Draft Environmental Impact Statement

Bog Creek Road Project

U.S. Department of Homeland Security
U.S. Customs and Border Protection

U.S. Department of Agriculture
Idaho Panhandle National Forest
Bonners Ferry and Priest Lake Ranger Districts

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READER'S GUIDE

Welcome to the *Bog Creek Road Project Draft Environmental Impact Statement* (DEIS). The DEIS was prepared by the U.S. Department of Homeland Security, Customs and Border Protection (CBP) and the U.S. Forest Service (Forest Service) to analyze and address any significant environmental impacts from the proposed repair and maintenance of the Bog Creek Road and motorized closure of roads in the Blue-Grass Bear Management Unit, located in the Idaho Panhandle National Forests.

This guide is intended to help the reader understand the structure of the DEIS and make it easier to find information. The DEIS is available in two formats: as an Adobe Systems Portable Document Format (PDF) and as a printed and bound book. The two formats have identical content and organization.

The Section 508 amendment of the Rehabilitation Act of 1973 requires that the information in Federal documents be accessible to individuals with disabilities. The Forest Service and CBP have made every effort to ensure that the information in the DEIS is accessible. If you have any problems accessing information, please contact the U.S. Department of Agriculture's Target Center at (202) 720-2600 (voice and TDD).

Draft Environmental Impact Statement Organization

The document is organized into seven chapters and a set of appendices:

- *Chapter 1. Purpose of and Need for Action:* This chapter includes introductory information on the background and history of Bog Creek Road and the Blue-Grass Bear Management Unit, describes the purpose of and need for repairing Bog Creek Road and closing selected seasonally restricted Forest Service roads to motorized use, and introduces the action alternative evaluated for achieving that purpose and need. This chapter also details the decision framework for this project, how the Forest Service and CBP involved the public in development of the DEIS, and the issues that emerged regarding the Proposed Action.
- *Chapter 2. Alternatives, Including the Proposed Action:* This chapter provides a detailed description of the alternatives developed to meet the stated purpose of and need for the project. These alternatives were developed based on key issues raised by the public, agencies, and the Forest Service and CBP interdisciplinary team. This discussion also includes a summary of design features and mitigation measures incorporated into the action alternatives. Finally, this section concludes with a summary table of effects associated with the analyzed alternatives.
- *Chapter 3. Affected Environment and Environmental Consequences:* This chapter describes existing conditions within defined analysis areas and the environmental effects of implementing the No-Action Alternative and all three action alternatives.
- *Chapter 4. Required Disclosures:* This chapter describes, as applicable, short-term uses and long-term productivity, unavoidable detrimental effects, irreversible and irretrievable commitments of resources, and any other required disclosures.
- *Chapter 5. Coordination and Consultation:* This chapter describes all Federal, State, and local agencies, tribes, and other organizations and individuals consulted during the development of this DEIS.

- *Chapter 6. Literature Cited*: This chapter lists all materials cited to support the analyses presented in the DEIS.
- *Chapter 7. Index:* This chapter contains an index for the DEIS.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the DEIS.

How to Find Certain Information

This DEIS provides several tools to help the reader find information. The tools have been designed to make them equally useful to readers of either the PDF format or the hard copy format:

- A table of contents.
- Heading numbers: Each chapter and section has a unique number as part of its heading.
- In-text references to sections, tables, and figures: When a reader is directed to a section of the DEIS or to a figure or table, that reference is provided as a clear and unique identifier; for example, “see Section 1.3.1.”
- Hyperlinks: The table of contents contains hyperlinks for each section, table, and figure so readers can jump directly to that section, table, or figure.

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LIST OF ABBREVIATIONS

Document Abbreviations

Access Amendment	*Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones* (Forest Service 2011a)
Forest Plan	*Revised Land Management Plan, Idaho Panhandle National Forests* (Forest Service 2015a)
INFISH	*Inland Native Fish Strategy: Interim Strategies for Managing Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and Portions of Nevada* (Forest Service 1995b)
LCAS	*Canada Lynx Conservation Assessment and Strategy* (ILBT 2013)
NB PEIS	*Programmatic Environmental Impact Statement for Northern Border Activities* (CBP 2012)
NRLMD	*Northern Rockies Lynx Management Direction* amendment (Forest Service 2007)
Recovery Plan	*Grizzly Bear Recovery Plan* (USFWS 1993a)
Scoping Report	*East West Access around Continental Mountain Scoping Report* (CBP 2013b) and *Bog Creek Road Environmental Impact Statement Scoping Report* (CBP 2016)

Other Abbreviations

°F	degrees Fahrenheit
ANSI	American National Standards Institute
APE	area of potential effects
ASA	Acoustical Society of America
ATV	all-terrain vehicle
BA	biological assessment
BE	biological evaluation
bgs	below ground surface
BMP	best management practice
BMU	Bear Management Unit
BORZ	Bears Outside Recovery Zone
BURP	Beneficial Use Reconnaissance Program

CBP	U.S. Department of Homeland Security, Customs and Border Protection
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGWA	critical groundwater area
CH	cedar/hemlock
cm	centimeter(s)
CMU	caribou management unit
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWA	Clean Water Act
CWH	western red cedar/western hemlock
CYRZ	Cabinet-Yaak Recovery Zone
dBA	A-weighted decibel
dbh	diameter at breast height
DCH	designated critical habitat
DEIS	Draft Environmental Impact Statement
DPS	distinct population segment
DU	Designatable Unit
ECSM	Ecological Conceptual Site Model
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act
Forest Service	U.S. Forest Service
FSH	Forest Service Handbook
FSM	Forest Service Manual
FSR	Forest Service Road

GA	Geographic Area
GIS	geographic information system
GPS	global positioning system
GWMA	groundwater management area
HUC	Hydrologic Unit Code
ID	interdisciplinary
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
IGBC	Interagency Grizzly Bear Committee
ILBT	Interagency Lynx Biology Team
IPaC	Information for Planning and Consultation
IPNF	Idaho Panhandle National Forests
LAU	lynx analysis unit
m	meter(s)
MA	Management Area
MBTA	Migratory Bird Treaty Act
MOA	memorandum of agreement
MOU	memorandum of understanding
MP	milepost
mph	mile(s) per hour
MS	Management Situation
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NOI	Notice of Intent

NRHP	National Register of Historic Places
NVUM	National Visitor Use Monitoring
NWP	Nationwide Permit
OHV	off-highway vehicle
OMRD	open motorized route density
RHCA	Riparian Habitat Conservation Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
SAF	Engelmann spruce/subalpine fir
SHPO	State Historic Preservation Office
SRZ	Selkirk Recovery Zone
SUV	sport-utility vehicle
T&E species	threatened, endangered, and proposed species
TMDL	total maximum daily load
TMRD	total motorized route density
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHF	very high frequency

EXECUTIVE SUMMARY

This summary is a concise account of the analysis contained in the *Bog Creek Road Project Draft Environmental Impact Statement* (DEIS). It defines the project and explains why the U.S. Forest Service (Forest Service) and U.S. Department of Homeland Security, Customs and Border Protection (CBP) are proposing to repair and maintain of 5.6 miles of Bog Creek Road and to close up to 26 miles of seasonally restricted Forest Service roads to motorized access, describes which alternatives would satisfy the purpose and need, identifies the issues analyzed in detail in the DEIS, and summarizes the potential social and environmental effects associated with project actions.

ES-1.1 Proposed Action

The Proposed Action was developed through the collaborative efforts between CBP, the Forest Service, and the public. It was designed to meet the goals and objectives established for the project while meeting as many of the other resource needs as possible. The Proposed Action would consist of three components: 1) road repair and maintenance of Bog Creek Road and change in motorized use designation; 2) change in motorized use designation for Blue Joe Creek Road; and 3) motorized closure of selected seasonally restricted Forest Service roads.

ES-1.1.1 Repair and Maintenance of Bog Creek Road

Repair and maintenance of Bog Creek Road (Forest Service Road [FSR]) 1013 would be conducted to allow the road to meet Forest Service road maintenance level 2 standards, which generally allow access for high-clearance vehicles. Bog Creek Road is currently designated as a seasonally restricted road (motorized use is permitted between April 1 and November 15 only for administrative purposes such as Forest Service, CBP, and law enforcement); after road repair activities, the road would change to an *administrative open* designation (as-needed administrative motorized access). Under the *administrative open* road designation, Bog Creek Road would be open to as-needed administrative motorized access but not open to the public for motorized travel.

Repair and maintenance would consist of grading and resurfacing areas of the road that have been heavily eroded by surface water flows, filling potholes, and removing protruding boulders. Repair would also include installation of six new culverts and replacement of six of the existing 67 corrugated metal pipe culverts located along the length of the roadway because they have partially rusted through, otherwise exceeded their usable life, or do not meet current design standards for width and capacity. The most intensive repair would occur at Spread Creek, where a culvert failure and road washout have made the road completely impassable. The road would not be widened, but limited areas that no longer meet minimum width requirements may require cut and fill work to achieve the desired road operating and safety standards. Trees and other vegetation within the roadway and to either side would be grubbed or cut back to facilitate safe vehicle passage.

ES-1.1.2 Open Administrative Use Designation for Blue Joe Creek Road

Blue Joe Creek Road (FSR 2546) extends from the eastern terminus of the Bog Creek Road, running 7.4 miles alongside Blue Joe Creek, to the Continental Mine property. This section of road is currently designated as seasonally restricted, and motorized access is limited to 57 vehicle round trips per active bear year. The current seasonal restrictions that limit the number of motorized administrative trips along Blue Joe Creek Road would be removed. The road would be designated as *administrative open*, which would allow for as-needed administrative motorized trips. This change in designation, when combined with the Bog Creek Road designation change, allows for administrative trips by private property owners to access their property within the Blue-Grass Bear Management Unit (BMU).

ES-1.1.3 Motorized Road Closure of Selected Seasonally Restricted Forest Service Roads

Approximately 26 miles of seasonally restricted Forest Service roads would be closed to all wheeled motorized use within the Blue-Grass BMU, which is part of the Selkirk Grizzly Bear Recovery Zone.[1] Closing the roads would allow the Forest Service to meet the requirements of at least 55 percent of the BMU as core habitat, and no more than 26 percent of the BMU having a total motorized route (TMRD) greater than 2 miles per square mile, as specified in *Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones* (Access Amendment) (Forest Service 2011a). The means by which motorized road closure would take place would vary by site and would include both decommissioning and long-term storage. Decommissioning involves permanently removing a road from the Forest Service transportation system. Roads that are placed into long-term (e.g., a minimum of 10 years) storage remain on the system, but are rendered undrivable. On-the-ground road work may be very similar between decommissioning and long-term storage, as both are intended to prevent future failures and erosion hazards. Both methods may involve one or a combination of the following treatments: fully or partially recontouring the road prism, ripping the road surface, removing culverts and recontouring stream crossings, planting and seeding, mulching, or slashing disturbed areas.

All roads proposed for motorized closure under the Proposed Action are classified as seasonally restricted Forest Service roads. Motorized public access on these roads is only permitted to occur between November 16 and March 31. Non-motorized public access on these roads is permitted year-round.

ES-1.2 Purpose and Need

Two purposes would be served by the Proposed Action. The purpose of the repair and maintenance of Bog Creek Road is to restore motorized access to the area between the international border and Continental Mountain so that CBP can perform its duty to guard the international border from potential threats. The purpose of motorized road closure is to reduce the motorized route density within the Blue-Grass BMU so that the Idaho

[1] The term “motorized” as used throughout this EIS refers to wheeled motorized vehicles.

Panhandle National Forests (IPNF) would meet the requirements of the *Revised Land Management Plan, Idaho Panhandle National Forests* (Forest Plan) (Forest Service 2015a) and the Endangered Species Act to aid in the recovery of grizzly bears.

The repair and maintenance of Bog Creek Road is needed because CBP must be able to access the international border to prevent illegal activities before perpetrators can reach areas where they can blend in with legitimate activities to elude apprehension. Bog Creek Road is currently impassable by motorized vehicles due to revegetation of the roadway and severe erosion. The motorized closure of seasonally restricted Forest Service roads is needed because the IPNF is required to meet the Access Amendment standards for the Blue-Grass BMU by 2019.

ES-1.3 Issues Identified for Analysis

CBP and the Forest Service developed a list of issues to address using comments from the public, agencies, and the internal interdisciplinary (ID) team. Public involvement for the Bog Creek Road repair and maintenance proposal was initially conducted by CBP in February and March 2013. The project has been listed on the IPNF Schedule of Proposed Actions since February 2013. The initial 30-day scoping period was held from February 6 to March 8, 2013. In total, 25 comment letters were received during the initial scoping period.

Information gathered from agencies and the public during the initial scoping effort was used to inform CBP and the Forest Service regarding the level of National Environmental Policy Act (NEPA) analysis to evaluate the proposed project. Based upon agency (internal) and public (external) scoping comments, CBP and the Forest Service determined that an environmental impact statement (EIS)-level NEPA analysis would be necessary.

The Notice of Intent (NOI) for the Bog Creek Road Project was published in the Federal Register on April 27, 2016. The NOI asked for public comment on the proposal from April 27 to May 27, 2016. The Proposed Action described in the NOI included both repair and maintenance of Bog Creek Road and motorized road closures of specific road segments in the Blue-Grass BMU. In total, 17 comment letters were received during the NOI scoping period.

Using the comments received during both scoping periods and considering known concerns for the Forest Service and CBP ID team, a preliminary list of issues to address was developed:

- Bull trout: Effects on bull trout distribution and proximity to bull trout designated critical habitat
- Canada lynx: Effects on Canada lynx habitat; the potential for human presence to cause disturbance and avoidance; and the potential for increased predator competition
- Fish: Effects on fish habitat; change in fish distribution
- Grizzly bear: Effects on secure grizzly bear habitat; the potential for human presence to cause disturbance and avoidance; and the potential for illegal kills (poaching), mistaken identity kills, or kills in defense of human life
- Heritage: Effects on cultural resource sites, including those listed in or eligible for the National Register of Historic Places

- Motorized access: Effects on public motorized access in the Blue-Grass BMU
- North American wolverine: Effects on wolverine habitat; the potential for human presence to cause disturbance and avoidance; and the potential for increased predator competition
- Recreation: Effects on recreation opportunities in the Blue-Grass BMU (hunting, fishing, use by horseback, bicycle, off-highway vehicle, and snowmobile)
- Soils: Effects on soils conditions; potential hazards related to soil erosion; and potential for mass failure on sensitive land types
- Special status plants: Effects on vegetation and risk of damage to sensitive plant populations and their associated habitat guilds
- Water resources, including wetlands: Effects on water resources; change in hydrologic connectivity; and change in sediment delivery and peak flow
- Wildlife: Effects on wildlife; acres of habitat affected by surface disturbance; and the potential for species-specific impacts such as disturbance and avoidance
- Woodland caribou: Effects on woodland caribou habitat; the potential human presence to cause disturbance and avoidance; and the potential for improved predator access

ES-1.4 Alternatives

In addition to the No-Action Alternative (analyzed in this document as Alternative 1), three action alternatives are analyzed in this DEIS: the Proposed Action (Alternative 2), Alternative 3 (Modified Proposed Action), and Alternative 4 (Blue-Grass BMU West–East Open Access). All four alternatives are briefly summarized below. The reader is referred to Chapter 2 for a full description of alternatives.

