extant population in this ESU is in Redfish Lake, approximately 80 miles to the north of Segment 8. Passage for this fish into the Action Area from the ocean is blocked by Hells Canyon Dam, approximately 100 miles north of the Action Area. Therefore, this Project is not expected to impact sockeye salmon.
Steelhead (*Oncorhynchus mykiss*)	Threatened	No	The closest ESU of steelhead to the Action Area is Snake River steelhead. The passage of Snake River steelhead from the ocean into the Action Area is blocked by Hells Canyon Dam, approximately 100 miles to the north. The closest these fish can be found to the Action Area as the crow flies is in the Salmon River basin, approximately 70 miles north of Segment 8. Therefore, the Project is not expected to impact steelhead.
White sturgeon (Kootenai River population) (*Acipenser transmontanus*)	Endangered	No	The closest area (in comparison to the Action Area) known to contain the Kootenai River population of white sturgeon is in the northern panhandle of Idaho, over 350 miles to the north. Therefore, the Project is not expected to impact white surgeon.
Amphibians			
Wyoming toad (*Bufo baxteri*)	Endangered	No	This species is known only from Mortenson Lake (NatureServe 2011), which is approximately 60 miles southeast of Segment 2 in Albany County. Therefore, the Project is not expected to impact the Wyoming toad.
Plants			
Colorado butterfly plant (*Guara neomexicana* ssp. *coloradoensis*)	Threatened	No	This plant's range is limited to Laramie and Platte Counties in Wyoming, western Kimball County in Nebraska, and Weld County in Colorado. It is only known to occur in approximately 17 locations located in a small geographic area, measuring approximately 60 miles by 60 miles. The Action Area does not lie in either one of the Wyoming counties from which this plant is known; therefore, the Project is not expected to impact Colorado butterfly plant.

Table 3-1. Federally Threatened and Endangered Wildlife and Plant Species in Idaho and Wyoming that were determined to not have the Potential to Occur in the Action Area (continued)

Species	Status	Fully Analyzed in this Biological Assessment?	Rationale
Desert yellowhead (*Yermo xanthocephalus*)	Threatened	No	The desert yellowhead is sparsely distributed across an area of only 50 acres in southeastern Fremont County, Wyoming (67 *Federal Register* 11442). The only known location where this species occurs, despite intensive survey efforts, is one small area of southeastern Fremont County, which is not in the Action Area. Therefore, the Project is not expected to impact desert yellowhead.
MacFarlane's four-o'clock (*Mirabilis macfarlanei*)	Threatened	No	This plant occurs in Idaho and Oregon only at three sites: along the Snake River in Idaho County, Idaho; along the Salmon River in Idaho County, Idaho, and along the Imnaha River in Wallowa County, Oregon. The closest of these to the Action Area is about 130 miles to the north, and therefore the Project is not expected to impact MacFarlane's four-o'clock.
Spalding's catchfly (*Silene spaldingii*)	Threatened	No	The closest known occurrence of Spalding's catchfly to the Project is approximately 120 miles to the north, and therefore the Project is not expected to impact Spalding's catchfly.
Water howellia (*Howellia aquatilis*)	Threatened	No	Water howellia is known from Latah County, Idaho; Spokane, Clark, and Pierce Counties, Washington; and Lake and Missoula Counties, Montana (USFWS 1996b). The closest known occurrence of this plant to the Project is over 150 miles to the north, and therefore the Project is not expected to impact water howellia.

Table 3-2 lists all of the federally listed wildlife and plant species that could occur in the Action Area. As these species could occur within areas that would be affected by the Project they have been fully analyzed in this BA.

Table 3-2. Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming, Whether Each is Analyzed in the Biological Assessment, and the Rationale

Species	Status	Fully Analyzed in this BA?	Rationale
Colorado River Species			
Colorado pikeminnow (*Ptychocheilus lucius)*	Endangered	Yes	These species occur downstream of the Project in the Colorado River basin. Water withdrawals from the Colorado River basin would occur due to the Project; therefore, the Project has the potential to affect these species.
Razorback sucker (*Xyrauchen texanus*)	Endangered		
Bonytail chub (*Gila elegans)*	Endangered		
Humpback chub (*Gila cypha*)	Endangered		
Platte River Species			
Interior least tern (*Sterna antillarum athalassos*)	Endangered	Yes	These species occur downstream of the Project in the Platte River basin. Water withdrawals from the Platte River basin would occur due to the Project; therefore, the Project has the potential to affect these species.
Piping plover (*Charadrius melodus*)	Threatened		
Whooping crane (*Grus americana*)	Endangered		
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered		
Western prairie fringed orchid (*Platanthera praeclara*)	Threatened		
Mammals			
Black-footed ferret (*Mustela nigripes*)	Endangered	Yes	The project traverses areas recently considered as non-block-cleared areas; however, the USFWS has recently block-cleared the entire State of Wyoming
	Nonessential, experimental population	Yes	Borders of the 10(j) population would be crossed by the Project
Canada lynx (*Lynx canadensis*)	Threatened	Yes	Lynx linkage habitat would be crossed along Segment 4.
Grizzly bear (*Ursus arctos*)	Threatened	Yes	The Action Area passes through the southern part of the Yellowstone Distinct Population Segment.
Preble's meadow jumping mouse (*Zapus hudonius preblei*)	Threatened	Yes	Suitable habitat occurs within the Action Area.
Fish			
Bull trout critical habitat	Designated	Yes	Bull trout critical habitat is crossed by the Project

Table 3-2. Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming, Whether Each is Analyzed in the Biological Assessment, and the Rationale (continued)

Species	Status	Fully Analyzed in this BA?	Rationale
Invertebrates			
Banbury Springs limpet (*Lanx* sp.)	Endangered	Yes	The entire known range of this species lies between Segments 8 and 9
Bliss Rapids snail (*Taylorconcha serpenticola*)	Threatened	Yes	The entire known range of this species lies between Segments 8 and 9
Bruneau hot springsnail (*Pyrgulopsis bruneauensis*)	Endangered	Yes	The entire known range of this species is just south of Segment 9
Snake River physa snail (*Physa natricina*)	Endangered	Yes	The entire known range of this species lies between Segments 8 and 9
Plants			
Blowout penstemon (*Penstemon haydenii*)	Endangered	Yes	Detailed vegetation mapping indicates that no sand dune habitat occurs within the Action Area; however, the USFWS has indicated that all portions of the Action Area in Wyoming are within the potential range for this species (USFWS 2012b); therefore, this species will be analyzed in this document.
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	Yes	This plant could be found in potential habitat along Segments 1W, 2, 3, 4, and 5.
Slickspot peppergrass (*Lepidium papilliferum*)	Proposed Endangered	Yes	Action Area intersects occupied habitat, slickspot peppergrass habitat, and potential habitat for this species, and despite incorporation of conservation measures some adverse impacts to the species and its habitat are anticipated.

The following subsections discuss the status, life history, and applicable baseline conditions for each listed species that could occur within the Action Area. Note that impacts to these species are discussed in Section 4.

3.1 Colorado River Species

The portion of the Action Area in southwestern Wyoming drains into the Colorado River watershed. The UCEFRP was established in 1988, and enacts conservation measures to minimize adverse effects to four endangered fish (Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub) and their critical habitat. This program addresses effects on these four listed fish and their critical habitat from water withdrawals that occur upstream of locations where these fish and their designated critical habitat occur. *De minimis* depletions (less than 0.1 acre-feet per year) require no depletion fee and would result in a *no effect* determination for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub and their designated critical habitat. Small depletions (between 0.1 and 100 acre-feet per year) require no

depletion fee, but would require consultation and would result in a *may affect, likely to adversely affect* determination for these fish species and a *may affect, but not likely to adversely affect* determination for their designated critical habitat. According to the UCEFRP, any depletions greater than 100 acre-feet per year require a one-time depletion fee, and depletions would require consultation, and determinations would be *may affect, likely to adversely affect* for the fishes and a *may affect* determination for their critical habitat (McKee 2012a). However, the USFWS has indicated that if the entirety of this depletion is drawn from depletion locations for which consultation has already taken place, this project would not be considered to have additional withdrawal. This would result in no new effects to both the fish species and their designated critical habitat (McKee 2012a). If only part of water withdrawals can come from depletions for which consultation has taken place, the portion that has been consulted on can be subtracted from the total amount, and effects determinations may be based on the remaining amount. In order to calculate the number of acre-feet per year, the total amount of water withdrawn is divided over the life of the Project, not necessarily over the number of years during which water would actually be withdrawn (Abbott 2012). None of the four ESA-listed fish covered under the UCEFRP or their critical habitat (Figure 3-1) are found in the Action Area (USFWS 1990a, 2002c, 2002d, 2002e; 59 *Federal Register* 13374); however, they do occur downstream of the Action Area and an analysis of effects is required based on the UCEFRP.

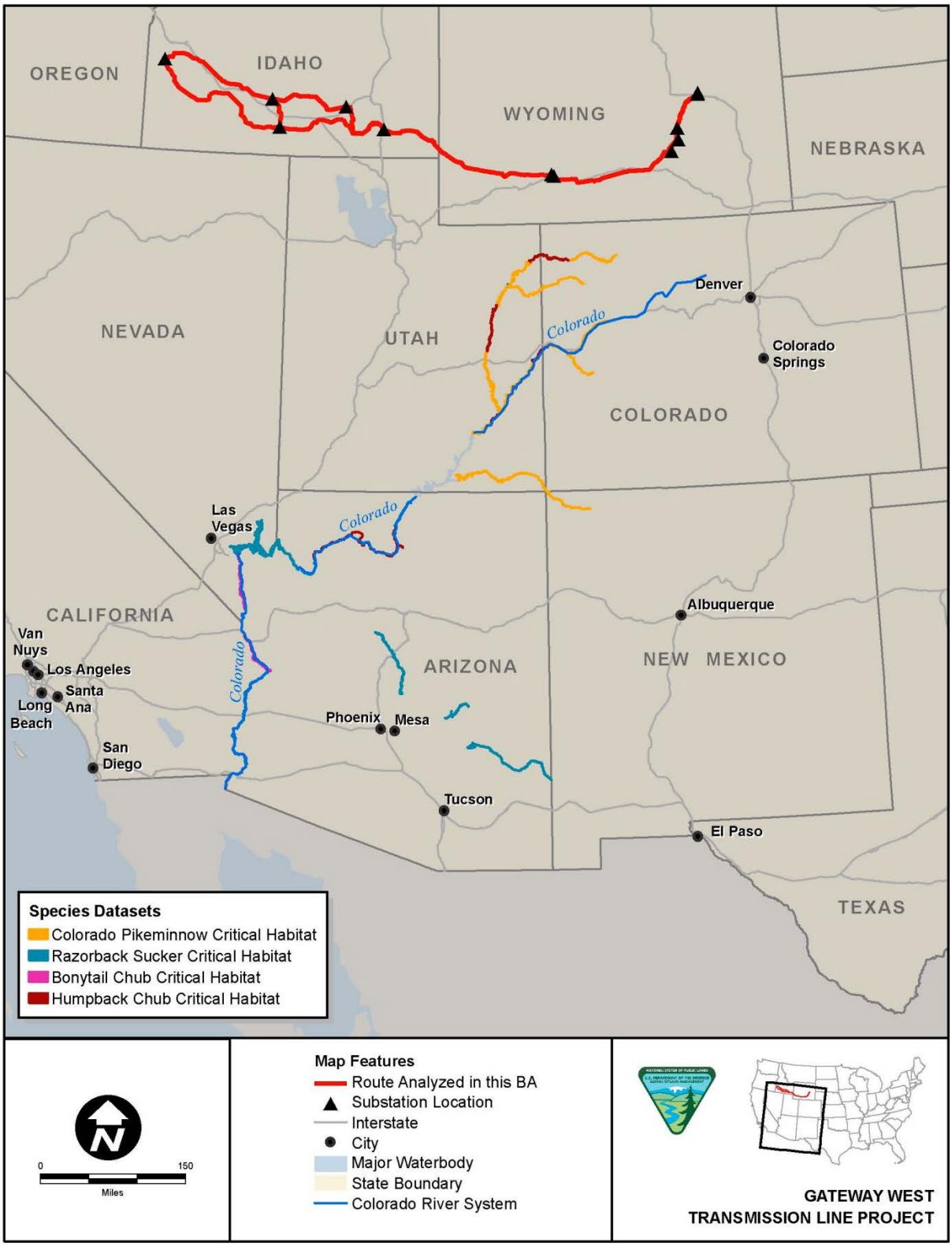

Figure 3-1. Critical Habitat for the Four Species of Endangered Fish in the Colorado River Basin Addressed under the Upper Colorado Endangered Fish Recovery Program

3.2 Platte River Species

The eastern end of the Project, in central Wyoming, drains into the Platte River watershed. Federally listed species that could be affected by flow depletion in the Platte River watershed are the pallid sturgeon, interior least tern, and whooping crane, which are listed as endangered; and the piping plover and western prairie fringed orchid, which are listed as threatened. Portions of the Platte River are also designated as critical habitat for the whooping crane. Critical habitat for piping plover has been designated, but not in the Platte River basin; the other three species have no proposed or designated critical habitat. The PRRIP, established in 1997, implements actions designed to assist in the conservation and recovery of these target species and their associated habitats along the central and lower Platte River in Nebraska through a basin-wide cooperative approach agreed to by the states of Wyoming, Nebraska, and Colorado, as well as the U.S. Department of the Interior. The PRRIP addresses the adverse impacts of existing and certain new water-related activities on the Platte River target species and associated habitats, and provides ESA compliance for effects to the target species. The State of Wyoming is in compliance with its obligations under the PRRIP. The Wyoming State Engineer's Office is responsible for determining if a water withdrawal is an existing or new water withdrawal and what level of withdrawal it constitutes. The level of withdrawal for a temporary industrial use would depend on the amount of depletion, and the existing conditions of the river at the time of the depletion. For federal actions and projects participating in the PRRIP, the PRRIP Final EIS (Bureau of Reclamation and USFWS 2006) and the June 16, 2006, programmatic Biological Opinion (USFWS 2006a) serve as the description of the environmental baseline and environmental consequences for the effects of the federal actions on the listed target species. Under the 2006 Programmatic Biological Opinion, any depletion from the Platte River system less than 0.1 acre-feet per year would result in a *no effect* determination for the targeted species and whooping crane critical habitat, and would not require consultation with USFWS. Depletions greater than 0.1 acre-feet per year would require consultation, and would result in a *may affect, likely to adversely affect* determination for the targeted species and a *may affect, not likely to adversely affect* determination for designated whooping crane critical habitat (McKee 2012a). The USFWS has indicated that if all water can be drawn from depletions for which consultation has already taken place, this would not be considered an additional withdrawal and would result in no new effects to either the species or whooping crane designated critical habitat (McKee 2012a). However, in certain situations where the State Engineer's Office determines that the new water withdrawal would constitute a change in use than the previous consultation addressed the *no effect* call may not be possible (McKee 2012b). In order to calculate the number of acre-feet per year, the total amount of water withdrawn is divided over the life of the Project, not necessarily over the number of years during which water would actually be withdrawn (Abbott 2012). No depletion fee is associated with the PRRIP (McKee 2012a). None of the ESA-listed wildlife or plant species covered under the PRRIP or whooping crane critical habitat (Figure 3-2) are found in the Action Area (USFWS 1988a, 1990b, 1996a; Dryer and Sandvol 1993; CWS and USFWS 2007; 43 *Federal Register* 20938); however, they do occur downstream of the Action Area and an analysis of effects is required based on the PRRIP.

Figure 3-2. Designated Whooping Crane Critical Habitat in relation to the Gateway West Project

3.3 Mammals

Four federally threatened or endangered mammal species have the potential to occur in the vicinity of the Action Area, including the black-footed ferret, Canada lynx, grizzly bear, and Preble's meadow jumping mouse.

3.3.1 Black-Footed Ferret (10(j) Nonessential, experimental population)

Black-footed ferrets occur within the Action Area, where it comes near the 10(j) reintroduction area (i.e., the region where black-footed ferrets have been successfully reintroduced into the wild). The regulatory status of experimental nonessential would apply here and as will be discussed in detail below, the USFWS has agreed that wild ferret populations outside this area are not be expected. Again, efforts to save this species, including the reintroduction of black-footed ferrets into the wild (which includes the Shirley Basin 10(j) population within the Action Area) have been successful and the USFWS has determined that recovery and conservation will benefit from a recent decision to block-clear the entire rest of the State of Wyoming. The re-introduced populations are considered a nonessential experimental population and, by BLM policy, they are treated as an ESA proposed species (i.e., not protected under ESA from unintentional take).

3.3.1.1 Status

The black-footed ferret was once described as "the rarest of North American mammals" (Whitaker 1980). This member of the weasel family was first designated as "endangered" by the Bureau of Sport Fisheries and Wildlife in 1966. It was then listed as "threatened with extinction" in March 1967, and its current status is endangered under the ESA. The USFWS in coordination with state wildlife agencies, have "block-cleared" the State of Wyoming, after determining that areas outside the reintroduction sites are no longer capable of supporting any wild, free-ranging black-footed ferrets. Block clearance means that activities within these areas that result in the removal of white-tailed or black-tailed prairie dogs or their habitat will no longer be required to meet the USFWS survey guidelines for black-footed ferrets, or undergo consultation under section 7 of the ESA.

Black-footed ferrets were thought to be extinct until a small population was discovered in a prairie dog colony west of Meeteetse, Wyoming, in 1981. This population was decimated by outbreaks of canine distemper and sylvatic plague in 1986–1987 (WGFD 2005). In 1991 through 2003, several nonessential experimental populations were established using reintroductions throughout the western and Midwestern U.S., the first of which was in the Action Area (i.e., in the Shirley Basin/Medicine Bow Management Area of southeastern Wyoming; 56 *Federal Register* 41473). This population is called the Shirley Basin 10(j) population (hereafter referred to as "10(j)"). This re-introduced population is considered a nonessential experimental population and is treated as an ESA proposed species (i.e., not protected from unintentional take).

3.3.1.2 Threats

Threats to black-footed ferrets can be evaluated by assessing threats to prairie dogs (i.e., their primary prey source). Once abundant, prairie dogs have been the subject of a deliberate eradication program across much of their range. In addition, much of the

open grassland habitat utilized by prairie dogs has been converted to agricultural uses; thereby resulting in habitat loss. Some estimates put the reduction in prairie dog populations since the 1900s to the present at 90 to 95 percent (USFWS 1988b). Strychnine and phostoxin gas have been used to control prairie dogs, and black-footed ferrets declined correspondingly (USFWS 1988b).

In Wyoming, disease has been identified as the most influential variable affecting black-footed ferret population dynamics (USFWS 1988b). Sylvatic plague is an exotic pathogen to which prairie dogs have no known natural immunity. The disease is highly infectious, and the death rate following infection is nearly 100 percent (Johnson et al. 2011). Black-footed ferrets can contract sylvatic plague through bites from infected fleas, or by consuming infected prey (NatureServe 2011). Another disease that has been known to impact this species is canine distemper (USFWS 1988b).

3.3.1.3 Species Recovery

After the rapid decline of the remaining black-footed ferret population near Meeteetse, the 18 remaining individuals were captured and used as breeding stock for reintroductions throughout the Interior West and Mexico, which have been largely successful. A recovery plan was published for the black-footed ferret in 1988. The objective of this plan was to ensure the immediate survival of the black-footed ferret by a) increasing the captive population of breeding black-footed ferrets to 200 by 1991, b) establishing a wild population of 1,500 breeding adults in at least 10 populations by 2014, and c) encouraging the widest possible distribution of reintroduced black-footed ferrets (USFWS 1988b). As of 2008, approximately 350 adults occurring in four successful reintroduced populations (i.e., Aubrey Valley, Cheyenne River Indian Reservation, Conata Basin, and Shirley Basin 10(j)); or approximately 23 percent of the goal of 1,500 free-ranging adults. There is an estimated 700 total individuals (when young are included) in these four reintroduced populations (USFWS 2008a).

3.3.1.4 Life History, Habitat Requirements, and Distribution

Black-footed ferrets are closely associated with prairie dogs, both as a prey item and because black-footed ferrets use prairie dog burrows for shelter and den sites (56 *Federal Register* 41473); in fact, there have been no records of black-footed ferrets breeding outside of prairie dog colonies (56 *Federal Register* 41473). Black-footed ferrets hunt prairie dogs at night. Other animals taken include mice, gophers, and ground squirrels. Habitat requirements for the black-footed ferret are the same as for prairie dogs: open grasslands, steppe, and shrub steppe (NatureServe 2011).

The historical range is thought to be almost entirely coincident with that of the three North American prairie dog species, with an estimated 85 percent of ferrets occurring in black-tailed prairie dog (*Cynomys ludovicianus*) habitat, 8 percent in Gunnison's prairie dog (*C. gunnisoni*) habitat, and 7 percent in white-tailed prairie dog (*C. leucurus*) habitat (USFWS 1988b, 2008). This area stretched from the great plains of Canada to the southwestern U.S., possibly into northern Mexico (USFWS 1988b). Historic distributions are thought to have encompassed 16 million acres in Wyoming; however, the current estimates place it at around 125,000 acres (USFWS 2000a). Currently, this species is found at 18 reintroduction sites in Montana, Wyoming, South Dakota, Utah, Colorado, Kansas, Arizona, New Mexico, and Mexico (USFWS 2008a).

Reintroduction of black-footed ferrets in Wyoming (i.e., the 10(j) population) occurred at the 2,068 square mile white-tailed prairie dog complex in the Shirley Basin/Medicine Bow Management Area in 1991 (BLM 2005). Two hundred and twenty-eight ferrets were released over a four-year period at this site. As discussed above, this population is considered a nonessential experimental population. The distribution of this population in relation to the Project is shown in Figure 3-3.

The 10(j) population discussed above is the only known population of black-footed ferrets in Wyoming and all other areas of the State have been block cleared, meaning that there is no requirement of survey or conduct Section 7 Consultation for these remaining areas.

3.3.1.5 Population Status

The global status of the black-footed ferret is critically Imperiled (NatureServe 2011). Of the 18 extant populations of black-footed ferret, 4 are considered successful, 2 improving, 2 marginal, 2 unsuccessful, and 6 recent (initiated within the past 3 years).

The Shirley Basin population (i.e., 10(j)) is currently classified as Successful, meaning it is self-sustaining, has at least 30 breeding adults, and can support translocations to other sites (USFWS 2008a).

3.3.1.6 Critical Habitat

No critical habitat has been designated for the black-footed ferret.

3.3.1.7 Environmental Baseline

Species Presence

The only known black-footed ferrets in the vicinity of the Action Area are in the Shirley Basin in Wyoming (i.e., 10(j)), along Segment 1W and the eastern end of Segment 2 (Figure 3-3).

Habitat

The range of the 10(j) black-footed ferret population covers approximately 2,762,029 acres along Segments 1W and 2 of the Project, in southeastern Natrona County, northeastern Carbon County, and northwestern Albany County (Figure 3-3; WGFD 2005). The Project would cross 6.3 miles of habitat within the predicted distribution of the 10(j)'s population (as defined by the USFWS within this species range; see Figure 3-3); with 5.7 miles consisting of shrubland habitats, 0.5 mile consisting of grasslands, and the remaining length consisting of disturbed/developed areas or wetlands.

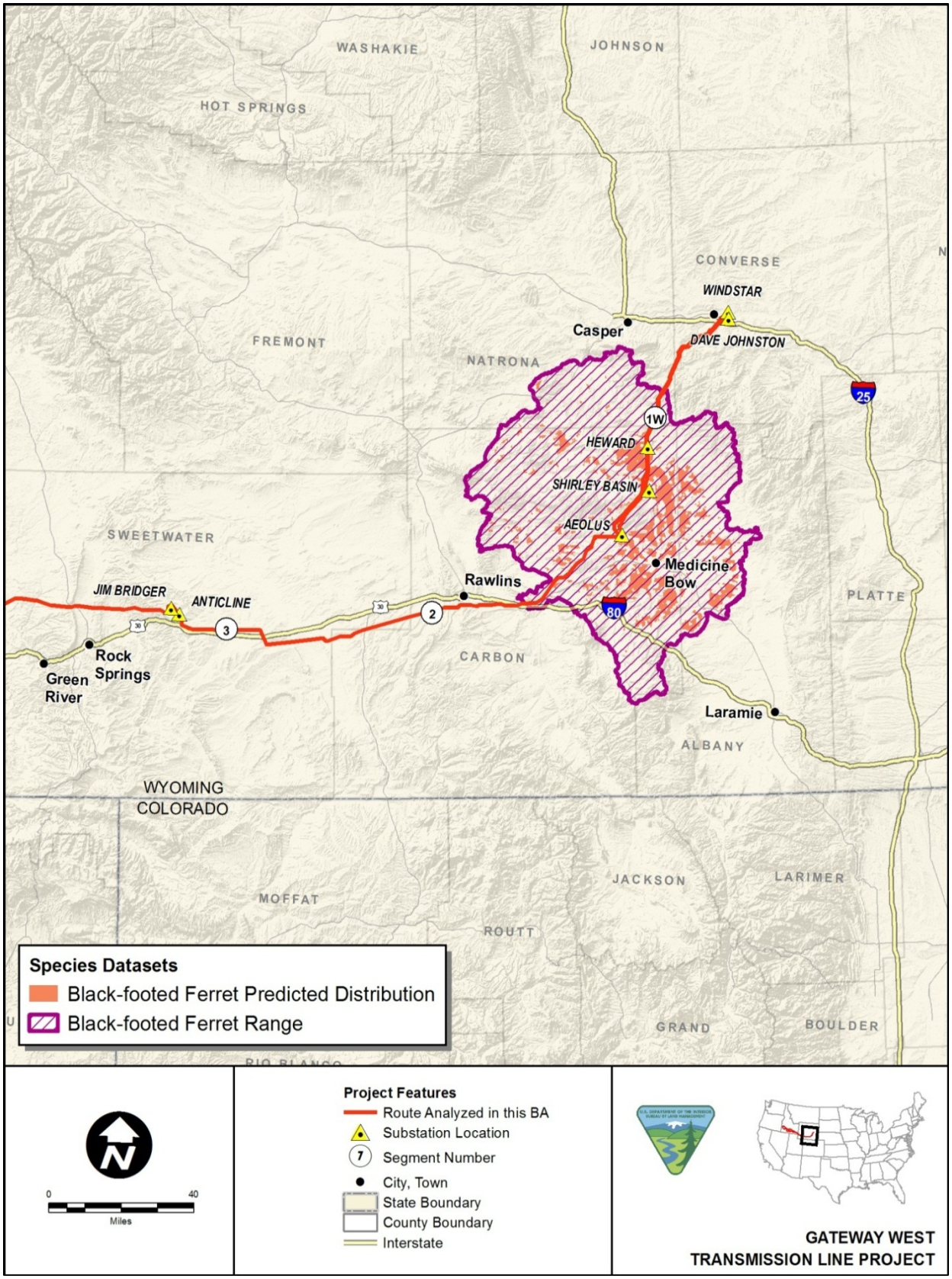

Figure 3-3. Black-footed Ferret Range and Predicted Distribution

Both white-tailed and black-tailed prairie dog colonies occur within the Action Area (Figure 3-3). Table 3-3 lists the number of white-tailed and black-tailed prairie dog colonies that would be crossed by the Project.

Table 3-3. Number of Black-Tailed and White-Tailed Prairie Dog Colonies Crossed by the Project

Segment Number	Prairie Dog Colonies
Black-Tailed Prairie Dog Colonies	
1W(a)	3
1W(c)	3
White-Tailed Prairie Dog Colonies	
1W(a)	3
1W(c)	4
2	3
3	2
3A	4
4	8

Critical Habitat

No critical habitat has been designated for the black-footed ferret.

3.3.2 Canada Lynx (Threatened)

3.3.2.1 Status

The USFWS listed the Canada lynx as threatened in April 2000 (65 *Federal Register* 16052). Critical habitat for this species was designated on November 2006, and revised on February 2009 (71 *Federal Register* 66007; 74 *Federal Register* 8616).

3.3.2.2 Threats

The original reasons for listing lynx were loss, modification, or curtailment of its habitat or range, inadequacy of existing regulatory mechanisms, high-traffic-volume roads, and loss of habitat connectivity (65 *Federal Register* 16052). Habitat changes can negatively impact populations of snowshoe hare (*Lepus americanus*), the primary prey of lynx, and red squirrel (*Tamiasciurus hudsonicus*), a common alternate prey species. Clearcutting that decreases stem density, does not allow trees to reach a mature age, or does not allow the buildup of down wood is detrimental to lynx. Certain timber management practices can also lead to monotypic stands with sparse understories, which are not conducive to lynx or snowshoe hares. Fragmentation can also negatively impact lynx; although they readily cross clearcuts when traveling, too many clearcuts can result in an insufficient amount of habitat for life processes.

Although overharvest was originally cited as a reason for lynx decline when the species was proposed for listing, new information at the time of listing showed that lynx naturally occur at low densities, especially at the southern extent of their range, and this does not necessarily indicate a declining population (65 *Federal Register* 16076). In the past decade, timber harvest within suitable lynx habitat has declined by approximately 80 percent in the western U.S.

3.3.2.3 Species Recovery

Most states in which the Canada lynx occurs disallow or regulate the trapping of this species, and hunting laws were not a factor in the listing of lynx. Other regulatory mechanisms, however, are inadequate to protect this species, especially those that regulate changes to and destruction of habitat. Few habitat management goals and actions are specific to Canada lynx protection. At the time of listing, USFWS believed that there was a potential for adverse effects to lynx from goals and management actions outlined in federal land management plans. A substantial amount of forested habitat suitable for lynx is located on federal lands, and many planned actions, such as timber sales and road construction, could impact lynx. There is also a lack of sufficient habitat management regulations specifically aimed at lynx.

Although no recovery plan for Canada lynx exists, a recovery outline for this species in the contiguous U.S. has been drawn up (USFWS 2005), which lists a recovery strategy and goals, and areas which could be used as reintroduction sites. Areas of important habitat for Canada lynx, called lynx analysis units (LAUs), have been identified by the Forest Service and BLM in Wyoming, in units approximating the size of a typical home range for a female lynx. LAUs are considered important habitat for lynx, and are assumed to be occupied on National Forest lands (Forest Service 2007). There are about 555,604 acres of LAUs in total within Wyoming. No LAUs would be crossed by the Project, although there are two BLM LAUs located near Segment 4 in Wyoming, approximately 3 to 6 miles to the north (see Figure 3-4).

3.3.2.4 Life History, Habitat Requirements, and Distribution

Lynx habitat is found generally at middle to upper elevations. Their habitat includes primarily cool, moist subalpine fir (*Abies lasiocarpa*) and Engelmann spruce (*Picea engelmannii*) forests, and moist lodgepole pine (*Pinus contorta*) forests. Cool, moist forests of Douglas-fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), western larch (*Larix occidentalis*), and aspen (*Populus tremuloides*) contribute to lynx habitat where intermingled with, or adjacent to, Engelmann spruce or lodgepole pine. In extreme northern Idaho, cedar (*Thuja* spp.) hemlock (*Tsuga* spp.) habitat types may also be considered primary habitat (USFWS 2008b). In central Idaho, Douglas-fir on moist, high-elevation sites may be considered primary habitat as well (USFWS 2008b). Lynx tend to have very large home ranges, varying from 15,000 to 30,000 acres or 10 to 20 square miles. Lynx are highly mobile, often making long-distance movements in excess of 60 miles. Studies have shown that they prefer contiguous forests and avoid large openings unless shrubs and trees provide enough hiding cover (Ruggiero et al. 1999). Lynx may also use lowland shrub habitats periodically, while dispersing between suitable high-elevation forest habitats, or while seeking shrub-dependent prey species (e.g., sage-grouse or jackrabbits [*Lepus* spp.]) while snowshoe hare populations are low (Ruediger et al. 2000).