ES-1.4.1 No-Action Alternative (Alternative 1)

For this project, the No-Action Alternative (Alternative 1) represents the effects of not implementing the proposed repair and maintenance of Bog Creek Road and motorized closure of seasonally restricted Forest Service roads, while taking into account the effects of other past, ongoing, and reasonably foreseeable activities occurring in the area. This alternative proposes that no repair and maintenance activities would occur on the 5.6-mile section of Bog Creek Road and that the 26 miles of seasonally restricted Forest Service roads would continue to be available for motorized use in accordance with seasonal access restrictions. There would be no change in Forest Service management of the roads and CBP activities in the Blue-Grass BMU.

Under the No-Action Alternative, the Forest Service would continue to work toward meeting the Access Amendment standards. However, it is unknown exactly which roads would be closed to motorized use to meet the standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

ES-1.4.2 Proposed Action (Alternative 2)

The Proposed Action (Alternative 2) proposes repair and maintenance of 5.6 miles of Bog Creek Road and the motorized closure of 26 miles of seasonally restricted Forest Service roads in the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core habitat requirement of 55 percent and the TMRD

requirement of 26 percent. All roads proposed for motorized closure under the Proposed Action are classified as seasonally restricted Forest Service roads. Motorized public access on these roads is only permitted to occur between November 16 and March 31.

After road repair activities, the Bog Creek Road designation would change from the current seasonally restricted designation (limited motorized access) to an *administrative open* designation (as-needed administrative motorized access). Under the *administrative open* road designation, Bog Creek Road would be open to as-needed administrative motorized access but not open to the public for motorized travel. Approximately 7.4 miles of Blue Joe Creek Road, currently designated as a seasonally restricted road (limited motorized access), would also change from this designation to an *administrative open* designation (as-needed administrative motorized access). Non-motorized public access on all roads is permitted year-round.

Section ES-1.1 provides a summary of key components of the Proposed Action. The repair and maintenance activities proposed for Bog Creek Road are the same under all three action alternatives.

ES-1.4.3 Alternative 3 (Modified Proposed Action)

Alternative 3 is a modified version of the Proposed Action that would close a different set of seasonally restricted Forest Service roads to motorized access. The repair and maintenance activities proposed for Bog Creek Road and the *administrative open* designation for Bog Creek Road and Blue Joe Creek Road are the same as described under the Proposed Action.

Under Alternative 3, approximately 25 miles of Forest Service roads would be closed to all motorized use by the Forest Service within the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core habitat requirement of 55 percent and the TMRD requirement of 26 percent.

Two of the nine roads proposed for motorized road closure under Alternative 3 would be different from the roads proposed for closure under the Proposed Action. These roads were selected to be included in this alternative because closing these roads would create more core grizzly bear habitat in upper Grass Creek, a place that has been heavily and continuously used by grizzly bears since at least the 1980s.

All roads proposed for motorized closure under Alternative 3 are classified as seasonally restricted Forest Service roads. Motorized public access on these roads is only permitted to occur between November 16 and March 31. Non-motorized public access on these roads is permitted year-round.

ES-1.4.4 Alternative 4 (Blue-Grass BMU West–East Open Access)

Alternative 4 is a modified version of the Proposed Action that would open Bog Creek Road and roads along the eastern approach to Bog Creek Road to unlimited public motorized access year-round. Under Alternative 4, Bog Creek Road repair and maintenance and the motorized closure of seasonally restricted Forest Service roads would be identical to the Proposed Action. After repair of Bog Creek Road is completed, Alternative 4 would designate the 5.6 miles of the repaired Bog Creek Road as open for

unlimited public motorized access year-round. However, winter motorized snowmobile use by the public is currently not allowed on Bog Creek Road as a result of the court orders of November 7, 2006, and February 27, 2007, relating to recovery of woodland caribou and the potential impacts of snowmobile use within the recovery area.

Approximately 6.4 miles of Blue Joe Creek Road would change to an *administrative open* designation (as-needed administrative motorized access). Additionally, the designation of roads along the eastern approach to Bog Creek Road (FSRs 2546, 1011, 636, and 1009) would also change from the current *seasonally restricted* designation (limited motorized access) to an open road designation (unlimited motorized access) to allow for continuous unrestricted public motorized travel around Continental Mountain.

ES-1.5 Summary of Environmental Effects

Table 2.4.2 in Chapter 2 summarizes and compares the environmental consequences by resource for the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4. Detailed information on the affected environment and environmental consequences for each resource considered in this analysis can be found in Chapter 3.

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

1.1 Document Structure

This Draft Environmental Impact Statement (DEIS) has been prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This DEIS discloses the potential environmental impacts that would result from the Proposed Action and alternatives. The document is organized into seven chapters and a set of appendices:

- *Chapter 1. Purpose of and Need for Action:* This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agencies' proposal for achieving that purpose and need. This chapter also details the public involvement process.
- *Chapter 2. Alternatives, Including the Proposed Action:* This chapter provides a more detailed description of the agencies' Proposed Action as well as alternative methods for achieving the stated purpose. These alternatives were developed through internal discussion and consideration, and consideration and discussion of major issues raised by the public and other agencies. This discussion also includes mitigation measures. Finally, this chapter provides a summary table of the environmental consequences associated with each alternative.
- *Chapter 3. Affected Environment and Environmental Consequences*: This chapter describes the environmental effects of implementing the Proposed Action and other alternatives. This analysis is organized by resource area.
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1.2 Background

The United States (U.S.) Department of Homeland Security, Customs and Border Protection (CBP) and the U.S. Forest Service (Forest Service) are proposing a road repair, maintenance, and motorized closure project in the Continental Mountain area of the Idaho Panhandle National Forests (IPNF) within the Bonners Ferry and Priest Lake Ranger Districts. The project has two objectives: 1) to provide safe east–west access for administrative use to this section of the U.S.–Canada border across the Selkirk Mountains, and 2) to meet grizzly bear motorized access standards within the Blue-Grass Bear Management Unit (Blue-Grass BMU) of the Selkirk Grizzly Bear Recovery Zone (Selkirk Recovery Zone [SRZ]).

The primary road that provides east–west access around Continental Mountain is Bog Creek Road. Historical records are incomplete but indicate that Bog Creek Road was originally constructed primarily as a logging road sometime between 1934 and 1956. The road was gated on both ends in the late 1980s for grizzly bear secure habitat and was maintained on a limited basis after that time. The road experienced minor failures in the mid-1990s, with a large failure occurring around 2000–2001, when a large culvert at approximately milepost (MP) 35 failed due to heavy surface water runoff. At that time, the road became impassable to most vehicles. Currently, the road is gated at the east end and barricaded at the west end.

In recent years, the road has been infrequently used by CBP personnel traveling on all-terrain vehicles (ATVs) and on horseback. ATV use at the segment of the road that was damaged by surface water flows in 2000–2001 requires a winch system to traverse the large culvert failure. Survey work conducted in September 2012 provides photographic and narrative documentation that the majority of the 5.6-mile Bog Creek Road is overgrown. According to the 2012 survey, approximately 4.3 miles of the road is overgrown (nearly blocked) or moderately overgrown (partially obstructed) with alder brush, small trees, and other vegetation (DJ&A 2012). The remaining 1.3 miles contains some vegetation that blocks the roadway. CBP conducted vegetation-clearing activities on the eastern portion of the Bog Creek Road corridor in 2016 in response to potential cross-border violations. Vegetation removal was performed on an approximately 6-foot-wide × 1-mile-long corridor on the east end of the roadway.

Bog Creek Road has been identified by CBP as an important road for the agency to perform its statutory mission to protect the U.S. northern border. Agents from both the Metaline Falls station, located in Washington State, and the Bonners Ferry station access the Blue-Grass BMU from both the west and east. Because of the impassability of Bog Creek Road, the amount of vehicular operating time on restricted roads (described in detail below as part of the Access Amendment) within the BMU is increased because vehicular access is not available from the west. Currently, vehicles must travel through the eastern and central portions of the BMU to reach border areas, which are located in the west-central and western portions of the BMU (Figure 1.2.1). Those vehicles must then turn around and traverse a vast portion of the BMU's restricted roads to depart. Vehicles currently operating on restricted roads within the BMU are there for law enforcement, medical/search and rescue, fire suppression, forest management, and grazing, and to access the Continental Mine property.

Bog Creek Road is located in the Blue-Grass BMU within the SRZ (see Figure 1.2.1). The IPNF has been working since the late 1980s to create secure habitat for grizzly bears and manage the habitat conditions of the SRZ. In 2011, the IPNF issued a Record of Decision (ROD) for the *Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones* (Access Amendment) (Forest Service 2011a) that set motorized[1] vehicle access and security standards to meet the agency's responsibilities under the Endangered Species Act (ESA) to conserve and contribute to the recovery of grizzly bears. The ROD and accompanying biological opinion from the U.S. Fish and Wildlife Service (USFWS) require the standards in the Access Amendment to be met by 2019. The Blue-Grass BMU is currently not meeting the motorized access standards set forth in the Forest Plan.

[1] The term "motorized" as used throughout this DEIS refers to wheeled motorized vehicles.

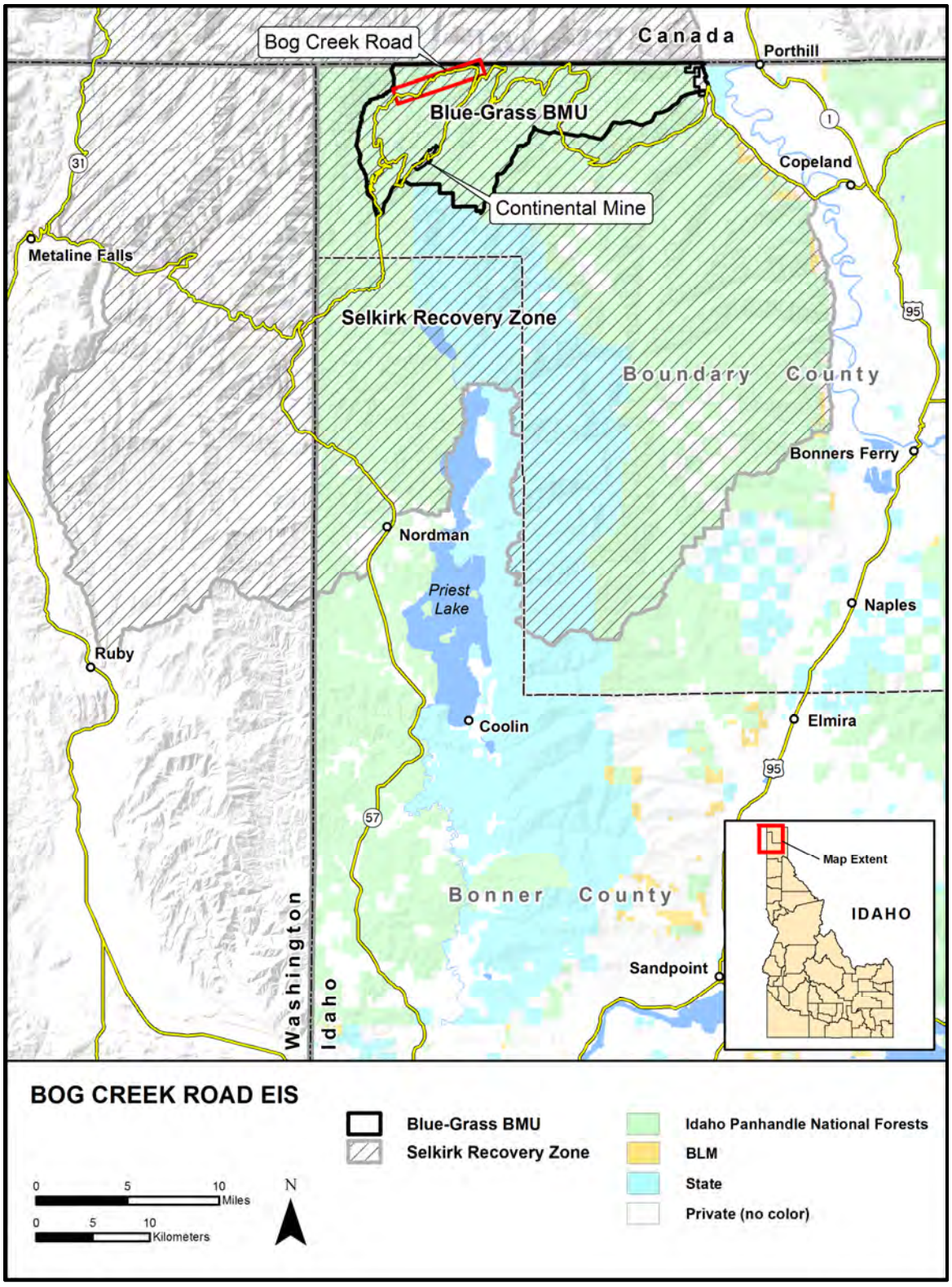

Figure 1.2.1. Project location.

The Forest Service has been planning to bring the BMU into compliance with the Access Amendment and the *Revised Land Management Plan, Idaho Panhandle National Forests* (Forest Plan) (Forest Service 2015a).

According to the *Grizzly Bear Recovery Plan* (Recovery Plan), adequate effective habitat is the most important element in grizzly bear recovery (USFWS 1993a). Effective habitat is a reflection of an area's ability to support grizzly bears based on the quality of the habitat (composed of foraging, denning, rearing, and secure habitats) and the type/amount of human disturbance imposed on it. Secure habitat allows for sufficient space for grizzly bears to roam and effectively use available habitats. By definition, secure habitat is an area or space outside or beyond the influence of high levels of human activity. Open roads and high-use recreational areas such as trails or campgrounds are examples of land uses that reduce the amount of secure habitat that is available and may result in displacement of bears. The Recovery Plan identifies specific grizzly bear recovery zones on Forest Service managed land in Idaho and Montana, such as the SRZ in the IPNF (USFWS 1993a).

Specifically, the Access Amendment adopted the following standards for controlling motorized vehicle use within the Blue-Grass BMU:

1. Open motorized route density (OMRD) of greater than 1 mile per square mile on no more than 33 percent of the BMU;
2. Total motorized route density (TMRD) of greater than 2 miles per square mile on no more than 26 percent of the BMU; and
3. Grizzly bear core area habitat comprising at least 55 percent of the BMU.

Grizzly bear core area habitat is defined as an area of secure habitat within a BMU that contains no motorized travel routes or high-use non-motorized trails during the non-denning season and is more than 0.31 mile (500 meters [m]) from a drivable road. The grizzly bear non-denning season within the SRZ is from April 1 through November 15.

The existing network of roads prevents the IPNF from meeting the core grizzly bear habitat requirement of 55 percent in the Blue Grass BMU (Forest Service 2011a). Table 1.2.1 provides the current status (end of 2016) of the Blue-Grass BMU Access Amendment standards for route density and core area habitat from the annual monitoring report (Forest Service 2017). This monitoring report reflects motorized activities that occurred in the BMU during Bear Year 2016 (April 1 through November 15, 2016). The OMRD number does not represent the current route designations, but rather actual motorized activities that occurred above the current route designations in the BMU. Currently, the Blue Grass BMU has 48.25 percent of core grizzly bear habitat.

While examining how to meet the Access Amendment standards, the Forest Service identified the long-planned closure of Bog Creek Road as an option that would create core habitat in the Blue-Grass BMU. Consistent with that plan, Bog Creek Road was allowed to deteriorate, and no steps were taken to regularly maintain the road. With CBP continuing to express its need for motorized use on the Bog Creek Road, the ensuing discussions highlighted that coordination is essential when closing roads in BMUs near the border. The entire Blue-Grass BMU is within 10 miles of the Canadian border; therefore, the status of all roads in the BMU is of great interest to CBP. Because the options of which roads to close to motorized use to meet the Access Amendment standards are limited, it was imperative for CBP and the Forest Service to work together to determine alternatives that would meet CBP's requirements for access as well as the

Forest Service's requirements to comply with the ESA. The alternatives described in Chapter 2 resulted from that cooperative effort.

Table 1.2.1. 2016 Status of Blue-Grass BMU and Comparison with Access Amendment Standards

BMU	BMU Priorities (1, 2, or 3)	OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		% BMU National Forest System Land
		2016 Status	Selected Standard (maximum)	2016 Status	Selected Standard (maximum)	2016 Status	Selected Standard (minimum)	
Blue-Grass	1	30%	33%	29%	26%	48%	55%	96%

Notes:

Core Area: An area of secure habitat within a BMU that contains no motorized travel routes or high-use non-motorized trails during the non-denning season and is more than 0.31 mile (500 m) from a drivable road. The grizzly bear non-denning season within the SRZ is from April 1 through November 15. Core areas do not include any gated roads but may contain roads that are impassable due to vegetation or constructed barriers. Core areas strive to contain the full range of seasonal habitats that are available in the BMU.

Open Motorized Route Density (OMRD): Calculation made with the moving windows technique that includes open roads, other roads not meeting all restricted or obliterated criteria, and open motorized trails. The percentage of the analysis area in relevant route density classes is calculated. Note: Moving windows is a technique for measuring road densities on a landscape using computerized geographic information system technology.

Total Motorized Route Density (TMRD): Calculation made with the moving windows technique that includes open roads, restricted roads, roads not meeting all reclaimed criteria, and open motorized trails. The percentage of the analysis area in relevant route density classes is calculated.

Using its engineering standards, the Forest Service currently classifies Bog Creek Road as a maintenance level 1 road. Maintenance level 1 roads are defined in Forest Service Handbook (FSH) 7709.58 (Forest Service 1995a) as:

> Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed 1 year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate."
>
> Roads receiving level 1 maintenance may be of any type, class or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at level 1, they are closed to vehicular traffic, but may be open and suitable for nonmotorized uses.

Another Bog Creek Road classification stems from the Interagency Grizzly Bear Committee (IGBC) motorized standards developed in 1994 (IGBC 1994). Under this system, the Forest Service classifies the road as "seasonally restricted," which allows for limited motorized access for administrative use. Seasonally restricted administrative use is limited to 57 vehicle round trips per active bear year (i.e., non-denning period) per road, divided seasonally ($\leq$ 19 round trips in spring [April 1 through June 15]; $\leq$ 23 round trips in summer [June 16 through September 15]; and $\leq$ 15 round trips in fall [September 16 through November 15]).

The Blue-Grass BMU contains a private inholding associated with the Continental Mine property located in the southwestern portion of the BMU (see Figure 1.2.1). This area has historically been accessed via roads coming from the north through Canada and the east

side of the BMU. Because this private property is associated with a patented mining claim, the Forest Service is required to provide reasonable access to the private land inholding. The Forest Service has been working with the Continental Mine owners for several years to continue providing this access while also meeting the requirements of the Access Amendment and providing secure habitat for grizzly bears in the BMU.

1.3 Purpose of and Need for Action

The purpose of and need for the Proposed Action is twofold:

- provide improved east–west access across the Selkirk Mountains on National Forest System (NFS) lands to enable CBP to execute its statutory mission to protect the U.S. northern border and for the safety of CBP and other law enforcement officers while carrying out their duties; and
- meet legally required IPNF Forest Plan standards for motorized access in grizzly bear habitat in the Blue-Grass BMU.

1.3.1 Purpose

Two purposes would be served by the Proposed Action. First, CBP is charged with safeguarding America's borders, thereby protecting the public from dangerous people and materials while enhancing the Nation's global economic competitiveness by enabling legitimate trade and travel. Preventing entry requires access to areas where legitimate threats to border security have been identified. Since 2000, there are almost double the open roads within 0.5 mile north of the border (in Canada): there were 21 miles in 2000, and now there are 39 miles (see Chapter 2 for details). Given the significant border access to this area from the north, the ongoing threats of terrorism facing this Nation, and the existence of a maintained network of roads throughout the Blue-Grass BMU, restoring and maintaining access to the area north of Continental Mountain has been identified by CBP as a priority. It is imperative that CBP guard against potential threats in even the most remote areas, as geography will not inhibit determined individuals with the intent to do the Nation harm from attempting entry into the United States.

Second, the IPNF is required by the Forest Plan and the ESA to aid in the recovery of grizzly bears. To meet these requirements, the IPNF must reduce the motorized route density within the Blue-Grass BMU. Therefore, as the IPNF fulfills its responsibilities to reduce the density of roads in the Blue-Grass BMU (located entirely within 10 miles of the U.S.–Canada border), CBP access is considered in the Forest Service decision-making process. Consideration of all the interrelated decisions in a single NEPA process facilitates both purposes.

1.3.2 Need

Reliable access to areas north of Continental Mountain is needed, and discussions between the agencies on how both agencies can meet their mission requirements have been occurring for several years and are ongoing. CBP agents must be able to access the U.S.–Canada border to prevent illegal activities before perpetrators can reach areas where they can blend into legitimate activities and elude apprehension. CBP agents patrol remote areas as part of surveillance and information gathering, which feeds the threat assessment process. In addition to access for patrol and prevention purposes, vehicular access to areas

north of Continental Mountain is required for the potential future installation and maintenance of technological assets designed to detect incursions into the United States and provide information on the nature and manner of those incursions. Because technological assets allow for an additional layer of surveillance, the ability to install, service, and maintain those assets could significantly reduce the need for regularly occurring patrols into the BMU. It is important to note that technological assets will not preclude the need for an active law enforcement presence. Technology is passive in nature; any detected incursion can only be remedied via an active law enforcement response.

The IPNF is required to meet the Access Amendment standards for the Blue-Grass BMU by 2019. To meet these standards, the IPNF must identify roads for motorized road closure. Regardless of the access status of Bog Creek Road, additional road closures would still be required to meet the Access Amendment standards in the BMU. The IPNF must consider multiple uses of the forest road system, including access for border security functions, and balance the interests of a number of stakeholders, including public users.

1.4 Proposed Action

The action proposed by CBP and the Forest Service to meet the purpose and need is 1) repair and maintenance of approximately 5.6 miles of Bog Creek Road so that it can be safely used by CBP, the Forest Service, and other agencies; and 2) closure to motorized access of approximately 26 miles of roads within the Blue-Grass BMU, and 3) changing the seasonally restricted designation of 7.4 miles of Blue Joe Creek Road. Detailed information on the Proposed Action is provided in Chapter 2 under Alternative 2.

1.5 Consistency with Related NEPA Documentation and Land Use Plans

This DEIS incorporates the *Programmatic Environmental Impact Statement for Northern Border Activities* (NB PEIS) (CBP 2012) by reference and draws upon the general information provided in its area-wide programmatic analysis. In developing this DEIS and developing design features or mitigation measures for the Proposed Action and alternatives, CBP will adhere to the measures listed in the ROD for the NB PEIS, specifically Section VI, Avoidance and Minimization of Environmental Harm (CBP 2013a). For more details on how the NB PEIS relates to this DEIS and the Proposed Action and alternatives, please review Appendix A, Relationship of the Bog Creek Road Project Environmental Impact Statement to the Programmatic Environmental Impact Statement for Northern Border Activities.

Bog Creek Road and the roads proposed for motorized closure are located wholly within lands managed by the IPNF. Land management goals, desired conditions, objectives, and standards for the IPNF are stated in the Forest Plan (Forest Service 2015a) and Forest Plan Amendments, including the Access Amendment. The resource-specific goals, desired conditions, objectives, and standards that are relevant to the Proposed Action are included in each resource section in Chapter 3.

1.6 Decision Framework

CBP and the Forest Service are working together as joint lead agencies for this DEIS. The Assistant Commissioner, Office of Facilities and Asset Management, CBP, is the deciding official for CBP. The Forest Supervisor, IPNF, is the deciding official for the Forest Service. Given the purpose and need, the deciding officials review the Proposed Action, the other alternatives, and the environmental consequences in order to make the following decisions:

- **CBP and Forest Service joint decision:** Whether to approve the repair and maintenance of Bog Creek Road. The Forest Service decision is to determine whether to approve the repair and maintenance of Bog Creek Road. The CBP decision is whether to approve funding for the repair and maintenance of Bog Creek Road.
- **Forest Service decision:** Whether to implement the motorized closure of seasonally restricted Forest Service roads (approximately 26 miles under the Proposed Action and Alternative 4, or 25 miles under Alternative 3) to establish grizzly bear core area habitat and meet Access Amendment standards for the Blue-Grass BMU. Also whether to implement changes in the seasonally restricted designation of roads in the Blue-Grass BMU.

1.7 Public Involvement

This section summarizes the public involvement efforts conducted for the Bog Creek Road Project. More detailed information is included in the *Bog Creek Road Project Scoping Report* (Scoping Report) (CBP 2013b, 2016).

Public scoping for the Bog Creek Road repair and maintenance proposal was initially conducted by CBP in February and March 2013.The project has been listed on the IPNF Schedule of Proposed Actions since February 2013. The initial 30-day scoping period was held from February 6 to March 8, 2013. Scoping activities included mailing a scoping notice to interested parties that announced the proposed project and public meetings and asking the public to provide their comments on the proposed project. CBP and the Forest Service hosted two public meetings in February 2013. At the meetings, the project leaders provided brief summaries about the proposed project. The open house format was designed to allow attendees to view informational displays, ask specialists about the proposed project and NEPA process, and submit written comments on-site. Members of the public were provided with comment forms, fact sheets, and visual displays to learn about the proposed project details. Participants were also encouraged to join the mailing list. In total, 25 comment letters were received during the initial scoping period.

The initial scoping information primarily included the proposed repair and maintenance of Bog Creek Road. It also included the possibility that road closures may be part of the Proposed Action, but did not include specific motorized road closure information.

Information gathered from agencies and the public during the initial scoping effort was used, among other things, to inform CBP and the Forest Service regarding the level of NEPA analysis to evaluate the proposed project. Based upon agency (internal) and public (external) scoping comments, CBP and the Forest Service determined that an EIS-level NEPA analysis would be necessary.

The Notice of Intent (NOI) that CBP and the Forest Service planned to conduct an EIS for the Bog Creek Road Project was published in the Federal Register on April 27, 2016. The NOI asked for public comment on the proposal from April 27 to May 27, 2016. The Proposed Action described in the NOI included both repair and maintenance of Bog Creek Road and motorized road closures of specific road segments in the Blue-Grass BMU. In total, 17 comment letters were received during the NOI scoping period.

All scoping comments submitted during the initial scoping and NOI scoping were included in issue development for the current EIS process. A Scoping Report that summarizes both scoping efforts is available for review as part of the project record.

Using the comments from the public, other agencies, and tribes, the interdisciplinary (ID) team developed a list of issues to address.

1.8 Issues

1.8.1 Issue Identification

CBP and the Forest Service developed a list of issues to address using comments from the public, agencies, and the internal ID team. Issues were separated into issues included in the analysis (major issues and analysis issues) and issues that were not impacted by the alternatives and that were therefore eliminated from detailed analysis. Issues that were included in the analysis were defined as those directly or indirectly affected by implementing the action alternatives.

1.8.2 Major Issues

Major issues are those issues directly within the scope of the project and of sufficient concern to drive the development of the action alternatives. The following major issues were used to define and develop the action alternatives, and to compare the effects of the proposed action alternatives against one another and the No-Action Alternative.

Based upon project scoping, major issues include effects of the proposed project on:

- threatened grizzly bear, and
- motorized access to the national forest, both public and administrative.

The major issues were used to define the scope of the environmental analysis and documentation. The analysis measures used to measure the environmental effects for each major issue are identified in Table 1.8.1.