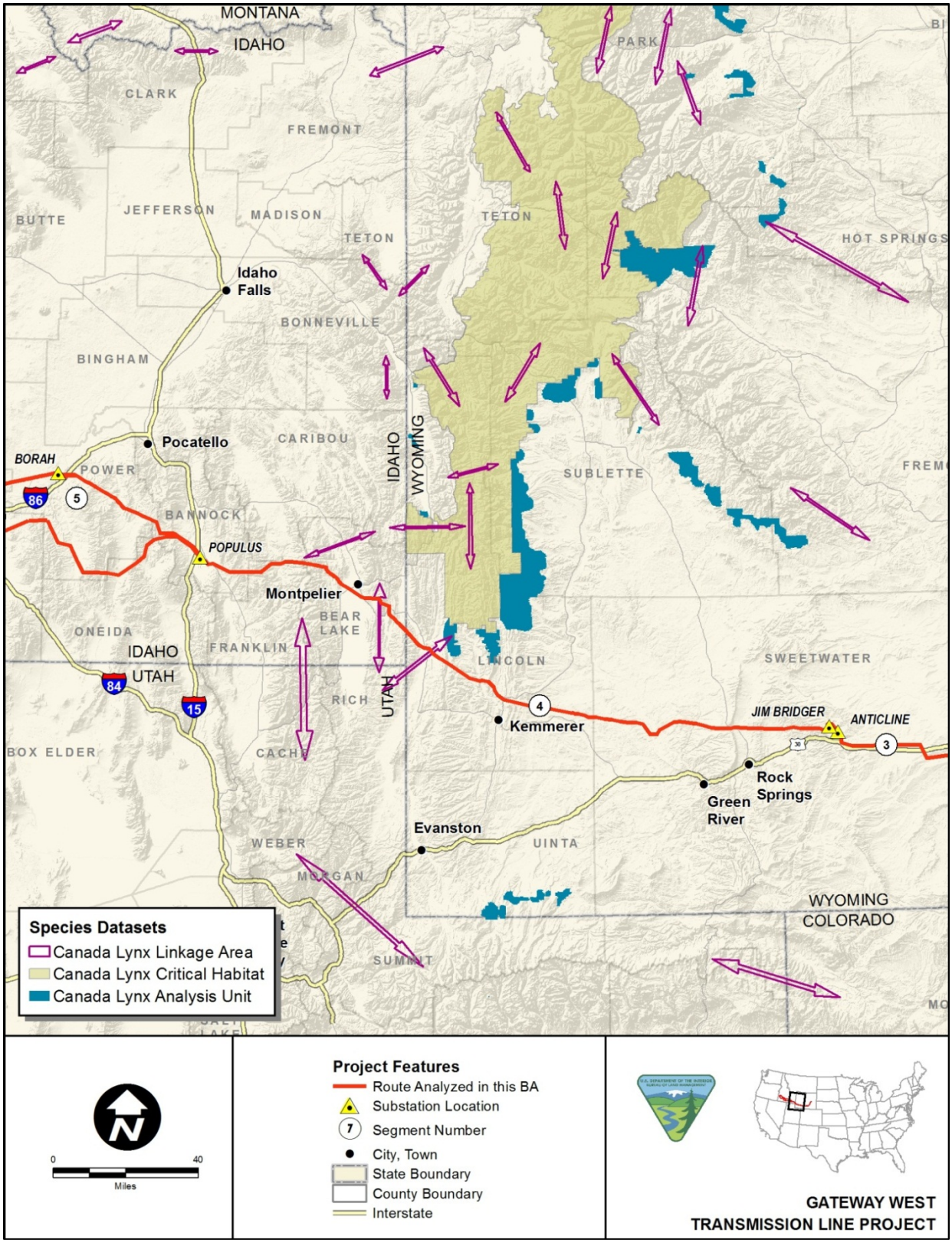

Figure 3-4. Canada Lynx Linkage Areas, Critical Habitat, and Analysis Units in the Action Area for the Gateway West Transmission Line Project Route

To protect the connectivity of this species' habitats, an interagency/intergovernmental panel has designated lynx linkage habitat in Idaho, Montana, Utah, and Wyoming. These areas consist of regions that provide landscape connectivity between blocks of primary lynx habitat (Forest Service 2007). Linkage areas occur both within and between geographic areas where blocks of lynx habitat are separated by intervening areas of non-lynx habitat such as basins, valleys, or agricultural lands.

Snowshoe hares are the primary prey of lynx, making up anywhere from 35 to 97 percent of the diet (Ruggiero et al. 1999); therefore, any action that impacts snowshoe hares can have consequences to lynx. Other small mammal species, such as red squirrels, may be an important alternate prey, especially where hare populations are low (Ruggiero et al. 1999).

3.3.2.5 Population Status

Although declines have occurred, this cat still apparently occurs throughout most of its historic range, and its global status is secure (NatureServe 2011). Current low numbers of Canada lynx in the southern part of their range may be natural, due to lower quality habitat at the periphery of their range (USFWS 2009, Murray 2008), and should not necessarily be interpreted as a downward trend in these areas. Due to the cyclic variability in lynx abundance (USFWS 2009), and limited monitoring in the southern extent of its range (USFWS 2009, Murray 2008), short-term recent trends are difficult to estimate.

3.3.2.6 Critical Habitat

In November 2006 (71 *Federal Register* 66007), the USFWS designated critical habitat for the contiguous United States distinct population segment (DPS) of the Canada lynx: three units in Minnesota, Montana, and Washington. Lynx critical habitat was revised most recently in February 2009, and was expanded by approximately 23.7 million acres to comprise five units in Maine, Minnesota, Montana, Wyoming, Idaho, and Washington (74 *Federal Register* 8616).

The Primary Constituent Element (PCE) is:

1. Boreal forest landscapes supporting a mosaic of differing successional forest stages and containing:
    a. presence of snowshoe hares and their preferred habitat conditions, which include dense understories of young trees, shrubs, or overhanging boughs that protrude above the snow, and mature multistoried stands with conifer boughs touching the snow surface;
    b. winter snow conditions that are generally deep and fluffy for extended periods of time;
    c. sites for denning that have abundant coarse woody debris, such as downed trees and root wads; and
    d. matrix habitat (e.g., hardwood forest, dry forest, non-forest, or other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

3.3.2.7 Environmental Baseline

Species Presence

In Idaho, lynx were likely never abundant, but were distributed sparsely throughout the northern part of the state. There are 35 verified records of lynx within the state between 1960 and 1991. NFs in Idaho that have mapped primary and secondary lynx habitat and identified LAUs include the Sawtooth and Targhee, and the likelihood of lynx occupancy in both of these forests is unlikely and likely, respectively (USFWS 2008b). Most records in Wyoming, both historical and recent, are from the northwestern mountain ranges, and only 30 verified records exist since 1956 (65 *Federal Register* 16052). Less than 100 individuals are currently estimated to live in each of Idaho and Wyoming (NatureServe 2011).

Habitat

The majority of the Action Area consists of unsuitable habitat for the Canada lynx, and no LAUs would be crossed, although two LAUs are only a few miles to the north of Segment 4.

Two linkage areas, through which lynx could conceivably travel, would be crossed by Segment 4 (Figure 3-4). The vegetation types within this general area consists prominently of sagebrush habitats (66 percent of the area), grasslands (16 percent of the area), and agricultural fields (10 percent of the area).

Critical habitat

Critical Habitat Unit (CHU) 5 lies approximately 10 miles to the north of Segment 4 in Wyoming (Figure 3-4).

3.3.3 Grizzly Bear (Threatened)

3.3.3.1 Status

In July 1975, the grizzly bear was designated as threatened in the conterminous United States under the ESA. On March of 2007, the USFWS announced that the grizzly bear's Yellowstone DPS had recovered and subsequently dropped their status as threatened under the ESA. In 2009, Montana District Court Judge Donald W. Molloy ruled that existing regulatory mechanisms outside the ESA were inadequate to protect the grizzly bears, and that the USFWS failed to adequately consider the impacts of global warming and other factors on food sources for the grizzly (especially whitebark pine), before delisting the Yellowstone DPS. Therefore, the Yellowstone DPS has been relisted as a threatened species under the ESA as of March 26, 2010 (75 *Federal Register* 14495).

3.3.3.2 Threats

The main reason for the decline of grizzly bears in the continental U.S. is overhunting (USFWS 1993, 72 *Federal Register* 14866). The primary threats to this species are road and trail construction resulting in habitat modification and increased access by hunters, overhunting, population isolation, increasing presence of humans and livestock within its range, and impacts to whitebark pine (a food source for grizzly bears). Before European settlement, an estimated 50,000 grizzly bears lived in the western U.S. (62

Federal Register 35762); today those numbers are much less. The reported population size for the number of remaining wild bears varies. According to the USFWS website (updated December 19, 2012), approximately 1,400 to 1,700 bears are supported by remaining habitat in the lower 48 states (USFWS 2012c). The Interagency Grizzly Bear Committee, in contrast, reports 1,200 to 1,400 wild bears remaining, in an update written by the USFWS on October 10, 2012 (IGCB 2012). In September 2011, the USFWS published a 5-year review, which estimated that around 1,480 bears occur in the remaining habitat in Montana, Idaho, Wyoming, and Washington (USFWS 2011a). While it is known that the populations and distribution have increased since 1975, there is no published information for conclusive comparisons to historic levels (USFWS 2011a).

3.3.3.3 Species Recovery

The Yellowstone DPS has increased from estimates as low as 136 individuals when this population was first listed in 1975, to more than 500 animals in 2006 (72 *Federal Register* 14866), with 582 individuals in 2010 (USFWS 2011a); population increases have occurred at a rate of 4 to 7 percent annually. The original recovery plan for this species was approved in 1982, and an updated plan was released in 1993. The recovery objective as stated in the plan revision is the delisting of each of the remaining grizzly bear populations as they achieve recovery targets. Actions needed are:

1. Minimize sources of human-bear conflict.
2. Limit habitat loss or degradation because of human actions such as road building, timber harvest, oil and gas exploration and development, mining, and recreation.
3. Improve habitat and/or security where applicable.
4. Understand the relationship between bear density and habitat value to better understand limiting factors.
5. Develop techniques to successfully move bears into areas where the populations are in need of augmentation.
6. Improve public relations and education to develop better support for and understanding of the species and to minimize adverse human actions.
7. Continue grizzly bear and habitat research to ensure adequate scientific knowledge is available on which to base management decisions (USFWS 1993).

The Primary Conservation Area (PCA) for the grizzly bear was established by the Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area (USFWS 2007a), and the 1993 Grizzly Bear Recovery Plan (USFWS 1993). The PCA contains the minimum seasonal habitat components necessary to support grizzly bear populations. The PCA encompasses 9,209 square miles (5,893,760 acres) within three states: southern Idaho, southwest Montana, and northwest Wyoming (USFWS 2007a; Figure 3-5). In addition, the USFWS has designated the boundaries of the Yellowstone DPS and the acreage of suitable habitat within the DPS (USFWS 2007a; Figure 3-5).

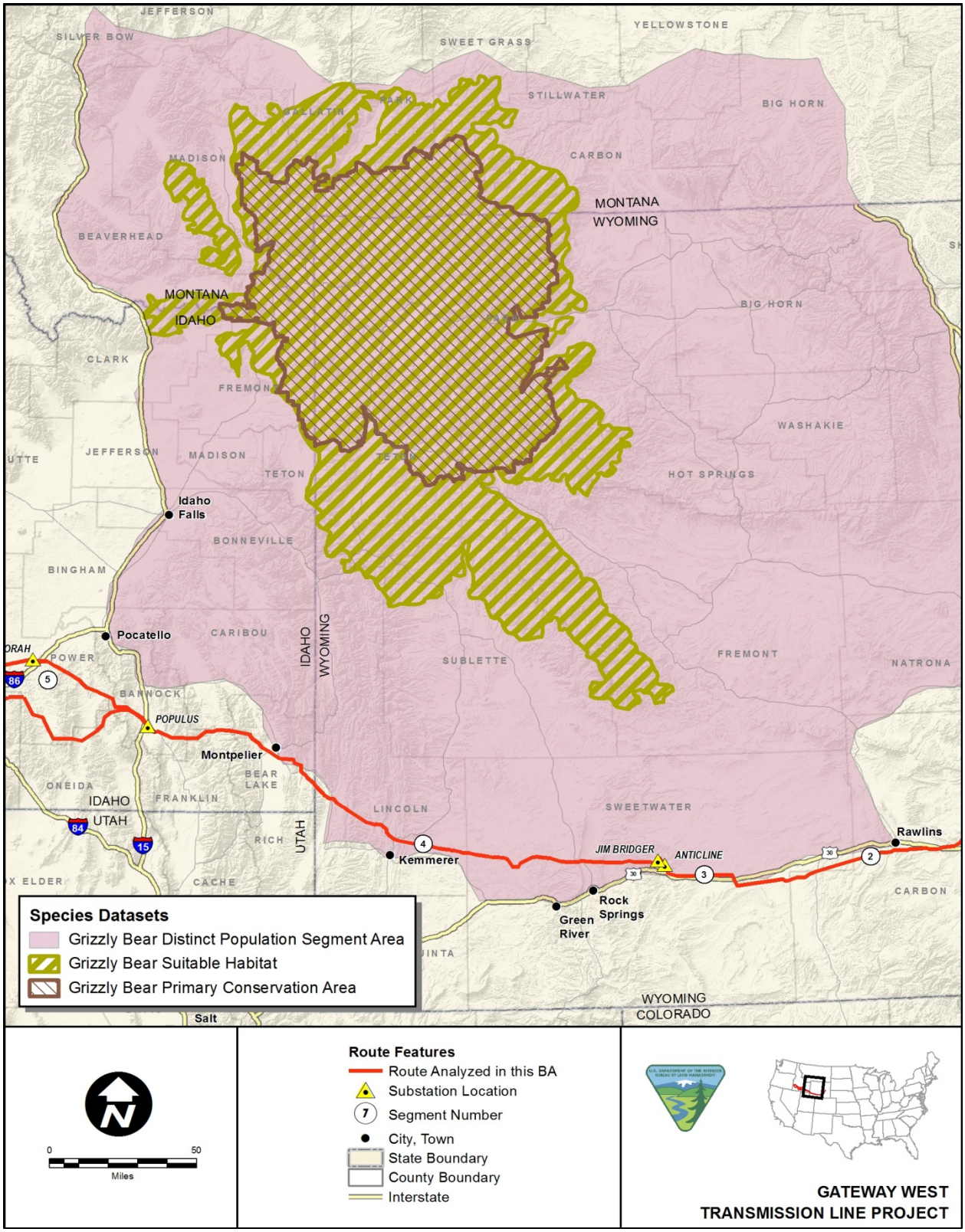

Figure 3-5. Borders of the Primary Conservation Area, Suitable Habitat, and the Distinct Population Segment (DPS) of Yellowstone DPS Grizzly Bears, and the Gateway Transmission Line Route

3.3.3.4 Life History, Habitat Requirements, and Distribution

Grizzly bears are habitat generalists; however, they are found most often in mountainous habitats, away from human developments. Forested areas interspersed with openings are often used, and one study found that only 1 percent of bears were found in dense forest more than a kilometer from an opening (Blanchard 1978, in USFWS 1993). The primary factors that determine the suitability and carrying capacity of habitat are overall habitat productivity, availability of food, and the level and types of human activities present. Food types utilized by the Yellowstone DPS grizzly bears vary by season, and can include ungulates, spawning cutthroat trout (*Oncorhynchus clarki*), whitebark pine seeds, and army cutworm moths (*Euxoa auxiliaris*; USFWS 2007a). In fact, impacts to the whitebark pine due to global warming and infestation by pine beetles was one of the primary reasons for the relisting the Yellowstone DPS. Grizzly bears are solitary, with large home ranges; the density of grizzly bears in the Yellowstone Grizzly Bear Ecosystem in 1974 was estimated at 1 bear per 34 square miles (USFWS 1993).

At the time of listing, grizzly bears in the continental U.S. existed in only three locations: the Selway-Bitterroot ecosystem (in Idaho and Montana), the Bob Marshall ecosystem (mostly in Montana), and the Yellowstone ecosystem (mostly in Wyoming). Their current distribution covers five geographic areas: the Cabinet/Yaak ecosystem (Montana and Idaho), the Selkirk ecosystem (Idaho and Washington), the North Cascades ecosystem (Washington), the Northern Continental Divide ecosystem (Montana), and the Yellowstone ecosystem (mostly Wyoming) in addition to a Non-essential experimental population in the Bitterroot area of Idaho and Montana (USFWS 2011a).

3.3.3.5 Population Status

Recent estimates have shown that the number of grizzly bears in the Greater Yellowstone Area is over 500 bears, satisfying a recovery goal listed in the grizzly bear conservation strategy (USFWS 2007a). The success of recovery actions aimed at this DPS was sufficient to warrant delisting of this population (although the delisting was later overturned).

3.3.3.6 Critical Habitat

Critical habitat for grizzly bears was proposed in 1976; however, none has been designated.

3.3.3.7 Environmental Baseline

Species Presence

The closest known grizzly bear occurrence is located about 100 miles north of Segment 4 (72 *Federal Register* 14866). The Project is not located within the extent of the PCA, or through areas identified by the USFWS as suitable grizzly bear habitats; however, Segments 3 and 4 would pass through the southernmost extent of the Yellowstone DPS for a total of 163.5 miles. Note that grizzly bears only occupy 68 percent of suitable habitats located within the DPS boundaries (indicating that bears are not located throughout the DPS); however, they may soon occupy the remainder of

available suitable habitat (USFWS 2007a). The Project's crossing of the Yellowstone DPS would occur along the southernmost edge of the DPS boundary (outside of the PCA or suitable habitat), adjacent to Highway 80, Highway 30, and the town of Kemmerer (Figure 3-5). As a result, it is highly unlikely that grizzly bears would utilize the habitats crossed by the Project.

Habitat

The closest suitable habitat for grizzly bears to the Action Area is approximately 100 miles to the north of Segment 4 (72 *Federal Register* 14866). The portion of the grizzly bear DPS crossed by the Project is located adjacent to Highway 80, Highway 30, and the town of Kemmerer, indicating that this area is highly disturbed by human developments and activities.

Critical habitat

No critical habitat has been designated for this species.

3.3.4 Preble's Meadow Jumping Mouse (Threatened)

3.3.4.1 Status

The Preble's meadow jumping mouse was listed as threatened throughout its range in May 1998 (63 *Federal Register* 26517). On February 2, 2005, the USFWS issued a 12-month finding on a petition to delist the Preble's meadow jumping mouse and proposed to remove the mouse from the federal list of threatened and endangered species, due to their finding that the Preble's meadow jumping mouse is not a discrete taxonomic entity and does not meet the definition of a subspecies (70 *Federal Register* 5404). In July 2008, the Preble's meadow jumping mouse was determined to be a valid subspecies and it maintained its threatened status in Colorado, but individuals in Wyoming were no longer listed and critical habitat in Wyoming was eliminated (73 *Federal Register* 39790). In August 2011, however, ESA protections for this species in Wyoming were reinstated, though critical habitat in Wyoming was not (76 *Federal Register* 47490).

3.3.4.2 Threats

The primary threat to the Preble's meadow jumping mouse is serious declines of habitat quantity and quality and fragmentation of habitat, principally through conversion of prairie habitat containing well developed riparian areas to agricultural and residential developments (73 *Federal Register* 39790). Changes in stream flow regimes due to water developments, diversions, and flood control have decreased the vegetative cover these mice need for hiding, nests, food, and hibernation (73 *Federal Register* 39790). Road construction, bank stabilization, intense grazing, rock and sand extraction, invasive weeds, and fire have also been identified as threats. All threats to the Preble's meadow jumping mouse are expected to be less severe in Wyoming than in Colorado due to Wyoming having a smaller human population (73 *Federal Register* 39790). There are also few regulatory mechanisms in place that would protect Preble's meadow jumping mouse if ESA protections were removed (73 *Federal Register* 39790). Threats to this species in the North Platte River are believed to be less severe than those in the South Platte and Arkansas Rivers (USFWS 2003).

3.3.4.3 Species Recovery

In 2003, a Preble's meadow jumping mouse recovery team released a list of recovery recommendations for the species (USFWS 2003). The recovery objective for these recommendations is the delisting of this species. The recovery criteria for delisting are:

1. Document and maintain wild, self-sustaining Preble's meadow jumping mouse populations.
2. Protect and manage habitat of Preble's meadow jumping mouse populations.
3. Abate threats to Preble's meadow jumping mouse populations.
4. Develop and implement a long-term management plan and cooperative agreement prior to delisting (USFWS 2003).

In 2009, the recovery team reconvened and is working toward development of a final recovery plan.

3.3.4.4 Life History, Habitat Requirements, and Distribution

Preble's meadow jumping mouse habitat consists of dense, well-developed wetland and riparian areas with dense vegetation, as well as the adjoining uplands containing undisturbed shrub cover up to 328 feet beyond the 100-year floodplain. Upland areas are used for hibernation, foraging, and to escape flooding. They are found between 4,650 and 7,600 feet elevation (73 *Federal Register* 39790). Hibernation occurs underground or beneath logs or other similar shelters from mid-October through early May (USFWS 2003). Studies show that the Preble's meadow jumping mouse is capable of traveling more than 0.5 mile in a single night. The diet of these rodents includes arthropods, fungus, moss, pollen, and a wide variety of plants, especially willow (*Salix* spp.; USFWS 2003). The lifespan of these mice is short. Many animals prey upon them, including garter snakes (*Thamnophis* spp.), prairie rattlesnakes (*Crotalus viridus*), bullfrogs (*Lithobates catesbeianus*), foxes (*Vulpes vulpes* and/or *Urocyon cinereoargenteus*), house cats, long-tailed weasels (*Mustela frenata*), and red-tailed hawks (*Buteo jamaicensis*; USFWS 2003).

They are found from the eastern flank of the Laramie Mountains and the Laramie Plains in southeastern Wyoming south along the eastern flank of the Front Range in Colorado and into the headwaters of the Arkansas River basin near Colorado Springs, Colorado (USFWS 2003). The northern extent of the currently known distribution of Preble's meadow jumping mouse is the North Platte River at Douglas, Wyoming, and the southern extent is Colorado Springs, Colorado (73 *Federal Register* 39790). The extent of their known distribution is shown in Figure 3-6.

3.3.4.5 Population Status

No reliable abundance estimates for the Preble's meadow jumping mouse exist, and population trends and density are not well known (73 *Federal Register* 39790). Still, knowledge about the distribution of this species has increased dramatically since the time of original listing due to increased trapping and survey efforts. These efforts have resulted in an expansion of the known range of these mice, especially in Wyoming (73 *Federal Register* 39790), and further studies are needed. The global status of the Preble's meadow jumping mouse is Imperiled (NatureServe 2011).

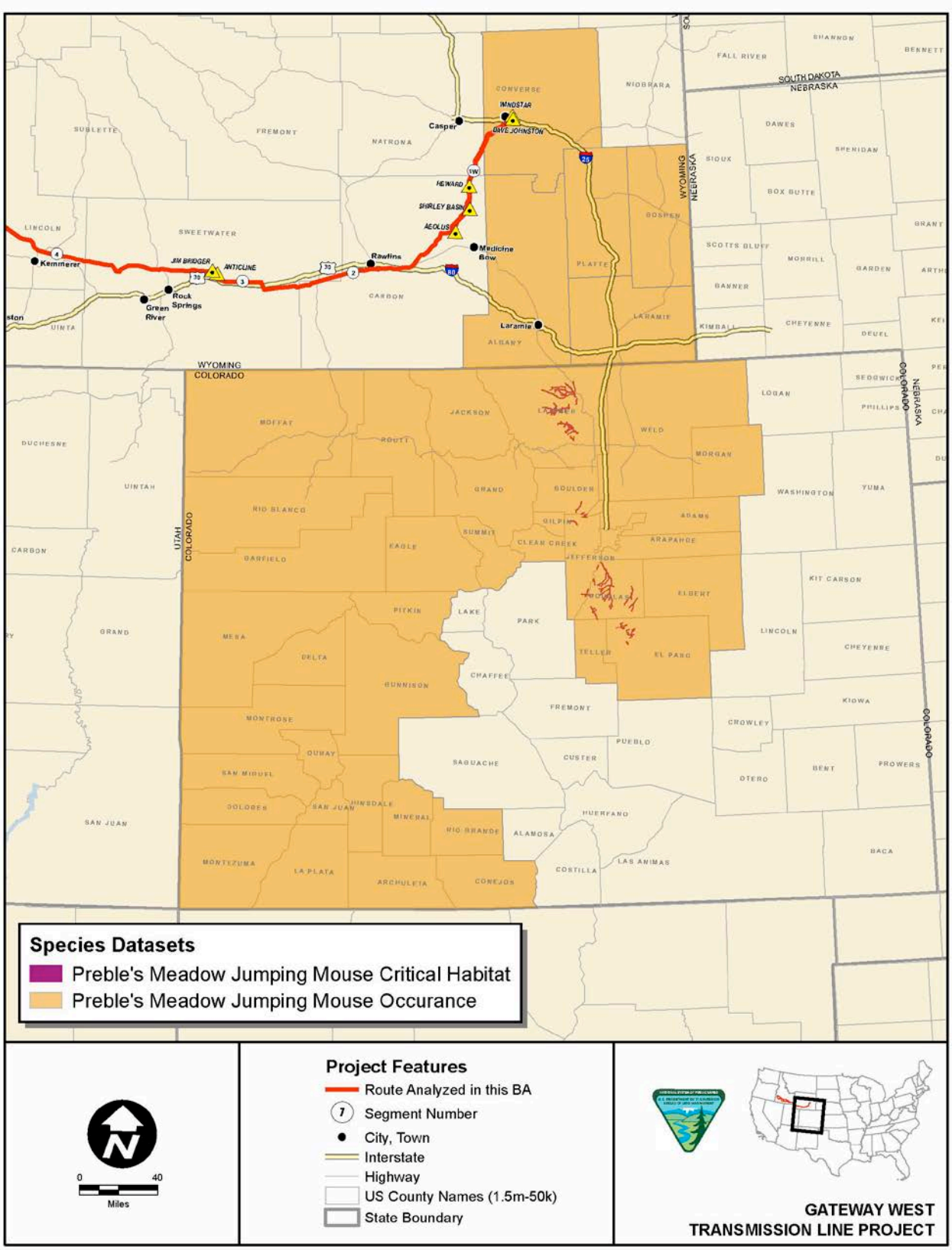

Figure 3-6. Preble's Meadow Jumping Mouse Critical Habitat in Relation to the Gateway West Transmission Line Project Location

3.3.4.6 Critical Habitat

Critical habitat has been designated for Preble's meadow jumping mouse in Colorado, totaling eight habitat units along approximately 411 miles of rivers and streams, totaling 34,935 acres (75 *Federal Register* 78430); however, no critical habitat has been designated in Wyoming.

3.3.4.7 Environmental Baseline

Species Presence

In the North Platte River Basin these mice have been confirmed in Converse, Platte, Albany, Goshen, and Laramie Counties (73 *Federal Register* 39790). However, knowledge about the distribution of this species has increased dramatically since the time of original listing due to increased trapping and survey efforts; these efforts have resulted in an expansion of the known range of these mice, especially in Wyoming (73 *Federal Register* 39790), and further studies are needed.

The closest known occurrence of a Preble's meadow jumping mouse to the Analysis Area was one female from 1991 that was located approximately 3.7 miles east of Segment 1Wc; however, it is not a confirmed record (WYNDD 2010).

Habitat

The Preble's meadow jumping mouse could utilize the portion of the Project that crosses through wetland and riparian areas within the eastern portion of the Wyoming segments of the Project (i.e., Segments 1W and 2), as well as 100-year floodplain and upland areas within 328 feet of the 100-year floodplain; however, of the counties crossed by the Project, they have only been documented to occur within Converse County. Wetlands within this portion of the Action Area vary by type, and consist of approximately 2 percent of emergent wetlands, 4 percent of forested/shrub wetlands, and 94 percent open waters (e.g., rivers and ponds).

Critical Habitat

The closest critical habitat to the Action Area is the North Fork Cache La Poudre River Unit in Larimer County, Colorado, approximately 100 miles southeast of Segment 2 (Figure 3-6; 75 *Federal Register* 78430).

3.4 Fish

There are no threatened or endangered fish species potentially occur in the vicinity of the Action Area; however, bull trout designated critical habitat does occur in the Action Area.

3.4.1 Bull Trout (Threatened)

The Columbia River DPS of bull trout was listed as threatened in June 1998 (63 *Federal Register* 31647). Likely once widespread throughout the Pacific Northwest, numbers and distribution of bull trout have declined dramatically. In southern Idaho, bull trout subpopulations are generally low in abundance, fragmented, and isolated. The primary reasons for listing were habitat fragmentation and degradation. Installations of dams

have blocked passage for bull trout, isolating populations, and have also created reservoirs, which provide suboptimal habitat for this species (USFWS 2002a). Irrigation diversions and roads have also created impassable barriers. Mining, timber harvest, road construction, grazing, and other land management activities have degraded habitat. Non-native and hatchery-raised trout cause problems for bull trout through hybridization, disease transmission, and predation (USFWS 2002a). Today, the closest bull trout to the Action Area are in the Boise River watershed, upstream of the impassable Lucky Peak Dam, just southeast of Boise, approximately 10 miles northeast of Segment 8. This area is outside of the Action Area.

The Project crosses the Bruneau River, which has the potential to be used for foraging, migration, and overwintering by the Jarbidge River DPS of bull trout (USFWS 2004). The Jarbidge River DPS of bull trout which was listed as threatened in 1999 (64 *Federal Register* 17110). The Bruneau River is unsuitable for bull trout during several months of the year due to naturally occurring warm summer water temperatures. Adequate surveys to document species presence in the Bruneau River have not been conducted during the periods when water temperatures are favorable for bull trout (mid-October through mid-June). However, fluvial bull trout have been documented to use the mainstem Jarbidge River; and there are no known physical barriers preventing fish movement between the Jarbidge and Bruneau Rivers. Once in the Bruneau River, fish passage is physically unrestricted for approximately 40 miles downstream to Buckaroo Ditch Dam at Hot Springs, Idaho. At this time, bull trout have not been documented to use the Bruneau River, although the Bruneau River has been designated as bull trout critical habitat. Use of the Bruneau River by bull trout remains unconfirmed; therefore, the Project is not expected to impact bull trout, and the species will not be analyzed further in this document, except to discuss potential impacts to their critical habitat.

3.4.1.1 Critical Habitat

Critical habitat for bull trout was designated in October 2004 (69 *Federal Register* 59996), and revised in October 2010 (75 *Federal Register* 63898) to include a total of 19,729 miles of streams and 488,252 acres of reservoirs or lakes. The extent of critical habitat along streams is the bankfull elevation of the stream. PCEs for bull trout critical habitat are:

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic

environments, with feature such as large wood, side channels, pools, undercut banks, and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.

5. Water temperatures ranging from 36 to 59 degrees Fahrenheit (°F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.
6. In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in large substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.
8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

Segment 9 of the transmission line would span a portion of the Jarbidge River CHU along the Bruneau River, approximately 10 miles south of C.J. Strike Reservoir; however, no road crossings would be located within bull trout critical habitat.

The Jarbidge River CHU encompasses the Jarbidge and Bruneau River basins, which drain into the Snake River within C.J. Strike Reservoir upstream of Grand View, Idaho. The Jarbidge River CHU is located approximately 70 miles north of Elko within Owyhee County in southwestern Idaho and Elko County in northeastern Nevada, and includes 152 miles of streams designated as critical habitat. The Jarbidge River CHU contains six local populations of resident and migratory bull trout and provides spawning, rearing, foraging, migratory, connecting, and overwintering habitat. Because fluvial bull trout have been documented to use the mainstem Jarbidge River, bull trout may also use the Bruneau River for foraging, migration, and overwintering habitat. However, as described above, bull trout are not known to occur in the Bruneau River, including the stretch of critical habitat along the Bruneau River that would be crossed by the Project (64 *Federal Register* 17110; USFWS 2004).

3.5 Invertebrates

Four federally threatened or endangered invertebrates could potentially occur in the vicinity of the Action Area. These include the Banbury Springs limpet, Bliss Rapids snail, Bruneau hot springsnail, and the Snake River physa snail.

3.5.1 Banbury Springs Limpet (Endangered)

3.5.1.1 Status

The Banbury Springs limpet was listed as endangered in January 1992 (57 *Federal Register* 59244).

3.5.1.2 Threats

The principal threat to the Banbury Springs limpet is habitat modification, specifically hydrologic flow patterns, deteriorating water quality, and water diversion (USFWS 2006b). Dams along the Snake River may have altered hydrologic flow patterns and decreased flooding, isolating the four known locations where this snail can be found from each other; individuals may have historically been able to move among locations during flooding (USFWS 2006b). Dams also slow water velocity, raise water temperature, and decrease dissolved oxygen in the water (USFWS 2006b). Output at each of the natural springs where this species is found has been reduced by water use for agricultural irrigation.

3.5.1.3 Species Recovery

A recovery plan for five federally listed snails found along the Snake River between C.J. Strike Reservoir and American Falls Dam, including the Banbury Springs limpet, was released in 1995 (USFWS 1995a). The short-term recovery objective of this recovery plan was to protect known live colonies of the five snails by eliminating or reducing known threats, and the long-term objective was to restore viable, self-reproducing colonies of the five snails within specific geographic ranges to the point that they are delisted (USFWS 1995a). To assist in these recovery goals, a recovery area for the Banbury Springs limpet was established, which includes tributary cold-water spring complexes to the Snake River between river miles (RM) 584.8 and 589.3 (Figure 3-7; USFWS 1995a). The 5-year review for this species found that the factors originally threatening this species with extinction still remain (USFWS 2006b).

3.5.1.4 Life History, Habitat Requirements, and Distribution

This snail is only known to occur at coldwater (59 to 61°F) spring complexes in riffles and margins of rapids with well oxygenated water of good quality (USFWS 1995a). They are most often found on smooth basalt at 12 to 30 inches depth. They are intolerant of pollution (USFWS 1995a).

This species is known from only four coldwater springs along the middle Snake River: Thousand Springs, Box Canyon Springs, Banbury Springs, and Briggs Springs (USFWS 2006b). These four locations are isolated from each other, with distances between them of 1 to 4 miles (USFWS 2006b).