Table 1.8.1. Major Issues and Analysis Measures for the Bog Creek Road Project

Major Issue	Analysis Measure	DEIS Section Containing Analysis
Grizzly bear impacts	• The potential for human presence (noise and activity) to cause disturbance and avoidance • The potential for illegal kills (poaching or malicious kills), mistaken identity kills, or kills in defense of human life • Impacts to linkage corridors • Change in acres of secure grizzly bear habitat • Changes in open and total motorized route densities	Section 3.2 – Threatened, Endangered, and Proposed Species

Table 1.8.1. Major Issues and Analysis Measures for the Bog Creek Road Project (Continued)

Major Issue	Analysis Measure	DEIS Section Containing Analysis
Motorized access to the national forest (public and administrative)	• Changes in total miles of the existing route system available for recreational public use in the Blue-Grass BMU • Changes in access to private land in the Blue-Grass BMU	Section 3.8 – Recreation and Access

1.8.3 Analysis Issues

Analysis issues are not essential in developing action alternatives but are important to measure because the analysis of these issues may show the effects of each alternative on different environmental resources. These issues, identified in Table 1.8.2, are analyzed in Chapter 3 using the analysis measures presented.

Table 1.8.2. Analysis Issues and Analysis Measures for the Bog Creek Road Project

Analysis Issue	Analysis Measure	DEIS Section Containing Analysis
Bull trout impact	• Change in bull trout distribution • The potential for in-stream work to cause sedimentation of streams occupied by bull trout or bull trout designated critical habitat • The potential for pollutants, including herbicides, to enter streams occupied by bull trout or bull trout designated critical habitat • See also water resources	Section 3.2 – Threatened, Endangered, and Proposed Species Section 3.6 – Water Resources
Canada lynx impact	• The potential for human presence (noise and activity) to cause disturbance and avoidance • The potential for illegal kills (poaching or malicious kills), incidental trapping mortality, and changes in competition • Impacts to linkage corridors • Change in acres of Canada lynx habitat	Section 3.2 – Threatened, Endangered, and Proposed Species
Fish	• Qualitative change in sediment delivery affecting fish habitat • Qualitative discussion of potential effects from proposed activities occurring in stream buffer areas (riparian habitat conservation areas [RHCAs]) • Qualitative discussion of the potential for decreased survival/recruitment of fish populations • Qualitative change in up- and downstream passage at road-stream crossings affecting fish population connectivity • See also water resources	Section 3.4 – Fish Section 3.6 – Water Resources
Heritage	• Types of resources, if available, that may be impacted • Historic properties directly and indirectly impacted, resulting in a change in the characteristics that make them eligible for the National Register of Historic Places • Auditory and visual impacts during and post-construction	Section 3.9 – Heritage Resources
North American wolverine impact	• The potential for human presence (noise and activity) to cause disturbance and avoidance • The potential for illegal kills (poaching) and incidental trapping mortality • Impacts to linkage corridors • Change in acres of wolverine habitat	Section 3.2 – Threatened, Endangered, and Proposed Species

Table 1.8.2. Analysis Issues and Analysis Measures for the Bog Creek Road Project (Continued)

Analysis Issue	Analysis Measure	DEIS Section Containing Analysis
North American wolverine impact (Continued)	• The potential for human presence (noise and activity) to cause disturbance and avoidance • The potential for illegal kills (poaching) and incidental trapping mortality • Impacts to linkage corridors • Change in acres of wolverine habitat	Section 3.2 – Threatened, Endangered, and Proposed Species
Recreation	• Miles of routes closed to motorized recreational use per Recreation Opportunity Spectrum classification • Changes in access to designated recreation sites and trails • Changes to the recreation setting and opportunities (e.g., snow sports, hunting, fishing, cycling, vehicle exploring, sightseeing, and trapping)	Section 3.8 – Recreation and Access
Soils	• Acres of high-potential mass failure, sediment delivery, and erosion areas disturbed • Estimate of total detrimental soil disturbance • Qualitative assessment of changes to compaction, rutting, and displacement, or removal of organic matter and surface cover	Section 3.7 – Soil Resources
Special Status Plants (including sensitive plants)	• Changes to populations of special status plants and their associated plant habitat guilds from the existing condition (e.g., fen peatland) • Risk of damage to associated sensitive plant habitat guilds (e.g., cold forest, peatland, etc.) or special status plant populations from slope destabilization or movement of material beyond road prism.	Section 3.5 – Special Status Plants
Water resources (including wetlands)	• Qualitative change in sediment delivery • Qualitative assessment of the potential for accidental or intentional release of contaminants to water resources • Qualitative assessment of the effects on specially designated waters (impaired or State protected), including discharge of stormwater • Change in hydrologic connectivity • Number of springs that occur within the project footprint • Acres, number, and type of disturbance in wetlands and other waters of the U.S. • See also soil resources	Section 3.6 – Water Resources Section 3.7 – Soil Resources
Wildlife	• Boreal toad: Acres of suitable breeding habitat (wetlands) disturbed; miles of permanent road improved and closed to motorized use • Harlequin duck: Acres of suitable habitat disturbed (RHCAs); miles of permanent road improved and closed to motorized use; qualitative analysis of fragmentation/human disturbance • Northern bog lemming: Acres of suitable habitat (wetlands) disturbed	Section 3.3 – Wildlife

Table 1.8.2. Analysis Issues and Analysis Measures for the Bog Creek Road Project (Continued)

Analysis Issue	• Analysis Measure	DEIS Section Containing Analysis
Wildlife (Continued)	• Gray wolf: Acres of suitable habitat disturbed; miles of permanent road improved and closed to motorized use; qualitative analysis of fragmentation/human disturbance; qualitative analysis of mortality risk • Fisher: Acres of modeled suitable habitat disturbed; miles of permanent road improved and closed to motorized use; qualitative analysis of fragmentation/human disturbance; qualitative analysis of mortality risk • Migratory birds: Acres of suitable habitat disturbed; qualitative analysis of fragmentation/human disturbance	
Selkirk Mountain Woodland Caribou	• The potential for human presence (noise and activity) to cause disturbance and avoidance • Changes in predator access • Impacts to linkage corridors • Change in acres of woodland caribou habitat	Section 3.2 – Threatened, Endangered, and Proposed Species

1.8.4 Issues Not Analyzed in Detail

Issues that were addressed but not analyzed in detail were those that were: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) guidelines on NEPA (40 Code of Federal Regulations [CFR] 1500–1508) explained this delineation in Section 1501.7, which requires agencies to "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)." These issues and the rationale for not analyzing them in detail are discussed below.

1.8.4.1 Air Quality

Changing motorized use in the Blue-Grass BMU could have some impact on air quality; however, that impact would be minimal, given the general level of motorized use expected under the highest use alternative. The BMU currently meets all Federal air quality standards, and the Forest Service strictly complies with current direction to protect and improve air quality: 1) the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 United States Code [U.S.C.] 1601), as amended by the National Forest Management Act (NFMA) (16 U.S.C. 1602); 2) the Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S.C. 1701); and 3) the Clean Air Act amendments of 1977 and 1990 (42 U.S.C. 7401–7626). Because protocols are already in place to ensure compliance with all legal and regulatory requirements regarding air quality, this issue is not carried forward for analysis.

1.8.4.2 Climate Change

Assessment of project greenhouse gas emissions is also dismissed from further detailed direct and indirect analysis because project emissions would be negligible and would result in insignificant differences between the alternatives. Project greenhouse gas

emissions may cumulatively contribute to global climate change. Conversely, ongoing climate shifts may affect the proposed project's operations and natural resources. These trends will be qualitatively disclosed in the EIS.

1.8.4.3 Minerals

There would be no change from the project that would affect mineral resources. Therefore, this resource will not be carried forward for analysis.

1.8.4.4 Specific Fish and Wildlife

Specific threatened, endangered, and sensitive aquatic and terrestrial wildlife species and habitat that are either not present or not affected by the project and will not be carried forward for analysis are listed in Tables 3.3.1 and 3.4.1. In addition, because there would be no change that would affect the following resources, they will not be carried forward for analysis: old growth; big-game (moose and elk) hiding cover, winter range, and secure habitat.

1.8.4.5 Threatened and Endangered Plants

No endangered plants are listed by the USFWS for the IPNF; therefore, endangered plants are eliminated from further analysis. The USFWS lists two threatened species—water howellia (*Howellia aquatilis* A. Gray) and Spalding's silene (*Silene spaldingii* S. Watson)—as suspected to occur in the IPNF. However, neither species is thought to occur in the Blue-Grass BMU (USFWS 2016a). These species are not discussed further in this DEIS.

1.8.4.6 Noxious Weeds

Public scoping comments requested that this DEIS discuss invasive weed management. The IPNF uses an integrated pest management approach to control weeds, which includes mechanical, biological, cultural, and chemical control (Forest Service 1995c, 1997); weed management is conducted under the current *Priest Lake Noxious Weed Control Project Final Environmental Impact Statement* (Forest Service 1997) and the *Bonners Ferry Ranger District Noxious Weed Management Projects Final Environmental Impact Statement* (Forest Service 1995c). Therefore, noxious weeds are not reanalyzed in this DEIS. Roads are typically noxious weed sources for infestation and spread. Although this project involves road repair, road closure activities, maintenance, use, and revegetation, it would comply with all management decisions established in these documents. A list of invasive or noxious weeds species identified during survey of the Bog Creek Road is provided in the *Botany Resources and Noxious Weed Report for the Bog Creek Road Project* (CBP 2015c). All design features listed in this report would be incorporated into the Bog Creek Road Project.

1.8.4.7 Other Resources

The following resources were not further analyzed in detail because impacts to these resources are either minimal or not anticipated from the action alternatives and because they did not arise as issues during internal and public scoping: land use; aesthetic and visual resources; floodplains; noise; utilities/infrastructure; hazardous materials; socioeconomics; and environmental justice.

1.9 Potentially Required Permits and Consultation

All required local, State, and Federal permits and consultation would be obtained or completed prior to project implementation. Permits or consultations that may be required include the following:

- USFWS ESA Section 7 consultation
- Idaho State Historic Preservation Office (SHPO) and Section 106 tribal consultation
- U.S. Army Corps of Engineers (USACE) Section 404 permit
- National Pollutant Discharge Elimination System general permit
- Idaho Section 401 water quality certifications
- Idaho Department of Water Resources and the Stream Channel Protection Act
- Idaho Department of Lands and Best Management Practices (BMPs) under the Idaho Forest Practices Act

CHAPTER 2
ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

This chapter describes and compares the alternatives considered for the Bog Creek Road Project. It includes a description and map of each alternative considered. This chapter also presents the alternatives in comparative form, defining the differences between each alternative.

2.2 Alternatives Considered in Detail

The Forest Service and CBP developed four alternatives, including the No-Action Alternative and the Proposed Action, in response to issues raised by the public and agency considerations. CEQ regulations implementing NEPA (40 CFR 1502.14(e)) require that an EIS alternatives analysis "identify the agency's preferred alternative or alternatives, if one or more exists, in the [DEIS]." A preferred alternative has not yet been identified by the Agencies.

2.2.1 Alternative 1 – No Action

Under the No-Action Alternative, current management plans would continue to guide management of the BMU. Repair and maintenance activities on Bog Creek Road would not occur (Figure 2.2.1). CBP and Forest Service motorized administrative road access would be limited due to the mostly impassable road conditions. CBP would not have the motorized access in this area needed to execute their statutory mission. Motorized road closures of seasonally restricted Forest Service roads would not occur, and the Forest Service would not meet the Access Amendment standards through the establishment of new grizzly bear core area habitat. Although the Forest Service would continue to examine road closure options to meet Access Amendment requirements within the Blue-Grass BMU under the No-Action Alternative, compliance with the Access Amendment standards would not change until currently unidentified other viable road closure options are implemented. Table 2.2.1 identifies the Access Amendment standards and the current status of the Blue-Grass BMU in meeting these standards. Under the No-Action Alternative, the Blue-Grass BMU core area habitat would continue to be 48.25 percent (6.75 percentage points below the Access Amendment's 55 percent minimum requirement), and TMRD (> 2 miles per square mile) would be 28.95 percent, rather than the maximum allowed 26 percent. For the reasons described above, the No-Action Alternative would not meet the purpose of and need for the project discussed in Section 1.3.

CEQ regulations implementing NEPA (40 CFR 1502.14(d)) require that an EIS alternatives analysis include the No-Action Alternative. The No-Action Alternative can provide resource specialists with a means to evaluate the current ecosystem conditions as a baseline and can also be used to compare the projected effects of each alternative. The decision-maker and members of the public can use the No-Action Alternative to look at the differences that would take place under other alternatives, as well as the consequences of not conducting the road repair activities and motorized road closures at this time if this alternative is selected.

Under the No-Action Alternative, the Forest Service and CBP would not implement the Proposed Action or other action alternatives. Environmental impacts would continue along current trends for existing maintenance and access on roads within the Blue-Grass BMU.

Table 2.2.1. Comparison of the Access Amendment Standards relative to the No Action Alternative Calculations

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	BMU Priorities (1, 2, or 3)	Alternative 1 No Action	Selected Standard (maximum)	Alternative 1 No Action	Selected Standard (maximum)	Alternative 1 No Action	Selected Standard (minimum)	% NFS Land
Blue-Grass	1	14.87%	33%	28.95%	26%	48.25%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area. OMRD in this table reflects route designations under Alternative 1 (No-Action Alternative), not monitoring results from prior years.

2.2.2 Alternative 2 – Proposed Action

The Proposed Action was developed through the collaborative efforts between CBP, the Forest Service, and the public, as described earlier in this chapter. It was designed to meet the goals and objectives established for the project while meeting as many of the other resource needs as possible.

The following Proposed Action represents a modification to the Proposed Action presented for public scoping in May 2016. The modification occurred because the Proposed Action presented during scoping did not allow CBP adequate access to the border to effectively conduct its statutory mission of ensuring border security.
The Proposed Action was modified to allow for additional motorized access on Bog Creek Road and Blue Joe Creek Road, beyond the seasonally restricted designation presented during scoping.

The Proposed Action consists of three components:

1. Road repair and maintenance[2] of an approximately 5.6-mile section of the existing Bog Creek Road between the existing gate on Forest Service Road (FSR) 1013 and FSR 2546 within the Blue-Grass BMU. Bog Creek Road is currently designated as a seasonally restricted road; after road repair activities, the road would change from the current *seasonally restricted* designation (limited motorized access) to an *administrative open* designation (as-needed administrative motorized access). Under the administrative open road designation, Bog Creek Road would be open to as-needed administrative motorized access but not open to the public for motorized travel.
2. Approximately 7.4 miles of Blue Joe Creek Road (FSR 2546), currently designated as a seasonally restricted road (limited motorized access), would change from this designation to an *administrative open* designation (as-needed administrative motorized access).
3. Motorized road closure of approximately 26 miles of seasonally restricted Forest Service roads to establish grizzly bear core area habitat and meet Access Amendment standards in the Blue-Grass BMU.

[2] The Forest Service refers to these improvements as “reconstruction” in its access and travel management guidance.

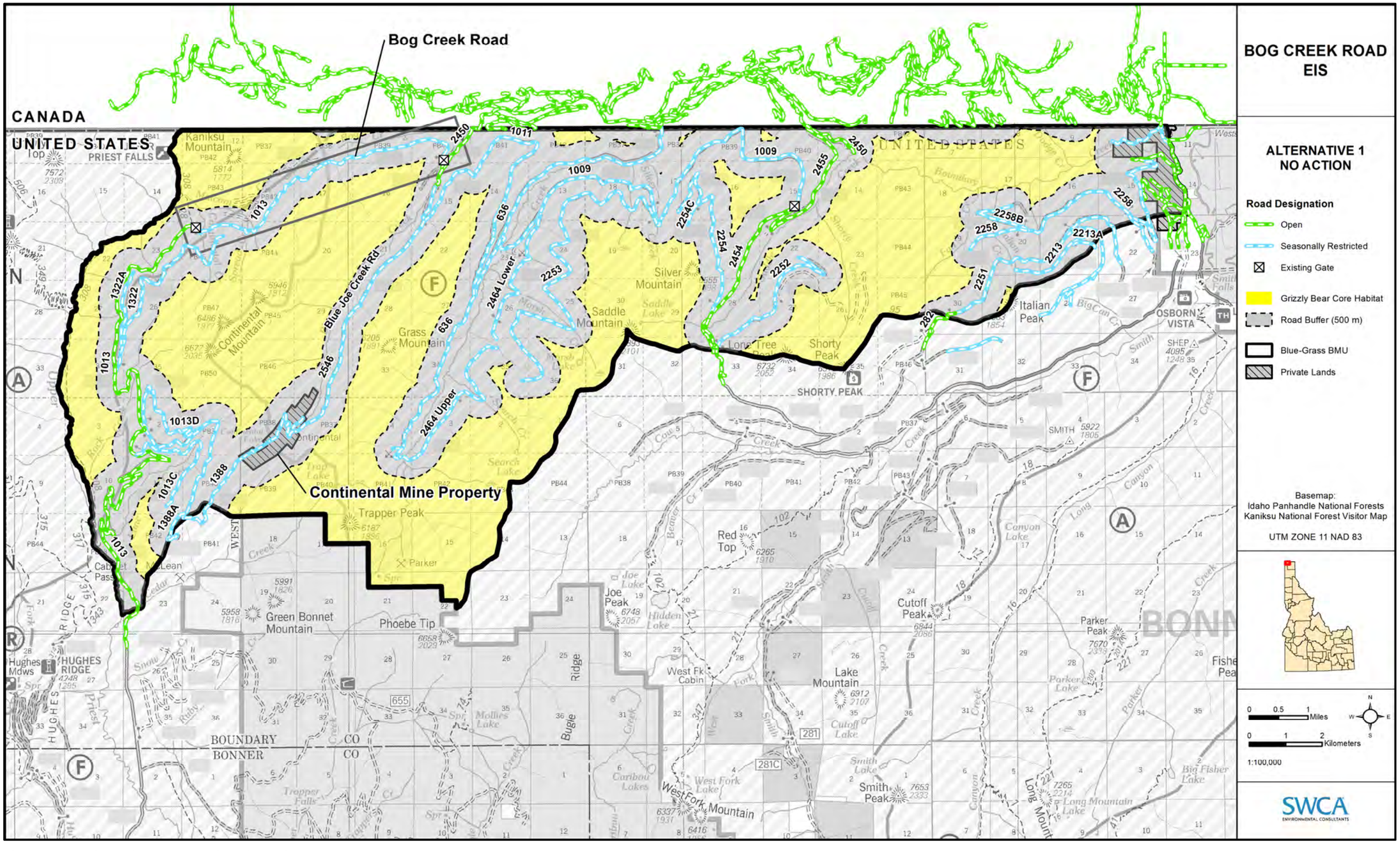

Figure 2.2.1. Alternative 1 – No-Action Alternative.

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2.2.2.1 Road Repair and Maintenance

Repair and maintenance of 5.6 miles of Bog Creek Road (FSR 1013 gate to intersection with FSR 2546) would be conducted to allow the road to meet Forest Service road maintenance level 2 standards, which generally allow access for high-clearance vehicles. Maintenance level 2 roads are described in FSH 7709.58 (Forest Service 1995a) as:

> Assigned to roads open for use by high-clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high-clearance vehicles.

Repair and maintenance would consist of grading and resurfacing areas of the road that have been heavily eroded by surface water flows, filling potholes, and removing protruding boulders. Repair would also include installation of six new culverts and replacement of six of the existing 67 corrugated metal pipe culverts located along the length of the roadway because they have partially rusted through, otherwise exceeded their usable life, or do not meet current design standards for width and capacity. The road would not be widened, but limited areas that no longer meet minimum width requirements may require cut and fill work to achieve the desired road operating and safety standards. Trees and other vegetation within the roadway and to either side would be grubbed or cut back to facilitate safe vehicle passage.

The most intensive repair would occur at Spread Creek, where a culvert failure and road washout has made the road completely impassable. New culverts would be placed, and the road would be rebuilt to a Forest Service maintenance level 2 standard.

The Proposed Action would include gathering and transporting of fill materials (riprap, mixed soil/rock, and crushed aggregate) from two existing "borrow" pits to use in general resurfacing/fill and in installation of the culvert replacements. One proposed borrow pit is an existing pit located near MP 18.89 on FSR 1013. The other is located near the east end of Bog Creek Road.

The equipment that would be used in road repair includes dozer, grader, hydraulic excavator, and dump truck. In addition, several pickup trucks or sport-utility vehicles (SUVs) would transport construction personnel to and from the area. Construction would occur between July 16 and November 15 and could last up to three seasons. Upon completion, locking gates that minimize potential destruction, dismantling, or breaching would be installed at either end of the 5.6-mile route and remain closed year-round. The road would be signed PUBLIC MOTORIZED ENTRY PROHIBITED – THIS ROAD IS UNDER SURVEILLANCE – VIOLATORS WILL BE PROSECUTED by the Forest Service. Road access and gates would be regularly monitored by CBP to ensure that no illegal motorized access is occurring along the road.

Repair and maintenance of the Bog Creek Road would allow for as-needed administrative motorized access from the west. The current seasonal restrictions, which limit the number of motorized administrative trips along Bog Creek Road, would be removed. Motorized administrative trips would be used by CBP, the Forest Service, other State and Federal administrative agencies, and Continental Mine private property owners.

Blue Joe Creek Road (FSR 2546) extends from the eastern terminus of the Bog Creek Road, 7.4 miles up Blue Joe Creek, to the Continental Mine property. This section of road is currently designated as seasonally restricted, and motorized access is limited to 57 vehicle round trips per active bear year. The current seasonal restrictions, which limit the number of motorized administrative trips along Blue Joe Creek Road, would be removed. The road would be designated as *administrative open* and would allow for as-needed administrative motorized trips. This change in designation, when combined with the Bog Creek Road designation change, allows for private property owners to access their property within the Blue Grass BMU.

The road designation changes described above would result in an OMRD increase of 8.39 percentage points, from 14.87 percent to 23.26 percent. This increase in OMRD remains within the Access Amendment allowable maximum of 33 percent.

The western approach road to Bog Creek Road, FSR 1013, which leads out of the Blue-Grass BMU, would remain as it is currently designated, as open to the public for unlimited motorized travel. The roads along the eastern approach to Bog Creek Road would retain their current seasonally restricted road classification. This administrative use is limited to 57 vehicle round trips per active bear year, apportioned as follows: ≤ 19 round trips in spring (April 1 through June 15); ≤ 23 round trips in summer (June 16 through September 15); and ≤ 15 round trips in fall (September 16 through November 15). Administrative vehicle trips to Bog Creek Road from the east or trips from the west that continue past Bog Creek Road's eastern gate would therefore be limited under these terms. The administrative agencies would coordinate trips to ensure that allowed motorized use is not exceeded.

Consistent with the "Memorandum of Understanding Among U.S. Department of Homeland Security and U.S. Department of the Interior and U.S. Department of Agriculture Regarding Cooperative National Security and Counterterrorism Efforts on Federal Lands along the United States' Borders," dated March 31, 2006, the limitation on access does not apply to exigent/emergency access as described in the memorandum of understanding (MOU) (U.S. Department of Homeland Security, U.S. Department of the Interior, and U.S. Department of Agriculture 2006). CBP does not anticipate that this authority would be used frequently but cannot predict the threats to human life, health, or safety or to national security that may arise in the future.

Winter motorized snowmobile use by the public is currently not allowed on Bog Creek Road as a result of the legal rulings of November 7, 2006, and February 27, 2007, relating to recovery of woodland caribou and the potential impacts of snowmobile use within the recovery area. Law enforcement members are currently exempt from the snowmobile closure.

Long-term future actions for Bog Creek Road maintenance would include grubbing or trimming vegetation along the roadside, cleaning culverts, and periodic grading.

2.2.2.2 Motorized Road Closure

Approximately 26 miles of Forest Service roads would be closed to all motorized use by the Forest Service within the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core area habitat requirement of 55 percent and the TMRD (> 2 miles per square mile) requirement of 26 percent.

The nine Forest Service road segments proposed for motorized road closure are single-purpose legacy roads used in the past for timber harvest or mining access. These road segments are currently designated as seasonally restricted, are not open to the public for motorized travel from April 1 to November 15, and allow limited motorized administrative use. The roads proposed for motorized road closure under the Proposed Action are shown in Figure 2.2.2 and listed below in Table 2.2.2.

Table 2.2.2. Proposed Action (Alternative 2) Roads Proposed for Motorized Closure and Associated Grizzly Bear Core Area Habitat in Blue-Grass BMU

FSR	Location Description	Motorized Road Closure Length (miles)	Associated Core Area Habitat Increase (%)	Included in Alternative 3
2464 (Lower)	Seasonally restricted (no public motorized access April 1 through November 15)	2.9	0.52%	Yes
2464 (Upper)	Seasonally restricted (no public motorized access April 1 through November 15)	3.5	1.51%	Yes
1322	Seasonally restricted (no public motorized access April 1 through November 15)	4.2	0.90%	Yes
1322A	Seasonally restricted (no public motorized access April 1 through November 15)	1.4	0%	Yes
1013D	Seasonally restricted (no public motorized access April 1 through November 15)	2.8	0.29%	Yes
1013C	Seasonally restricted (no public motorized access April 1 through November 15)	2.7	0.27%	Yes
1388A	Seasonally restricted (no public motorized access April 1 through November 15)	0.8	0.17%	Yes
1388	Seasonally restricted (no public motorized access April 1 through November 15)	5.7	1.98%	**No**
2252 (End)	Seasonally restricted (no public motorized access April 1 through November 15)	2.5	1.28%	**No**
Total		**26.5 miles**	**6.92%**	
	Blue-Grass BMU Existing Core Area Habitat (%)		**48.25%**	
	Blue-Grass BMU Proposed Action (Alternative 2) Core Area Habitat (%)		**55.17%**	

The means by which motorized road closure would take place would vary by site and would include both decommissioning and long-term storage. Decommissioning involves permanently removing a road from the Forest Service transportation system. Roads that are placed into long-term (e.g., a minimum of 10 years) storage remain on the system, but are rendered undrivable. While these roads would not be accessible during the "stored" period, they would remain available if needed for emergency[3] purposes. Both decommissioning and long-term storage are designed to make roads hydrologically inert by installing water bars along the full length of affected segments, removing drainage structures (culverts), and fully recontouring specific sections.

On-the-ground road work may be very similar between decommissioning and long-term storage, as both are intended to prevent future failures and erosion hazards. Both methods may involve one or a combination of the following treatments: fully or partially recontouring the road prism, ripping the road surface, removing culverts and recontouring

[3] "Emergencies" as defined by ESA regulations (50 CFR 402.05) and associated policy and handbook direction.

stream crossings, planting and seeding, mulching, or slashing disturbed areas. Equipment that would be used in road repair includes a dozer, grader, hydraulic excavator, and dump truck. In addition, several pickup trucks or SUVs would transport construction personnel to and from the area.

If no hydrologic problems or risks of mass failure are present, and/or the road is grown in to the point that motorized use is not possible, motorized road closure may include merely leaving the road as is (or barricading the front end) and making the change administratively. The decision to either decommission roads or place them into long-term storage will depend on several factors, including anticipated future need, location in relation to other roads, and, to a lesser extent, the current condition of the road.

Both decommissioned and stored roads would no longer be counted toward motorized route densities (TMRD and OMRD) or against core area habitat, as directed by the IGBC (1986, 1998) and USFWS (2011a).

Motorized road closure activities would occur between June 16 and November 15 and could last up to three seasons.

Upon completion of motorized road closure, the IPNF would establish approximately 6.92 percentage points of additional grizzly bear core habitat in the Blue-Grass BMU in accordance with the Access Amendment (Table 2.2.3). TMRD would be 19.64 percent (in compliance with the standard of 26 percent maximum). The establishment of grizzly bear core habitat would restrict future motorized activity within the area. Upon establishing the additional grizzly bear core habitat, the Blue-Grass BMU would contain approximately 55.17 percent grizzly bear core habitat and would comply with the Blue-Grass BMU requirements.