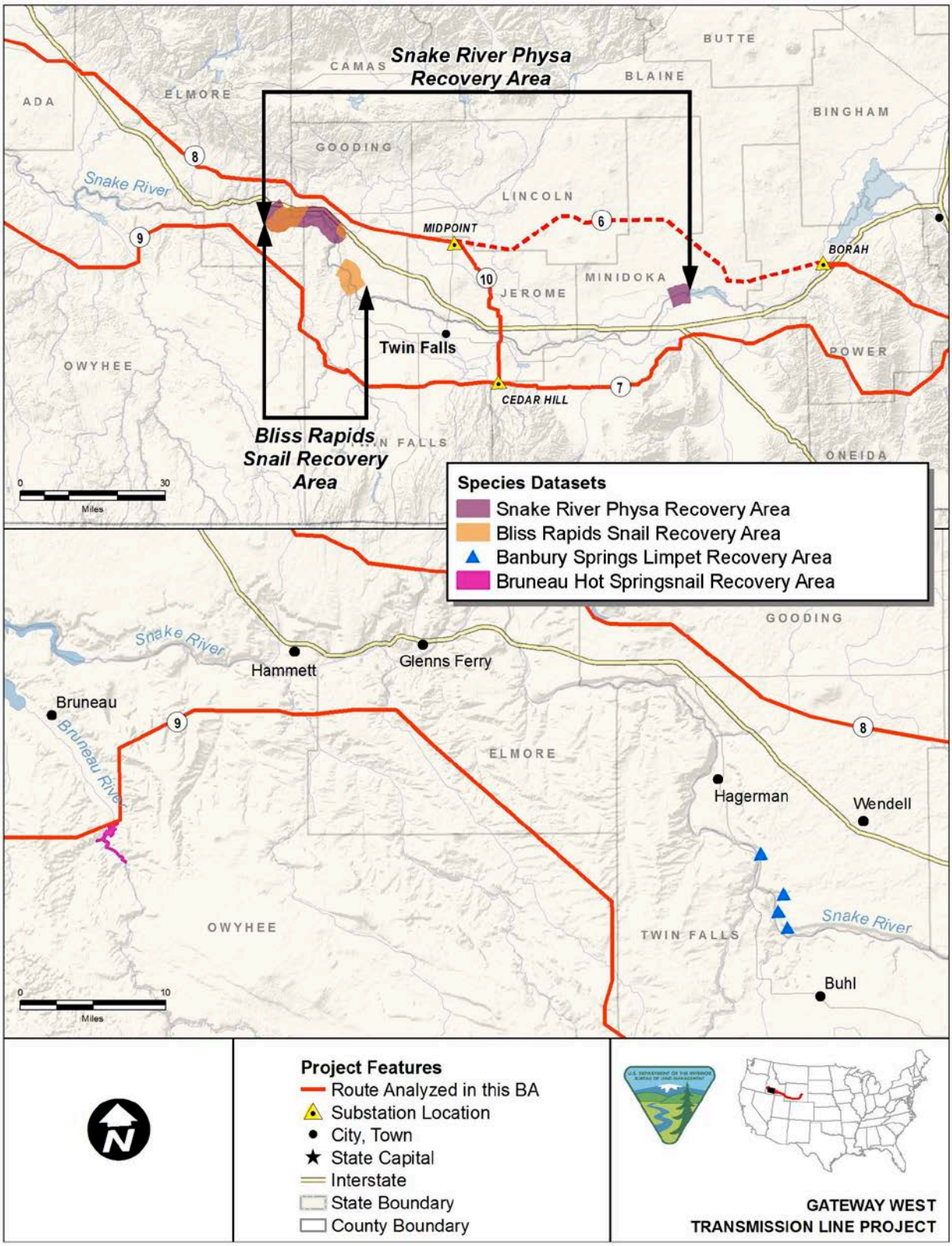

Figure 3-7. Distribution and Recovery Areas for Banbury Springs Limpet, Bliss Rapids Snail, Bruneau Hot Springsnail, and Snake River Physa Snail

3.5.1.5 Population Status

Population size and trends for this snail are largely uncertain due to lack of data. Lack of long-term surveys with consistent methodology across years hinders knowledge of abundance and trends. During surveys in 1992, the number of individuals at Thousand Springs was estimated at between 600 and 1,200. The species has been described as common at Briggs Springs, with 4.7 individuals per cobble in 2006, and "rare" at Box Canyon Springs in 1994 (USFWS 2006b). The Banbury Springs limpet is considered to be critically imperiled (NatureServe 2011).

3.5.1.6 Critical Habitat

No critical habitat has been designated for the Banbury Springs limpet.

3.5.1.7 Environmental Baseline

Species Presence

The only known locations for the Banbury Springs limpet are at springs along a 7-mile stretch of the Snake River. This stretch of river is within the Action Area, between Segments 8 and 9 (Figure 3-7).

Habitat

Habitat for this species has been seriously altered, and the only known suitable habitat in the Action Area to which individuals could conceivably migrate are the four springs where the Banbury Springs limpet is extant. This portion of the Snake River in Idaho is heavily influenced by human use. Groundwater pumping has resulted in declines of spring discharges over the past 60 years. In addition, both fertilizers and animal wastes contribute to groundwater nitrates and these contaminants have been documented to reach toxic levels (Tesch et al. 2003; Neely 2005). Springs provide an important contribution in maintaining/improving water quality in the Snake River and adjacent cold water springs within the action area and as such, impacts from over-pumping of the aquifer or groundwater contamination can be expected to adversely affect habitats occupied by listed Snake River snails. Agricultural uses also impact the water quality of surface water sources and conveyances (e.g., streams, irrigation return canals) (Clark et al. 1998). In addition, aquaculture facilities in the middle Snake River region contributes wastes from fish food, fish metabolism, and processing (Clark et al. 1998) as well residual antibiotic and antiseptic compounds to the Snake River (EPA 2002). The lethal limits of these threats (e.g., aquifer depletion and spring discharge, increasing contaminant risks from growing agricultural industries) on listed Snake River snails are not known, but it is likely that continuing degradation and over-consumption of water resources (due to increasing human use) will degrade snail habitat and place listed Snake River snails at greater risk over time. In addition, listed Snake River snails may also be threatened by future introduction of invasive species.

Critical Habitat

No critical habitat has been designated for the Banbury Springs limpet.

3.5.2 Bliss Rapids Snail (Threatened)

3.5.2.1 Status

The Bliss Rapids snail was listed as threatened in December 1992 (57 *Federal Register* 59244). In June 2007, it was found that a petition to delist the species may be warranted and that a status review of the Bliss Rapids snail would be conducted (72 *Federal Register* 31250); however, the USFWS determined in September 2009 that the Bliss Rapids snail is likely to become endangered within the foreseeable future (74 *Federal Register* 47536), and it retained its threatened status.

3.5.2.2 Threats

Construction of dams along the mainstem Snake River likely eliminated habitat between suitable sites, isolating populations by preventing movement of individuals between them (USFWS 1995a). Changing water levels resulting from operations of hydroelectric dams also decrease suitable habitat for this snail by dewatering shallow shoreline habitats or by flooding habitat with warm, lentic water. Dams also increase siltation in snail habitat. Declining water quality due to agriculture, feedlots, dairies, hatcheries, and municipal sewage also negatively impacts this sensitive species. Diversion of water from springs and from the Snake River Plain aquifer limits the amount of recharge of clean water which these snails require. The New Zealand mudsnail (*Potamopyrgus antipodarum*) is an exotic species widely distributed throughout the middle Snake River and experiencing explosive growth. Although this invasive snail is not currently abundant in habitats used by the Bliss Rapids snail, this adaptable species can tolerate a wide range of water and habitat conditions and has the potential to compete directly with the Bliss Rapids snail for the limited areas of appropriate habitat for this species. In addition, few regulatory mechanisms exist to protect the Bliss Rapids snail.

3.5.2.3 Species Recovery

A recovery plan for five federally listed snails found along the Snake River between C.J. Strike Reservoir and American Falls Dam, including the Bliss Rapids snail, was released in 1995 (USFWS 1995a). The short-term recovery objective of this recovery plan was to protect known live colonies of the five snails covered by the plan by eliminating or reducing known threats, and the long-term objective was to restore viable, self-reproducing colonies of the five snails within specific geographic ranges to the point that they are delisted (USFWS 1995a). The recovery plan established a recovery area for the Bliss Rapids snail. This is located along the mainstem Snake River and tributary coldwater spring complexes from RM 547 to 585 (Figure 3-7).

By 2009, the range of the Bliss Rapids snail had not changed since the time of listing, and increased sampling effort has documented this species at many more locations within this range than were originally known.

3.5.2.4 Life History, Habitat Requirements, and Distribution

The Bliss Rapids snail is found in two different habitat types: springs and rivers. Spring habitat is coldwater springs and spring-fed tributaries to the Snake River; river habitat is in the Snake River. Spring habitat is more productive, containing higher density and abundance of snails, than river habitat (74 *Federal Register* 47536). Cold (59 to 61°F),

moving water of low turbidity with clean, cobble or boulder substrate free of attached plants is preferred by this snail (USFWS 1995a). It is not found in lentic habitats or with fine sediment substrate (74 *Federal Register* 47536). Diet consists primarily of epilithic periphyton, although detritus, bacteria, and protozoa are also consumed. Individuals hatch, reproduce, and die in a single year, and may reproduce more than once (74 *Federal Register* 47536).

The historical distribution of the Bliss Rapids snail was along the middle mainstem Snake River from Indian Cove Bridge and Twin Falls. River habitat sites containing this species are currently found at scattered locations along a 22-mile stretch of the mainstem Snake River between King Hill and Salmon Falls Creek, notably in the Hagerman reach and the tailwaters of Bliss and Lower Salmon Dams. Spring habitat sites are at several unpolluted springs in the Hagerman Valley, including Thousand Springs, Banbury Springs, Box Canyon Springs, and Niagara Springs (USFWS 1995a).

3.5.2.5 Population Status

This species can be locally abundant at areas where habitat is suitable. However, the Bliss Rapids snail has declined or been eliminated from several known sites (USFWS 1995a), and all known threats to this species are still present throughout its range and continue to exert negative pressure on all populations (74 *Federal Register* 47536). Although the known range of this species has expanded, this is likely due to increased survey pressure since its listing rather than actual increases in range and abundance. The Bliss Rapids snail is considered to be critically imperiled (NatureServe 2011).

3.5.2.6 Critical Habitat

Critical habitat has not been designated for the Bliss Rapids snail.

3.5.2.7 Environmental Baseline

Species Presence

The stretch of the Snake River along which the Bliss Rapids snail is found is within the Action Area, between Segments 8 and 9 (Figure 3-7).

Habitat

All known remaining suitable habitat for this species is found within the Action Area, between Segments 8 and 9. This portion of the Snake River in Idaho is heavily influenced by human use. Groundwater pumping has resulted in declines of spring discharges over the past 60 years. In addition, both fertilizers and animal wastes contribute to groundwater nitrates and these contaminants have been documented to reach toxic levels (Tesch et al. 2003; Neely 2005). Springs provide an important contribution in maintaining/improving water quality in the Snake River and adjacent cold water springs within the action area and as such, impacts from over-pumping of the aquifer or groundwater contamination can be expected to adversely affect habitats occupied by listed Snake River snails. Agricultural uses also impact the water quality of surface water sources and conveyances (e.g., streams, irrigation return canals; Clark et al. 1998). In addition, aquaculture facilities in the middle Snake River region contributes wastes from fish food, fish metabolism, and processing (Clark et al. 1998) as well

residual antibiotic and antiseptic compounds to the Snake River (EPA 2002). The lethal limits of these threats (e.g., aquifer depletion and spring discharge, increasing contaminant risks from growing agricultural industries) on listed Snake River snails are not known, but it is likely that continuing degradation and over-consumption of water resources (due to increasing human use) will degrade snail habitat and place listed Snake River snails at greater risk over time. In addition, listed Snake River snails may also be threatened by future introduction of invasive species.

Critical habitat

Critical habitat has not been designated for the Bliss Rapids snail.

3.5.3 Bruneau Hot Springsnail (Endangered)

3.5.3.1 Status

The Bruneau hot springsnail was listed as endangered in January 1993 (58 *Federal Register* 5938). The USFWS was ordered to reconsider its determination by the courts, and reconfirmed this species' endangered status in June 1998 (63 *Federal Register* 32981).

3.5.3.2 Threats

The main threat to the Bruneau hot springsnail is loss of geothermal habitat and reduced water levels due to groundwater withdrawal, mostly for agriculture. In 1993, 50 private wells were documented within 7.5 miles of the Indian Bathtub site using geothermal water for irrigation (USFWS 2002b). In 1991, it was determined that the quantity of water pumped from the underlying aquifer where Bruneau hot springsnails are found exceeded natural recharge (58 *Federal Register* 5938). Some habitat is rendered unsuitable due to increased sedimentation. The ability of Bruneau hot springsnails to disperse to unoccupied suitable habitat is very low due to the limited mobility of this species and its intolerance for intervening habitat that is unsuitable due to low temperature. Bruneau hot springsnails are also preyed upon by some species of introduced fish. There have been reports of direct trampling of individuals by livestock. In addition, the small, isolated nature of most populations makes them vulnerable to stochastic catastrophic events.

3.5.3.3 Species Recovery

A recovery plan for Bruneau hot springsnail was released in 2002. The stated recovery goal for this species is its delisting. Actions needed to reach this goal listed in the recovery plan include the following (USFWS 2002b):

1. Implementing conservation measures to increase water levels in the regional geothermal aquifer,
2. Implement a groundwater monitoring program to assess changes in the geothermal aquifer,
3. Implement a monitoring program to assess the survival and recovery of the Bruneau hot springsnail and its habitat,
4. Develop and implement a habitat restoration program, and

5. Develop and implement a control program for non-native fish that prey upon the Bruneau hot springsnail.

An action plan published for this species describes these and other actions in further detail. The recovery area for this species is along the Bruneau River and a small portion of adjacent lower Hot Creek (Figure 3-7; USFWS 2002b). The 5-year review for this species found that the factors originally threatening this species with extinction still remain (USFWS 2007d).

3.5.3.4 Life History, Habitat Requirements, and Distribution

Habitat is flowing thermal springs and seeps between 60 and 98°F, with highest snail densities recorded above 73°F (USFWS 2002b). Snails are found where these plumes of hot water enter the main river channel. Individuals use various exposed substrates such as rock, gravel, sand, mud, and algal film. Bruneau hot springsnails feed opportunistically on algae; species consumed are proportional to those present in the area (58 *Federal Register* 5938). Sexual maturity is reached at two months, and reproduction can occur throughout the year. Snails deposit their eggs on a hard surface, including occasionally on another snail's shell.

This species is found only along a 5-mile stretch of the Bruneau River in Owyhee County, southwest Idaho, in the springflows of Hot Creek and many small, flowing thermal springs and seeps along the Bruneau River. The 5-mile stretch reaches from about 2.5 miles below Hot Creek to 2.5 miles above Hot Creek (58 *Federal Register* 5938).

3.5.3.5 Population Status

The population of Bruneau hot springsnails declined by an estimated 50 percent between 1982 and 1991, corresponding with a 32 percent decrease in the number of geothermal springs and seeps occupied by this species between 1991 and 1998. The species has been eliminated at some local areas such as the Indian Bathtub springs due to water removal for agriculture and drought conditions. Groundwater withdrawals from the aquifer underlying the range of Bruneau hot springsnail decreased between 1983 and 1993 due to the withdrawal of lands from agriculture through the Conservation Reserve Program; however, water levels in the aquifer continue to decline (58 *Federal Register* 5938). The Bruneau hot springsnail is considered to be critically imperiled (NatureServe 2011).

3.5.3.6 Critical Habitat

The USFWS determined that the designation of critical habitat for Bruneau hot springsnail is not prudent due to the very limited areas where this species is found. If critical habitat were designated, there would be the risk for vandalism and further losses to this species (58 *Federal Register* 5938).

3.5.3.7 Environmental Baseline

<u>Species Presence</u>

The stretch of the Bruneau River that comprises the entire known range of this species is approximately 5 miles south of Segment 9 (Figure 3-7).

Habitat

The stretch of the Bruneau River that contains all known remaining suitable habitat for the Bruneau hot springsnail is approximately 5 miles south of Segment 9.

Critical Habitat

No critical habitat has been designated for the Bruneau hot springsnail.

3.5.4 Snake River Physa Snail (Endangered)

3.5.4.1 Status

The Snake River physa snail was listed as endangered in December 1992 (57 *Federal Register* 59244).

3.5.4.2 Threats

Construction of dams along the mainstem Snake River likely eliminated habitat between suitable sites, isolating populations by preventing movement of individuals between them (USFWS 1995a). Changes in river flow resulting from operations of hydroelectric dams also decrease suitable habitat for this snail by flooding cold rapids with warm, lentic water. Dams also increase siltation in snail habitat. Declining water quality due to agriculture, feedlots, dairies, hatcheries, and municipal sewage further negatively impacts this sensitive species. Diversion of water from springs and from the Snake River Plain aquifer limits the amount of recharge of clean water, which these snails require. The New Zealand mudsnail (*Potamopyrgus antipodarum*) is an exotic species widely distributed throughout the middle Snake River and experiencing explosive growth. Although this invasive snail is not currently abundant in habitats used by the Snake River physa snail, this adaptable species can tolerate a wide range of water and habitat conditions and directly competes for habitat with the Snake River physa snail. In addition, few regulatory mechanisms exist to protect the Snake River physa snail.

3.5.4.3 Species Recovery

A recovery plan for five federally listed snails found along the Snake River between C.J. Strike Reservoir and American Falls Dam, including the Bliss Rapids snail, was released in 1995 (USFWS 1995a). The short-term recovery objective of this recovery plan was to protect known live colonies of the five snails covered by the plan by eliminating or reducing known threats, and the long-term objective was to restore viable, self-reproducing colonies of the five snails within specific geographic ranges to the point that they are delisted (USFWS 1995a). The recovery plan established a recovery area for the Snake River physa snail: the mainstem Snake River from RMs 553 to 675 (Figure 3-7; USFWS 1995a).

3.5.4.4 Life History, Habitat Requirements, and Distribution

Habitat requirements for the Snake River physa snail are cold, unpolluted, well-oxygenated flowing water with low turbidity. These snails use the undersides of gravel-to-boulder size substrate in swift currents in the mainstem Snake River, sometimes in the deepest parts of the river at the margins of rapids (USFWS 1995a). It has been hypothesized that these snails live deeper than routine surveys explore (57 *Federal Register* 59244). The species is intolerant of pollution.

In 1995, the USFWS reported that the Snake River physa snail's "modern" range extended from Grandview (RM 487) to the Hagerman Reach (RM 573). However, recently identified specimens collected by the Bureau of Reclamation (Gates and Kerans 2010) and Idaho Power Company from 1995 to 2003 (Keebaugh 2009) confirm its distribution to as far upstream as Minidoka Dam (RM 675) and as far downstream as Ontario, Oregon (RM 368), some 128 miles downstream of its previously recognized downstream range (Grandview). Two specimens were recovered from the Bruneau River arm (RM 4) of C.J. Strike Reservoir (Keebaugh 2009), representing the only tributary of the Snake River in which the species has been recorded. While the species is more widespread than previously thought, currently recorded from an estimated 307 river miles, it has not been found at high densities within much of its current known range and is likely absent from portions of the river. The most extensive surveys conducted to date are from the 12-mile reach below Minidoka Dam (RM 663–675; Gates and Kerans 2010), in which live Snake River physa were recovered from 29 of 365 samples collected. In plots where they were found, densities were typically 32 per square meter, but live animals reached relatively high densities in a few of these samples, estimated at 40 to 64 individuals per square meter. Elsewhere in the Snake River, surveys have been much less intensive and not specific to Snake River physa. Of 758 samples re-examined by Keebaugh (2009) between RMs 200 and 589.2, 4.5 percent (34) contained Snake River physa. Of those, 67 percent (23) contained a single animal (0.25 per square meter) and one sample near Marsing, Idaho (RM 421) contained a high of 7 individuals, extrapolating to a density of 28 per square meter. Hence, in habitats sampled in the lower Snake River, the species would probably not be regarded as ubiquitous or abundant, but rather patchily distributed. River reaches upstream of the Hagerman area (est. RM 590) through Milner Reservoir (est. RM 663) have not received systematic surveys or re-examination of previously collected materials.

3.5.4.5 Population Status

This species is always rare at collection sites. One population, near Grandview, is believed to have gone extinct since the early 1980s (57 *Federal Register* 59244). The Snake River physa snail is considered to be critically imperiled (NatureServe 2011).

3.5.4.6 Critical Habitat

No critical habitat has been designated for the Snake River physa snail.

3.5.4.7 Environmental Baseline

Species Presence

The entire known range of this species along the Snake River lies within the Action Area, between Segments 8 and 9 (Figure 3-7).

Habitat

Suitable habitat for the Snake River physa snail could occur from Minidoka Dam (RM 675) to Ontario, Oregon. This portion of the Snake River in Idaho is heavily influenced by human use. Groundwater pumping has resulted in declines of spring discharges over the past 60 years. In addition, both fertilizers and animal wastes contribute to

groundwater nitrates and these contaminants have been documented to reach toxic levels (Tesch et al. 2003; Neely 2005). Springs provide an important contribution in maintaining/improving water quality in the Snake River and adjacent cold water springs within the action area and as such, impacts from over-pumping of the aquifer or groundwater contamination can be expected to adversely affect habitats occupied by listed Snake River snails. Agricultural uses also impact the water quality of surface water sources and conveyances (e.g., streams, irrigation return canals) (Clark et al. 1998). In addition, aquaculture facilities in the middle Snake River region contributes wastes from fish food, fish metabolism, and processing (Clark et al. 1998) as well residual antibiotic and antiseptic compounds to the Snake River (EPA 2002). The lethal limits of these threats (e.g., aquifer depletion and spring discharge, increasing contaminant risks from growing agricultural industries) on listed Snake River snails are not known, but it is likely that continuing degradation and over-consumption of water resources (due to increasing human use) will degrade snail habitat and place listed Snake River snails at greater risk over time. In addition, listed Snake River snails may also be threatened by future introduction of invasive species.

Critical Habitat

No critical habitat has been designated for the Snake River physa snail.

3.6 Plants

Seven federally threatened or endangered plants potentially occur in the vicinity of the Action Area. However, only two of these species—blowout penstemon and Ute ladies'-tresses—have the potential to be impacted by the Project and are discussed further in this BA. One species proposed for listing, slickspot peppergrass, and its proposed critical habitat also occur within the Action Area. Additionally, western fringed prairie orchid occurs downstream of the Project in the Platte River basin. This species is discussed along with other Platte River species (see Section 3.2).

3.6.1 Blowout Penstemon (Endangered)

3.6.1.1 Status

Blowout penstemon was declared to be an endangered species in September 1987 (52 *Federal Register* 32926).

3.6.1.2 Threats

Suitable habitat for this species has been reduced by fire reduction management and range management practices such as dune stabilization that allow other plant species to establish and exclude blowout penstemon. Having evolved to use only early seral habitats, blowout penstemon declines as later successional species colonize (USFWS 2012d), possibly due to competition for moisture. Reducing the distribution of this species also makes it less likely that new pockets of suitable habitat will be colonized as they arise, compounding the problem. Future development, particularly from energy development, may pose threats to occupied blowout penstemon habitat in Wyoming (USFWS 2012d). Off-road vehicle use may also impact individual plants and their habitat.

3.6.1.3 Species Recovery

Approximately 13 percent of the Nebraska population of blowout penstemon was on USFWS refuge lands in 2008 and 23 percent on Forest Service land (USFWS 2012d). Under the ESA and the Nebraska Nongame and Endangered Species Conservation Act, it is prohibited to remove individuals of blowout penstemon, and possession, transportation, processing, and sale of this species are also regulated. Populations of blowout penstemon on BLM-administered land in Wyoming are on land managed by the Rawlins Field Office and the BLM Rawlins Office Resource Management Plan contains 11 conservation measures that apply to areas containing blowout penstemon (USFWS 2012d).

A recovery plan was published by the USFWS in 1992. The stated recovery objective for this species is delisting. The actions needed are listed as (USFWS 1992b):

1. Protect and monitor naturally occurring, reintroduced, and introduced populations.
2. Inventory suitable habitat for naturally occurring populations and determine potential reintroduction sites.
3. Conduct research to determine life history, minimum viable population parameters, and management criteria.
4. Establish new populations of blowout penstemon.
5. Establish and implement management plans for each population.

A 5-year review for blowout penstemon was published in 2012 (USFWS 2012d).

3.6.1.4 Life History, Habitat Requirements, and Distribution

Blowout penstemon is found within the Sandhills region of north central Nebraska, and in Carbon and Goshen Counties, Wyoming (NatureServe 2011). In Wyoming, there are 3 distinct populations and 19 subpopulations of blowout penstemon, most of which occur on BLM-managed land (USFWS 2012d). This plant has a narrow distribution and is found in open (less than 10 percent vegetative cover) early successional habitat, especially blowouts in sand dunes, to which this plant is well adapted. Blowouts are craters actively being dug out of sand dunes by the swirling action of prevailing winds, and present challenges of wind, temperature, evapotranspiration, and soil moisture stress. In Wyoming, blowout penstemon is found primarily on the rim and lee slopes of blowouts, or the rim and steep faces of sandy slough slopes at the base of mountains or ridges (USFWS 2012d). The numerous fibrous roots are horizontal and can be twice as long as the height of the plant, which anchor it well in the sand (NatureServe 2011). This species can also recover from sand burial by sending off shoots at successively higher nodes. The reproductive strategy of blowout penstemon also appears to be suited for constantly colonizing newly formed blowouts. Plants typically flower in the second or third year and bees are believed to be the primary pollinators (Kottas 2008; USFWS 2012d). While in bloom, large quantities of seed are produced; however, seedlings in natural populations are rare (USFWS 2012d).

3.6.1.5 Population Status

About 81 natural populations of this plant remain; there are 54 occurrences where plants have been introduced, and these locations are threatened by succession (NatureServe 2011). In Nebraska, the population of this species increased from approximately 2,788 in 1990 to 23,876 individuals in 2008 (Stubbendieck 2008 as cited in USFWS 2012d). Population estimates in Wyoming declined from approximately 19,343 plants in 2005 to estimates of 5,000 to 8,000 plants in 2009 (USFWS 2012d). Blowout penstemon is considered to be critically imperiled due to few, small, isolated, and apparently not vigorous populations (NatureServe 2011).

3.6.1.6 Critical Habitat

No critical habitat has been designated for this species due to the transient nature of suitable dune blowout habitat (52 *Federal Register* 32928).

3.6.1.7 Environmental Baseline

Species Presence

The closest documented sites to the Action Area where blowout penstemon occurs are three separate sites in northwestern Carbon County, Wyoming, approximately 40 miles north of Segment 2. These sites comprise approximately 7,000 to 7,800 individuals total (Heidel 2005).

Habitat

Detailed vegetation mapping indicates that no sand dune habitat occurs within the Action Area; however, the USFWS has indicated that all portions of the Action Area in Wyoming are within the potential range for this species (USFWS 2012b); therefore, this species will be analyzed in this document.

Critical Habitat

No critical habitat has been designated for this species.

3.6.2 Ute Ladies'-Tresses (Threatened)

3.6.2.1 Status

A proposal to list Ute ladies'-tresses as threatened was filed with USFWS in November 1990 (55 *Federal Register* 47350), and the species was listed as threatened in January 1992 (57 *Federal Register* 2048).

3.6.2.2 Threats

The primary threats to Ute ladies'-tresses are competition from exotic weeds, vegetation succession, habitat loss through development and modification, mowing during flowering, grazing by livestock, overcollection, and vulnerability to stochastic events due to a slow reproductive rate and scattered distribution of populations (57 *Federal Register* 2048). Additional threats include loss of pollinators, natural herbivory, and changes in hydrology (Fertig et al. 2005), as well as absence or rarity of mycorrhizal symbionts, and conflicting management with other rare species (USFWS 2013). Much of this species' riparian habitat has been modified or lost due to development, and much

of the habitat where remaining populations are located is subject to livestock grazing and trampling; however, about 35 percent of known populations are either in protected areas or are under some form of special management, and plants can be found in areas of human disturbance that were previously thought to be uninhabitable by the species (Fertig et al. 2005). The attractive inflorescence of the Ute ladies'-tresses has resulted in interest from collectors and wildflower enthusiasts, which threatens remaining individuals. Herbicides have the potential to be a threat (57 *Federal Register* 2048); however, the 1995 recovery plan does not list herbicides among the threats facing this plant (USFWS 1995b). Monitoring for this plant along the South Fork Snake River in 2003 found little mortality due to herbicides (Murphy 2004). Ute ladies'-tresses is unable to compete with aggressive invasive plants such as reed canarygrass (*Phalaris arundinacea*), cattails (*Typha* spp.), and Canada thistle (*Cirsium arvense*; USFWS 1995c; Fertig et al. 2005). In addition, no federal or state laws or regulations specifically addressed protection of this orchid prior to its listing under the ESA, besides a small amount of protection afforded by the Clean Water Act.

3.6.2.3 Species Recovery

Of the eight states in which Ute ladies'-tresses is known to occur, only Nebraska and Nevada have state endangered species laws that specifically address vascular plants. These states prohibit the removal, destruction, export, possession, and sale of this species. Approximately 43 percent of known occupied acreage occurs on federal lands, and 49 percent occurs on private lands (Fertig et al. 2005). On federally managed and state lands, this species is protected by various land management plans.

A draft recovery plan was developed for Ute ladies'-tresses in 1995. Recovery objectives laid out in the plan include:

1. Obtaining information on life history, demographics, habitat requirements, and watershed processes that will allow specification of management and population goals and monitoring progress;
2. Managing watersheds to perpetuate or enhance viable populations of the orchid; and
3. Protecting and managing Ute ladies'-tresses populations in wet meadow, seep, and spring habitats.

Identified actions needed include:

1. Define, manage, and restore watersheds, using watershed-based interagency, interdisciplinary teams as evaluation and planning aids;
2. Identify, protect, and manage populations that occur in wet meadow, seep, and spring sites;
3. Inventory remaining potential habitat;
4. Conduct genetic, life history, ecology, and habitat management studies;
5. Reintroduce orchids into appropriate sites; and
6. Conduct public education on watershed and riparian area management, use of recovery and interdisciplinary teams, and orchid ecology (USFWS 1995b).

3.6.2.4 Life History, Habitat Requirements, and Distribution

This long-lived perennial forb likely reproduces exclusively by seed. Fruits are produced in late August or September, and seeds are shed shortly thereafter. Once the seed disperses to a suitable germination site and establishes a symbiotic mycorrhizal relationship, it remains dormant underground until roots are of sufficient size to develop above-ground leafy shoots. The number of years that this takes is unknown for Ute ladies'-tresses (Fertig et al. 2005), but in autumn ladies'-tresses (*Spiranthes spiralis*), this period lasts 11 years (USFWS 1995b). Shoots are produced in October, persist through winter, and resume growth in spring, becoming photosynthetic. Blooms show from early July to late October, although autumn ladies'-tresses individuals rarely flower in consecutive years or under unfavorable conditions, and this may be true for Ute ladies'-tresses as well (USFWS 1995b). Observations of individual Ute ladies'-tresses plants have shown that they can demonstrate no aboveground growth for at least one growing season (USFWS 1995b). The lifespan of individual plants can be over 50 years (USFWS 1995b).

Habitat is primarily moist meadows associated with perennial streams, floodplains, and lake shores between 720 and 7,000 feet. Human-made features such as irrigation canals, berms, levees, gravel pits, and reservoirs are also used. This orchid appears to require moisture in the rooting zone through the growing season, which is most often provided by a high water table (BLM 2011b). Surrounding vegetation is not dense or heavily grazed, and periodic or recent disturbance maintains a minimal amount of competition. Most populations occur on lands managed for agriculture, recreation urban infrastructure, or open space. In Wyoming, Ute ladies'-tresses has been found near perennial streams, and in Idaho it has been found along rivers containing impoundment dams and reservoirs, and along supplemental irrigation structures (Fertig et al. 2005).

Ute ladies'-tresses occurs in central Washington, southwestern Montana, eastern Idaho, southeastern Nevada, southeastern Wyoming, northern and south-central Utah, central Colorado, western Nebraska, and British Columbia (Fertig et al. 2005). In Idaho, this plant is known from Bonneville, Fremont, Jefferson, and Madison Counties along the Snake River and from wetland sites along the Henry's Fork River. In Wyoming, it has been found in Goshen, Converse, Laramie, and Niobrara Counties (Fertig et al. 2005).

3.6.2.5 Population Status

Increased survey effort for the Ute ladies'-tresses since its listing in 1992 has resulted in an expansion of this plant's known range, from Colorado, Utah, and Nevada to include Wyoming, Montana, Nebraska, Idaho, and Washington (Fertig et al. 2005). In 2005, 63 occurrences of Ute ladies'-tresses were recognized, comprising up to approximately 38,000 individuals (Fertig et al. 2005). Idaho and Wyoming contain a total of four extant populations each. Idaho contains an estimated 7,807 individuals (the most found in any state), and Wyoming has an estimated 1,212 individuals (Fertig et al. 2005). Population trends are very difficult to assess for this species due to great increases in survey efforts since listing in 1992 and surveys focusing on flowering plants, which underestimates true abundance by an unpredictable amount (Fertig et al. 2005). The global status of Ute ladies'-tresses is considered to be imperiled (NatureServe 2011).

3.6.2.6 Critical Habitat

Critical habitat for Ute ladies'-tresses has not been designated because publication of this information could lead to increased collection of specimens, further threatening the persistence of this species, especially due to its very low reproductive rate (57 *Federal Register* 2052).