Table 2.2.3. Proposed Action (Alternative 2) Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	**BMU Priorities (1, 2, or 3)**	**Alternative 2 Proposed Action**	**Selected Standard (maximum)**	**Alternative 2 Proposed Action**	**Selected Standard (maximum)**	**Alternative 2 Proposed Action**	**Selected Standard (minimum)**	**% NFS Land**
Blue-Grass	1	23.26%	33%	19.64%	26%	55.17%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

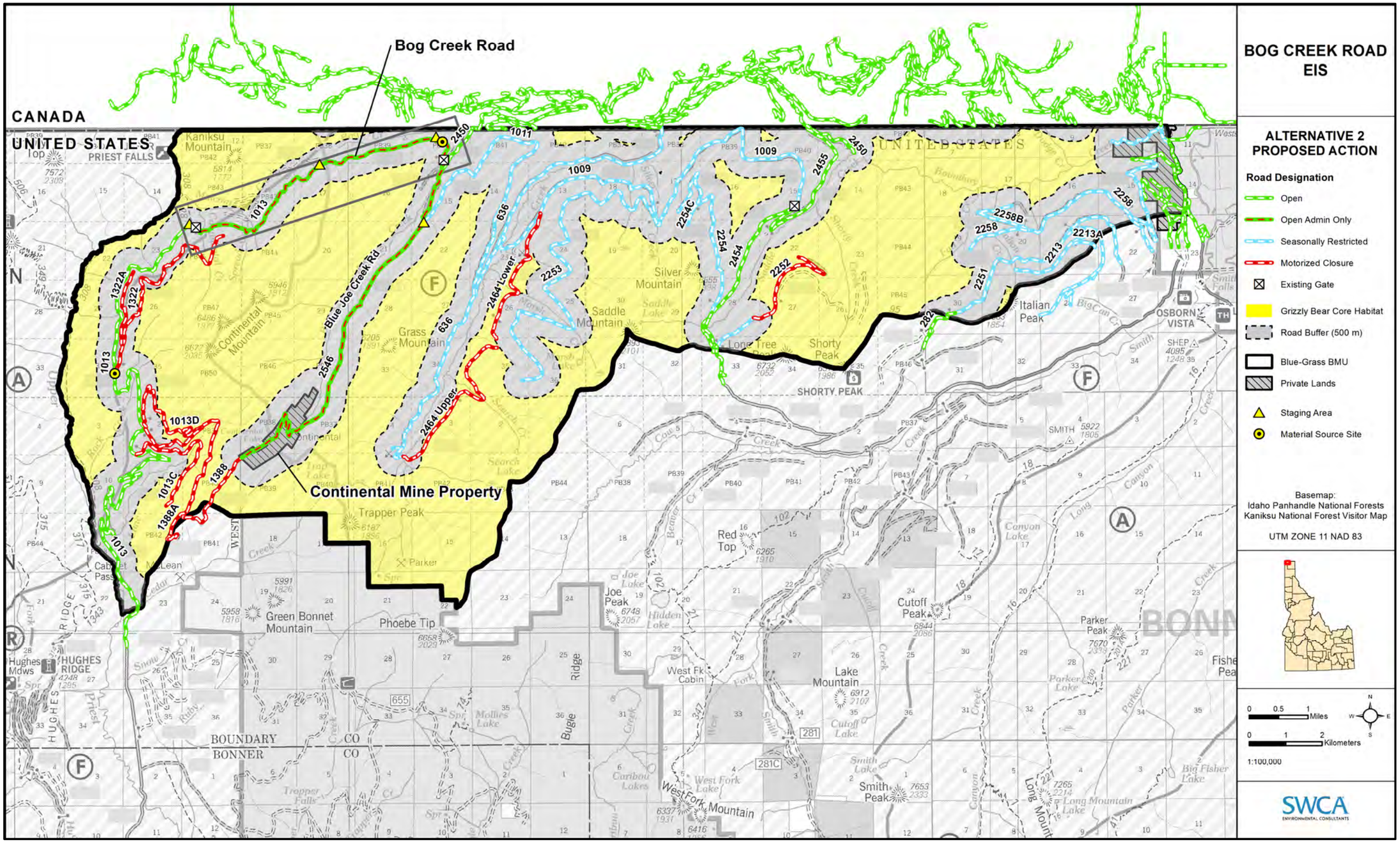

Figure 2.2.2. Alternative 2 – Proposed Action.

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2.2.3 Alternative 3 – Modified Proposed Action

Alternative 3 is a modified version of the Proposed Action that would close a different set of roads to motorized access in order to create a more continuous area of core grizzly bear habitat. Alternative 3 would also consist of three components:

1. Road repair and maintenance of an approximately 5.6-mile section of the existing Bog Creek Road. The road repair and maintenance activities would be the same as described under the Proposed Action. After road repair activities, the road would change from the current seasonally restricted designation (limited motorized access) to an administrative open designation (as-needed administrative motorized access). Under the administrative open road designation, Bog Creek Road would be open to administrative motorized access but not open to the public for motorized travel.
2. Approximately 7.4 miles of Blue Joe Creek Road (FSR 2546), currently designated as a *seasonally restricted* road (limited motorized access), would change from this designation to an *administrative open* designation (as-needed administrative motorized access).
3. Motorized road closure of approximately 25 miles of seasonally restricted Forest Service roads to establish grizzly bear core area habitat and meet Access Amendment standards in the Blue-Grass BMU.

2.2.3.1 Road Repair and Maintenance

The road repair and maintenance activities under Alternative 3 would be the same as described under the Proposed Action.

2.2.3.2 Motorized Road Closure

Under Alternative 3, approximately 25 miles of Forest Service roads would be closed to all motorized use by the Forest Service within the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core area habitat requirement of 55 percent and the TMRD requirement of 26 percent.

Two of the nine roads proposed for motorized road closure under Alternative 3 would be different from the roads proposed for closure under the Proposed Action. As shown in Figure 2.2.3 and summarized in Table 2.2.4, Alternative 3 would close FSR 636 and a portion of FSR 2253 to all motorized use. These roads were selected to be included in this alternative because closing these roads would create more core grizzly bear habitat in upper Grass Creek, a place that has been heavily and continuously used by grizzly bears since at least the 1980s. All road segments proposed for closure are single-purpose legacy roads that were used in the past for timber harvest or mining access. These road segments are currently designated as seasonally restricted, are not open to the public for motorized travel from April 1 through November 15, and allow limited motorized administrative use.

Table 2.2.4. Alternative 3 (Modified Proposed Action) Roads Proposed for Motorized Road Closure and Associated Grizzly Bear Core Area Habitat in Blue-Grass BMU

FSR	Location Description	Motorized Road Closure Length (miles)	Associated Core Area Habitat Increase (%)	Included in the Proposed Action (Alternative 2)
2464 (Lower)	Same as the Proposed Action (Alternative 2)	2.9	0.52%	Yes
2464 (Upper)	Same as the Proposed Action	3.5	1.51%	Yes
1322	Same as the Proposed Action	4.2	0.90%	Yes
1322A	Same as the Proposed Action	1.4	0%	Yes
1013D	Same as the Proposed Action	2.8	0.29%	Yes
1013C	Same as the Proposed Action	2.7	0.27%	Yes
1388A	Same as the Proposed Action	0.8	0.17%	Yes
2253	Seasonally restricted (no public motorized access April 1 through November 15)	2.7	1.36%	**No**
636	Seasonally restricted (no public motorized access April 1 through November 15)	3.7	2.44%	**No**
Total		**24.7 miles**	**7.46%**	
	Blue-Grass BMU Existing Core Area Habitat Percent (%)		**48.25%**	
	Blue-Grass BMU Alternative 3 Core Area Habitat (%)		**55.71%**	

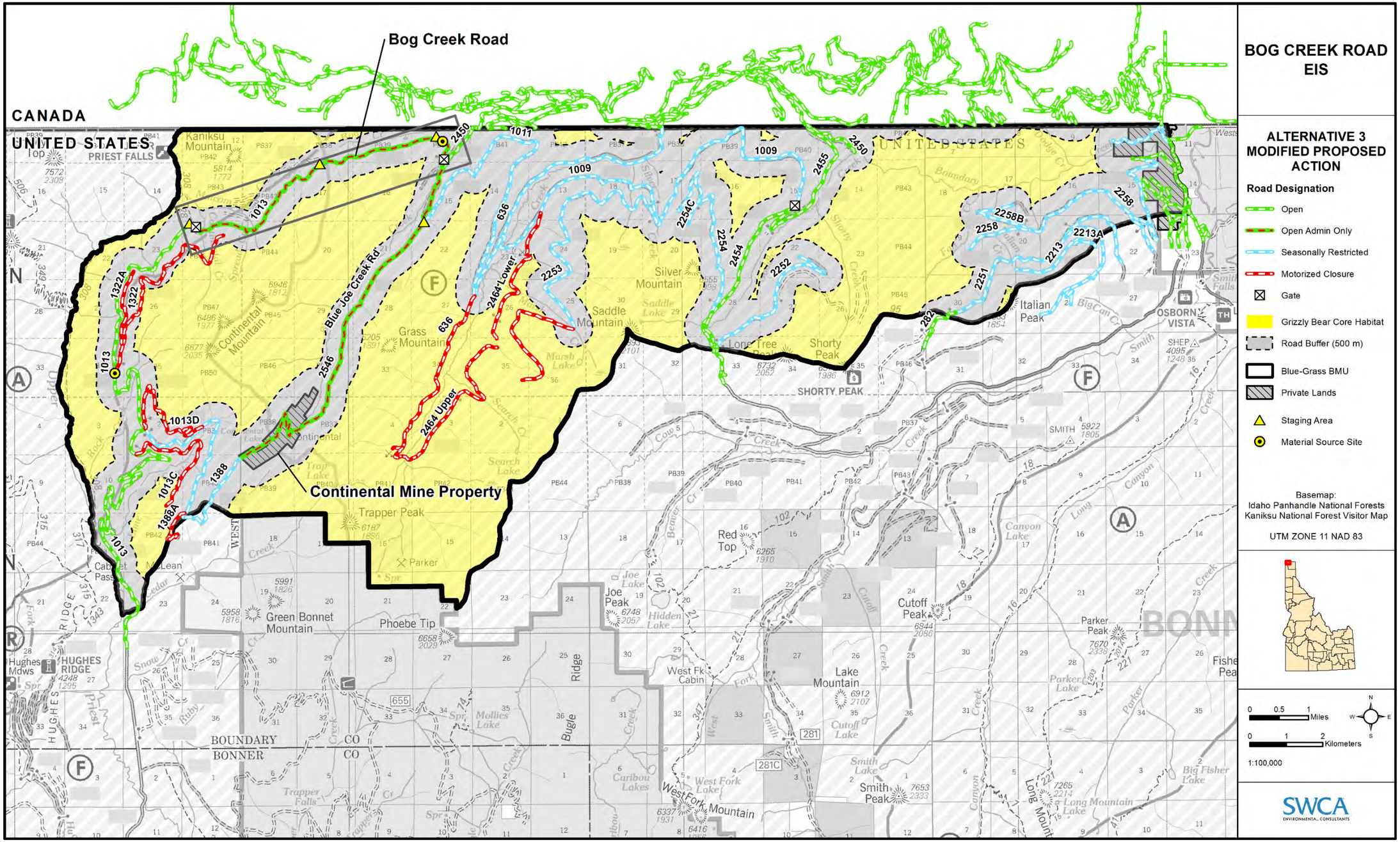

Figure 2.2.3. Alternative 3 – Modified Proposed Action.

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Motorized road closure activities, including the equipment used and time frame, would be identical to those described under the Proposed Action.

Upon completion of motorized road closures, the IPNF would establish approximately 7.5 percentage points of additional grizzly bear core habitat in the Blue-Grass BMU in accordance with the Access Amendment (Table 2.2.5). The establishment of grizzly bear core habitat would restrict future motorized activity within the area. Upon establishing the additional grizzly bear core habitat, the Blue-Grass BMU would contain approximately 55.71 percent grizzly bear core habitat and would comply with the Access Amendment Blue-Grass BMU requirements. TMRD would be 20.87 percent (in compliance with the standard of 26 percent maximum).

Table 2.2.5. Alternative 3 (Modified Proposed Action) Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	BMU Priorities (1, 2, or 3)	Alternative 3	Selected Standard (maximum)	Alternative 3	Selected Standard (maximum)	Alternative 3	Selected Standard (minimum)	% NFS Land
Blue-Grass	1	23.26%	33%	20.87%	26%	55.71%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

2.2.4 Alternative 4 – Blue-Grass BMU West–East Open Access

Alternative 4 addresses public comments received during the scoping period that request that the Bog Creek Road be improved and classified as open to unlimited public motorized use with access from both directions. Alternative 4 would consist of four components:

1. Road repair and maintenance of an approximately 5.6-mile section of the existing Bog Creek Road. The road repair and maintenance activities would be the same as described under the Proposed Action. However, after road repair activities, the road would change from the current *seasonally restricted* designation (limited motorized access) to an *open* designation (unlimited motorized access). Under the open road designation, Bog Creek Road would be open to the public for unrestricted motorized travel.
2. Approximately 7.4 miles of Blue Joe Creek Road (FSR 2546), currently designated as a seasonally restricted road (limited motorized access), would change from this designation to an *administrative open* designation (as-needed administrative motorized access).
3. The designation of roads along the eastern approach to Bog Creek Road would change from the current *seasonally restricted* designation (limited motorized access) to an *open* designation (unlimited motorized access) to allow for continuous unrestricted public motorized travel around Continental Mountain. The four Forest Service road segments proposed for a change in designation are those that connect the east end of Bog Creek Road to FSR 2454, which leads out of the Blue-Grass BMU. The road segments proposed for a change in designation are portions of FSRs 2546, 1011, 636, and 1009. These road segments are currently designated as seasonally restricted, are not open to the public for motorized travel from April 1 to November 15, and allow limited motorized administrative use. Under the open road designation, they would be

open to the public for unrestricted motorized travel. The roads proposed for unlimited motorized access under Alternative 4 are shown in Figure 2.2.4.

4. Motorized road closure of approximately 26 miles of seasonally restricted Forest Service roads to establish grizzly bear core area habitat and meet Access Amendment standards in the Blue-Grass BMU. This component would be the same as described under the Proposed Action.

2.2.4.1 Road Repair and Maintenance

Road repair and maintenance activities on Bog Creek Road under Alternative 4 would be the same as described under the Proposed Action. The primary difference between the Proposed Action and Alternative 4 is the long-term road designation. Upon completion of repair activities, Bog Creek Road would be designated open to the public for unlimited motorized travel; seasonal restrictions, which limit the number of motorized administrative trips along Bog Creek Road, would be removed (see Figure 2.2.4). Public use of the road would be limited to high-clearance vehicles and would not be passable by standard passenger vehicles because the 5.6-mile segment of Bog Creek Road would be repaired and maintained in accordance with Forest Service road maintenance level 2 standards. The gate at the west end of the road would be removed or left open.

Under Alternative 4 a 7.4-mile section of Blue Joe Creek Road would change designation from seasonally restricted (limited motorized trips) to administrative open (as needed administrative trips). There would be no public access along this road, and a locked gate would be placed at the junction with FSR 1011 (see Figure 2.2.4).

Winter motorized snowmobile use by the public would continue to not be allowed on Bog Creek Road under Alternative 4 in order to comply with the legal rulings of November 7, 2006, and February 27, 2007, relating to recovery of woodland caribou and the potential impacts of snowmobile use within the recovery area.

2.2.4.2 Open Eastern Approach Roads

Under Alternative 4, the eastern approach roads to Bog Creek Road would be designated open to the public for unlimited motorized travel; seasonal restrictions, which limit the number of motorized administrative trips along these roads, would be removed (see Figure 2.2.4). The four Forest Service road segments proposed for a change in designation are those that form the shortest and most direct connection from the east end of Bog Creek Road to FSR 2454, a road that is currently designated as open to the public for unlimited motorized travel and that leads out of the Blue-Grass BMU. The eastern approach roads proposed to be designated as open to the public for unlimited motorized travel are portions of FSRs 2546, 1011, 636, and 1009. Public use of the roads would be limited to high-clearance vehicles and would not be passable by standard passenger vehicles because the roads are repaired and maintained in accordance with Forest Service road maintenance level 2 standards. The gate at the east end of FSR 1009 would be removed or left open, and gates would be constructed at closed roads that intersect the four roads to prevent unauthorized access.

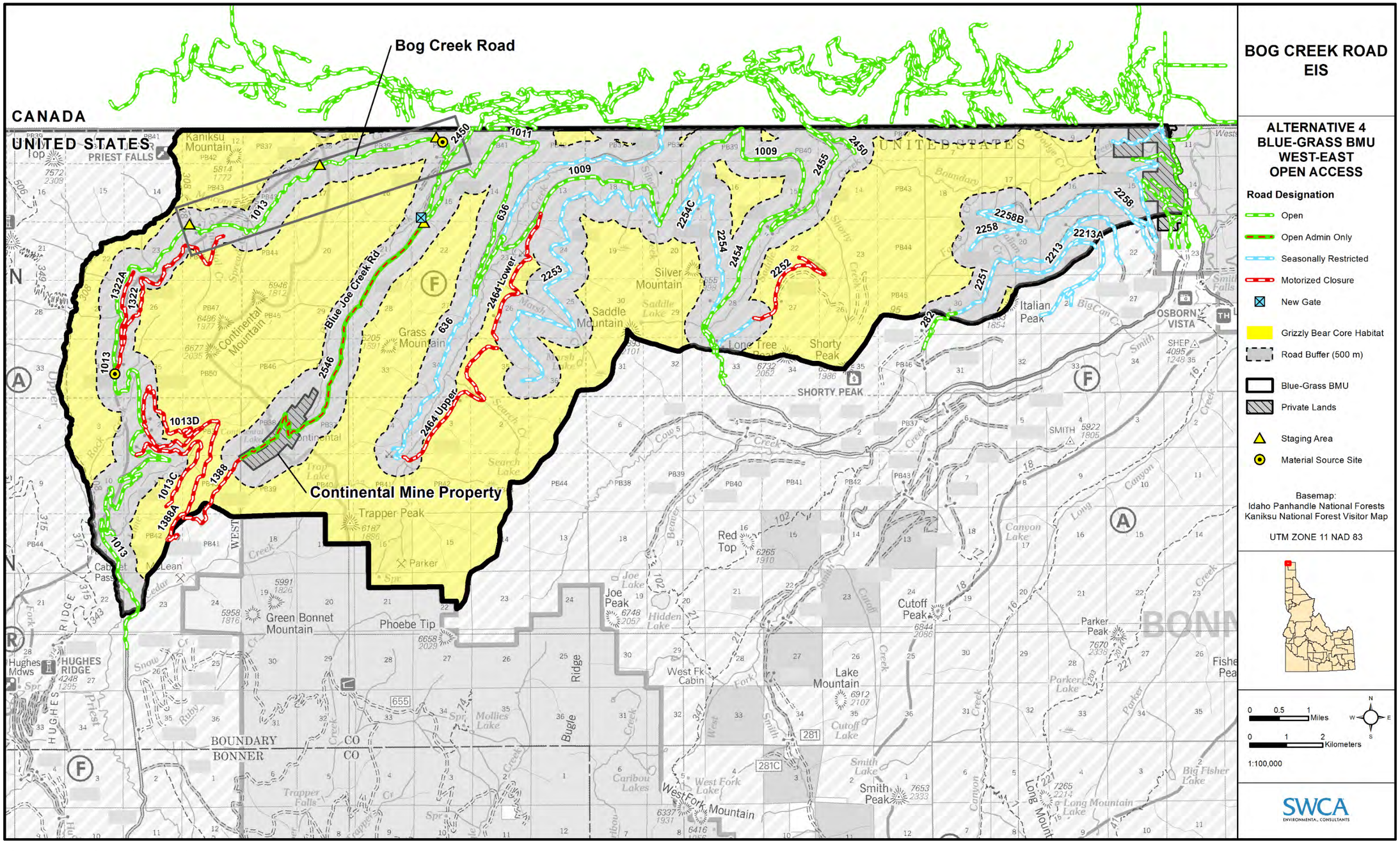

Figure 2.2.4. Alternative 4 – Blue-Grass BMU West-East Open Access.

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Designation of these eastern approach roads as "open" under the Access Amendment would increase OMRD 16.41 percentage points, from 14.87 percent to 31.28 percent. This increase in OMRD remains within the Access Amendment allowable maximum of 33 percent. However, under Alternative 4, the agencies would be limited in their motorized access flexibility in other areas of the Blue-Grass BMU because they would only have 1.72 percentage points available, instead of more than 9 percentage points as under the other action alternatives. Under Alternative 4, the motorized use for administrative activities such as law enforcement patrols, scheduled land management, and research would be more restricted than under the other alternatives.

Winter motorized snowmobile use by the public would continue to not be allowed on eastern approach roads to Bog Creek Road under Alternative 4 in order to comply with the legal rulings of November 7, 2006, and February 27, 2007, relating to recovery of woodland caribou and the potential impacts of snowmobile use within the recovery area.

2.2.4.3 Motorized Road Closure

The seasonally restricted roads that would be closed to motorized use under Alternative 4 would be the same as described under the Proposed Action. Approximately 26 miles of Forest Service roads would be closed to all motorized use by the Forest Service within the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core area habitat requirement of 55 percent and the TMRD (> 2 miles per square mile) requirement of 26 percent (Table 2.2.6).

The establishment of core area habitat and TMRD would be the same as presented under the Proposed Action.

Table 2.2.6. Alternative 4 (Bog Creek Road Open Access Designation) Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	BMU Priorities (1, 2, or 3)	Alternative 4	Selected Standard (maximum)	Alternative 4	Selected Standard (maximum)	Alternative 4	Selected Standard (minimum)	% NFS Land
Blue-Grass	1	31.28%	33%	19.64%	26%	55.17%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

2.2.5 Design Features of the Action Alternatives

CBP and the Forest Service developed design features to minimize or avoid detrimental effects that could occur as a result of implementing the proposed Bog Creek Road Project. Appendix B presents all design features that are incorporated into the action alternatives to reduce project impacts. The design features are based on Forest Plan direction and policy, best available science, and site-specific evaluations, and would be applied to all action alternatives during project implementation. The list of all design features in Appendix B includes their estimated effectiveness based on monitoring results and scientific literature.

2.3 Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required under NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives not developed in detail (40 CFR 1502.14). Public comments received during the scoping period in response to the Proposed Action suggested alternative methods for achieving the purpose and need. The resulting alternative evaluation considered the following criteria when determining whether alternatives proposed in public comments would be addressed in detail in the DEIS or eliminated from detailed study:

- Does the alternative meet the project purpose and need?
- Does the alternative resolve environmental or resource conflicts?
- Is the alternative available? and/or
- Is the alternative feasible, in terms of cost, current technology, and logistical capability?

Some of the alternatives proposed during the public scoping period were found to be outside the scope of the project and/or did not meet the purpose and need, or were generally similar to the alternatives analyzed. Table 2.3.1 identifies the alternatives that were proposed during public scoping and the rationale for eliminating those alternatives from detailed study in this DEIS.

Table 2.3.1. Proposed Alternatives and Rationale for Eliminating from Detailed Study

Recommended Alternative from Public Scoping	Rationale for Eliminating Recommended Alternative from Detailed Study
Build a tunnel instead of repairing the Bog Creek Road corridor.	A tunnel would not enable CBP to access this segment of the international border; therefore, this alternative would not meet the project purpose and need.
Instead of driving back and forth multiple times between Bonners Ferry and Priest Lake, agents could spend several nights camping out when they are on missions. While at their camps they could 'clock out' but still be on call for immediate action should the border be breeched.	CBP agents currently camp as part of their missions and would continue to do so. However, this approach to mission execution does not alleviate the need for CBP agents to have motorized access to this portion of the international border.
One possible way CBP could compensate for the inevitable detrimental impacts of the Proposed Action on threatened wildlife species is to purchase the Continental Mine property and transfer it back to the IPNF. If this were to occur, opportunities for managing (closing) roads that access the private property would open up, giving the Forest Service several options for increasing secure wildlife habitat for both grizzlies and caribou in the Blue-Grass BMU.	Purchasing the Continental Mine would not enable CBP to access this segment of the international border; therefore, this alternative would not meet the project purpose and need. The privately owned Continental Mine is not for sale; therefore, the purchase of the mine is not a logistically feasible alternative.
The SRZ extends into Canada, but those roads are not being considered for closure. By closing those roads, both national security and percent core area habitat would be positively impacted.	Closing roads in Canada would not meet the project purpose and need because road closures would still need to occur within the Blue-Grass BMU to meet Access Amendment standards. Furthermore, closing roads in Canada would not enable CBP to access this segment of the international border. Additionally, roads in Canada are outside the jurisdiction of the Forest Service and CBP; therefore, this alternative is not logistically feasible.

Table 2.3.1. Proposed Alternatives and Rationale for Eliminating from Detailed Study (Continued)

Recommended Alternative from Public Scoping	Rationale for Eliminating Recommended Alternative from Detailed Study
Conduct an independent study on the number of grizzly bears within the Blue-Grass BMU and SRZ. If an agreed upon number of bears are found, authorize additional motorized access within the Blue-Grass BMU.	The Access Amendment standards are based upon best available science and were developed for the Blue-Grass BMU and the SRZ to aid in grizzly bear recovery. The purpose and need of the Proposed Action is to meet these standards, not to modify them. The DEIS does analyze a range of motorized access options, including additional motorized access beyond existing conditions.
Implement an area closure to trapping to protect wolverine, lynx, and fisher from incidental trapping and allow populations of martin and beaver to rebound.	Implementing an area closure to trapping wolverine, lynx, and fisher does not meet the project purpose and need because it does not address the need for the IPNF to meet the legally required standards for grizzly bear core habitat and motorized route density in the Blue-Grass BMU.
Reduce existing motorized access in the Upper Priest River area to provide a continuous core habitat condition between the Salmo-Priest Wilderness on the west side of the Selkirks to Long Canyon and the Selkirk Crest to the south and east.	One of the purposes of the proposed project is to meet the legally required standards for grizzly bear core habitat and motorized route density in the Blue-Grass BMU. Reduction of motorized access in the Upper Priest River area outside the Blue-Grass BMU does not meet the project purpose and need.
Eliminate grazing from the Blue-Grass BMU.	Eliminating grazing from the Blue-Grass BMU does not meet the project purpose and need because it would not contribute to the IPNF meeting the legally required IPNF Forest Plan standards for motorized route density in grizzly bear core habitat in the Blue-Grass BMU.
Recontour FR 1662 (to Hughes Meadows) and remove the two bridges crossing Hughes Fork. Rebuild the horse access trailhead at the junction of roads and FR 1013. Hughes Meadows is high-quality year-round grizzly bear habitat.	Hughes Meadow is outside the Blue-Grass BMU and therefore is outside the scope of this proposed project.
Exclusive use of remote, real-time monitoring/surveillance, including drones (unmanned aerial vehicles [UAVs]). Include in the EIS a cost-comparison between drone expense vs. improvement and use of the Bog Creek Road.	Technology is an important enforcement tool, one that may reduce the need for regular patrols. However, as discussed above, the exclusive use of technology for remote surveillance would not preclude an active law enforcement response to the issue. Therefore, the use of technology as an alternative to the Proposed Action does not meet the project purpose and need.
The agencies should analyze full obliteration and road decommissioning [of the Bog Creek Road] as part of the action alternatives.	Full road decommissioning and obliteration of the Bog Creek Road does not meet the project purpose and need because it does not meet the need for CBP agents to have motorized access to this portion of the international border.
Modified version of the Proposed Action: The amount of core habitat (50%) in the Blue-Grass BMU is below the minimum standard of 55%. Similarly, the TMRD (28%) exceeds the maximum allowable density of 26%. A modified version of the Proposed Action should be developed that results in more than 55% core habitat and a TMRD of less than 26%. In other words, the approved action should result in compliance with the Access Amendment's standards for the Blue-Grass BMU and result in a net gain of the total amount of effective core grizzly bear habitat.	One of the purposes of the proposed project is to meet the legally required standards for grizzly bear core habitat and motorized route density in the Blue-Grass BMU. The action alternatives analyzed in this DEIS will be required to meet these standards, but are not required to exceed these standards by any defined percentage.