3.6.2.7 Environmental Baseline

Species Presence

This species occurs in moist stream banks, wet meadows, and abandoned stream channels in Idaho and Wyoming; however, Ute ladies'-tresses is not known to occur in the Action Area. No portions of the Action Area in Idaho are in counties where Ute ladies'-tresses is known or expected to occur. In Wyoming, this species has been reported from Goshen, Laramie, Converse, and Niobrara Counties. The closest known occurrences of Ute ladies'-tresses to the Action Area are in northern Bonneville County, Idaho, approximately 80 miles north of Segment 4; and in northwestern Converse County, Wyoming, approximately 40 miles north of Segment 1W (Fertig et al. 2005; BLM 2007). Species-specific surveys for Ute ladies'-tresses were conducted in areas of potential suitable habitat within the Action Area along Segment 1W and Segment 5 in 2009, 2010, 2011, and 2012; no plants were found during these surveys (see Section 2.3 – Field Surveys). Tables 3-4 and 3-5 list areas where surveys were conducted and the results of these surveys.

Habitat

Ute ladies'-tresses could be found in potential habitat (riparian and wetland areas) containing suitable characteristics along Segments 1W, 2, 3, 4, and 5. Known observations of Ute ladies'-tresses; however, only occur north of Segment 1W in Wyoming and north of Segment 4 in Idaho. Additionally, review of existing habitats and elevation in the Action Area and information provided by the BLM, USFWS, Wyoming Natural Diversity Database, and IDFG indicate that the likelihood of finding potential Ute ladies'-tresses or potential habitat is low along Segments 2, 3, and 4 and that portions of Segment 1W in Wyoming and Segment 5 in Idaho have the highest likelihood of containing suitable potential habitat for Ute ladies'-tresses. Surveys were conducted between 2009 and 2012 in 27 areas, 22 along Segments 1W and 5 along Segment 5, that were identified as potentially containing suitable habitat for Ute ladies'-tresses. Little or no suitable habitat; however, was documented within most of the areas surveyed (Tables 3-4 and 3-5). In areas containing suitable habitat features for some criteria (e.g., those with broad floodplains, perennial hydrology, or suitable soils), most were too heavily vegetated and/or disturbed by grazing to support the species. Other sites either lacked a floodplain or did not exhibit suitable hydrological and soil characteristics. During the surveys, only 4 of the 25 areas surveyed (all along Segment 1W) were identified as containing suitable potential habitat for Ute ladies'-tresses (Table 3-5).

Table 3-4. Ute Ladies'-tresses Survey Results: Segment 1W

Area ID	Drainage Name	Results	Years Surveyed	Potential habitat? [1/]	Resurvey (Years Remaining) [2/]
Area 1	Deer Creek	Large perennial, low sinuosity stream. Large boulders, sandy rocky cobble, and gravel stream bed with no developed floodplain. Forested riparian zone with dense vegetation along banks.	2009, 2010, 2011, 2012	Yes	0
Area 2	Hess Draw	Not a stream channel. No hydrology.	2009	No	No
Area 3	Negro Creek	Intermittent stream with areas of ponded water. Densely vegetated, heavily grazed and hummocked. Heavy soils.	2009	No	No
Area 4	Bates Creek	Stream intermittent within the study area. Standing water. Dense, rhizomatous vegetation. Heavily grazed and hummocked.	2009	No	No
Area 5	East Spring Creek	Perennial stream, numerous springs and seeps, some alluvial deposition and sand bars, a large un-shaded floodplain with a high groundwater table. Dense, rhizomatous vegetation and heavily grazed.	2009	No	No
Area 6	Indian Creek	Steeply entrenched perennial stream. Narrow floodplain. Predominantly shaded with mature riparian overstory.	2009	No	No
Area 7	North Fork Deer Creek	No Access	Not surveyed	Access required to assess habitat	Yes (3?)[3/]
Area 8	Deer Creek	Intermittent drainage with wide floodplain, heavily shaded, with mature riparian overstory. With scattered pools of standing, stagnant water.	2010	No	No
Area 9	Little Deer Creek	Forested riparian/wetland. Meandering perennial stream with no developed floodplain. Heavily shaded with de87nse overgrown vegetation.	2010	No	No
Area 10	Willow Creek	Shrub and herbaceous riparian/wetland zone. Heavily shaded meandering stream with moderate floodplain in places. Poorly drained soil.	2010	No	No
Area 11	West Fork Deer Creek	Need to add when receive final 2011 or 2012 survey report	2011, 2012	No	No
Area 12	Spring Creek	Sedge dominated community with moderate grazing.	2011, 2012	Yes	Yes (1)
Area 13	King Creek	Need to add when receive final 2011 or 2012 survey report	2011, 2012	No	No
Area 14	King Creek	Need to add when receive final 2011 or 2012 survey report	2011, 2012	No	No
Area 15	King Creek	Sedge dominated community with moderate grazing.	2011, 2012	Yes	Yes (1)
Area 16	Andys Creek	Sedge dominated community with moderate grazing.	2011, 2012	No (2010); Yes (2011)	Yes (1)
Area 17	Soldier Creek	No Access	Not surveyed	Access required to assess habitat	Yes (3?)[3/]
Area 18	Deer Creek	Despite permission, attempts to access this area failed.	2011	No	No

Table 3-4. Ute Ladies'-tresses Survey Results: Segment 1W (continued)

Area ID	Drainage Name	Results	Years Surveyed	Potential habitat? 1/	Resurvey (Years Remaining) 2/
Area 19	Deer Creek	Four foot wide perennial meandering stream with stable bank, not incised. Situated within wide floodplain. Dense rhizomatous vegetation with moderate grazing.	2010	Yes	Yes (2)
Area 20	Texas Creek	Narrow, low flow ephemeral meandering stream with narrow unshaded floodplain. Dense rhizomatous vegetation with light grazing	2010, 2011	Yes (2010); No (2011)	No
Area 21	Curry Creek	Narrow, meandering perennial stream within broad grassland/shrub valley. Slight imbedding, cutbanks. A large unshaded floodplain with a high groundwater table. Dense, rhizomatous vegetation; heavily grazed.	2010, 2011	Yes (2010); No (2011)	No
Area 22	Sandell Creek	Meandering ephemeral stream with areas of silty clay surrounding well drained areas of granite cobble/gravel. Wide flood plain, no shade, no water. Site feeds large stock pond. Area heavily grazed.	2010	No	No

1/ Potential habitat characteristics include:
- Perennial hydrology or a water table within 18 inches of the surface;
- Existence of a stabilized floodplain or terraces;
- Well drained soils;
- Locations in full sun and low vegetation density; and
- Low occurrence of disturbance.

2/ Number of survey years remaining to meet the required protocol of 3 years of surveys, if applicable. Areas where no potential habitat exists do not need to be resurveyed.
3/ Area has not been surveyed on the ground. If surveys demonstrate that no potential habitat exists, no additional surveys will be needed.

Table 3-5. Ute Ladies'-tresses Survey Results: Segment 5

Area ID	Drainage Name	Results	Years Surveyed	Potential habitat?	Resurvey
Area 1	Bannock Creek	Heavily grazed upland community situated on bench above floodplain. Spring seep from nearby irrigation ditch.	2010	No	No
Area 2	Bannock Creek	Perennial stream and spring with poorly drained clay soils. Stagnant water source present and evidence of heavy grazing	2010	No	No
Area 3	Moonshine Creek	15 foot wide entrenched perennial stream. Steep banks, no developed floodplain. Evidence of heavy grazing disturbance. Dense rhizomatous vegetation with poorly drained loam soils.	2010	No	No
Area 4	Moonshine Creek	Perennial stream with evidence of heavy grazing disturbance. No developed floodplain. Dense rhizomatous vegetation.	2010	No	No
Area 5	Moonshine Creek	Heavily grazed, dense rhizomatous vegetation. No developed floodplain.	2010	No	No

1/ Potential habitat characteristics include:
- Perennial hydrology or a water table within 18 inches of the surface;
- Existence of a stabilized floodplain or terraces;
- Well drained soils;
- Locations in full sun and low vegetation density; and
- Low occurrence of disturbance.

Critical Habitat

No critical habitat has been designated for this species.

3.6.3 Slickspot Peppergrass (Proposed for Listing as Endangered)

3.6.3.1 Status

Slickspot peppergrass was proposed for listing as endangered in 2002 (67 *Federal Register* 46441), was withdrawn from consideration in 2004 (69 *Federal Register* 3094), was reinstated as a proposed endangered species in October 2006 (71 *Federal Register* 62078), was again withdrawn from consideration for listing in 2007 (72 *Federal Register* 1622), and was again proposed for listing in 2008 based on a U.S. District Court ruling (73 *Federal Register* 54345). In October 2009, slickspot peppergrass was listed as threatened (74 *Federal Register* 52014). However, on August 8, 2012, the U.S. District Court in Boise, Idaho, vacated this listing and remanded it for further consideration. The Court vacated the listing on the grounds that the USFWS failed to specify the time frame when the plant will become endangered. As a result, at this time the USFWS currently considers the slickspot peppergrass to be a proposed species under the Act, as they await further legal guidance regarding the court's decision. During this interim period (i.e., until a final decision regarding the listing status of this species is determined), the BLM has decided to conference on the slickspot peppergrass, under section 7 of the ESA, to ensure conservation of the species and to adhere to the Conservation Agreement for slickspot peppergrass between the BLM and the USFWS. Therefore, this species and its proposed critical habitat are addressed within this BA.

3.6.3.2 Threats

The primary threat to slickspot peppergrass is destruction or modification of its habitat due to changes in the fire regime and invasion by nonnative plants, particularly cheatgrass (*Bromus tectorum*) and medusahead (*Taeniatherum caput-medusae*). Invasion of native sagebrush-steppe by annual grasses such as cheatgrass increases the frequency and severity of fires, which slickspot peppergrass and the native sagebrush-steppe ecosystem in which it occurs are not adapted to (USFWS 2011b). These fires also burn more uniformly, leaving no pockets of unburned native vegetation that could reseed burned areas. This change in the fire regime reduces the abundance of slickspot peppergrass and its native plant associates, and is conducive to the further spread of these invasive grasses, thus creating a self-perpetuating cycle (74 *Federal Register* 52014). In addition, cheatgrass competes directly with slickspot peppergrass. Another serious threat to slickspot peppergrass is development, both agricultural and residential, which results in direct destruction of plants, seedbanks, and slickspots, and also fragments and isolates populations. Fragmentation of populations and loss of pollinators is considered a moderate threat. Trampling by livestock, military training, and recreation are considered minor threats (74 *Federal Register* 52014).

3.6.3.3 Species Recovery

A Candidate Conservation Agreement between the State of Idaho, BLM, Idaho Army National Guard, and nongovernmental cooperators (private land owners who also hold BLM livestock grazing permits) has been in place for conservation of this species since

December 2003. There is also a 2006 conservation agreement between the BLM and USFWS for slickspot peppergrass that outlines conservation measures protecting this species. This 2006 agreement was updated in 2009, and is currently being evaluated for a 2013 update.

3.6.3.4 Life History, Habitat Requirements, and Distribution

Slickspot peppergrass is a small flowering plant in the mustard family (Brassicaceae) that grows in unique microsite habitats known as slickspots found within the semiarid sagebrush-steppe ecosystem in Ada, Canyon, Elmore, Gem, Owyhee, and Payette Counties of southwestern Idaho. It does not occur in Wyoming. The species is endemic to this region, known only from the Snake River Plain and its adjacent northern foothills (an area approximately 90 by 25 miles), with a smaller disjunct population on the Owyhee Plateau. Approximately 95 percent of the occupied slickspot peppergrass habitat occurs on federal lands (BLM, U.S. Air Force, Bureau of Reclamation). The remaining occupied habitat is in State of Idaho ownership or privately owned (USFWS 2011b).

Slickspot peppergrass occurs primarily in slickspot microsites, visually distinct openings characterized by areas of high sodium content and distinct clay layers, scattered within the greater semiarid sagebrush-steppe ecosystem of southwestern Idaho. Slickspots are distinguished from the surrounding sagebrush matrix by having the following characteristics: water pools when rain falls (Fisher et al. 1996), sparse vegetation, distinct soil layers with a columnar or prismatic structure, high alkalinity and clay content and natric properties (Fisher et al. 1996; Meyer and Allen 2005; Palazzo et al. 2008), and reduced levels of organic matter and nutrients due to lower biomass production (Meyer and Quinney 1993; Fisher et al. 1996). Fisher et al. (1996) describe slickspots as having a “smooth, panlike surface” that is structureless and slowly permeable when wet and moderately hard and cracked when dry. Although the low permeability of slickspots helps hold moisture (Moseley 1994), once the thin crust dries out the survival of slickspot peppergrass seedlings depends on the ability to extend the taproot into the argillic horizon and extract moisture from the deeper saline, sodic, natric zone (Fisher et al. 1996). Slickspots are scattered within a matrix of sagebrush steppe habitat. Menke and Kaye (2006a) describe high quality matrix habitat conditions for slickspot peppergrass as sagebrush-steppe habitat in late seral condition, and Fisher et al. (1996) note that “habitat with vigorous slickspot peppergrass populations has not been recently burned, is not heavily grazed, and has an understory of native bunchgrasses and a well-developed microbiotic soil crust.” The climatic conditions that allowed for the formation of slickspots are thought not to exist presently, and therefore the loss or destruction of a slickspot is considered permanent. Likely due to its dependence on specific soil conditions, slickspot peppergrass is only rarely found outside of slickspots (Menke and Kaye 2006b).

Slickspot peppergrass has an annual or biennial life history strategy. Aboveground populations may fluctuate greatly from year to year depending on precipitation and other factors. The aboveground plants represent only a small portion of the population, most of which is present in the soil seed bank because only a fraction of seeds germinate in a given year (Mancuso and Moseley 1998; Meyer et at. 2005). Although a slickspot may

not contain aboveground plants in a given year, they may contain viable slickspot peppergrass seeds (USFWS 2011b).

3.6.3.5 Population Status

Increased survey efforts for slickspot peppergrass have resulted in an increase in the amount of known occupied habitat, although the known range of this species has not substantially expanded. The historic and extant distribution of slickspot peppergrass is tracked by the Idaho Natural Heritage Program through the use of element occurrences (EOs) (USFWS 2011b). All occupied slickspots within a 0.6-mile distance of another occupied slickspot are combined into a single EO (USFWS 2011b). Each EO is then given a letter ranking (A, B, C, D, E, F, H, or X) based on habitat quality and the abundance of slickspot peppergrass within the EO. Higher rankings ("A" is the highest ranking) indicate sites with greater habitat quality and larger population sizes and B, C, and D rankings indicating a decreasing continuum of detectable plants, native plant community, habitat condition, and overall landscape context within 0.6 mile of occupied slickspots, with a B ranking signifying a greater number of plants and better habitat conditions and a D ranking signifying few plants and poor conditions (USFWS 2011b). As of 2009, approximately 80 EOs of this species were extant and most of these extant EOs were small and threatened by ongoing habitat loss (USFWS 2011b).

Slickspot peppergrass abundance has declined in the past, and its current range-wide short-term trend is rapidly to very rapidly declining (NatureServe 2011). The exact trend is difficult to ascertain, however, partly due to the wide variability in the number of aboveground-flowering individuals in a given year; only a small fraction of slickspot peppergrass seeds germinate annually (USFWS 2011b).

3.6.3.6 Critical Habitat

Critical habitat was proposed for slickspot peppergrass on May 10, 2011 (76 *Federal Register* 27184), which includes a total of 57,756 acres. Due to the current uncertainty on the status of the species under the Act subsequent to the August 2012 court decision, the future date of final critical habitat designation for slickspot peppergrass is unknown. Four units of critical habitat are proposed, one each in Payette, Ada, Elmore, and Owyhee Counties, Idaho. The four PCEs are:

1. Ecologically functional microsites or "slickspots," characterized by:
    a. High sodium and clay content and a three-layer soil horizonation sequence.
    b. Sparse vegetation with low to moderate introduced, invasive, non-native plant species cover.
2. Relatively intact, native Wyoming big sagebrush vegetation assemblages, represented by native bunchgrasses, shrubs, and forbs, within 820 feet of slickspot peppergrass element occurrences to protect slickspots and plants from disturbance from wildlife, slow the invasion of slickspots by non-native species and native harvester ants, and provide the habitats needed by slickspot peppergrass's pollinators.

3. A diversity of native plants whose blooming times overlap to provide pollinator species with sufficient flowers for foraging throughout the seasons and to provide nesting and egg-laying sites; appropriate nesting materials; and sheltered, undisturbed places for hibernation and overwintering. In order for genetic exchange of slickspot peppergrass to occur, pollinators must be able to move freely between slickspots. Alternative pollen and nectar sources are needed to support pollinators during times when slickspot peppergrass is not flowering, when distances between slickspots are large, and in years when slickspot peppergrass is not a prolific flowerer.
4. Sufficient pollinators for successful fruit and seed production, particularly pollinator species of the sphecid and vespid wasp families, species of the bombyliid and tachnid fly families, honeybees, and halictid bee species, most of which are solitary insects that nest outside of slickspots in the surrounding sagebrush-steppe vegetation, both in the ground and within the vegetation.

3.6.3.7 Environmental Baseline

As described above (Section 3.6.3.2 – Threats), modification of habitat, changes to fire regime, invasion by non-native plants, and development have reduced the amount and suitability of potential habitat for slickspot peppergrass and has resulted in direct loss of individuals across its range, including within the Action Area. The status of slickspot peppergrass within the Action Area is further discussed below.

Species Presence

Eleven known occurrences of slickspot peppergrass are found within the Action Area, five of which would be crossed by Segment 8 (Figure 3-8). The majority of the EOs within the Action Area and bisected by the Project are ranked as “C” and two of the occurrences are ranked as “F” (failed to find). Table 3-6 below summarizes the acres of known occurrences of slickspot peppergrass, by EO number and rank that occur within the Action Area and within the Project footprint.

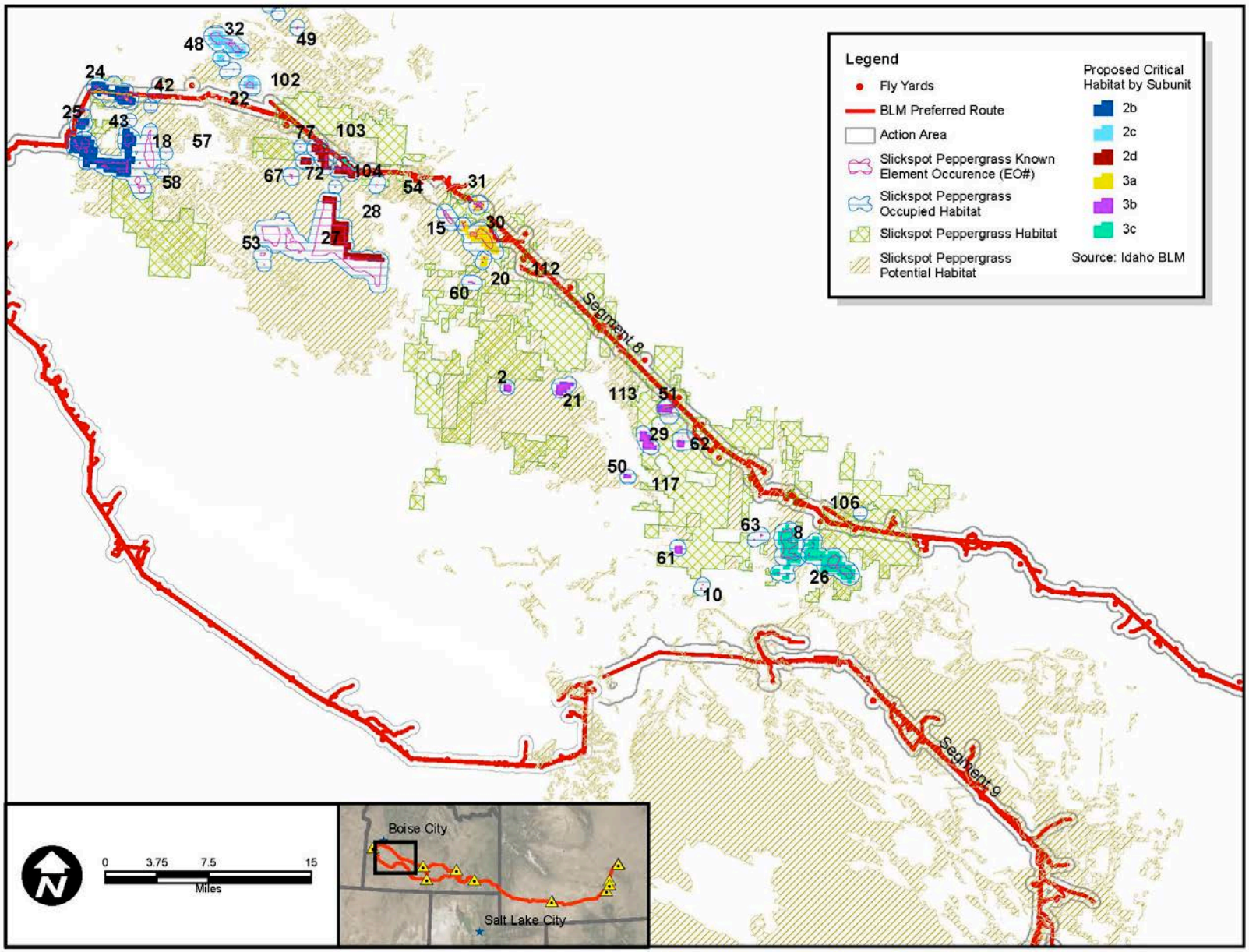

Figure 3-8a. Slickspot Peppergrass Proposed Critical Habitat, Occupied Habitat, and Potential Habitat in relation to the Project (Map 1)

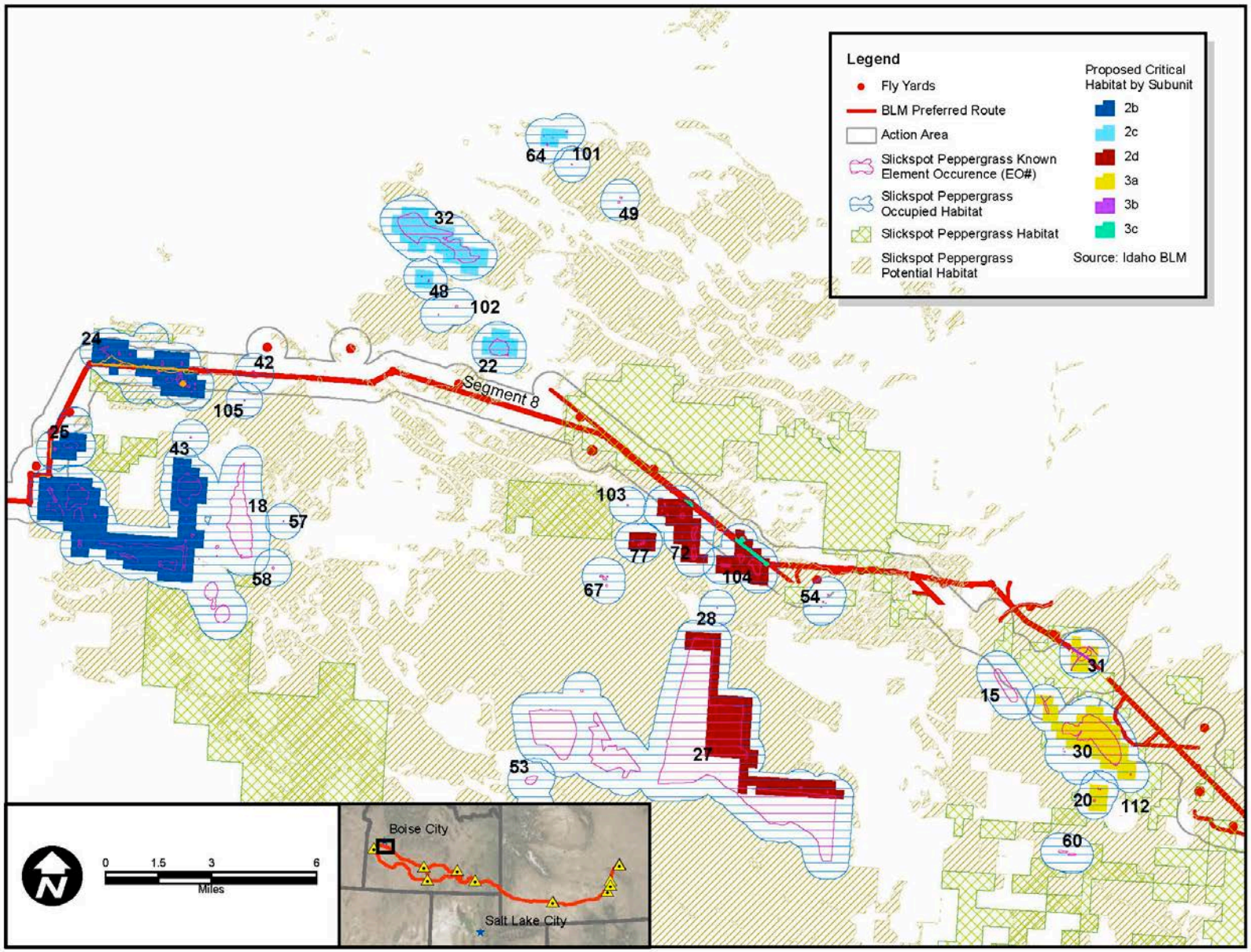

Figure 3-8b. Slickspot Peppergrass Proposed Critical Habitat, Occupied Habitat, and Potential Habitat in relation to the Project (Map 2)

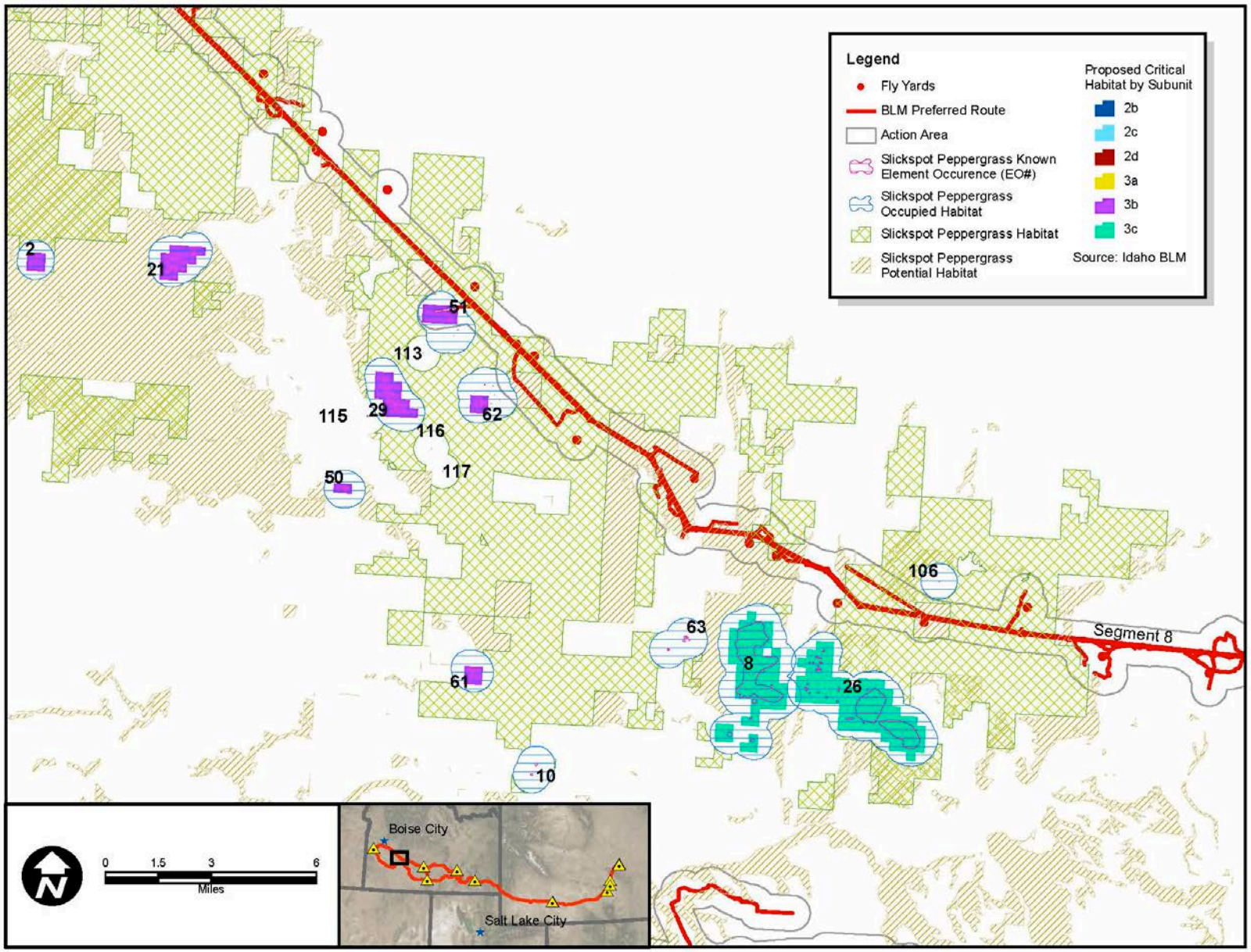

Figure 3-8c. Slickspot Peppergrass Proposed Critical Habitat, Occupied Habitat, and Potential Habitat in relation to the Project (Map 3)

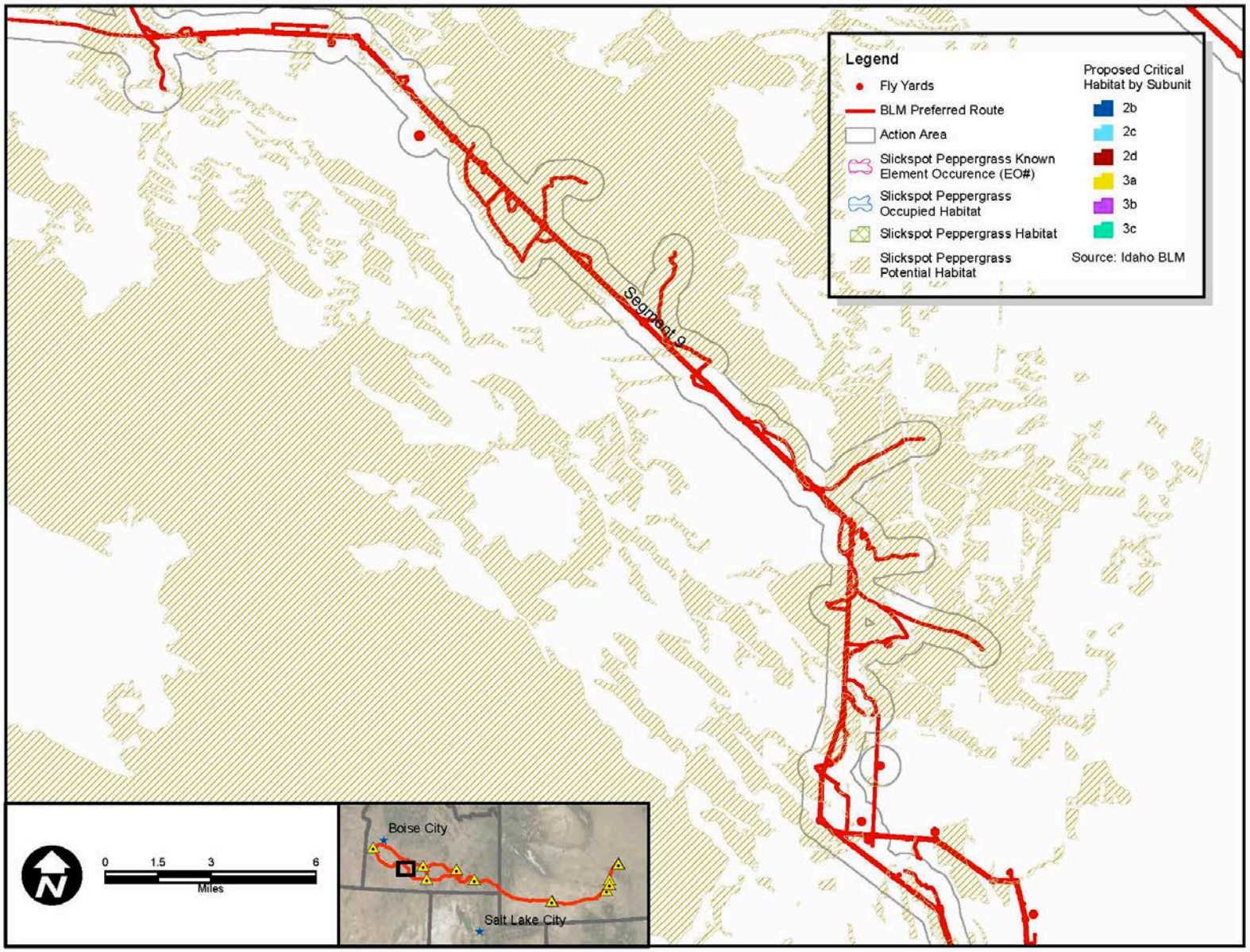

Figure 3-8d. Slickspot Peppergrass Proposed Critical Habitat, Occupied Habitat, and Potential Habitat in relation to the Project (Map 4)

Table 3-6. Acres of Known Occurrences of Slickspot Peppergrass within the Action Area and Crossed by the Project Footprint, by Element Occurrence[1/]

EO Number	EO Rank[2/]	Acres Within Action Area	Acres Within Project Footprint[3/]
15	D	47.0	--
18	C	21.8	--
24	C	90.4	1.7
25	C	14.9	--
30	B	156.8	<0.01
31	C	71.5	1.3
42	F	2.1	0.03
51	BD	3.6	--
54	F	0.5	--
72	C	19.4	--
104	C	80.6	0.2
	Total	**508.6**	**3.2**

1/ All known occurrences within the Action Area and crossed by the Project footprint occur along Segment 8.
2/ Only acres of extant EOs included in table; extirpated occurrences not included.
EO Rank Definitions (from Colket et al. 2006):
A-Rank: SIZE: >1000 detectable genets. CONDITION: Native plant community is intact with trace introduced plant species cover. Slickspots have zero or trace introduced weed cover and/or livestock disturbance. Zero or few minor anthropogenic disturbances are present. EO is unburned. LANDSCAPE CONTEXT: Surrounding landscape less than 1 km away has not been fragmented by agricultural lands, residential or commercial development, introduced annual grasslands, or drill seeding projects.
B-Rank: SIZE: 400–999 detectable genets. CONDITION: Native plant community is intact with low introduced plant species cover. Slickspots have low introduced weed cover and/or livestock disturbance. Zero or few minor anthropogenic disturbances present. EO is predominantly unburned. LANDSCAPE CONTEXT: Surrounding landscape less than 0.6 mi away is minimally to partially fragmented by agricultural lands, residential or commercial development, introduced annual grasslands, or drill seeding projects.
C-Rank: SIZE: 50–399 detectable genets. CONDITION: Native plant community is partially intact with low-to-moderate introduced plant species cover. Slickspots have low-to-moderate introduced weed cover and/or livestock disturbance. Few or several minimally to moderately severe anthropogenic disturbances are evident. EO has partially burned. Portions of EO may have been drill seeded, but slickspots are largely intact. LANDSCAPE CONTEXT: Surrounding landscape less than 0.6 mi away is partially to predominantly fragmented by agricultural lands, residential or commercial development, introduced annual grasslands, or drill seeding projects.
D-Rank: SIZE: 1–49 detectable genets. CONDITION: Few components of the native plant community remain and introduced plant species cover is high. Slickspots have high introduced weed cover and/or livestock disturbance. Few or several moderately severe anthropogenic disturbances are evident. EO has been predominantly to completely burned. Portions of EO may have been drill seeded, and slickspot soils have been altered by drill seeding. LANDSCAPE CONTEXT: Surrounding landscape less than 0.6 mi away is moderately to completely fragmented by agricultural lands, residential or commercial development, introduced annual grasslands, or drill seeding projects**.**
F-Rank (Failed to find): EO has been surveyed by experienced individuals who failed to find any slickspot peppergrass individuals, despite searching under conditions appropriate for the element at a location where it was previously recorded.
3/ Acres do not include the Project right-of-way as vegetation clearing within the right-of-way would only occur in forested vegetation communities.

Habitat

Occupied slickspot peppergrass habitat[1] and slickspot peppergrass habitat would be crossed by Segment 8 of the Project. Potential slickspot peppergrass habitat would be crossed by Segments 8 and 9 (Figure 3-8). Approximately 11,108.8 acres of slickspot peppergrass occupied habitat occurs within the Action Area and 248.1 acres occurs within the Project footprint. Table 3-7 displays the acres of occupied slickspot habitat, by EO, that occur within the Action Area and are crossed by Segment 8.

[1] Three habitat categories are used by the BLM for slickspot peppergrass: occupied habitat, slickspot peppergrass habitat, and potential habitat. See Attachment A of this document for definitions of these habitat categories.

Table 3-7. Acres of Slickspot Peppergrass Occupied Habitat within the Action Area and Bisected by the Project Footprint, by Element Occurrence[1/]

EO Number	EO Rank[2/]	Acres Within Action Area	Acres Within Project Footprint[3/]
15	D	623.7	13.8
18	C	661.7	17.6
24	C	2,643.9	63.1
25	C	913.5	44.3
30	B	1,266.6	7.2
31	C	975.0	16.8
42	F	592.5	12.8
51	BD	767.7	2.6
54	F	326.3	4.6
62	C	176.2	--
72	C	914.4	23.9
104	C	1,123.8	41.4
105	D	123.5	--
	Total	**11,108.8**	**248.1**

1/ All acres of occupied habitat within the Action Area and within the Project footprint occur along Segment 8.
2/ EO Rank Definitions: See Table 3-6 above.
3/ Acres do not include the Project right-of-way as vegetation clearing within the right-of-way would only occur in forested vegetation communities.

Approximately 20,878.5 acres of slickspot peppergrass habitat and 49,414.8 acres of potential habitat occur within the Action Area. Approximately 515.5 acres of slickspot peppergrass habitat and 815.6 acres of potential habitat for slickspot peppergrass occur within the Project footprint (Table 3-8).

Table 3-8. Acres of Potential Habitat and Slickspot Peppergrass Habitat and within the Action Area and Project Footprint

	Habitat Category [1/]			
	Potential Habitat		Slickspot Peppergrass Habitat	
Segment	Action Area (Acres)	Project Footprint (Acres)	Action Area (Acres)	Project Footprint (Acres)
Segment 8	20,034.0	382.6	20,878.5	515.4
Segment 9	29,380.8	433.0	–	–
Total[2/]	**49,414.8**	**815.6**	**20,878.5**	**515.4**

1/ Three habitat categories are used by the BLM for slickspot peppergrass: occupied habitat, slickspot peppergrass habitat, and potential habitat. See Attachment A of this document for definitions of these habitat categories.
2/ Acres do not include the Project right-of-way as vegetation clearing within the right-of-way would only occur in forested vegetation communities.

Habitat Integrity and Population Monitoring Data

Monitoring data for slickspot peppergrass have been collected since the late 1990s (Colket 2006). Habitat Integrity and Population (HIP) monitoring protocol was developed in 2004 to monitor and assess slickspot peppergrass abundance, habitat integrity, and disturbance, for the purpose of evaluating and improving management actions implemented by the Candidate Conservation Agreement (Colket 2006). This monitoring protocol replaced the previously used habitat integrity index monitoring protocol.

Between 2004 and 2005, 79 permanent HIP transects were established within slickspot peppergrass EOs and various attributes, such as abundance, habitat condition, and disturbance, have been measured annually within each slickspot along transect (Colket 2006; Kinter et al. 2012).

Table 3-9 displays the HIP transects and Management Areas associated with known occurrences or occupied habitat of slickspot peppergrass that occur within the Action Area and could potentially impacted by Project activities.

Table 3-9. HIP Transect and Associated EOs and Management Area within the Action Area

Management Area	HIP Transect Number	EO Number/ (Rank)[1/]
6	018A; 018B; 019A	18 (C)
	024	24 (C)
	025	25 (C)
	042	42 (F)
8A	015	15 (D)
	030B	30 (B)
	031	31 (C)
8B	054	54 (F)
	072B; 072C	72 (C)
	072A	104 (C)
9	051A; 051B	51 (BD)
	062	62 (C)
N/A[2/]	N/A	105 (D)

1/ EO Rank Definitions: See Table 3-6 above.

2/ No Management Area or HIP monitoring transect is currently associated with this EO. Monitoring data for EO 42, a nearby EO, are used to characterize baseline conditions for this EO in this analysis.

HIP monitoring data characterizing the baseline conditions of slickspot occurrences and occupied habitat from 2004 through 2011 are described below in Tables 3-10 through 3-13. Additional data on slickspot habitat attributes (e.g., ground disturbance, condition of native vegetation) have been collected for HIP transects. Summaries of the baseline conditions of these parameters, as well as the potential effects of the Project on baseline conditions within slickspot peppergrass occupied habitat in the Action Area, are described in Attachment A (Effects Determination Checklist for Slickspot Peppergrass).

Table 3-10. Unseeded Non-native Plant Cover (Percent) (Colket 2009; Kinter et al. 2010, 2011, 2012)

HIP Transect Number	Year							
	2004	2005	2006	2007	2008	2009	2010	2011
015	4.6	8.2	7.6	14.1	1.3	6.5	4.8	8.7
018A	34.5	30.0	14.5	11.2	2.7	3.2	17.5	37.3
018B	25.5	6.7	12.6	15.2	3.2	1.3	3.0	8.2
019A	20.1	26.3	9.6	11.1	4.4	13.3	45.5	38.3
024	32.8	47.0	66.3	55.0	21.9	27.7	46.3	66.3
025	32.8	35.5	52.5	57.5	6.6	3.2	30.8	37.5
030B	1.2	14.1	7.7	29.0	6.6	4.1	10.3	12.5
031	1.0	1.5	3.7	7.1	2.0	2.4	5.2	7.2
042	No data	22.5	57.3	57.3	32	17.5	66.8	76.3
051A	0.7	3.9	2.0	1.5	1.8	1.3	1.8	4.4

Table 3-10. Unseeded Non-native Plant Cover (Percent) (Colket 2009; Kinter et al. 2010, 2011, 2012) (continued)

HIP Transect Number	Year							
	2004	2005	2006	2007	2008	2009	2010	2011
051B	1.0	1.5	1.7	1.7	1.3	0.5	6.1	11.4
054	No data	3.7	10.1	5.3	2.5	4.4	10.1	6.3
062	No data	4.4	6.7	2.0	1.8	4.9	8.0	3.5
072A	21.5	25.5	35.0	10.3	8.4	11.2	15.2	21.4
072B	17.5	15.5	27.8	8.2	3.7	12.6	7.7	9.6
072C	13.5	9.0	14.1	8.8	4.1	11.2	9.2	14.6

Table 3-11. Seeded Non-native Plant Cover (Percent) (Colket 2009; Kinter et al. 2010, 2011, 2012)

HIP Transect Number	Year							
	2004	2005	2006	2007	2008	2009	2010	2011
015	0	0	0	0	0	0	0	0
018A	0	0	0	0	0	0	0	0
018B	0.4	0.1	0.3	0	0	0.1	0	0.1
019A	3.1	3.7	0.3	0.1	0	0.1	0.2	0.3
024	0.1	1.6	1.5	0	1.0	1.5	1.3	1.3
025	0	0	0	0	0	0	0	0
030B	0	0	0	0	0	0	0	0
031	0	0	0	0	0	0	0	0
042	0	0	0	0	0	0	0	0
051A	0	0	0	0	0	0	0.1	0
051B	0	0	0	0	0	0	0	0
054	0	0	0	0	0	0	0	0
062	0	0	0	0	0	0	0	0
072A	0	0.1	0	0	0	0	0	0
072B	0	0	0	0	0	0	0	0
072C	1.9	0.7	0.2	0.1	0.4	0.3	0.3	1.0

Table 3-12. Biological Soil Crust Cover in HIP Transect Slickspots (Percent) (Colket 2009; Kinter et al. 2010, 2011, 2012)

HIP Transect Number	Year							
	2004	2005	2006	2007	2008	2009	2010	2011
015	5.3	5.1	43.3	33.5	2.4	15.1	38.8	50.5
018A	12.4	12.3	47.6	30.6	33.9	27.5	21.6	40.6
018B	33.1	25.6	55.0	35.3	53.8	36.0	45.0	73.3
019A	20.2	21.3	57.8	43.3	54.5	57.3	37.9	47.3
024	14.5	29.3	47.3	34.8	45.8	21.4	23.2	29.5
025	39.3	20.9	70.1	54.8	60.0	49.6	42.3	52.1
030B	19.1	44.0	44.3	43.3	46.3	38.1	41.3	59.5
031	15.1	61.3	45.0	37.0	44.6	47.3	59.5	57.3
042	No data	37.0	52.0	55.0	66.8	61.3	43.0	62.5
051A	52.8	40.9	55.0	57.0	61.0	36.1	44.3	53.8
051B	53.3	61.3	64.3	57.3	48.0	36.8	28.5	69.0
054	No data	12.6	15.1	3.7	4.8	7.1	19.5	31.9
062	No data	17.3	52.0	35.0	26.5	7.2	17.5	22.6
072A	32.0	29.8	53.5	37.0	37.8	38.4	43.5	48.0
072B	21.0	24.5	32.1	31.5	21.2	21.1	31.0	44.8
072C	25.5	15.9	57.5	25.0	22.8	19.4	36.9	35.6

Table 3-13. Population Data – Total Slickspot Peppergrass Plants (Colket 2009; Kinter et al. 2010, 2011, 2012)

HIP Transect Number	Year							
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
015	49	37	20	108	417	932	158	3
018A	581-780	653	33	336	391	86	4660	192
018B	332	498	298	923	1585	454	3622	1744
019A	0	0	0	0	1	0	1	0
024	386-634	171	42	0	170	83	596	104
025	1002-1449	455	42	112	375	248	1453	120
030B	1	6	2	3	5	0	0	0
031	5	59	42	458	388	242	51	0
042	No data	0	0	0	0	0	0	0
051A	175-224	860	65	2	315	91	45	26
051B	18	60	25	4	20	7	3	3
054	No data	0	0	0	0	0	0	0
062	No data	297	9	0	19	8	16	11
072A	728-927	480	13	5	170	10	61	0
072B	98	295	172	388	437	143	35	0
072C	218	195	21	45	115	38	14	0

Critical Habitat

Two units (Units 2 and 3) of proposed critical habitat are located near Segment 8. Approximately 4.3 miles of Segment 8 would cross through proposed slickspot peppergrass critical habitat (Figure 3-8). Approximately 4,378.8 acres of proposed critical habitat occur within the Action Area, the majority of which (approximately 51 percent) is within Subunit 2b (Table 3-14). Approximately 188.6 acres[2] of proposed critical habitat, 180.5 acres in Unit 2 and 8.1 acres in Unit 3, occur within the Project footprint. Table 3-15 summarizes, by subunit and Project component, the acres of proposed critical habitat that occur within the Project footprint.

Table 3-14. Acres of Proposed Critical Habitat, by Subunit, within the Action Area

Critical Habitat Subunit	Acres of Proposed Critical Habitat[1/]
2b	2,243.4
2d	934.9
3a	883.5
3b	317.0
Total	**4,378.8**

1/ All acres of proposed critical habitat within the Action Area occur along Segment 8.

[2] Acres are for entire Project footprint including entire ROW. Only a portion of the ROW would be disturbed for Project construction and operation and maintenance.

Table 3-15. Acres of Proposed Critical Habitat within the Project Footprint, by Subunit and Project Component

Project Segment and Component[1/]	Critical Habitat Subunit (Acres)				Total by Project Component
	2b	2d	3a	3b	
Segment 8					
Crossing	--	0.03	--	--	0.03
Deadend Pulling – 500kV (1-SC)	3.8	6.9	--	--	10.7
Existing Road - Improved	11.4	4.3	6.0	2.1	23.8
Fly Yard	12.4	11.8	--	--	24.2
New Road	2.4	3.7	--	--	6.1
Pad – 500kV	16.6	8.6	--	--	25.2
Pulling-Tensioning – 500kV (1-SC)	3.7	--	--	--	3.7
Total by Subunit	**50.3**	**35.3**	**6.0**	**2.1**	**93.7**

1/ Acres do not include the Project right-of-way as vegetation clearing within the right-of-way would only occur in forested vegetation communities.

3.7 Cumulative Impacts

This section establishes the baseline conditions related to cumulative effects and defines the list of reasonably foreseeable future actions that could occur within the Action Area. Cumulative effects as they related to specific species are addressed in Section 4.

Projects identified in the cumulative effects analysis area include transmission lines, pipelines, road projects, power generation facilities, and resource extraction projects. High-voltage transmission lines (typically 115-, 230-, 345-, or 500-kV) carry electricity long distances and begin and end at substations that serve as either generation or load centers. Large-diameter pipelines (at least 12 inches for liquids and at least 24 inches for natural gas) transport liquid petroleum products or natural gas long distances. Power generation facilities include coal-fired, oil-fired, diesel-fired, and natural gas-fired power plants; geothermal facilities; wind energy facilities; hydroelectric projects; biomass and cogeneration facilities; and solar facilities. Resource extraction activities found in the area include coal, trona, crude oil, petroleum products, natural gas, and phosphate.

Existing projects occurring within the species ranges are included in Table 3-16. Mineral leases and oil and gas fields were analyzed by overall acreages for the resource and assessed for the acres occurring within range of the species of interest.

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Transmission Lines	Amps to Tap	PacifiCorp	Federal	34 miles	Canada lynx linkage habitat[7/]	5 miles
	Anaconda (Mill Creek) to Peterson Flats	NorthWestern Corp	Federal	83 miles	grizzly bear[5/]	10 miles
					Canada lynx linkage habitat[7/]	8 miles
	Antelope to Yellowcake	PacifiCorp	Federal	45 miles	Preble's meadow jumping mouse[4/]	45 miles
	Archer to Stegall	Western Area Power Administration	Private	61 miles	Preble's meadow jumping mouse[4/]	50 miles
	Atlantic City to Wyopo	PacifiCorp	Federal	29 miles	Canada lynx linkage habitat[7/]	7 miles
					grizzly bear[5/]	29 miles
	Ault to Craig (Co)	Western Area Power Administration	Federal	181 miles	Preble's meadow jumping mouse[4/]	36 miles
	Badwater to Waltman	PacifiCorp	Federal	26 miles	grizzly bear[5/]	26 miles
	Billings to Yellowtail	NorthWestern Corp	Federal	42 miles	grizzly bear[5/]	42 miles
	Birch Creek to Ben Lomond	PacifiCorp	Federal	55 miles	Canada lynx linkage habitat[7/]	14 miles
	Blacks Fork to West Vaco	PacifiCorp	Federal	10 miles	grizzly bear[5/]	10 miles
	Blue Rim Switching Station to Palisades SW	PacifiCorp	Federal	4 miles	grizzly bear[5/]	4 miles
	Blue Rim Switching Station to South Trona	PacifiCorp	Federal	13 miles	grizzly bear[5/]	12 miles
	Casper North to Dave Johnston	PacifiCorp	Federal	31 miles	grizzly bear[5/]	2 miles
					Preble's meadow jumping mouse[4/]	16 miles
	Casper North to Midwest	PacifiCorp	Private	40 miles	grizzly bear[5/]	20 miles
	Casper to Casper North	PacifiCorp	Private	2 miles	grizzly bear[5/]	2 miles
	Dave Johnston to Difficulty	PacifiCorp	Federal	44 miles	black-footed ferret 10J population	17 miles
					Preble's meadow jumping mouse[4/]	21.6 miles
	Dave Johnston to Laramie River	Basin Electric Power Coop	Federal	77 miles	Preble's meadow jumping mouse[4/]	77 miles
	Dave Johnston to Stegall	Western Area Power Administration	Private	126 miles	Preble's meadow jumping mouse[4/]	119 miles
	Difficulty to Miners	PacifiCorp	Federal	42 miles	black-footed ferret 10J population	42 miles
	Fish Creek to Tap	PacifiCorp	Private	0.1 miles	grizzly bear[5/]	0.1 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Transmission Lines	Frannie to Garland	PacifiCorp	Federal	13 miles	grizzly bear[5/]	13 miles
	Garland to Oregon Basin	PacifiCorp	Federal	42 miles	grizzly bear[5/]	42 miles
	Grass Creek to Thermopolis	PacifiCorp	Federal	23 miles	grizzly bear[5/]	23 miles
	Jim Bridger to Borah	PacifiCorp	Federal	340 miles	Canada lynx linkage habitat[7/]	44 miles
					grizzly bear[5/]	124 miles
	Jim Bridger to Goshen	PacifiCorp	Federal	226 miles	Canada lynx linkage habitat[7/]	47 miles
					grizzly bear[5/]	209 miles
	Jim Bridger to Kiport	PacifiCorp	Federal	234 miles	Canada lynx linkage habitat[7/]	44 miles
					grizzly bear[5/]	124 miles
	Jim Bridger to Rock Springs	PacifiCorp	Federal	33 miles	grizzly bear[5/]	13 miles
	Kinport to Goshen	PacifiCorp	Tribal	40 miles	grizzly bear[5/]	25 miles
	Laramie River Sidney to Sidney	Tri State Generation & Transmission Association Inc.	Federal	123 miles	Preble's meadow jumping mouse[4/]	60 miles
	Laramie River to Stegall	Tri State Generation & Transmission Association Inc.	Private	57 miles	Preble's meadow jumping mouse[4/]	53 miles
	Laramie River to Story	Basin Electric Power Coop	Private	173 miles	Preble's meadow jumping mouse[4/]	93 miles
	Laramie River to Tap	Basin Electric Power Coop	Federal	80 miles	Preble's meadow jumping mouse[4/]	80 miles
	Lost River to Spar Canyon	Bonneville Power Administration	Federal	53 miles	Canada lynx linkage habitat[7/]	10 miles
	Mansface to Blue Rim Switching Station	PacifiCorp	Federal	4 miles	grizzly bear[5/]	4 miles
	Midwest to Buffalo	PacifiCorp	Federal	67 miles	grizzly bear[5/]	10 miles
	Miners to Platte	PacifiCorp	Federal	31 miles	black-footed ferret 10J population	20 miles
	Monument SW to Blacks Fork	PacifiCorp	Federal	7 miles	grizzly bear[5/]	7 miles
	Monument SW to Naughton	PacifiCorp	Federal	30 miles	grizzly bear[5/]	2 miles
	Monument SW to Shute Creek	PacifiCorp	Federal	16 miles	grizzly bear[5/]	16 miles
	Mustang to Jim Bridger	PacifiCorp	Federal	73 miles	grizzly bear[5/]	73 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Transmission Lines	Naughton to Treasureton	PacifiCorp	Federal	78 miles	grizzly bear[5/]	9 miles
					Canada lynx linkage habitat[7/]	31 miles
	Oregon Basin to Grass Creek	PacifiCorp	Federal	41 miles	grizzly bear[5/]	41 miles
	Palisades SW to West Vaco	PacifiCorp	Federal	11 miles	grizzly bear[5/]	11 miles
	Peterson Flats to Tap	NorthWestern Corp.	Federal	38 miles	Canada lynx linkage habitat[7/]	18 miles
	Point of Rocks to Jim Bridger	PacifiCorp	Federal	8 miles	grizzly bear[5/]	5 miles
	Riverton to Casper North	PacifiCorp	Federal	110 miles	grizzly bear[5/]	110 miles
	Riverton to Thermopolis	PacifiCorp	Federal	51 miles	grizzly bear[5/]	51 miles
					Canada lynx linkage habitat[7/]	10 miles
	Rock Springs to Atlantic City	PacifiCorp	Federal	69 miles	grizzly bear[5/]	69 miles
	Rock Springs to Firehole	PacifiCorp	Federal	7 miles	grizzly bear[5/]	4 miles
	Rock Springs to Palisades SW	PacifiCorp	Federal	13 miles	grizzly bear[5/]	13 miles
	Sheridan to Buffalo	PacifiCorp	Private	40 miles	grizzly bear[5/]	7 miles
	South Trona to Monument SW	PacifiCorp	Federal	19 miles	grizzly bear[5/]	15 miles
	Spence to Dave Johnston	PacifiCorp	Federal	70 miles	grizzly bear[5/]	41 miles
					Preble's meadow jumping mouse[4/]	16 miles
	Spence to Mustang	PacifiCorp	Federal	77 miles	grizzly bear[5/]	77 miles
	Tap to Ault	Tri State Generation & Transmission Association Inc.	Federal	30 miles	Preble's meadow jumping mouse[4/]	8 miles
	Teckla to Antelope	PacifiCorp	Federal	2 miles	Preble's meadow jumping mouse[4/]	3 miles
	Thermopolis to Badwater	PacifiCorp	Federal	2 miles	grizzly bear[5/]	44 miles
					Canada lynx linkage habitat[7/]	10 miles
	Unknown[3/] to Frannie	PacifiCorp	Federal	55 miles	grizzly bear[5/]	55 miles
					Canada lynx linkage habitat[7/]	7 miles
	Waltman to Spence	PacifiCorp	Federal	40 miles	grizzly bear[5/]	40 miles
	Wyopo to Riverton	PacifiCorp	Federal	20 miles	grizzly bear[5/]	20 miles
	Yellowcake to Dave Johnston	PacifiCorp	Private	20 miles	Preble's meadow jumping mouse[4/]	20 miles
	Yellowtail to Custer	Western Area Power Administration	Federal	62 miles	grizzly bear[5/]	32 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Transmission Lines	Yellowtail to Goose Creek SW Station	PacifiCorp	Tribal	60 miles	grizzly bear[5/]	60 miles
Natural Gas Pipelines	Unknown	Bitter Creek Pipelines	Unknown[8/]	1 mile	grizzly bear[5/]	1 mile
	Unknown	Cheyenne Light Fuel & Power Co.	Unknown[8/]	32 miles	Preble's meadow jumping mouse[4/]	32 miles
	Unknown	Colorado Interstate Gas Co	Federal	1,116 miles	black-footed ferret 10J population	111 miles
					Canada lynx linkage habitat[7/]	10 miles
					Preble's meadow jumping mouse[4/]	254 miles
					grizzly bear[5/]	526 miles
	Unknown	DCP Midstream	Federal	177 miles	grizzly bear[5/]	108 miles
	Unknown	EnCana Oil & Gas (USA) Inc.	Unknown[8/]	45 miles	grizzly bear[5/]	45 miles
	Unknown	Energy West Wyoming	Unknown[8/]	161 miles	grizzly bear[5/]	161 miles
	Unknown	Fort Union Gas Gathering LLC	State	54 miles	Preble's meadow jumping mouse[4/]	1 mile
			Private		Preble's meadow jumping mouse[4/]	29 miles
			Unknown[8/]		Preble's meadow jumping mouse[4/]	24 miles
	Unknown	Gas Transmission Northwest Corp	Federal	48 miles	Canada lynx linkage habitat[7/]	48 miles
					Snake River species	1 mile
	Unknown	Intermountain Gas Co.	Private	7 miles	grizzly bear[5/]	4 miles
			Unknown[8/]		grizzly bear[5/]	2 miles
	Unknown	Kinder Morgan Inc.	Federal	191 miles	black-footed ferret 10J population	44 miles
					Preble's meadow jumping mouse[4/]	75 miles
					grizzly bear[5/]	23 miles
	Unknown	Kinder Morgan Interstate Gas Transmission LLC	Federal	666 miles	Canada lynx linkage habitat[7/]	5 miles
					Preble's meadow jumping mouse[4/]	355 miles
					grizzly bear[5/]	277 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Natural Gas Pipelines	Unknown	Kinder Morgan Intrastate Casper Division	Federal	650 miles	black-footed ferret 10J population	72 miles
					grizzly bear[5/]	473 miles
					Canada lynx linkage habitat[7/]	8 miles
					Preble's meadow jumping mouse[4/]	54 miles
	Unknown	MGTC Inc.	State	13 miles	Preble's meadow jumping mouse[4/]	0.4 mile
			Private		Preble's meadow jumping mouse[4/]	8 miles
			Unknown[8/]		grizzly bear[5/]	5 miles
	Unknown	MIGC LLC	Federal	99 miles	Preble's meadow jumping mouse[4/]	99 miles
	Unknown	Northern Natural Gas Co.	Federal	69 miles	Snake River species	1 mile
	Unknown	Northwest Pipeline Corp.	Federal	267 miles	Canada lynx linkage habitat[7/]	89 miles
					grizzly bear[5/]	101 miles
					Snake River species	3 miles
	Unknown	Northwest Pipeline Corp.	Federal	32 miles	Bruneau hot springsnail	0.6 mile
	Unknown	Overthrust Pipeline Co.	Federal	163 miles	grizzly bear[5/]	50 miles
	Unknown	Public Service Co. of Colorado	Unknown[8/]	2 miles	Preble's meadow jumping mouse[4/]	2 miles
	Unknown	Questar Gas Co.	Private	2 miles	grizzly bear[5/]	2 miles
	Unknown	Questar Pipeline Co.	Federal	249 miles	Preble's meadow jumping mouse[4/]	2 miles
					grizzly bear[5/]	57 miles
					Canada lynx habitat	1 mile
	Unknown	Rockies Express Pipeline LLC	Unknown[8/]	6 miles	Preble's meadow jumping mouse[4/]	6 miles
	Unknown	Southern Star Central Gas Pipeline Inc.	Federal	165 miles	black-footed ferret 10J population	44 miles
					Preble's meadow jumping mouse[4/]	76 miles
					grizzly bear[5/]	14 miles
	Unknown	Trailblazer Pipeline Co.	Unknown[8/]	6 miles	Preble's meadow jumping mouse[4/]	6 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Natural Gas Pipelines	Unknown	Viking Gas Transmission Co.	Federal	56 miles	Snake River species	0.6 mile
	Unknown	WestGas InterState Inc.	Unknown[8/]	8 miles	Preble's meadow jumping mouse[4/]	8 miles
	Unknown	Williston Basin Interstate Pipeline Co.	Unknown[8/]	345 miles	Canada lynx linkage habitat[7/]	9 miles
					grizzly bear[5/]	336 miles
	Unknown	Wyoming Interstate Co. Ltd.	Federal	659 miles	black-footed ferret 10J population	66 miles
					Preble's meadow jumping mouse[4/]	467 miles
					grizzly bear[5/]	79 miles
Oil Pipelines	Express	Kinder Morgan Inc.	Private	221 miles	grizzly bear[5/]	4 miles
					Canada lynx linkage habitat[7/]	9 miles
			Unknown[8/]		grizzly bear[5/]	207 miles
	Platte	Kinder Morgan Inc.	Private	143 miles	Preble's meadow jumping mouse[4/]	33 miles
			State		Preble's meadow jumping mouse[4/]	4 miles
			Unknown[8/]		Preble's meadow jumping mouse[4/]	98 miles
	Pacific Energy Partners	Sinclair/Salt Lake Core System	Federal	358 miles	black-footed ferret 10J population	15 miles
					Preble's meadow jumping mouse[4/]	1 mile
					grizzly bear[5/]	24 miles
			Private		black-footed ferret 10J population	28 miles
					Preble's meadow jumping mouse[4/]	0.5 mile
					grizzly bear[5/]	47 miles
			State		black-footed ferret 10J population	3 miles
					grizzly bear[5/]	3 miles
			Unknown[8/]		black-footed ferret 10J population	16 miles
					Preble's meadow jumping mouse[4/]	87 miles

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Linear Projects						
Oil Pipelines	Suncor Energy Inc	Suncor	Unknown[8/]	87 miles	Preble's meadow jumping mouse[4/]	87 miles
	True Oil LLC	Butte	Unknown[8/]	30 miles	Preble's meadow jumping mouse[4/]	30 miles
Major Roads	Interstate Highways	NA	Federal	2,176 miles	black-footed ferret 10J population	69 miles
					Canada lynx linkage habitat[7/]	78 miles
					Preble's meadow jumping mouse[4/]	608 miles
					grizzly bear[5/]	1,224 miles
					Snake River species	33 miles
	U.S. Highways	NA	Federal	3,350 miles	black-footed ferret 10J population	70 miles
					Canada lynx linkage habitat[7/]	417 miles
					Preble's meadow jumping mouse[4/]	336 miles
					grizzly bear[5/]	2,430 miles
					Bull trout critical habitat	0.2 mile
					Snake River species	51 miles
	State Highways/Routes	NA	State	3,599 miles	black-footed ferret 10J population	174 miles
					Canada lynx linkage habitat[7/]	384 miles
					Preble's meadow jumping mouse[4/]	886 miles
					grizzly bear[5/]	1,969 miles
					Bruneau hot springsnail	0.7 mile
					Bull trout critical habitat	27 miles
					Snake River species	34 miles
	Other Major Roads	NA	--	1,314 miles	black-footed ferret 10J population	97 miles
					Canada lynx linkage habitat[7/]	34 miles
					Preble's meadow jumping mouse[4/]	410 miles
					grizzly bear[5/]	733 miles
					Bull trout critical habitat	3 miles
					Snake River species	0.5 mile

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Wind Farms	Campbell Hill Wind	Three Buttes Wind, LLC	Federal	13,560 acres	Preble's meadow jumping mouse[4/]	13,560 acres
	Camp Reed Wind Farm	RP Wind ID LLC	Federal	900 acres	slickspot peppergrass potential habitat[6/]	65 acres
	Cassia Gulch Wind Park	Cassia Gulch Wind Park LLC	Private	204 acres	slickspot peppergrass potential habitat[6/]	42 acres
	Cassia Wind Farm	Cassia Wind Farm LLC	Private	64 acres	slickspot peppergrass potential habitat[6/]	0 acres
	Dunlap Wind Farm	Rocky Mountain Power/PacifiCorp	Federal	16,608 acres	black-footed ferret 10J population	16,608 acres
	Foote Creek I	AES Wind Generation Inc.	Federal	265 acres	black-footed ferret 10J population	265 acres
	Foote Creek II	AES Wind Generation Inc.	State	40 acres	black-footed ferret 10J population	40 acres
	Foote Creek III	AES Wind Generation Inc.	Federal	279 acres	black-footed ferret 10J population	279 acres
	Foote Creek IV	AES Wind Generation Inc.	Federal	170 acres	black-footed ferret 10J population	170 acres
	Glenrock Wind Energy Project	PacifiCorp	Private	15,111 acres	Preble's meadow jumping mouse[4/]	15,111 acres
	Goshen II	BP Wind Energy North America Inc.	Private	8,668 acres	grizzly bear[5/]	8,668 acres
	Happy Jack Wind	Happy Jack Windpower LLC	Private	1,028 acres	Preble's meadow jumping mouse[4/]	1,028 acres
	High Plains Wind (WY)	PacifiCorp	Federal	4,231 acres	black-footed ferret 10J population	4,231 acres
					Preble's meadow jumping mouse[4/]	4,231 acres
	Horse Butte Wind Farm	Utah Associated Municipal Power System	Federal	5,734 acres	grizzly bear[5/]	5,734 acres
	Hot Springs Windfarm	Hot Springs Windfarm LLC	Private	208 acres	slickspot peppergrass potential habitat[6/]	70 acres
	McFadden Ridge Wind	PacifiCorp	Federal	10,592 acres	black-footed ferret 10J population	9,522 acres
					Preble's meadow jumping mouse[4/]	8,510 acres
	Medicine Bow (Prpa)	Platte River Power Authority	Private	193 acres	black-footed ferret 10J population	193 acres

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Wind Farms	Oregon Trail Wind Park	RP Wind ID LLC	Private	1,201 acres	slickspot peppergrass potential habitat[6/]	155 acres
	Paynes Ferry Wind Park	RP Wind ID LLC	Private	1,796 acres	slickspot peppergrass potential habitat[6/]	203 acres
	Pilgrim Stage Station Wind Park	RP Wind ID LLC	Private	1,128 acres	slickspot peppergrass potential habitat[6/]	107 acres
	Rock Creek I (SEENGR)	SeaWest Energy Group, Inc.	Federal	area unknown[8/]	black-footed ferret 10J population	area unknown[8/]
	Rock River I LLC	AES Wind Generation Inc.	Federal	1,211 acres	black-footed ferret 10J population	1,211 acres
	Rolling Hills Wind	PacifiCorp	Private	area unknown[8/]	Preble's meadow jumping mouse[4/]	area unknown[8/]
	Salmon Falls Wind Farm	RP Wind ID LLC	Private	1,274 acres	slickspot peppergrass potential habitat[6/]	650 acres
	Sawtooth Wind Farm	Powerworks	Private	1496 acres	slickspot peppergrass potential habitat[6/]	2 acres
	Seven Mile Hill Wind	PacifiCorp	Federal	8,968 acres	black-footed ferret 10J population	8,968 acres
	Silver Sage Wind Farm	Silver Sage Windpower LLC	Private	2,584 acres	Preble's meadow jumping mouse[4/]	2,584 acres
	Thousand Springs Wind Park	RP Wind ID LLC	Private	1,244 acres	slickspot peppergrass potential habitat[6/]	3 acres
	Top of The World Windpower Project	Top of The World Wind Energy LLC/Duke Energy NA	Federal	18,152 acres	Preble's meadow jumping mouse[4/]	18,152 acres
	Tuana Gulch Wind Park	RP Wind ID LLC	Private	486 acres	slickspot peppergrass potential habitat[6/]	19 acres
	Warren Air Force Wind	Amec Wind Energy Ltd	Federal	21 acres	Preble's meadow jumping mouse[4/]	21 acres
	Wolverine Creek Wind	Invenergy	Federal	10,893 acres	grizzly bear[5/]	10,893 acres
	Yahoo Creek Wind Park	RP Wind ID LLC	Private	1,915 acres	slickspot peppergrass potential habitat[6/]	451 acres
Oil-fired Power Plants	Blacks Fork Gas Processing Plant	Questar Gas Management Co.	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
				area unknown[8/]	black-footed ferret 10J population	area unknown[8/]
	Grant Village	Clark Fork & Blackfoot, LLC	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
	Lake Diesel	Clark Fork & Blackfoot, LLC	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Oil-fired Power Plants	Old Faithful	Clark Fork & Blackfoot, LLC	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
				area unknown[8/]	Canada lynx linkage habitat[7/]	area unknown[8/]
Natural Gas-fired Power Plants	Labarge Shute Cogeneration	ExxonMobil Corp.	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
Coal-fired Power Plants	Dave Johnston	PacifiCorp	Private	area unknown[8/]	Preble's meadow jumping mouse[4/]	area unknown[8/]
	Jim Bridger	PacifiCorp	Federal	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
	Laramie River	Basin Electric Power Cooperative	Private	area unknown	Preble's meadow jumping mouse[4/]	area unknown[8/]
					Platte River Species	area unknown[8/]
	SF Phosphates Limited Co.	SF Phosphates, Ltd. Co.	Private	area unknown[8/]	grizzly bear[5/]	area unknown[8/]
Hydropower Plants	Alcova	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Platte River Species	area unknown[8/]
	American Falls	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Anderson Ranch	U.S. Bureau of Reclamation	Federal	4,601 acre reservoir	Bull trout critical habitat	area unknown[8/]
	Arrowrock	Arrowrock Hydroelectric Project	Federal	3,049 acre reservoir	Bull trout critical habitat	area unknown[8/]
	Bliss	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Brownlee	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	C J Strike	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Fontenelle	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Colorado River species	area unknown[8/]
	Fremont Canyon	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Platte River Species	area unknown[8/]
	Gem State	Idaho Falls, ID (City of)	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Glendo	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Platte River Species	area unknown[8/]
	Hells Canyon	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Hydropower Plants	Kortes	US Bureau of Reclamation	Federal	area unknown[8/]	Platte River Species	area unknown[8/]
	Lower Malad (IDPC)	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Lower Salmon	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Milner Hydro	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Minidoka	US Bureau of Reclamation	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Oxbow (OR)	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Palisades (ID)	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Seminoe	U.S. Bureau of Reclamation	Federal	area unknown[8/]	Platte River Species	area unknown[8/]
	Shoshone Falls	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Swan Falls	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Twin Falls (ID)	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Upper Salmon Falls A	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
	Upper Salmon Falls B	Idaho Power Co.	Federal	area unknown[8/]	Snake River Species	area unknown[8/]
Oil and Gas Leases	Multiple Projects	Various	Federal	935,484 acres	black-footed ferret 10J population	215,830 acres
					Preble's meadow jumping mouse[4/]	272,040 acres
					grizzly bear[5/]	6,933,531 acres
					Canada lynx habitat	339,915 acres
					Canada lynx linkage habitat[7/]	595,090 acres
					Colorado River species	203,381 acres
					Snake River Species	324 acres
					Platte River Species	70,943 acres
			State	94,285 acres	black-footed ferret 10J population	6,531 acres

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Oil and Gas Leases	Multiple Projects	Various	State	94,285 acres	Preble's meadow jumping mouse[4/]	14,388 acres
					grizzly bear[5/]	82,199 acres
					Canada lynx habitat	565 acres
					Canada lynx linkage habitat[7/]	2,336 acres
			Tribal	15,252 acres	grizzly bear[5/]	0.4 acres
					Canada lynx linkage habitat[7/]	288 acres
			Private	625,202 acres	black-footed ferret 10J population	60,348 acres
					Preble's meadow jumping mouse[4/]	1,144,967 acres
					grizzly bear[5/]	1,195,583 acres
					Canada lynx habitat	58,063 acres
					Canada lynx linkage habitat[7/]	101,665 acres
Trona Mining	Multiple Projects	NA	Federal	753,780 acres	black-footed ferret 10J population	406 acres
					Preble's meadow jumping mouse[4/]	406 acres
					grizzly bear[5/]	649,059 acres
					Colorado River species	81,564 acres
	Multiple Projects	NA	State	29,527 acres	black-footed ferret 10J population	207 acres
					Preble's meadow jumping mouse[4/]	207 acres
					grizzly bear[5/]	24,267 acres
	Multiple Projects	NA	Tribal	--	--	--
	Multiple Projects	NA	Private	319,533 acres	black-footed ferret 10J population	5,921 acres
					Preble's meadow jumping mouse[4/]	5,921 acres
					grizzly bear[5/]	272,113 acres
Coal Deposits	Multiple Projects	Various	Federal	939,104 acres	black-footed ferret 10J population	103,127 acres
					Preble's meadow jumping mouse[4/]	6,658 acres

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Coal Deposits	Multiple Projects	Various	Federal	939,104 acres	grizzly bear[5/]	168,233 acres
					Colorado River species	2,538 acres
					Platte River Species	3,369 acres
	Multiple Projects	Various	State	287,759 acres	black-footed ferret 10J population	30,520 acres
					Preble's meadow jumping mouse[4/]	25,478 acres
					grizzly bear[5/]	949 acres
	None	NA	Tribal	--	--	--
	Multiple Projects	Various	Private	277,643 acres	black-footed ferret 10J population	274,777 acres
					Preble's meadow jumping mouse[4/]	267,299 acres
					grizzly bear[5/]	188,724 acres
Coal Leases	Multiple Projects	Various	Federal	48,869 acres	black-footed ferret 10J population	14,886 acres
					Preble's meadow jumping mouse[4/]	1,435 acres
					grizzly bear[5/]	16,169 acres
					Colorado River species	1,749 acres
					Platte River Species	319 acres
	Multiple Projects	Various	State	740 acres	black-footed ferret 10J population	644 acres
					Preble's meadow jumping mouse[4/]	2 acres
					grizzly bear[5/]	0.3 acres
	None	NA	Tribal	--	--	--
	Multiple Projects	Various	Private	38,600 acres	black-footed ferret 10J population	1,445 acres
					Preble's meadow jumping mouse[4/]	9,390 acres
					grizzly bear[5/]	1,953 acres
Oil and Gas Fields [9/]	Multiple Projects	Various	Federal	729,385 acres	black-footed ferret 10J population	1,854 acres
					Preble's meadow jumping mouse[4/]	24,265 acres
					grizzly bear[5/]	564,457 acres
					Canada lynx habitat	26,342 acres
					Canada lynx linkage habitat[7/]	124 acres

Table 3-16. Existing Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction [1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range[2/]
Non-Linear Projects						
Oil and Gas Fields [9/]	Multiple Projects	Various	Federal	729,385 acres	Colorado River species	24,449 acres
					Platte River Species	3,971 acres
			State	92,049 acres	black-footed ferret 10J population	860 acres
					Preble's meadow jumping mouse[4/]	36,229 acres
					grizzly bear[5/]	44,563 acres
					Canada lynx habitat	1,442 acres
					Canada lynx linkage habitat[7/]	133 acres
			Tribal	15,235 acres	grizzly bear[5/]	15,252 acres
			Private	620,683 acres	black-footed ferret 10J population	6,951 acres
					Preble's meadow jumping mouse[4/]	254,693 acres
					grizzly bear[5/]	217,513 acres
					Canada lynx habitat	7,231 acres
					Canada lynx linkage habitat[7/]	922 acres

1/ Jurisdiction was determined through examination of land ownership as well as project action. Projects that would trigger a federal nexus were classified as "Federal" jurisdiction projects.
2/ These acreages correspond to raw acreages within the species range/Analysis-Area, and do not necessarily directly correspond to acres within suitable habitat (i.e., there can be extensive areas of unsuitable habitat within a species range, and complete habitat information is not available at the level assessed for cumulative effects).
3/ Data did not provide information on proposed point of origin.
4/ Analysis of Preble's meadow jumping mouse habitat was restricted to the state of Wyoming.
5/ Grizzly bear habitat analysis extent consists of habitat for the Greater Yellowstone Area (GYA) population and includes the GYA BMU, and suitable habitat areas within this extent.
6/ Slickspot peppergrass potential habitat includes data for both areas of occupied and potential habitat.
7/ Canada lynx linkage areas is a generalized area around the directional linkage areas identified by cooperative agreement between the U.S. Department of Agriculture Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service in 2000 and published in 2003.
8/ The available data for this project was a point file with no area attributes; therefore, no Project Footprint or area in species range was calculated.

These areas represent existing and potential utilization. Because proposed utilization is not known at this time, reasonable and foreseeable impacts to the species could not be directly determined for this analysis. Furthermore, these acreages correspond to raw acreages within the species range/Analysis Area, and do not necessarily directly correspond to acres within suitable habitat (i.e., there can be extensive areas of unsuitable habitat within a species range, and complete habitat information is not available at the level assessed for cumulative effects).

Reasonably foreseeable projects occurring within the species ranges are listed in Table 3-17. Wind generation facilities are the dominant proposed projects that occur on land other than federal. Slickspot peppergrass habitat would be impacted by 8 of the 13 proposed wind projects, grizzly bear habitat occurs in 4, and Preble's meadow jumping mouse and Canada lynx linkage habitat each occur in one proposed wind project. Preble's meadow jumping mouse is the only species with habitat crossed by the proposed transmission lines. Wind generation projects generally do not occur in suitable habitat for Ute ladies'-tresses, and blowout penstemon's range does not extend into Idaho. However, as these plants could occur in areas considered for the Project and additional potential project activity, there is a possibility of cumulative impacts to the species.

Table 3-17. Proposed (i.e., Reasonably Foreseaable) Projects Considered within the Cumulative Effects Analysis

Project Type	Project Name	Project Owner	Jurisdiction[1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range [2/]
Linear Projects						
Transmission Lines	Ault to Cheyenne	Western Area Power Administration	Private	35 miles	Preble's meadow jumping mouse[4/]	9 miles
	Top of The World Windpower Project to Windstar	Duke Energy Corp.	Private	6 miles	Preble's meadow jumping mouse[4/]	6 miles
	Unknown[3/] to Campbell Hill	PacifiCorp	Private	12 miles	Preble's meadow jumping mouse[4/]	12 miles
Non-Linear Projects						
Wind Farms	Black Canyon Wind	Black Canyon LLC	Private	84 acres	grizzly bear[5/]	84 acres
	Cold Springs Wind Farm (ID)	Aegis Renewables LLC	Private	264 acres	slickspot peppergrass potential habitat[6/]	64 acres
					slickspot peppergrass critical habitat[7/]	12 acres
	Hammett Hill Windfarm	Aegis Renewables LLC	Private	495 acres	slickspot peppergrass potential habitat[6/]	371 acres
	Mainline Windfarm	Aegis Renewables LLC	Private	1,476 acres	slickspot peppergrass potential habitat[6/]	636 acres
	Mission Creek Wind Project	Sagebrush Energy LLC	Private	2,051 acres	grizzly bear[5/]	2,051 acres
					Canada lynx linkage habitat[8/]	2,051 acres
	Pathfinder Wind	Pathfinder Renewable Wind Energy, LLC	Private	area unknown[9/]	Preble's meadow jumping mouse[4/]	area unknown[9/]
	Ryegrass Wind Farm	Aegis Renewables LLC	Private	1,444 acres	slickspot peppergrass potential habitat[6/]	854 acres
					slickspot peppergrass critical habitat[7/]	192 acres
	Schwendiman Wind	Schwendiman Wind LLC	Private	246 acres	grizzly bear[5/]	246 acres
	Two Ponds Windfarm	Aegis Renewables LLC	Private	1,636 acres	slickspot peppergrass potential habitat[6/]	1 acres
	Desert Meadow Wind Farm	Aegis Renewables LLC	Private	1,829 acres	slickspot peppergrass potential habitat[6/]	837 acres

Table 3-17. Proposed (i.e., Reasonably Foreseaable) Projects considered within the Cumulative Effects Analysis (continued)

Project Type	Project Name	Project Owner	Jurisdiction[1/]	Project Footprint[2/]	Species Range Overlapped	Project Footprint within Species Range [2/]
Wind Farms	High Mesa Wind Project	High Mesa Energy LLC	Private	1,304 acres	slickspot peppergrass potential habitat[6/]	497 acres
	Magic Wind	Magic Wind LLC	Private	1,328 acres	slickspot peppergrass potential habitat[6/]	156 acres
	Idaho Falls (Bone area)	Idatherm	Private	area unknown[9/]	grizzly bear[5/]	area unknown[9/]

1/ Jurisdiction was determined through examination of land ownership as well as project action. Projects that would trigger a federal nexus were classified as "Federal" jurisdiction projects and were not included in the analysis of "Proposed" actions.
2/ These acreages correspond to raw acreages within the species range/Analysis-Area, and do not necessarily directly correspond to acres within suitable habitat (i.e., there can be extensive areas of unsuitable habitat within a species range, and complete habitat information is not available at the level assessed for cumulative effects).
3/ Data did not provide information on proposed point of origin.
4/ Analysis of Preble's meadow jumping mouse habitat was restricted to the state of Wyoming.
5/ Grizzly bear habitat analysis extent consists of habitat for the Greater Yellowstone Area (GYA) population and includes the GYA BMU, and suitable habitat areas within this extent.
6/ Slickspot peppergrass potential habitat includes data for both areas of occupied and potential habitat.
7/ Slickspot peppergrass critical habitat includes data for proposed critical habitat area.
8/ Canada lynx linkage areas is a generalized area around the directional linkage areas identified by cooperative agreement between the U.S. Department of Agriculture Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service in 2000 and published in 2003.
9/ The available data for this project was a point file with no area attributes; therefore, no Project Footprint or area in species range was calculated.

4 IMPACTS

This section describes the direct, indirect, and cumulative effects of the proposed action on listed species within the Action Area. Direct impacts are immediate effects of an action. Indirect impacts are those that result from the action and occur later in time but are still reasonably certain to occur. Cumulative impacts are effects from state and private activities that are reasonably certain to occur within the action area of the federal action subject to consultation; future federal actions that are unrelated to the proposed action are not considered in this section because they are addressed in a separate NEPA process and require separate consultation pursuant to Section 7 of the ESA (see Chapter 4 of the EIS). In order to form a frame of reference for the analysis of impacts below, the numbers of acres of various habitat types impacted within the Action Area during Project construction and operation are presented below (Table 4-1).

Table 4-1. Acres of Vegetation Types that Would Be Affected During Construction and Operations

Vegetation Type	Acres of Disturbance during Construction	Acres of Disturbance during Operation
Grassland	2,960	327
Shrubland[1/]	11,716	1,591
Forest/Woodland[2/]	1,494	1,245
Wetland/Riparian	198	28
Other Cover Type[3/]	3,559	439
Total[4/]	**19,925**	**3,636**

1/ "Shrubland" includes sagebrush, saltbrush, greasewood, and dwarf shrublands.
2/ "Forest/Woodland" includes conifer and deciduous forests as well as juniper woodlands
3/ "Other Cover Type" includes agricultural, disturbed/developed areas, open water, as well as areas with no vegetation.
4/ Columns may not sum exactly due to rounding.

4.1 Colorado River Species

4.1.1 Direct and Indirect Effects

The four endangered fish addressed under the UCEFRP (i.e., Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub, as well as their critical habitat) all occur far downstream from the Action Area (Figure 3-1); with the closest known occurrence located approximately 78 miles from the Project Area. Recovery of Colorado River fishes depends on the protection of instream flow and to protect this important resource for recovery, all water depletions of the system must be addressed as to their amount and potential for reducing that protected flow. Project-related actions that could affect local or near-stream conditions would have no effect on these far downstream habitats because the system where these species reside would be unchanged from local conditions, but the Project would have associated withdrawals of water from the system. In this manner then, and because the Project would use water that may be drawn in part from the Colorado River system for dust abatement/control, the requirements found in the UCEFRP regarding water withdrawals would apply to this Project.

The Proponents estimate that Project-related water use during construction for Segment 3 and half of the estimated usage for Segment 4 (because approximately half of Segment 4 lies in the Colorado River basin) would total 4,795,710 gallons (14.7 acre-feet; see Table D.16-12 of the EIS). Using this estimate and providing for the assumption that all of this water could be withdrawn from the Colorado River system (which may not be the case given the Proponent-committed conservation measures) total depletion within the basin would be no more than 0.3 acre-feet per year. This amount is greater than the identified threshold of 0.1 acre-feet per year from the UCEFRP, for which a "no effect" determination could be made. However, because the Proponents are currently unable to identify all of the future withdrawal locations and precise amount per each location, the depletion of 0.3 acre-feet annually from the Colorado River basin *may affect, and is likely to adversely affect*, the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub; and though depletions *may affect, they are not likely to adversely affect* critical habitats due to insignificant effects.

4.1.2 Cumulative Effects

No other proposed projects were identified along the Colorado River basin in the vicinity of the Project (see Table 3-17); however, it is anticipated that if any other projects were proposed/constructed, they would be required to comply with the requirements of the UCEFRP and coordinate or consult with the USFWS if withdrawals exceed 0.1 acre-feet per year. This would likely minimize impacts; however, any impacts that do occur would add cumulatively to those from Gateway West.

4.1.3 Critical Habitat

No critical habitat for any of the four endangered Colorado River fish occurs within the Action Area, so direct impacts are not anticipated. However, based on the requirements of the UCEFRP, and the fact that all necessary water sources have not been identified or acquired at this time, the Project *may affect, but is not likely to adversely affect* critical habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub.

4.2 Platte River Species

4.2.1 Direct and Indirect Effects

The five listed species addressed under the PRRIP (i.e., pallid sturgeon, interior least tern, whooping crane, piping plover, and western prairie fringed orchid, as well as whooping crane designated critical habitat) all occur far downstream from the Action Area (Figure 3-2). Recovery of Platte River species depends on the protection of instream flow and to protect this important resource for recovery, all water depletions of the system must be addressed as to their amount and potential for reducing that protected flow. Project-related actions that could affect local or near-stream conditions would have no effect on these far downstream habitats because the system where these species reside would be unchanged from local conditions, but the project will have associated withdrawals of water from the system. In this manner then, and because the Project would use water for dust abatement/control (which may be drawn

in part from the Platte River system), the requirements found in the PRRIP regarding water withdrawals would apply to this Project.

The Proponents estimate that Project-related water usage during construction along Segments 1W and 2, which lie in the Platte River basin, would be 6,016,293 gallons (18.5 acre-feet; see Table D.16-12, Appendix D of the EIS). Assuming all of this would be drawn from the Platte River system (which may not be the case), this comes to 0.4 acre-feet per year when divided over the life of the Project (50 years), which is greater than the threshold of 0.1 acre-feet per year identified by the PRRIP, above which a *no effect* call is no longer possible and consultation is required. However, because the Proponents are currently unable to identify all of the future withdrawal locations and precise amount per each location, the depletion of 0.4 acre-feet annually from the Platte River basin *may affect, and is likely to adversely affect* the pallid sturgeon, interior least tern, whooping crane, piping plover, and western prairie fringed orchid, and though depletions *may affect, they are not likely to adversely affect* critical habitats due to insignificant effects.

4.2.2 Cumulative Effects

No other proposed projects were identified along the Platte River basin in the vicinity of the Project (see Table 3-17); however, it is anticipated that if any other projects were proposed/constructed, they would be required to comply with the requirements of the UCEFRP and coordinate or consult with the USFWS if withdrawals exceed 0.1 acre-feet per year. This would likely minimize impacts; however, any impacts that do occur would add cumulatively to those from Gateway West.

4.2.3 Critical Habitat

No critical habitat for whooping crane occurs within the Action Area (Figure 3-2); however, as stated above, the Project *may affect, but is not likely to adversely affect,* whooping crane critical habitat.

4.3 Mammals

4.3.1 Black-Footed Ferret

4.3.1.1 Direct and Indirect Effects

As discussed above, the only population of black-footed ferret within the action area for which consultation is conducted is for the reintroduced 10(j) population in the Shirley Basin Area (which is considered a nonessential experimental population).

<u>Quantitative Impacts to Habitat within the Range of the 10(j) Population</u>

During construction, 21 acres of suitable black-footed ferret habitat would be disturbed within the 10(j) population's range along Segment 1W(a), 57 along Segment 1W(c), and 22 along Segment 2. Following restoration, Project operation would impact 5 acres along Segment 1W(a), 5 along Segment 1W(c), and 7 along Segment 2. Even if habitat removal takes place where no ferrets are currently present, habitat quality could still be reduced, potentially reducing the success of future ferret reintroductions.

General Impacts

Construction and operations of the Project could have direct and indirect impacts on black-footed ferrets, including noise and dust disturbance; direct mortality; loss or modification of habitat; impacts to their primary prey species (i.e., the prairie dog); and increased susceptibility to predation. Project impacts to black-footed ferrets would be minimized by micrositing the Project to avoid active prairie dog burrows in proximity to the 10(j) reintroduction area that are identified prior to construction.

Noise and dust disturbance would occur primarily during construction, but also during operational maintenance work, from personnel and equipment within the ROW. Disturbance could make habitat temporarily unsuitable for black-footed ferrets; to minimize this, the Proponents have developed measures within their Traffic and Transportation Management Plan to control dust near construction activities. This plan also includes measures to control traffic (both existing and Project-related) near construction activities, to reduce the likelihood of vehicular related mortality of wildlife during construction. The presence of vehicles during construction and operations would also pose a risk of death to black-footed ferrets if they are struck. Impacts from disturbance and vehicle collisions could be compounded beyond direct Project impacts by the increased unauthorized use of Project roads by the public during operation. In order to minimize this risk, the Proponents would install and maintain gates at potential access points, thereby limiting the access of unauthorized vehicles.

Increased human and vehicular presence in the Action Area could result in an increased fire risk, which could alter black-footed ferret habitat (e.g., fires can be started due to the heat generated by vehicles igniting the grass along roads). The risk of this would be minimized by controlling public access to Project roads during construction (TRANS-5) and by installing gates to control access during operation (OM-6).

Impacts to prairie dogs during construction and operations would be similar to impacts to black-footed ferrets, and would include disturbance, mortality, modification of habitat, destruction of burrows, and increased predation pressure. Due to EPMs that would apply to this and other species, the Project is not expected to result in population level effects to prairie dogs within the Action Area (see the assessment of impacts to prairie dogs found in Section 3.11 of the EIS). Therefore, black-footed ferrets are not expected to experience a significant loss of prey availability.

The Project would not likely serve as a barrier to the black-footed ferret's movement, because these animals naturally occupy open habitat types and so they are unlikely to be hesitant to cross the ROW, and the towers and lines would not physically block movement. However, predation pressure on black-footed ferrets could increase due to the presence of transmission towers in its habitat, due to their becoming an attractant to raptor and ravens as nesting and perching structures (Gilmer and Wiehe 1977; Knight and Kawashima 1993; Steenhof et al. 1993; Connelly et al. 2004; Manzer and Hannon 2005; Coates and Delehanty 2010). This consolidation of birds of prey along transmission lines could result in an increase of predation on prey animals that use habitats surrounding the transmission line, including black-footed ferrets. The effect of increased raptor and raven predation rates would be most prominent where the Project is located in areas that do not already contain other tall structures, such as existing

transmission lines or trees. Approximately 99 percent of the portion of the Project located in black-footed ferret habitat is located adjacent to (within 1 mile of) existing transmission lines that already serve as nesting and perching habitats for raptors and ravens. In these areas, the Project could cumulatively add to the numbers of raptors and ravens that are already utilizing existing transmission lines in the general area. In the remaining areas where the Project would not be collocated with existing lines (i.e.,1 percent of the length), it could create new nesting and perching opportunities. To reduce the effects of the Project on raptor/raven predation pressures, the Agencies would require EPM TESWL-1 on federally managed lands, and the Proponents have indicated that they would also apply this EPM to certain applicable state/private lands (see Table 2.7-1 in Chapter 2):

TESWL-1 H-frame structures shall be equipped with anti-perch devices to reduce raven and raptor use, and limit predation opportunities on special status prey species.

4.3.1.2 Cumulative Effects

No other proposed projects were identified within the range of the 10(j) populations; however, it is anticipated that if any other projects were proposed/constructed, they would be required to coordinate or consult with the USFWS on any potential project related impacts that could occur to this listed species. Furthermore, if other projects are constructed, their possible impacts to the black-footed ferret could include increased predation from raptors using the transmission towers, disturbance from maintenance activities, habitat loss, and impacts to prey base. These impacts could add cumulatively to impacts from Gateway West.

4.3.1.3 Critical Habitat

No critical habitat has been designated for the black-footed ferret.

4.3.2 Canada Lynx

4.3.2.1 Direct and Indirect Effects

Potential effects of the Project on Canada lynx include disturbance, loss or modification of habitat, and impacts to prey. Fragmentation of lynx habitats is not likely to occur as no LAUs would be crossed or impacted, and the projects effects to lynx linkage habitats is not expected to create long-term impacts that would fragment these habitats (see further discussion below).

If lynx are in the Action Area, construction and maintenance activities could cause lynx to avoid the area while these activities are taking place. Due to the Canada lynx's large home range size (10 to 20 square miles) and high mobility, it would be relatively easy for individuals to avoid noisy project areas temporarily until activities ceased, without losing use of a large portion of their home range or adversely affecting the individual. Furthermore, it has been suggested that Canada lynx are generally tolerant of human presence (Staples 1995; Roe et al. 1999; Mowat et al. 2000; Ruediger et al. 2000), indicating that the amount of disturbance expected during construction or operation is unlikely to result in adverse impacts on this species. Also, studies have shown that

moderately used roads do not appear to affect habitat use by lynx (McKelvey et al. 2000; Ruediger et al. 2000).

Lynx linkage habitat consists of areas that provide landscape connectivity between blocks of primary lynx habitat. Linkage areas occur both within and between geographic areas where blocks of lynx habitat are separated by intervening areas of non-lynx habitat such as basins, valleys, or agricultural lands. These linkage habitats often consist of shrub-steppe habitats that contain low human and/or road densities and may provide important linkage habitat between the lynx's primary forest habitat (Ruediger et al. 2000). Linkage habitat has been identified in Idaho, Montana, Utah, and Wyoming by an interagency/ intergovernmental panel (Forest Service 2007). The Project would cross multiple paths that have been designated as lynx linkage habitat (Forest Service 2007), all of which are located along Segment 4 (see Figure 3-4). This includes a linkage path that connects the southern portion of the Caribou-Targhee NF to the northeastern border of Utah; another linkage path connects the portion of the lynx core habitat that would be impacted by the Project to the northeastern border of Utah. Lynx would likely not utilize these linkage habitats during construction activities due to the presence of construction machinery and noise; resulting in a temporary adverse impact to the utility of these linkage habitats. Long-term impacts on the ability of these areas to serve as linkage habitats would be low due to the limited degree of habitat disturbance, lack of major active roads constructed through these habitats as a result of the Project, limited expected human presence in these areas during operation, the restoration and revegetation efforts proposed (see Appendix B of the EIS), as well as the Canada lynx tolerant of human presence and limited road use (Staples 1995; Roe et al. 1999; Mowat et al. 2000; Ruediger et al. 2000; McKelvey et al. 2000; Ruediger et al. 2000). However, restoration in shrub-steppe habitats could take decades to restore conditions to preconstruction levels, and access roads could allow some illegal human access to these areas (even with the measures proposed to limit this illegal use); indicating that some effects to linkage habitats could continue beyond the construction phase, but to an unquantifiable degree.

Snowshoe hares are the primary prey of lynx; therefore, any impacts from the Project on snowshoe hares could also impact lynx. Impacts to the snowshoe hare could include disturbance and loss or reduced function of habitat. However, there are no known occurrences of snowshoe hare in the Action Area (further indicating that the Action Area is not ideal habitat for the Canada lynx); therefore, adverse impacts to snowshoe hare are not expected. Lynx use other small mammals as prey where snowshoe hare are not available, such as red squirrel. Impacts to alternate lynx prey species would be similar to potential impacts on snowshoe hares. Although individual small mammals could be impacted, a substantial overall decrease in small mammals in the Action Area that could impact lynx prey base is not expected due to the relatively small area impacted relative to a lynx's home range, the high reproductive output of most small mammals, the abundance of small mammals in the area, and that the area impacts is not ideal lynx habitat (i.e., they are not expected to hunt primarily in this area).

4.3.2.2 Cumulative Effects

No other proposed projects were identified within lynx LAUs or critical habitat; however, there is a proposed wind project (i.e., Mission Creek Wind Project) that would occupy about 2,051 acres of habitat within lynx linkage habitat. This would cumulatively add to the Project-related impacts to lynx linkage habitats.

4.3.2.3 Critical Habitat

CHU 5 lies approximately 10 miles to the north of Segment 4 in Wyoming. This unit is not within the Action Area, and the Project would have no effect on Canada lynx critical habitat.

4.3.3 Grizzly Bear

4.3.3.1 Direct and Indirect Effects

Direct and indirect impacts from the Project on grizzly bears could include disturbance, habitat loss and modification, and disruption of food sources. Noise and visual disturbance could cause grizzly bears to avoid the Action Area during construction and during maintenance activities in the operations phase.

The Proposed Route would impact a total of about 2,561 acres of land within the range of the Yellowstone DPS; however, no lands would be impacted within the grizzly bear PCA or within areas identified by the USFWS as suitable grizzly bear habitats. The majority of impacts that would occur within the DPS boundary would occur adjacent to Highway 80, Highway 30, and the town of Kemmerer. Due to the wide habitat requirements of the grizzly bear, direct impacts to lands resulting from the Project's construction would not have a measurable effect on habitat availability for this species.

Furthermore, the Project has been re-routed to avoid known location of whitebark pine; therefore, no impacts to this important food source for grizzly bears are expected to occur.

4.3.3.2 Cumulative Effects

There are four proposed wind projects (see Table 3-17) that would occupy habitats within the range of the Yellowstone DPS of the grizzly bear. This would cumulatively add to the Project-related impacts to habits within the range of this species; however, no habitats identified as suitable or occupied by the grizzly bear would be impacted by Gateway West (thereby minimizing Gateway West's contribution to cumulative effects).

4.3.3.3 Critical Habitat

No critical habitat has been designated for grizzly bears.

4.3.4 Preble's Meadow Jumping Mouse

4.3.4.1 Direct and Indirect Effects

Direct and indirect impacts of the Project on the Preble's meadow jumping mouse include disturbance, mortality, habitat loss or modification, fragmentation, and increased predation. Project impacts to the Preble's meadow jumping mouse would be minimized

by conducting surveys in suitable habitats in Converse County, and micrositing the Project to avoid occupied areas.

Noise and visual disturbance during construction and maintenance activities could make habitat temporarily unsuitable for Preble's meadow jumping mice, causing them to suspend life activities such as foraging or mating, or to flee the area until disturbance ceased. This disruption of normal activities would last only as long as the disturbance, up to a couple weeks at most during construction. Individuals could also be killed by vehicles or equipment. This impact is expected to be minimal due to the speed limit that would be in effect on all lands regardless of ownership:

TRANS-6 Construction vehicles will follow a 25 miles per hour speed limit on unposted project roads.

The mobility of this animal would largely allow it to escape the danger of vehicle collisions. Increased predation, due to raptors using the transmission towers as perch sites for hunting and the removal of hiding cover, could also result in increased mortality to Preble's meadow jumping mice.

The Projects construction would impact approximately 245 acres of suitable Preble's meadow jumping mouse habitat (i.e., wetlands and riparian areas as well as 328 feet beyond the 100-year floodplain in the eastern portion of the Project), while approximately 60 acres would be permanently disturbed (i.e., impacted by permanent facilities or by maintenance activities). All areas disturbed during construction (with the exception of areas used as permanent access roads, substation footprints, and pole structure bases) would be revegetated following construction in accordance with the Reclamation Plan (see Appendix B of the EIS). However, revegetation efforts are aimed primarily at reestablishing herbaceous or shrub cover, reestablishing original site configurations, and preventing erosion, but do not specifically address impacts to riparian zones, or the reestablishment of stream/wetland shade vegetation and/or LWD. Therefore, the Agencies have identified EPMs WET-1 (which would apply on federal land, plus all land in Wyoming and in Idaho along Segments 6, 8, and 9), and WET-2 through WET-4 (which would apply on all lands, regardless of ownership), and TESWL-14 (which the Agencies would require on federally managed lands) to reduce impacts to riparian habitats.

WET-1 Impacts on wetland and riparian areas will be avoided unless physically or economically infeasible or where activities are permitted. Land management agencies' plans (Resource Management Plans, Management Framework Plans, and Forest Plans) that have standards, guidelines, stipulations, or avoidance buffers will be adhered to. Where these do not exist, Inland Fish Strategy buffers will be followed.

WET-2 Wetland delineations will be performed prior to construction to support Clean Water Act (CWA) Section 404 permitting and to minimize Project impacts. The delineation will identify both wetland and non-wetland waters of the United States that would be affected by the Project.

WET-3 Where impacts on wetlands are not avoidable, site-specific crossing plans and measures to mitigate impacts will be submitted to the appropriate regulatory agency, as well as the land managing agency. The Proponents will obtain all necessary permits prior to discharging dredged or fill material to waters of the U.S. and state.

WET-4 To meet U.S. Army Corps of Engineers (USACE) requirements for CWA 404 permitting, the Proponents will submit a mitigation plan that is accepted by the USACE. The framework for this plan is included in the Final EIS.

TESWL-14 For the protection of aquatic and riparian/wetland dependent species, surface disturbing and disruptive activities will be avoided in the following areas: 1) identified 100-year floodplains; 2) areas within 500 feet of perennial waters, springs, wells, and wetlands; and 3) areas within 100 feet of the inner gorge of ephemeral channels on federally managed lands. Where it is not possible to avoid wetland and riparian habitat, crossing-specific plans will be developed. These plans will: 1) demonstrate that vegetation removal is minimized; 2) show how sediment would be controlled during construction and operation within wetland and riparian areas; 3) attempt to intersect the wetland or riparian habitat at its edge; and 4) provide measures to restore habitat and ensure conservation of riparian microclimates. This plan will be submitted to the appropriate land management agency and approved prior to construction of any portion of the Project within sensitive riparian habitat.

Long-term habitat loss would primarily be associated with access roads, transmission pole structures, and substations; however, these would be located outside of wetland and riparian zones when feasible. This avoidance of wetland and riparian habitats would be conducted not only to minimize impact to these sensitive areas, but also because these areas are typically unsuitable for the long-term stability of project structures.

The transmission line would not serve as a barrier or hazard to the Preble's meadow jumping mouse due to implementation of the above EPMs, plus additional EPMs that are listed in Table 2.7-1 of the EIS. However, any roads that are constructed within riparian habitats could result in a barrier to movement and could fragment habitat, although these impacts would occur in areas outside of this species' known range.

As discussed for the black-footed ferret, the presence of the transmission line could affect the predation rates for raptor and raven prey species (which would include the Preble's meadow jumping mouse) by potentially consolidating raptor and raven populations along the line. The effect of increased raptor and raven predation rates would be most prominent where the Project is located in areas that do not already contain other tall structures, such as existing transmission lines or trees. However, the entire length of the portion of the Project located within the known range of the Preble's meadow jumping mouse (see Figure 3-6) is located adjacent to (within 1 mile of) existing transmission lines that already serve as nesting and perching habitats for

raptors and ravens. To reduce the effects of the Project on raptor/raven predation pressures, EPM TESWL-1 would be applied on federally managed lands as well as certain applicable state/private lands (see Table 2.7-1 in Chapter 2).

4.3.4.2 Cumulative Effects

There are three proposed transmission line projects (totaling 27 miles of crossed habitat) and one proposed wind farm (the windfarm proponents have not specified the exact project footprint at this time) located within the analyzed range of the jumping mouse (see Table 3-17). This would cumulatively add to the Project-related impacts to habits within the range of this species.

4.3.4.3 Critical Habitat

The closest critical habitat to the Action Area is the North Fork Cache La Poudre River Unit in Larimer County, Wyoming, approximately 100 miles southeast of Segment 2 (75 *Federal Register* 78430; Figure 3-6); therefore, the Project is not expected to impact critical habitat for the Preble's meadow jumping mouse due to its distance from the Action Area.

4.4 Fish

4.4.1 Bull Trout Critical Habitat

As previously described, bull trout have not been documented to use the Bruneau River within the Jarbidge CHU. Fish associated with the Jarbidge critical habitat unit are found in the Jarbidge River watershed, over 25 miles to the south of the Action Area, so only critical habitat, not fish, may be affected by this crossing (64 *Federal Register* 17110).

Segment 9 would span bull trout critical habitat along the Bruneau River, just south of C.J. Strike Reservoir. Vegetation at the crossing location was defined as "Wetland and Riparian" during Project-specific remote sensing, with adjacent areas defined as "Disturbed Sagebrush." Towers would be placed outside of the riparian area along the river in the disturbed sagebrush. The only riparian vegetation that may be removed are trees that are of sufficient height that they could interfere with the transmission lines; these would be removed individually. No construction work would occur and no towers or roads would be installed within critical habitat. Impacts to critical habitat from work nearby could include sedimentation from erosion and contamination from spills of hazardous materials. The risk of these impacts to bull trout critical habitat would be minimized by EPMs such as TESWL-14, which protects aquatic and riparian/wetland dependent species, plus additional EPMs such as the following, which would apply on all lands, regardless of ownership:

WQA-7 Approved sediment and erosion control BMPs will be installed and maintained until disturbed areas meet final stabilization criteria.

WQA-8 Temporary BMPs will be used to control erosion and sediment at staging areas (equipment storage yards, fly yards, lay down areas) and substations.

WQA-10 Damaged temporary erosion and sediment control structures will be repaired in accordance with the Stormwater Pollution Prevention Plan (SWPPP).

WQA-11 Upon completion of construction, permanent erosion and sediment BMPs will be installed along the transmission line within the ROW, at substations, and at related facilities in accordance with the SWPPPs.

WQA-13 Construction industry standard practices and BMPs will be used for spill prevention and containment.

WQA-14 Construction spills will be promptly cleaned up and contaminated materials hauled to a disposal site that meets local jurisdictional requirements.

WQA-16 If an upland spill occurs during construction, berms will be constructed with available equipment to physically contain the spill. Absorbent materials will be applied to the spill area. Contaminated materials will be excavated and temporarily placed on and covered by plastic sheeting in a containment area a minimum of 100 feet away from any wetland or waterbody, until proper disposal is arranged.

WQA-17 If a spill occurs which is beyond the capability of on-site equipment and personnel, an Emergency Response Contractor will be identified and available to further contain and clean up the spill.

WQA-18 For spills in standing water, floating booms, skimmer pumps, and holding tanks will be used as appropriate by the contractor to recover and contain released materials on the surface of the water.

WQA-28 Migration of construction-related sediment to all adjacent surface waterbodies will be prevented.

The Proponents' Spill Prevention, Containment, and Countermeasures (SPCC) Plan would provide additional protection to aquatic and riparian habitats (see Appendix B of the EIS). These prevention and control measures, along with avoidance of critical habitat, would minimize the potential impacts on bull trout critical habitat PCEs. The limiting factors analysis for bull trout critical habitat is provided in Attachment B.

4.4.1.1 Cumulative Effects

No other proposed projects were identified within bull trout designated critical habitat; however, it is anticipated that if any other projects were proposed/constructed, they would be required to coordinate or consult with the USFWS on any potential project-related impacts that could occur to this designated critical habitat.

4.5 Invertebrates

4.5.1 Direct and Indirect Effects

Potential impacts to the four listed invertebrate species in the Action Area (i.e., Banbury Springs limpet, Bliss Rapids snail, Bruneau hot springsnail, and Snake River physa

snail) would include mortality and loss or modification of habitat. These impacts are unlikely, however, because no crossings by roads are proposed through the known distributions of these four species. In areas where the transmission line would cross these species' recovery areas, these areas would be spanned, with no direct impacts expected occur to the snails or their habitat. Transmission towers would not be located in aquatic areas, per standard engineering practices. If snails are discovered outside of their currently known ranges and in the vicinity of Project activity, all requirements of the ESA would apply, including cessation of work, notification of USFWS, and possible re-initiation of consultation.

The Project would not cross through the recovery area of the Banbury Springs limpet or the Bruneau hot springsnail. However, the transmission line would span the Bliss Rapids snail and Snake River physa snail recovery areas along three segments of the Snake River: at RM 541.5, RM 573.5, and RM 624.0. These crossings are located along areas that contain either agricultural or shrub-dominated habitats; therefore, only limited disturbance to vegetation would occur along these crossings (i.e., any individual trees that are tall enough to interfere with the transmission line would be removed). The potential removal of isolated trees along the mainstem of the Snake River at RM 541.5, RM 573.5, and RM 624.0 is not expected to result in substantial increases in stream temperatures due to the limited extent of existing vegetation present, but could result in some sedimentation. Vegetation clearing and weed control near water crossings would be conducted primarily via mechanical methods; however, some herbicides may be used. To prevent adverse impact to aquatic life resulting from potential herbicide use, the Proponents have proposed the following EPM, which would apply on federally managed land, and on all lands in Wyoming and along Segments 6, 8, and 9 in Idaho:

OM-20 Only herbicides approved by the land managing agency as safe to use in aquatic environments and reviewed by the Proponents for effectiveness will be used within 100 feet of sensitive aquatic resources.

EPMs WET-1 through WET-4 (see Section 4.3.4, above) would reduce impacts to riparian habitats due to loss of vegetation. If impacts are unavoidable, the Agencies have identified TESWL-14 to further reduce potential impact to wetland- and riparian-dependent species.

Disturbance adjacent to streams and springs occupied by any of these listed snails associated with construction of the ROW could result in sediment entering the water. Sedimentation would be controlled through the Proponents' SPCC Plan, and the Agencies have identified EPMs WQA-7, WQA-8, WQA-10, WQA-11, and WQA-28 (see Section 4.4.1, above). This plan would also address spills of toxic materials that could enter streams and springs by requiring that fluids such as oil and fuel be stored at certain distances away from waterbodies. During ROW construction and maintenance, individual snails could also be crushed by personnel, vehicles, or equipment that enter the water. These disturbances could also bury eggs or algal food supplies under sediment. However, because of the lack of crossings where the invertebrate species occur, this risk is unlikely. The BLM and USFWS recommend that if any changes to the siting of the transmission line or roads occur, the Proponents do not consider crossing cold-water springs or spring creeks near the Snake River or the Bruneau River when

developing their final engineering design. If changes to the locations of roads or the transmission line result in expected impacts to any of these four snails or their habitat, consultation with the USFWS would to be re-initiated. Long-term loss of habitat for any of these snails is not expected from the route currently being analyzed due to the limited scope of initial impact and the restoration efforts aimed at restoring the ROW following construction.

If any road crossings are proposed and a culvert is needed, all culverts (both temporary and permanent) would be designed and installed to ensure the continued free flow of water, as well as to allow both the upstream and downstream movement of aquatic organisms. The following EPMs would apply on federally managed lands, and on all lands in Wyoming and in Idaho along Segments 6, 8, and 9:

FISH-1 On BLM-administered land, all culverts, whether temporary or permanent, must be designed to meet BLM Gold Book standards (Surface Operating Standards and Guidelines for Oil and Gas Exploration Development). On National Forest System lands, Forest Plan standards and guidelines shall apply.

WQA-24 On federal lands, consult with appropriate land management agency staff prior to siting and design for stream crossings (location, alignment, and approach for culvert, drive-through, and ford crossings). This may include a hydrologist, engineer and, for perennial and many intermittent streams, an aquatic biologist.

WQA-25 All culverts on National Forest System lands, both permanent and temporary, shall be designed and installed to meet desired conditions for riparian and aquatic species as identified in the applicable Forest Plan. Culverts should not be hydraulically controlled. Hydraulically controlled culverts create passage problems for aquatic organisms. Culvert slope should not exceed stream gradient and should be designed and implemented (typically by partial burial in the streambed) to maintain streambed material in the culvert.

WQA-26 Culvert sizing on National Forest Service lands should also comply with Guidance for Aquatic Species Passage Design, Forest Service Northern Region & Intermountain Region (Forest Service 2003).

The following measure would apply on non-federal lands:

WQA-27 On non-federal lands, culvert placement should comply with state BMPs.

As stated earlier, no road crossings or culverts are currently proposed through ESA-listed aquatic invertebrate habitats; however, if culverts were to be constructed and disturbance resulting from culvert construction is one acre or more, the Proponents would conduct construction and decommissioning of culverts under a Construction General Permit required for stormwater operations, which includes the development of BMPs to protect surface water from stormwater runoff. All culverts that are not necessary for operation of the Project would be removed in accordance with the

Proponents' Traffic and Transportation Plan (see Appendix B of the EIS). In addition, culverts would be inspected regularly (permanent culverts inspected annually during operations) to make sure that they are not plugged and are functioning properly. The Proponents' responsibility for inspecting culverts, as well as conducting all necessary repairs, would continue as long as the culverts are present within the watershed (this would continue for the life of the Project for permanent culverts). The BLM and Forest Service have specific requirements regarding culvert design and installation on lands they manage. The Proponents would consult with the Forest Service and BLM prior to construction, regarding design, layout, and decommissioning requirements for each temporary and permanent culvert that would located on federally managed lands. All culverts located on federally managed lands would be constructed in accordance with the applicable federal agency's management plan standards. In addition, if any culverts are installed that could impact listed snails, the USFWS would be contacted to determine if further Section 7 consultation would be required. In all other areas where more restrictive regulations are not in place, the following specifications would be used:

- Culverts would be designed and installed under the guidance of a qualified engineer who, in collaboration with a hydrologist and aquatic biologist where required by the land management agency, would recommend placement locations; culvert gradient, height, and sizing; and proper construction methods.
- Culvert design would consider bedload and debris size and volume.
- The disturbance footprint for culvert installation is estimated to be 50 feet wide (along the waterbody) and 150 feet long (along the road) for 7,500 square feet or 0.17 acre at each crossing.
- Ground-disturbing activities would comply with Agency-approved BMPs.
- Construction would occur during periods of low water or normal flow.
- The use of equipment in streams would be minimized.
- All culverts would be designed and installed to meet desired riparian conditions, as identified in applicable unit management plans.
- Culvert slope would not exceed stream gradient.
- Typically, culverts would be partially buried in the streambed to maintain streambed material in the culvert. Sandbags or other non-erosive material would be placed around the culverts to prevent scour or water flow around the culvert. Adjacent sediment control structures such as silt fences, check dams, rock armoring, or riprap may be necessary to prevent erosion or sedimentation. Stream banks and approaches may be stabilized with rock or other erosion control devices.
- Culverts would be inspected and maintained annually for the life of the Project (estimated at 50 years or longer) for proper operation and to protect water quality.

Again, no road crossings or culverts are currently proposed through ESA-listed aquatic invertebrate habitats; however, these BMPs, EPMs, and construction design requirements would ensure that culverts would not impede the movement of, or

fragment aquatic habitats for, these listed aquatic invertebrates or other aquatic organisms, if road crossing layouts are changed in the future.

As discussed for the Colorado and Platte River Systems, water may be withdrawn from the Snake River system (which includes the Bruneau River) during construction; however, the Proponents have committed to purchasing enough water to cover any needed water withdrawals from the Snake River system (see Appendix B of the EIS). As a result, water levels are not expected to decrease in the Snake or Bruneau Rivers due to this Project. The appropriate agencies would need to approve the final list of water sources purchased by the Proponents before the Notice to Proceed would be issued. No water withdrawals from springs along the Snake or Bruneau Rivers would be conducted by the Proponents or approved by the agencies nor would water be taken from existing wells that may currently draw their water from the Snake or Bruneau River's thermal aquifers; as a result, no effects to the thermal aquifer along hot springs in these rivers are expected.

4.5.2 Cumulative Effects

No reasonably foreseeable projects were identified near the areas where Banbury Springs limpet, Bliss Rapids snail, Bruneau hot springsnail, or Snake River physa snail are found; however, it can be assumed that ongoing and future agricultural usages will continue to develop in this area. Possible impacts to these snails and their habitat from these usages could include decreases in water quality if water is released into the Snake or Bruneau Rivers in or upstream of the distribution of any of these species; and decrease in water availability, if water is drawn or diverted from or upstream of the ranges of these snails. Agricultural uses (water diversions and irrigation, ground water pumping, and pesticide use) and aquaculture on non-Federal lands also impact water quality and availability essential for the recovery listed Snake River snails and the Bruneau hot springsnail. Furthermore, global climate change may alter precipitation rates in this area, resulting in more water demands on these water systems; this could have a detrimental effect on water levels in these systems. Climate change projections indicate that areas in central and southern Idaho may experience moderate to extreme drought over the next 50 years (Rieman and Isaak 2010, p. 5). Increasing temperatures (earlier spring snowmelt) and decreasing precipitation (declining snowpacks) may ultimately have impacts on flow volume in the Snake River. Should this result in increased human demand of river water (or decreasing availability of that resource), especially for agricultural use, reduced river flows and elevated water temperatures could further impair water quality (e.g., lowering dissolved oxygen concentrations). In addition, increased groundwater pumping in the Bruneau-Grand View geothermal aquifer that may occur due to increasing drought conditions would decrease the availability of hot spring habitat for the Bruneau hot springsnail. The multiple contingencies that could be attributable to climate change, forecasts for which are variable and uncertain, are difficult to predict with any degree of confidence; however, most scenarios would likely not be beneficial to listed Snake River snails or the Bruneau hot springsnail. These impacts could add cumulatively to impacts from Gateway West.

4.5.3 Critical Habitat

No critical habitat has been proposed or designated for Banbury Springs limpet, Bliss Rapids snail, Bruneau hot springsnail, or Snake River physa snail.

4.6 Plants

4.6.1 Blowout Penstemon

4.6.1.1 Direct and Indirect Effects

Impacts from the Project on blowout penstemon could include crushing or uprooting of individuals, loss or modification of habitat, alteration of fire regimes, and introduction or spread of invasive weeds. Blowout penstemon inhabits highly transitory, temporary, early-succession blowout habitats, the exact location of which can be somewhat difficult to predict. Although no known occurrences of blowout penstemon occur within the Action Area, USFWS has indicated that this plant is potentially found in all Wyoming counties crossed by the Action Area (USFWS 2012b). If occurrences of blowout penstemon are in the ROW, at a tower location, or where a road is planned for construction, plants, seedlings, seeds, or blowout habitat could be destroyed. In order to avoid this risk, the Proponents would implement TESPL-1 and TESPL-5 on federally managed lands and on all lands in Wyoming and in Idaho along Segments 6, 8, and 9 (see Section 5.8). Spread of invasive plants into blowout penstemon habitat would be minimized through EPMs that address weeds (see Table 2.7-1 of the EIS). This would also decrease the risk of fire associated with the Project. Risk of fire would be further reduced by installation and maintenance of gates at access points to the ROW (OM-6), which will reduce the amount of unauthorized access to the ROW by the public, which could cause fires from vehicles, campfires, and other means.

4.6.1.2 Cumulative Effects

Although blowout penstemon is not known to occur in the Action Area, all of the Action Area in Wyoming is considered to be potential habitat. In Wyoming, existing and reasonably foreseeable projects include transmission lines; roads; pipelines; coal, gas, wind, geothermal, and hydroelectric energy generation projects; oil, gas, and mineral extraction; commercial, industrial, and residential development; and land use restrictions. Possible impacts to this plant from these projects include crushing or uprooting of individuals, loss or modification of habitat, alteration of fire regimes, and introduction or spread of invasive weeds. These impacts could add cumulatively to impacts from Gateway West.

4.6.1.3 Critical Habitat

No critical habitat has been designated or proposed for blowout penstemon.

4.6.2 Ute Ladies'-Tresses

4.6.2.1 Direct and Indirect Effects

Possible impacts to Ute ladies'-tresses from Project construction and operations are trampling of plants and disturbance to seeds not showing a recognizable aboveground component. Ute ladies'-tresses is not known to occur in the Action Area, but USFWS

protocol surveys for this species will be carried out in certain areas containing suitable habitat, regardless of land ownership (TESPL-7; Section 5.9). Areas with suitable habitat where protocol surveys cannot be performed due to access or timing issues will be avoided. This will minimize the risk of physically destroying plants or seeds. Another potential impact is habitat removal and modification of hydrology resulting in a drying out of moist soils. Construction of roads could alter drainage patterns and cause wet areas to dry out, making them unsuitable for this plant; however, due to EPMs such as culvert installation and restoration of original land contours (REC-20, which would be applied on all lands), the risk of this is low. These EPMs include:

REC-20 Temporarily disturbed lands within the ROW will be re-contoured to blend with the surrounding landscape. Re-contouring will emphasize restoration of the existing drainage patterns and landform to pre-construction conditions, to the extent practicable. (Tower pads would not be re-contoured.)

REC-21 De-compaction: Areas within the ROW, laydown or staging yards, and other areas of extensive vehicle travel will typically contain compacted soils. These soils will be de-compacted on a case-by-case basis through negotiation with the landowner or land management agency.

Because Ute ladies'-tresses occur most often in riparian areas and wetlands, measures that protect these habitat types would be implemented and would help minimize impacts to this orchid. Most riparian areas and wetlands would be spanned, and in those that are crossed by roads, measures, such as use of temporary matting for temporary access roads (in wetlands within the Bear River Plain), would be taken to minimize soil compaction and reduce vegetation damage. Measures that would help protect wetland and riparian habitat for Ute ladies'-tresses include:

WET-1 Impacts on wetland and riparian areas will be avoided unless physically or economically infeasible or where activities are permitted. Land management agencies' plans (RMPs, MFPs, and Forest Plans) that have standards, guidelines, stipulations, or avoidance buffers will be adhered to. Where these do not exist, Inland Fish Strategy (INFISH) buffers will be followed,

WET-3 Where impacts on wetlands are not avoidable, site-specific crossing plans and measures to mitigate impacts will be submitted to the appropriate regulatory agency, as well as the land managing agency. The Proponents will obtain all necessary permits prior to discharging dredged or fill material to waters of the U.S. and state.

SOIL-4 Detrimental soil disturbance such as compaction, erosion, puddling, and displacement will be minimized through implementing measures identified in the SWPPP. Measures may include road ripping, frequent waterbars, cross-ditching (e.g., rolling dips) or other methods to reduce compaction while preventing gully formation. Ripping pattern should be altered to a crossing, diagonal, or undulating pattern of tine paths to avoid concentrated runoff patterns that can lead to gullies.

WQA-1 The appropriate NPDES permits for construction activities that disturb one acre or more of land will be obtained from the Department of Environmental Quality and USEPA or their designees.

WQA-2 NPDES permit requirements will be met. This includes implementing and maintaining appropriate BMPs for minimizing impacts to surface water.

WQA-5 The Storm Water Pollution Prevention Plan (SWPPPs) will identify areas with critical erosion conditions that may require special construction activities or additional BMPs to minimize soil erosion.

WQA-6 Stormwater BMPs will be maintained on all disturbed lands during construction activities, as described in the SWPPP.

WQA-7 Approved sediment and erosion control BMPs will be installed and maintained until disturbed areas meet final stabilization criteria.

TESWL-14 For the protection of aquatic and riparian/wetland dependent species, surface disturbing and disruptive activities will be avoided in the following areas: 1) identified 100-year floodplains; 2) areas within 500 feet of perennial waters, springs, wells, and wetlands; and 3) areas within 100 feet of the inner gorge of ephemeral channels on federally managed lands. Where it is not possible to avoid wetland and riparian habitat, crossing-specific plans will be developed. These plans will: 1) demonstrate that vegetation removal is minimized; 2) show how sediment would be controlled during construction and operation within wetland and riparian areas; 3) attempt to intersect the wetland or riparian habitat at its edge; and 4) provide measures to restore habitat and ensure conservation of riparian microclimates. This plan will be submitted to the appropriate land management agency and approved prior to construction of any portion of the Project within sensitive riparian habitat.

Additional measures identified in the SWPPP would be implemented to minimize detrimental soil disturbance such as compaction, erosion, puddling, and displacement. Disturbed areas would be revegetated and restored to preconstruction conditions as described in the Reclamation, Revegetation, and Weed Management Plan.

Habitat loss through spread of invasive weeds would also be controlled through implementation of appropriate measures. Table 2.7-1 of the EIS lists all proposed EPMs for the proposed Project.

4.6.2.2 Cumulative Effects

Although Ute ladies'-tresses is not known to occur in the Action Area, potential habitat exists along Segments 1W through 5. Along these segments, existing and reasonably foreseeable projects include transmission lines; roads; pipelines; coal, gas, wind, geothermal, and hydroelectric energy generation projects; oil, gas, and mineral extraction; commercial, industrial, and residential development; and land use

restrictions and activities such as livestock grazing and pesticide use for weed control. Possible impacts to Ute ladies'-tresses from these projects include trampling and disturbance to seeds that could occur during construction or maintenance activities, and mortality of plants from livestock and weed control. These impacts could add cumulatively to impacts from Gateway West.

4.6.2.3 Critical Habitat

No critical habitat has been designated for Ute ladies'-tresses.

4.6.3 Slickspot Peppergrass

4.6.3.1 Direct and Indirect Effects

Direct and indirect impacts on slickspot peppergrass from the Project could include trampling of plants, destruction of seed beds, spread of invasive weeds, physical destruction of slickspots, changes in the fire regime, degradation of surrounding native sagebrush-steppe communities, fragmentation of populations, and loss of pollinators. Spread of invasive weeds as a result of Project construction, operation, and maintenance may not only result in direct competition between non-native species and slickspot peppergrass and alteration of this species habitat, but may result in increased fire risk, which may also affect slickspot peppergrass individuals and/or occupied and potential habitat. Soil compaction from construction and maintenance vehicles, where slickspots are not avoidable, may also directly affect individuals of and habitat for this species. Although minor in scale, impacts associated with road construction and improvement and structure placement could directly and indirectly impact individuals and habitat for slickspot peppergrass habitat. Loss or degradation of native shrub cover and/or biological soil crusts in occupied or potential slickspot peppergrass habitat could also indirectly affect this species. Attachment A provides further assessment of the potential direct and indirect effects to slickspot peppergrass from Project construction and operations.

Preconstruction surveys for slickspot peppergrass and slickspots within potential habitat and slickspot peppergrass habitat prior to construction will be carried out (TESPL-3; Section 5.10). If no slickspots are found during surveys, the area would be considered unoccupied and construction would proceed, and if slickspots are found, the area would be considered occupied. For a slickspot or other habitat that is considered occupied to be deemed unoccupied and for ground disturbance to be permitted to proceed, 3 years of surveys must be carried out during years with at least 60 percent of average spring precipitation. Plants and slickspots found during surveys would be marked and avoided by 50 feet on all lands, regardless of ownership (TESPL-4; Section 5.10). No overland travel or vegetation clearing would be conducted within slickspots. Also, no topsoil would be stored in slickspots. Alteration of habitat by spread of invasive annual plants would be minimized through implementation of measures designed to prevent the spread of weeds during habitat rehabilitation (see Table 2.7-1 of the EIS); minimizing the proliferation of weeds in slickspot peppergrass habitat would also prevent long-term changes to the fire regime. The creation of roads into slickspot peppergrass habitat could result in an increased chance of fires starting due to increased human presence (both Project-related and unauthorized) in the ROW. This would be minimized by

implementing measures aimed at preventing accidental fires, and by preventing unauthorized access to the Action Area (see Table 2.7-1 of the EIS). Removing native sagebrush-steppe vegetation surrounding occupied slickspots would fragment slickspot peppergrass populations, and also impact insect pollinators upon which this plant depends. Insect pollinators of slickspot peppergrass require sufficient quantity and diversity of native plants that flower throughout the season and provide cover and nesting substrate. All Project activities will adhere to the applicable 2006 Conservation Agreement (BLM and USFWS 2006) and updated 2009 measures.

4.6.3.2 Cumulative Effects

Multiple wind-farms have been proposed within the assessed range of the slickspot peppergrass, with a combined estimated footprint of 3,620 acres within the assessed range of this species (see Table 3-17). Possible impacts to slickspot peppergrass from these reasonably foreseeable actions include trampling, seedbed destruction, spread of invasive weeds, physical destruction of slickspots, changes to the fire regime, degradation of surrounding native sagebrush-steppe communities, fragmentation of populations, and loss of insect pollinators. These impacts could add cumulatively to impacts from the Project.

4.6.3.3 Critical Habitat

Two units, units 2 and 3, of proposed critical habitat would be within the Action Area for the Project, near Segment 8. Approximately 4,378.8 acres of proposed critical habitat occur within the Action Area, the majority of which (approximately 73 percent) is within Unit 2. Approximately 188.6 acres[3] of proposed critical habitat, 180.5 acres in Unit 2 and 8.1 acres in Unit 3, occur within the Project footprint. Additionally, construction and operation could potentially impact PCEs 2, 3, and 4 within these units of critical habitat. Project construction, operation and maintenance could increase the spread or proliferation of which could impact PCEs 1 (slickspots with sparse vegetation), 2 (intact native vegetation assemblages), 3 (a diversity of native plants), and 4 (sufficient pollinators). Clearing of the ROW could impact PCE 2, PCE 3 (undisturbed suitable habitat for native pollinators), and PCE 4 (sufficient pollinator populations) by removing native vegetation, fragmenting habitat, and destroying insect pollinator nesting sites. Additionally, soil compaction from overland travel of construction and maintenance vehicles, where slickspots are not avoidable, may affect slickspot peppergrass and PCE 1 (3-layer soil horizonation sequence, slickspots with sparse vegetation, and low invasive plant cover) of proposed critical habitat.

The risk of these impacts would be minimized by restoration of areas disturbed during construction, de-compaction of areas with extensive vehicle travel, weed control, and preconstruction surveys and subsequent micrositing of Project components to avoid slickspots, where possible (see Table 2.7-1 of the EIS and Section 5.10).

[3] Acres are for entire Project footprint including entire ROW. Only a portion of the ROW would be disturbed for Project construction and operation and maintenance.

5 CONSERVATION MEASURES TO AVOID OR MINIMIZE ADVERSE IMPACTS

The following procedures would be implemented by the Proponents and their contractors to eliminate or substantially reduce the likelihood of potential adverse effects of the proposed project on threatened and endangered wildlife and plant species and their habitats. Agency-proposed and Proponent-proposed measures that specifically address the listed species addressed in this BA are presented below. Many additional measures that would protect these species, but were not written specifically for them (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements), are presented in Table 2.7-1 of the EIS.

5.1 Platte and Colorado River Species

The following EPM would be required (based on the USFWS tiered Biological Opinion on the Colorado River water withdrawals) if the Project results in depletions greater than 100 acre-feet per year from the Colorado River:

TESWL-12 Colorado River T&E Fishes – A payment of a one-time fee, based on a fee schedule provided by the USFWS, will be made based on the amount of water used during construction of any segments that cross the Colorado River system.

Other mitigation and environmental protection requirements that would protect Platte and Colorado River listed species are listed in the respective programs for these two basins (Bureau of Reclamation and USFWS 2006; USFWS 2006a; NPS 2006; USDI 2005).

5.2 Black-footed Ferret

The Project proposal (see Appendix B of the EIS) includes a preconstruction survey for black-footed ferrets in white-tailed colonies. However, to ensure complete coverage of suitable habitat (i.e., the potential for black-footed ferret presence in black-tailed prairie-dog colonies as well as white-tailed colonies), TESWL-3 would be implemented on all land ownerships.

TESWL-3 Black-Footed Ferret – Pre-construction surveys will be conducted for the black-tailed prairie dog (in addition to those already proposed for the white-tailed prairie dog) in Segment 1W.

5.3 Canada Lynx

There are no specific EPMs for the Canada lynx; however, as stated above, general measures would be applied (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements).

5.4 Grizzly Bear

There are no specific EPMs for the grizzly bears; however, as stated above, general measures would be applied (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements).

5.5 Preble's Meadow Jumping Mouse

The Proponents have committed, in their POD, to conduct preconstruction surveys for threatened and endangered species in suitable habitats (see Appendix B of the EIS). As stated above, there are no specific EPMs for the Preble's meadow jumping mouse; however, general measures would be applied (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements).

5.6 Bull Trout

There are no specific EPMs for the bull trout; however, as stated above, general measures would be applied (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements).

5.7 Invertebrates

There are no specific EPMs for the listed invertebrates; however, as stated above, general measures would be applied (e.g., those addressing vegetation restoration, construction site clean-up, erosion, fire, invasive weeds, dust, water quality, herbicides, training project personnel regarding protection of biological resources, and survey requirements).

5.8 Blowout Penstemon

To avoid impacting blowout penstemon, the Proponents have proposed the following species-specific EPMs, which would apply on federally managed lands, and all lands in Wyoming and along Segments 6, 8, and 9 in Idaho:

TESPL-1 Blowout Penstemon – Surface disturbance will be allowed in suitable habitat for blowout penstemon where species-specific surveys have determined that no populations are present. The species-specific surveys will be conducted the year prior to construction, and the proposed disturbance areas will be redesigned to avoid direct impact to populations.

TESPL-5 Sand dune plant communities should be avoided, where feasible.

5.9 Ute Ladies'-Tresses

To comply with USFWS requirements regarding this orchid, the following EPM would apply on all lands, regardless of ownership:

TESPL-3 Qualified botanists shall conduct preconstruction surveys during a season when target species are readily identifiable for special status or globally rare species. Where feasible, micrositing of project facilities shall avoid direct impacts to identified populations. Survey reports documenting the surveys, their results, and recommendations must be provided to land management agency for approval prior to construction. Agency botanists may evaluate individual sites based on site-specific conditions. Documentation of the evaluation of avoidance of impacts to sensitive and globally rare plants must be provided to the Agencies prior to construction.

TESPL-7 Ute ladies'-tresses – Qualified botanists shall conduct preconstruction surveys during a season when target species are readily identifiable for special status or globally rare species. Where feasible, micrositing of project facilities shall avoid direct impacts to identified populations. Survey reports documenting the surveys, their results, and recommendations must be provided to land management agency for approval prior to construction. Agency botanists may evaluate individual sites based on site-specific conditions. Documentation of the evaluation of avoidance of impacts to sensitive and globally rare plants must be provided to the Agencies prior to construction.

5.10 Slickspot Peppergrass

To comply with BLM Manual 6840 direction and the U.S. Department of the Interior Conservation Agreement (USDI 2006) concerning slickspot peppergrass, the following measures would be employed where there is the potential to encounter slickspot peppergrass.

The following EPM would apply on all lands, regardless of ownership:

TESPL-3 Qualified botanists shall conduct preconstruction surveys during a season when target species are readily identifiable for special status or globally rare species. Where feasible, micrositing of project facilities shall avoid direct impacts to identified populations. Survey reports documenting the surveys, their results, and recommendations must be provided to land management agency for approval prior to construction. Agency botanists may evaluate individual sites based on site-specific conditions. Documentation of the evaluation of avoidance of impacts to sensitive and globally rare plants must be provided to the Agencies prior to construction.

TESPL-4 Slickspot Peppergrass – Environmental monitors will survey for and mark slickspots and aboveground populations of slickspot peppergrass

> within 50 feet of the construction area prior to ground disturbance (including roads) in potential or occupied slickspot peppergrass habitat. No construction shall occur within 50 feet of any slickspot peppergrass plants or slickspots found by the environmental monitor. Also, construction shall not occur within 50 feet of previously known occupied slickspot peppergrass areas, based on Idaho Conservation Data Center data, even if aboveground plants are not observed by the environmental monitor. Within proposed critical habitat, impacts to Primary Constituent Elements, such as native sagebrush/forb vegetation, will be avoided to the extent practicable. Seeding during reclamation in areas of suitable habitat will use methods that minimize soil disturbance such as no-till drills or rangeland drills with depth bands. Reclamation will use certified weed-free native seed. Excess soils will not be stored or spread on slickspots.

The terms “potential and occupied” habitat in EPM TESPL-4 do not specifically refer to the BLM categories because the EPM was designed for all lands (see Table 2.7-1 in the Final EIS). However, it is assumed that all areas of potential and/or occupied habitat, including slickspot peppergrass habitat as defined by the BLM (see Attachment A), would be surveyed for slickspot peppergrass on BLM-managed lands. All surveys for slickspot peppergrass would be conducted in accordance with current BLM survey protocols for this species (i.e., protocols used by the BLM at the time of the survey).

6 INTERRELATED AND INTERDEPENDENT ACTIONS

Effects of the action under consultation are analyzed together with the effects of other activities that are interrelated to, or interdependent with, that action (50 CFR 402.01). Interrelated actions are those that are part of a larger action (i.e., the action under consultation) and depend on the larger action for their justification. Interdependent actions are those that have no significant independent utility apart from the action under consideration. Interrelated or interdependent actions can include actions under the jurisdiction of other federal agencies, state agencies, or private parties.

An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification or is associated with the proposed action. An interdependent activity is an activity that has no independent utility apart from the action under consultation or because of the proposed action. There are no projects identified as either interrelated or interdependent actions associated with the Agency Preferred Alternative for Gateway West.

7 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 7(d) of the ESA prohibits federal agencies and permit applicants from making any "irreversible or irretrievable commitment of resources" that has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate section 7(a)(2) of the Act, during consultation under

section 7(a)(2). Section 7(a)(2) prohibits federal actions that jeopardize the continued existence of listed species or that destroy or adversely modify their critical habitat. After initiation or any reinitiation of consultation required under section 7(a)(2) of the Act, the federal agency and any applicant shall make no irreversible or irretrievable commitment of resources with respect to the agency action during the consultation process and continues until the requirements of section 7(a)(2) are satisfied. This provision does not apply to the conference requirement for proposed species or proposed critical habitat under section 7(a)(4) of the ESA.

Irreversible commitments of resources are those that would be committed to the Project throughout the life of the Project. Irretrievable commitments of resources are uses of resources that are neither renewable nor recoverable for use during or beyond the life of the Project. Irreversible and irretrievable impacts to ESA-listed plants and wildlife from the Project could include mortality to individuals, for example birds colliding with Project structures or plants that are trampled; removal of habitat, especially trees and slickspot microsites; and impacts to aquatic habitats. The potential for these impacts are analyzed in detail in Sections 3 and 4 of this BA. Section 5 discusses various conservation measures to avoid and minimize impacts.

8 EFFECTS OF THE PROJECT ON THE EXPECTED STATUS OF SPECIES IN THE FUTURE

Provided that the measures described in Section 6 are implemented, the proposed action is not expected to alter the current status of, or result in any decreased survival of, any of the species discussed in this document during the Project or after Project completion.

9 DETERMINATION OF EFFECTS SUMMARY FOR LISTED SPECIES

Determination of effects for listed species are discussed by species in the following subsections and summarized in Table 9-1 at the end of this section.

9.1 Colorado River Species

The Colorado pikeminnow, bonytail chub, humpback chub, and razorback sucker, and designated critical habitat for each of these species, occur downstream of the Action Area within the Colorado River basin, and thus have the potential to be impacted by water withdrawals from the Colorado River basin. The Proponents have committed (in their POD) to purchasing enough water (from existing water withdrawals for which consultation has already occurred) to cover any water needs from the Colorado River system. However, the Proponents have not yet identified the sources or exact amount of water they plan to purchase, nor have they secured these water withdrawals at this time. As a result, it is uncertain if the Proponents would be able to acquire enough water, in which consultation with the USFWS has already occurred, to cover the Project's water needs. Therefore, until these water needs have been fully identified and enough water has been acquired, the threat determination for this Project would be *may affect, likely to adversely affect* for the

Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub and a *may affect, not likely to adversely affect* determination for their critical habitat. The appropriate agencies would need to approve the final list of water sources the Proponents would purchase before the Notice to Proceed would be issued.

9.2 Platte River Species

The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid, and designated critical habitat for the whooping crane, occur downstream of the Action Area within the Platte River basin, and thus have the potential to be impacted by water withdrawals from the Platte River basin. The Proponents have committed (in their POD) to purchasing enough water (from existing water withdrawals for which consultation has already occurred) to cover any water needs from the Platte River system. However, the Proponents have not yet identified the sources or exact amount of water they plan to purchase, nor have they secured these water withdrawals at this time. As a result, it is uncertain if the Proponents would be able to acquire enough water, in which consultation with the USFWS has already occurred, to cover the Project's water needs. Therefore, until these water needs have been fully identified and enough water has been acquired, the threat determination for this Project would be *may affect, likely to adversely affect* for the pallid sturgeon, interior least tern, whooping crane, piping plover, and western prairie fringed orchid and a *may affect, not likely to adversely affect* determination for critical habitat for the whooping crane. The appropriate agencies would need to approve the final list of water sources the Proponents would purchase before the Notice to Proceed would be issued.

9.3 Black-Footed Ferret

The Project could have direct and indirect effects on individual black-footed ferrets within the 10(j) population (along Segment 1 and 2). Project impacts to black-footed ferrets would be minimized by micrositing the Project to avoid active burrows identified prior to construction. As a result, the Project *may affect, but is not likely to adversely affect*, the reintroduced 10(j) population (i.e., the nonessential experimental population of black-footed ferrets).

9.4 Canada Lynx

The Project would pass within a few miles of two LAUs but would not cross or impact LAUs. The Project would cross lynx linkage areas (Figure 3-4). The Project is not expected to have a substantial long-term impact to linkage areas, nor is it expected to substantially impact the lynx's prey base or result in long-term impedance to movement. Therefore, the Project's construction and operations *may affect, but are not likely to adversely affect*, the Canada lynx. The Project would not cross designated critical habitat for Canada lynx or impact any PCEs; therefore, the Project would have *no effect* on lynx critical habitat.

9.5 Grizzly Bear

The Project would cross through the southern extent of the grizzly bear's Yellowstone DPS adjacent to Highway 80, Highway 30, and the town of Kemmerer (i.e., in an area highly disturbed by human developments and activities). The Project would not cross

through or impact the PCA or areas identified by the USFWS as suitable grizzly bear habitats. As a result, the Project's construction and operations *may affect, but are not likely to adversely affect,* the grizzly bear.

9.6 Preble's Meadow Jumping Mouse

The Project could have direct and indirect effects Preble's meadow jumping mouse. Project impacts to this species would be minimized by conducting preconstruction surveys in suitable habitats in Converse County, and micrositing the Project to avoid occupied areas. As a result, the Project *may affect, but is not likely to adversely affect* the Preble's meadow jumping mouse.

9.7 Bull Trout

Because there is no distribution of bull trout within the Action Area, the Project is expected to have *no effect* on bull trout.

Construction would not take place within critical habitat; however, the transmission line would span critical habitat. No road crossings within critical habitat are proposed. Removal of riparian vegetation would be limited to any trees of sufficient height to interfere with transmission lines. EPMs and the Proponents' SPCC Plan would be in place to prevent erosion, sedimentation, and hazardous material spills. However, the critical habitat is within the Action Area for the Project, and there is a potential for impacts to the stream (due to removal of individual trees); therefore, the Project *may affect, but is not likely to adversely affect* bull trout critical habitat.

9.8 Invertebrates

No road crossings are proposed within habitats that support any of the four listed aquatic snails analyzed in this document. The transmission line would span habitat for these species in areas that currently contain agricultural or shrubland vegetation; therefore, vegetation removal and maintenance would be minimal. In addition, the Proponents have committed to purchasing enough water to cover any needed water withdrawals from the Snake River system; therefore, effects associated with decreased water levels in the Snake River due to this Project are not anticipated to occur. No water withdraws from springs along the Snake or Bruneau River would be conducted by the Proponents or approved by the agencies nor would water be taken from any existing wells that may currently draw their water from the Snake or Bruneau River's thermal aquifers; as a result, no effects to the thermal aquifer along the Bruneau River hot springs are expected. EPMs would be applied to limit potential impacts to riparian- and wetland-dependent species. Based on impacts related to the limited ROW maintenance and the implementation of EPMs, the Project *may affect, but is not likely to adversely affect,* the Banbury Springs limpet, Bliss Rapids snail, Bruneau hot springsnail, or Snake River physa snail.

9.9 Blowout Penstemon

The known distribution of blowout penstemon does not overlap with the Action Area, and detailed vegetation mapping within the Action Area shows no suitable sand dune habitat for this plant species. Therefore, the Project would have *no effect* on blowout penstemon.

9.10 Ute Ladies'-Tresses

This species is difficult to survey for because it does not flower every year and is inconspicuous when not in flower. In addition, populations may consist of a small number of plants that can easily be missed by surveyors. A one-time survey could miss populations if it was conducted before or after blooming occurs, even if it is carried out during the proper survey window. If populations are missed during the surveys, Ute ladies'-tresses plants and/or populations could be destroyed or damaged during construction. No known Ute ladies'-tresses populations occur within the Action Area; however, known occurrences should not be considered exhaustive. Therefore, where the Proponents have permission to access areas of suitable Ute ladies'-tresses habitat, three years of surveys have been carried out, following USFWS protocol for this species (USFWS 1992b). The plant was not found in surveyed areas following 3 years of protocol surveys. Where the Proponents did not have permission to survey, and where suitable habitat is present, the Project alignment will be modified and routed to avoid these areas. However, indirect effects could still occur to this plant due to alterations in hydrology and the spread of weeds. Therefore, this Project *may affect, but is not likely to adversely affect*, Ute ladies'-tresses.

9.11 Slickspot Peppergrass

The Proponent-proposed EPMs are insufficient to protect slickspot peppergrass because this species is an annual or biennial plant, and its aboveground populations may fluctuate greatly from year to year, depending on precipitation or other environmental factors. The aboveground plants represent only a small portion of the population, with the largest components consisting of the soil-stored seed bank. Only a small portion of the seeds germinate in a single year; therefore, the seed bank typically covers a larger area than what is occupied by aboveground plants in any given year. A single preconstruction survey could miss slickspot peppergrass populations, and slickspots that do not currently exhibit aboveground plants could still contain this species. Three years of surveys are required in order to say that habitat is unoccupied by slickspot peppergrass. It is unlikely that these survey requirements could be met in all areas of potential habitat and slickspot peppergrass habitat prior to construction. In addition, the Project would not be able to avoid impacting all slickspots or occupied slickspot peppergrass habitat, or the associated native shrub-steppe ecosystem necessary to support sufficient pollinators for this plant. Project construction, operation, and maintenance could increase the potential for further spread and proliferation of non-native plants and increased risk of wildland fire, which may affect slickspot peppergrass and slickspot peppergrass habitat. Additionally, soil compaction, soil disturbance, loss of native vegetation, and disturbance or loss of biological crusts due to Project activities may occur and may affect slickspot peppergrass and slickspot peppergrass habitat. Therefore, the BLM determined that the Project *may affect, and is likely to adversely affect*, slickspot peppergrass.

Proposed critical habitat would be crossed by the ROW of Segment 8. Impacts of the Project on this proposed critical habitat could include the spread of invasive plants, removal of native vegetation near slickspots, destruction or alteration of slickspots, and impacts to undisturbed suitable habitat for native pollinators. These impacts are

expected to be minimized by conducting preconstruction surveys for slickspots and avoiding observed slickspots by 50 feet, minimizing removal of native vegetation within 820 feet of EOs (which includes proposed critical habitat), and restoring any native vegetation removed. The BLM determined that Project *may affect, and is likely to adversely affect,* proposed critical habitat for slickspot peppergrass.

Table 9-1. Summary of Effects Determination of Federally Threatened and Endangered Wildlife and Plant Species Occurring in Idaho and Wyoming

Species	Status	Effect Determination
Colorado River Species		
Colorado pikeminnow (*Ptychocheilus lucius*)	Endangered	May affect, likely to adversely affect
Razorback sucker (*Xyrauchen texanus*)	Endangered	
Bonytail chub *(Gila elegans)*	Endangered	
Humpback chub (*Gila cypha*)	Endangered	
Critical habitat for the four endangered Colorado River fish	Designated	May affect, not likely to adversely affect
Platte River Species		
Interior least tern (*Sterna antillarum athalassos*)	Endangered	May affect, likely to adversely affect
Piping plover (*Charadrius melodus*)	Threatened	
Whooping crane (*Grus americana*)	Endangered	
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	
Western prairie fringed orchid (*Platanthera praeclara*)	Threatened	
Whooping crane critical habitat	Designated	May affect, not likely to adversely affect
Mammals		
Black-footed ferret (*Mustela nigripes*)	Endangered	No effect
	Nonessential, experimental population	May affect, not likely to adversely affect
Canada lynx (*Lynx canadensis*)	Threatened	May affect, not likely to adversely affect
Grizzly bear *(Ursus arctos)*	Threatened	May affect, not likely to adversely affect
Preble's meadow jumping mouse *(Zapus hudsonius preblei)*	Threatened	May affect, not likely to adversely affect
Fish		
Bull trout critical habitat	Designated	May affect, not likely to adversely affect
Invertebrates		
Banbury Springs limpet (*Lanx* sp.)	Endangered	May affect, not likely to adversely affect
Bliss Rapids snail (*Taylorconcha serpenticola*)	Threatened	May affect, not likely to adversely affect
Bruneau hot springsnail (*Pyrgulopsis bruneauensis*)	Endangered	May affect, not likely to adversely affect
Snake River physa snail (*Physa natricina*)	Endangered	May affect, not likely to adversely affect
Plants		
Blowout penstemon (*Penstemon haydenii*)	Endangered	No effect
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	May affect, not likely to adversely affect
Slickspot peppergrass (*Lepidium papilliferum*)	Proposed Endangered	May affect, likely to adversely affect
Slickspot peppergrass critical habitat	Proposed	May affect, likely to adversely affect

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ATTACHMENT A
DEFINITIONS OF HABITAT CATEGORIES AND EFFECT ASSESSMENT FOR SLICKSPOT PEPPERGRASS

Definitions of Habitat Categories for Slickspot Peppergrass as described within Bureau of Land Management Biological Assessment (BLM 2009, p. B-2 and BLM 2012, pp. 7-8)

Potential Habitat –

Areas within the known range of slickspot peppergrass that have certain general soil and elevation characteristics that indicate the potential for the area to support slickspot peppergrass, although the presence of slickspots or the plant is unknown. These areas meet the following criteria:

- Natric and natric-like soils forming "slickspots," and associated soil series, or phases thereof, which support Loamy 7- to 10-inch and 10- to 13-inch Wyoming big sagebrush Ecological Sites (Major Land Resource Areas 11—Snake River Plains, and 25—Owyhee High Plateau) and have an aridic bordering on xeric soil moisture regime; and
- 2,200 to 5,400 feet elevation.

Occupied Habitat –

In the BLM's 2012 Assessment, the term "occupied habitat" refers to areas where slickspot peppergrass has been documented or identified as an element occurrence (EO) and includes the area generally within 0.5 mile of that occurrence that is important to maintain or improve habitat integrity and pollinator populations necessary for species conservation. For analysis purposes in this BA, a generalized area delineated by a 0.5 mile radius circle was drawn around each EO (this circle may include areas of non-habitat). This area identified as occupied habitat may or may not include additional slickspots or slickspot peppergrass plants beyond the EO. Further refinement of occupied habitat may be accomplished through field surveys considering existing resource conditions as well as specific habitat quality and integrity.

Slickspot Peppergrass Habitat –

Potential habitat areas with Wyoming big sagebrush ecological sites that through Stage 1 surveys have documented slickspot microsites (natric and natric-like soil types) within 2,200 feet and 5,400 feet elevation in Southwest Idaho. Slickspot peppergrass habitat includes areas with slickspots of unknown occupancy and, in some cases, may be dominated by non-native vegetation such as annual grasses or crested wheatgrass (*Agropyron cristatum*). In addition, to maintain ecological continuity, if there is less than 0.5 mile between areas defined as slickspot peppergrass habitat, then the entire area is considered slickspot peppergrass habitat. Surveyed potential habitat not meeting these criteria will no longer be considered habitat for slickspot peppergrass.

Slickspot Peppergrass Assessment

EFFECTS DETERMINATION CHECKLIST FOR SLICKSPOT PEPPERGRASS

SLICKSPOT PEPPERGRASS PHYSIOGRAPHIC REGION NAME__Snake River Plains

NAME OF PROJECT BEING EVALUATED:___Gateway West Transmission Project /or suitable habitat.

PROJECT TYPE ___Energy Development and Transmission

PROJECT STATUS __Proposed Action

NARRATIVE SUMMARY OF SLICKSPOT PEPPERGRASS OBSERVATIONS WITHIN ACTION AREA (Element Occurrence #, Element Occurrence Ranking, Survey Year, Survey Intensity, Number of Slickspot Peppergrass Plants Observed, Precipitation within Survey Year, etc.)

No Project specific surveys for slickspot peppergrass have been conducted within the Action Area.

Element Occurrence Number(s):

EOs that are within the Action Area and intersected by the Project footprint:

EO Number	EO Rank	Within Action Area	Intersected by Project Footprint
15	D	Yes	No
18	C	Yes	No
24	C	Yes	Yes
25	C	Yes	No
30	B	Yes	Yes
31	C	Yes	Yes
42	F	Yes	Yes
51	BD	Yes	No
54	F	Yes	No
72	C	Yes	No
104	C	Yes	Yes

Occupied habitat (i.e., the 0.5-mile buffer around the EO) of two additional EOs, EO 62 and EO 105, occurs within the Action Area but is not intersected by the Project footprint. Management areas for known occurrences and occupied habitat that are intersected by the Action Area are listed below (by CCA Management Area):

- Kuna Management Area - MA 6 / EOs #18, 24, 25, 42, (105[1/])

- Orchard Management Area – MA 8A and 8B / EOs #15, 30, 31, 54, 72, 104
- Mountain Home Management Area – MA 9 / EOs # 51, 62

HIP Transect Number(s):

EO Number	HIP Transect Number
15	015
18	018A, 018B, 019A
24	024
25	25
30	030B
31	031
42	042
51	051A, 051B
54	054
62	062
72	072B, 072C
104	072A
105	–[1/]

1/ No HIP monitoring transect is currently associated with this EO. Monitoring data for EO 42, a nearby EO, are used to characterize baseline conditions for this EO in this analysis.

Potential Effects Pathways	Indicators	Baseline Indicator Conditions		Effect of Action on Indicator Condition		
		Current Condition Description	Current Quality Ranking (H, M, L)	Description of Potential Effects of the Action on the Baseline within the Action Area	Restore, Maintain or Degrade Habitat	Expected Modification of Baseline ↑ → ↓
A. Slickspot Conditions	A-1. Density of nonnative annual and/or nonnative perennial plants established within slickspots	Predominantly occupied by nonnative invasive species, predominantly cheatgrass (*Bromus tectorum*).	L	Project construction, operation, and maintenance increase the potential for further spread and proliferation of non-native plants and increased risk of wildland fire, which may affect slickspot peppergrass and PCE 1, 2, 3, and 4 of proposed critical habitat. Maintenance roads may be beneficial to slickspot peppergrass, because two-track maintenance roads and bare soil areas associated with line structures may act as fuel breaks, potentially limiting spread of wildfire and subsequent spread of weeds. Maintenance roads may also provide access for fire suppression activities.	**Degrade**	↓
	A-2. Level of ground disturbance within slickspots	Observed disturbance is restricted to livestock compaction and trampling, ant mound and badger burrow establishment, and invasive species encroachment. However, few of the slickspots demonstrated the cryptogamic crusts characteristic of pristine slickspots.	M	Soil compaction and soil disturbance stemming from construction activities and overland travel of construction and maintenance vehicles, where slickspots are not avoidable, may affect slickspot peppergrass and PCE 1 of proposed critical habitat.	**Degrade**	↓

Potential Effects Pathways	Indicators	Baseline Indicator Conditions		Effect of Action on Indicator Condition		
		Current Condition Description	Current Quality Ranking (H, M, L)	Description of Potential Effects of the Action on the Baseline within the Action Area	Restore, Maintain or Degrade Habitat	Expected Modification of Baseline ↑ → ↓
A. Slickspot Conditions (continued)	A-3. Level of organic debris and/or soil deposition and accumulation within slickspots	Most slickspots lacked a late seral cryptogamic crust and consisted of a moderate to high proportion of bare soil; lack of crust is most likely attributable to wildfire as opposed to aeolian or fluvial deposition. Where invasive species encroachment occurred, organic debris deposition was a subsequent byproduct.	**L**	The proposed action is expected to impose minimal soil deposition effects on slickspots. There is potential for increased spread and proliferation of invasive species which may indirectly increase organic debris deposition in slickspot microsites over time, which may affect slickspot peppergrass and PCE 1 of proposed critical habitat. However, this increase in organic debris deposition is expected to be so small it cannot be meaningfully measured, detected, or evaluated.	**Maintain**	→
B. Habitat Characteristics within the Action Area Surrounding Occupied Slickspots	B-1. Level of ground disturbance within the action area	In areas where the corridors are situated along existing roads, ground disturbance can be significant. In areas away from existing roads, ground disturbance is restricted to residual wildfire impacts and typical post-wildfire grazing impacts.	L	As described above (A-2), some soil disturbance could occur from Project construction, operation, and maintenance. Although relatively minor in scale, permanent impacts associated with road improvement and construction, as well as tower placement, will impose irreversible negative effects to the landscape by effectively transferring the land use.	**Degrade**	↓

Potential Effects Pathways	Indicators	Baseline Indicator Conditions		Effect of Action on Indicator Condition		
		Current Condition Description	**Current Quality Ranking (H, M, L)**	**Description of Potential Effects of the Action on the Baseline within the Action Area**	**Restore, Maintain or Degrade Habitat**	**Expected Modification of Baseline ↑ → ↓**
B. Habitat Characteristics (continued)	B-2. Condition of native vegetation within the action area - Level of habitat fragmentation	The condition of native vegetation is degraded and sparse. Small pockets of sagebrush exist and Sandberg bluegrass (the latter likely a function of overgrazing). Intact communities of purple three-awn exist in good condition but occur few and far between on steeper, south-facing. Habitat fragmentation is demonstrable and widespread. Much of the area has been fragmented due to past wildfires, with pockets of shrubs in both potential and occupied habitat within the action area.	L	Assume there will be some loss of native shrub cover within the construction footprint of the project as well as during some Project maintenance activities, which could impact the species as well as PCEs 2 and 4 of proposed critical habitat.	**Degrade**	↓
	B-3. Condition of native vegetation within the action area - presence of nonnative annuals and/or nonnative perennial plants	The presence of non-native species is prevalent and widespread and represents the overall characterization of the Action Area.	L	The proposed action has potential to increase the spread and proliferation of non-native species, particularly annual species, which may affect the species as well as PCEs 2, 3, and 4 of proposed critical habitat.	**Degrade**	↓
	B-4. Condition of native vegetation within the action area - % cover of biological soil crusts	In association with residual native vegetation, biological soil crusts exhibit higher than expected cover. However, outside of these native pockets, crust cover is minimal and of an early seral state.	L	Assume some loss of biological soil crust forb cover within the construction footprint of the project as well as during some Project maintenance activities, which could impact the species as well as PCE 2 of proposed critical habitat.	**Degrade**	↓

Potential Effects Pathways	Indicators	Baseline Indicator Conditions		Effect of Action on Indicator Condition		
		Current Condition Description	Current Quality Ranking (H, M, L)	Description of Potential Effects of the Action on the Baseline within the Action Area	Restore, Maintain or Degrade Habitat	Expected Modification of Baseline ↑ → ↓
B. Habitat Characteristics (continued)	B-5. Condition of native vegetation within the action area - % cover of native forbs	The presence of non-native species is widespread and represents the overall characterization of the Action Area. Native forb cover is correspondingly low.		Assume some loss of native forb cover within the construction footprint of the project as well as during some Project maintenance activities, which could impact the species as well as PCEs 2, 3, and 4 of proposed critical habitat.	**Degrade**	↓
SUMMARY		**Summary of Overall Status of Baseline within the Action Area** Thirteen EOs (including occupied habitat of 2 EOs) currently exist within the Action Area. Five of these would be intersected by the Project footprint. EOs within the Action Area include two as F (failed to find), one as “B”, seven as “C”, two as “D”, and one as “BD”. EOs intersected by the Project footprint are ranked as: F (2), C (3), and B (1). The presence of non-native species is prevalent and widespread and condition of native vegetation is degraded and sparse. Observed disturbance; however, is restricted to livestock compaction and trampling, ant mound and badger burrow establishment, and invasive species encroachment. However, few of the slickspots demonstrate the cryptogamic crusts characteristic of pristine slickspots.	L	**Summary of Potential Effects of the Action on the Baseline within the Action Area** Project construction, operation, and maintenance increase the potential for further spread and proliferation of non-native plants and increased risk of wildland fire, which may affect slickspot peppergrass and PCEs 1, 2, 3, and 4 of proposed critical habitat. Additionally, soil compaction, soil disturbance, loss of native vegetation, and disturbance or loss of biological crusts due to construction and operation and maintenance activities may occur and may affect slickspot peppergrass, slickspot peppergrass habitat and PCEs 1, 2, 3, and 4 of proposed critical habitat. Permanent impacts to slickspots; however, are expected to be relatively minor in scale.	**Degrade**	↓

Dichotomous Key for Effects Determinations

***Lepidium papilliferum* Conference Framework**

Dichotomous Key for Effects Determinations

1. Are there documented occurrences of *Lepidium papilliferum* or proposed or designated critical habitat, or is potential habitat or slickspot peppergrass habitat present in the Action Area?

   A. NO No Effect–Conference is not necessary

   B. **YES** **Go to #2**

2. Does the Effects Determination Checklist show any effect whatsoever on the species and/or its critical habitat or on potential habitat or slickspot peppergrass habitat resulting from the action?

   A. NO No Effect–Conference is not necessary

   B. **YES** **Go to #3**

3. Does the Effects Determination Checklist show any potential change (degradation/restoration or downward/upward trends) in any of the Matrix Indicators resulting from the action?

   A. NO No Effect–Conference is not necessary

   B. **YES** **Go to #4**

4. Is there a negative effect of the action on any Matrix Indicators that is able to be meaningfully measured, detected, or evaluated OR is reasonable certain to occur to individuals or populations of *Lepidium papilliferum* or its habitat (i.e., critical habitat Primary Constituent Elements, potential habitat, slickspot peppergrass habitat) within the Action Area?

   A. NO May Affect, is Not Likely to Adversely Affect–Informal Conference with the Service is advised

   B. **YES** **May Affect, is Likely to Adversely Affect – Formal Conference with the Service is advised**

PCE/Pathway Indicator Crosswalk for Slickspot Peppergrass		
PCE	**PCE Description**	**Corresponding Pathway Indicator**
1	Ecologically functional microsites or "slickspots" that are characterized by: (a) a high sodium and clay content and a three-layer soil horizonation and (b) sparse vegetation with low to moderate introduced plant species cover	A-1. Density of nonnative annual and/or nonnative perennial plants established within slickspots A-2. Level of ground disturbance within slickspots A-3. Level of organic debris (litter or feces) and/or soil deposition and accumulation within slickspots
2	Relatively intact native Wyoming big sagebrush vegetation assemblages within 820 feet (250 meters) of slickspots	B-1. Level of ground disturbance within the action area B-2. Condition of native vegetation within the action area - level of habitat fragmentation B-3. Condition of native vegetation within the action area - presence of nonnative annuals and/or nonnative perennial plants B-4. Condition of native vegetation within the action area - percent cover of biological soil crusts B-5. Condition of native vegetation within the action area - percent cover of native forbs
3	A diversity of native plants for insect pollinator habitat requirements	B-3 and B-5
4	Sufficient pollinators for successful fruit and seed production	B-1, B-2, B-3, and B-5

ATTACHMENT B
LIMITING FACTORS ANALYSIS FOR BULL TROUT CRITICAL HABITAT

Bruneau River Environmental Baseline Summary and Anticipated Effects of the Gateway West Transmission Project on Bull Trout and its Critical Habitat

Watershed Condition Indicator Pathways		Environmental Baseline Condition			Effects of the Action		
	Indicator	Properly Functioning	Functioning at Risk	Not Properly Functioning	Restore	Maintain	Degrade
SPECIES							
Subpopulation Characteristics Within Subpopulation Watersheds	Subpopulation size		X			X	
	Growth and survival		X			X	
	Life history diversity and isolation		X			X	
	Subpopulation trend*					X	
	Persistence and genetic integrity		X			X	
HABITAT							
Water Quality	Temperature	X				X	
	Sediment/Turbidity		X			X+	
	Chemical contamination/nutrients	X				X	
Habitat Access	Physical barriers		X			X	
Habitat Elements	Substrate embeddedness in rearing areas	X				X+	
	Large woody debris*					X^	
	Pool frequency	X				X	
	Pool quality*					X	
	Off-channel habitat*					X	
	Refugia*					X	
Channel Condition & Dynamics	Wetted width/maximum depth ratio in scour pools in a reach*					X	
	Streambank condition		X			X	
	Floodplain connectivity*					X	
Flow/ hydrology	Change in peak/base flows*					X	
	Increase in drainage network*					X	
Watershed conditions	Road density & location*					X	
	Disturbance history*					X	
	Riparian Habitat Conservation Area*					X^	
	Disturbance regime*					X	
Integration of species and habitat*						X	

* = No environmental baseline data available

+ = Some sediment may be introduced into the Bruneau River, but effects to primary constituent elements of bull trout critical habitat are expected to be insignificant (so small that they cannot be meaningfully measured, detected, or evaluated).

^ = A few individual trees may be removed from the Riparian Habitat Conservation Area, but effects to primary constituent elements of bull trout critical habitat are expected to be insignificant (so small that they cannot be meaningfully measured, detected, or evaluated).