Table 2.3.1. Proposed Alternatives and Rationale for Eliminating from Detailed Study (Continued)

Recommended Alternative from Public Scoping	Rationale for Eliminating Recommended Alternative from Detailed Study
Modified version of the Proposed Action: The Forest Service should perform a habitat analysis of the Blue-Grass BMU to determine which roads, if decommissioned or stored, would result in the maximum benefit to grizzly bears. If possible, core habitats should represent the full range of seasonal habitats that are available in the Blue-Grass BMU. Moreover, the comment recommended minimum core habitat blocks of 2 to 8 square miles.	As described in Section 1.2, Background, in Chapter 1, the Access Amendment standards were developed to meet the Forest Service's responsibilities under the ESA to conserve and contribute to the recovery of grizzly bears. One of the purposes of the proposed project is to meet the legally required standards for grizzly bear core habitat and motorized route density in the Blue-Grass BMU. The action alternatives analyzed in this DEIS meet these standards. Alternative 3 presents a modified version of the Proposed Action that accounts for contiguous core habitat. Additionally the BMU boundaries established in the Recovery Plan were designed to support one female grizzly bear with cubs (USFWS 1993a).
Modified version of the Proposed Action: Roads above 5,000 feet in elevation should also be given special attention. According to the caribou telemetry data collected by Kinley and Apps (2007), caribou tend to use habitats above 5,000 feet more than 90% of the time. Reducing motorized access in areas above 5,000 feet would benefit caribou. Wakkinen and Slone's (2010) caribou movement corridor analysis is also informative.	As summarized in Table 2.4.2, the action alternatives would have temporary detrimental impacts to caribou. Long-term detrimental impacts to caribou would be limited by the area's current snowmobile closure. No significant impacts to caribou are anticipated under the action alternatives. Some roads or segments of roads that are above 5,000 feet are being considered for motorized closure.
Modified version of the Proposed Action: Snowmobile and other "over-snow" vehicles should be prohibited due to concerns about caribou and other wildlife that are sensitive to motorized access during the winter months.	Prohibiting snowmobile access and other "over snow" vehicles is outside the scope of this project and would not meet the project purpose and need.

The Proposed Action presented during public scoping in May 2016 maintained the current Bog Creek Road and Blue Joe Creek Road seasonally restricted designations, limiting administrative motorized access to 57 trips per active bear year. After scoping, the Agencies determined that this designation would not allow CBP adequate access to the border to effectively conduct its statutory mission of ensuring border security, and thus it would not meet the project's Purpose and Need presented in Section 1.3. CBP requires additional administrative trips to monitor the border and prevent border incursions, beyond the number allowed under a seasonally restricted designation. In addition, the Forest Service determined that removing the seasonally restricted designation from Blue Joe Creek Road would better allow the agency to meet the Access Amendment standards and their legal obligation to provide access to private property within the Blue-Grass BMU. For these reasons, the Proposed Action presented during scoping was eliminated from detailed study.

2.4 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Table 2.4.1 presents how the alternatives compare in meeting the project Purpose and Need (Section 1.3). Information in Table 2.4.2 focuses on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively between alternatives.

Table 2.4.1. Purpose and Need Alternative Comparison

Alternative	Meets the Forest Service Purpose and Need Related to Access Amendment Standards	Meets the CBP Purpose and Need Related to Border Security
Alternative 1 – No Action	No	No
Alternative 2 – Proposed Action	Yes	Yes
Alternative 3 – Modified Proposed Action	Yes	Yes
Alternative 4 – Blue-Grass BMU West–East Open Access	Yes	Yes

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Table 2.4.2. Summary Comparison of Alternatives

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES				
All Threatened, Endangered, and Proposed (T&E) Wildlife Species in the Analysis Areas	<u>Short-Term Road Repair and Motorized Closure Actions</u> The potential exists for direct and indirect detrimental impacts to all T&E wildlife species in the analysis areas from the No-Action Alternative, but this potential is lower than under any other alternative. Human Noise and Activity • Current noise and traffic levels would continue and could result in occasional disturbance or displacement of T&E wildlife species. • The grizzly bear core area habitat would remain as modeled in Figure 2.2.1 (not in compliance with Access Amendment standards). Although not mapped as core area habitat, the area surrounding Bog Creek Road currently functions as core habitat because of its undrivable condition and would continue to function as core habitat. • Mortality from vehicle strikes along Bog Creek Road would be unlikely. • Existing levels of T&E habitat fragmentation would remain the same. Fragmentation and Linkages • Weed management would continue as prescribed in the Priest Lake Noxious Weed Control Project Final EIS (Forest Service 1997) and the Bonners Ferry Ranger District Noxious Weeds EIS (Forest Service 1995c). Therefore, it is unlikely that weeds would reduce current habitat health.	<u>Short-Term Road Repair and Motorized Closure Actions</u> There would be direct and indirect detrimental and beneficial impacts to all T&E wildlife species in the analysis areas from road repair and motorized closure actions under the Proposed Action. Human Noise and Activity • Because of their avoidance of the active work areas, T&E wildlife may temporarily experience increased stress and lose access to the resources and habitat available within these areas. Because of the high proportion of similar habitat that occurs in the analysis areas, any species displaced during the active work period would be able to use equivalent suitable habitat available on adjacent lands. This detrimental impact would last up to three 4-month-long seasons (July 16 to November 15) for road repair and up to three 5-month-long seasons for motorized closure (June 16 to November 15). Summer-to-fall timing would minimize these effects on T&E wildlife because the active work would not be conducted during sensitive periods (such as breeding and wintering) for these species. • Mortality from vehicle strikes along Bog Creek Road and construction access roads would be higher under this alternative than under the No-Action Alternative. • Long-term reduced human presence in the areas proposed for motorized closure would be a beneficial effect on T&E wildlife. Fragmentation and Linkages • The proposed increase in grizzly bear core area habitat (6.92 percentage point increase) would benefit all T&E wildlife through reduced habitat fragmentation. • Weed management would occur as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that project-induced weeds would lead to reduced habitat health.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action, with these exceptions: Fragmentation and Linkages • The proposed increase in grizzly bear core area habitat (by 7.46 percentage points) would benefit all T&E wildlife through reduced habitat fragmentation; this alternative would increase core area habitat by 0.54 percentage points more than the Proposed Action. • The road segments were chosen under this alternative to increase the amount of contiguous core area and to create a large core area in the central portion of the Blue-Grass BMU. Alternative 3 would be more beneficial for T&E wildlife than the Proposed Action.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action.
	<u>Long-Term Maintenance and Use Actions</u> • The potential exists for direct and indirect detrimental impacts to all T&E wildlife species in the analysis areas from the No-Action Alternative, but this potential is lower than under any other alternative. • With the No-Action Alternative OMRD modeled at 14.87%, over 18 percentage points below the Access Amendment standard of 33, the Agencies would have administrative motorized access flexibility throughout the BMU to accommodate motorized use for these activities: routine law enforcement, scheduled land management, and research. • Some of the roads would become progressively overgrown by alder trees and understory shrubs, whereas others would remain drivable and maintained (FSR 636, Upper 2464, and 1388). Over time, the overgrowth would reduce, and ultimately eliminate, the habitat fragmentation effects for all T&E wildlife species. • As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards shown in Table 3.2.16. It is unknown exactly which roads would be closed to motorized use to meet the Access Amendment standards, and that analysis is not presented in this EIS.	<u>Long-Term Maintenance and Use Actions</u> • There would be direct and indirect detrimental and beneficial impacts to all T&E wildlife species in the analysis areas from long-term maintenance and use actions under the Proposed Action. • The long-term OMRD would be 23.26%. This DEIS assumes that the Agencies would have motorized access flexibility elsewhere in the BMU because OMRD would continue to be 9.74 percentage points below the Access Amendment standard. Some of the gated road segments in the Blue-Grass BMU could accommodate motorized use for these administrative activities: routine law enforcement, scheduled land management, and research.	<u>Long-Term Maintenance and Use Actions</u> • The effects would be the same as those described under the Proposed Action.	<u>Long-Term Maintenance and Use Actions</u> • With unlimited motorized public access on the west to east access roads (including Bog Creek Road and 1.0 mile of Blue Joe Creek Road), Alternative 4 would have the most detrimental impacts to T&E wildlife of all of the alternatives. While the effects of long-term maintenance and use of these roads would be similar to those described under the Proposed Action, the level of impact from some effects on T&E wildlife species would be greater, with motorized use being high instead of moderate (see Table 3.1.3). The impacts that would change from those described under the Proposed Action are described below. • The primary difference between the Proposed Action and Alternative 4 is a change in OMRD status. Alternative 4 would result in the same Access Amendment conditions (TMRD and core area habitat) as the Proposed Action, except for the higher OMRD of 31.28% (see Table 3.2.19). This is 8.02 percentage points higher than the OMRD under the Proposed Action (i.e., Alternative 4 proposes more motorized access) and 1.72 percentage points less than the Access Amendment standard of 33%.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
All Threatened, Endangered, and Proposed (T&E) Wildlife Species in the Analysis Areas (Continued)	<u>Long-Term Maintenance and Use Actions (Continued)</u> • Motorized use within the Blue-Grass BMU would still be restricted, but would not occur on Bog Creek Road because it is undrivable. Motorized and non-motorized use within the BMU would likely remain the same as the existing condition. • Mortality from vehicle strikes along Bog Creek Road would be unlikely. • Weed management would continue as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that weeds would reduce current habitat health.	<u>Long-Term Maintenance and Use Actions (Continued)</u> Human Noise and Activity • T&E wildlife could be occasionally displaced by human noise and activity during maintenance and use of Bog Creek Road and Blue Joe Creek Road. • Because motorized use would be limited to administrative only, and these roads would have a 25-mph speed limit, road noise effects and mortality from vehicle strikes on T&E wildlife are not anticipated to have population-level impacts. Also, administrative personnel accessing the analysis areas would receive training to reduce the potential for wildlife mortalities from human-wildlife interactions. • In the areas proposed for motorized road closure, there would be a reduced potential for wildlife displacement due to human noise and activity because recreationists, hunters, and other users are less likely to use these roads as they become revegetated and more difficult to traverse. Fragmentation and Linkages • The roads closed to motorized use would over time naturally become revegetated, resulting in the same benefits as described above under the Proposed Action Short-Term Road Repair and Motorized Closure Actions. • The administratively open Bog Creek Road and Blue Joe Creek Road would have an increased barrier effect on migrating wildlife because these roads would shift from very low and low motorized use to moderate (see Table 3.1.3). However, because of the lower speed limit (25 mph) and moderate (not high) motorized use, a detrimental reduction in gene flow throughout the analysis area is unlikely for Canada lynx or wolverine, but could occur for grizzly bear and woodland caribou (as discussed in those species sections below). • Weed management would occur as prescribed in existing plans (Forest Service 1995c, 1997) to reduce the potential for weed establishment and maintain the quality of the T&E wildlife habitat.		<u>Long-Term Maintenance and Use Actions (Continued)</u> • The Agencies would be limited in their motorized access flexibility in other areas of the Blue-Grass BMU because they would only have 1.72 percentage points available, instead of more than 9 percentage points as under the other alternatives. Under Alternative 4, the motorized use for administrative activities such as routine law enforcement, scheduled land management, and research, would be more restricted than under any other alternative. Improved Human Access • Although the speed limit on these roads would be 25 mph, the potential for vehicle strikes would be higher under Alternative 4 than under any other alternative because the roads would have more motorized use. • Increased motorized public access in the analysis areas could lead to the increased potential for mortality from non-motorized recreationists, hunters, poachers, or those seeking to maliciously kill T&E wildlife species. • Improved human access could also occur in the Blue Joe Creek, Grass Creek, and Silver Creek drainages and their surrounding habitat. The potential for increased disturbance and mortality of T&E wildlife would exist beyond the open west to east access roads. Fragmentation and Linkages • T&E wildlife are more likely to be disturbed and/or avoid the vicinity of Bog Creek Road beyond the initial road repair period because of the long-term human activity. • The migratory barrier posed by the west to east roads would be less permeable for T&E wildlife under Alternative 4, and would have a greater detrimental direct impact to T&E wildlife population connectivity than any other alternatives.
Grizzly Bear (*Ursus arctos horribilis*)	<u>Short-Term Road Repair and Motorized Closure Actions</u> • No effects beyond existing conditions other than those stated above for all T&E wildlife.	<u>Short-Term Road Repair and Motorized Closure Actions</u> There would be direct and indirect detrimental impacts to grizzly bear from road repair and motorized closure actions under the Proposed Action. This is because grizzly bears are likely to avoid the work areas during these activities, losing access to available resources from these areas during the short term. And over the long term, Bog Creek Road repair would fragment an area that has been undrivable and functioning as core habitat. Human Noise and Activity • During the up to three seasons of road repair and motorized closure, the seasonal vehicle trip restrictions would be exceeded on the roads shown with yellow highlight on Figure 3.2.1. Summer-to-fall timing (July 16 to November 15 for road repair and June 16 to November 15 for motorized closure) would reduce the effect of human noise and activity on grizzly bears because these activities would be conducted in a season during which grizzly bears are typically found at higher elevations (USFWS 1993a).	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action, with this exception: Habitat Removal, Road Avoidance, and Core Area Habitat • Up to 59.3 acres of habitat would be temporarily affected by motorized road closure activities; 27.7 of these acres provide denning habitat. Compared with the Proposed Action, this is 3.1 fewer acres of overall habitat and 6.0 fewer acres of denning habitat temporarily affected. These acreages constitute less than 1% of existing overall and denning habitat in the Blue-Grass BMU. Over the long term, those acres of habitat would be again available to grizzly bears following the active work period. • The proposed motorized road closures under Alternative 3 would reduce motorized access within 500 meters of 16 acres of the important spring foraging wet meadow/peatland habitat; this is 15 acres more than under the Proposed Action.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Grizzly Bear (*Ursus arctos horribilis*) (Continued)		<u>Short-Term Road Repair and Motorized Closure Actions (Continued)</u> • The timeline for bears' avoidance of Bog Creek Road would occur as active avoidance during repair and motorized closure actions, and continue indefinitely with the long-term open administrative access. A slight increase in bears' use of the habitat adjacent to the road may eventually occur after the most intense motorized repair activity is completed. • Adherence to the 2011 Food Storage Order (see Appendix F) would reduce the probability that bears would be attracted to the work areas, reducing the potential for habituation and human–bear conflicts. The 2011 Food Storage Order would remain in effect beyond the temporary repair and motorized closure period. Fragmentation and Linkages • During the up to three seasons of road repair and motorized closure activities, there could be reduced grizzly bear movement through the Blue-Grass BMU due to bear road-avoidance behavior. Over the long term, Bog Creek Road could act as a semipermeable movement barrier (with the moderate motorized use). Because of its current undrivable condition, this area has been functioning as core habitat. Following repair, this area would no longer function as core habitat. Habitat Removal, Road Avoidance, and Core Area Habitat • A total of 84.7 acres of grizzly bear habitat would be removed during repair and motorized road closure; 22.3 acres would be permanently removed along Bog Creek Road; a total of 11.7 of these acres would be permanently removed denning habitat. This habitat removal would account for less than 1% of existing overall and denning habitat in the Blue-Grass BMU. • Up to 62.4 acres of habitat would be temporarily affected by motorized road closure activities; a total of 33.7 of these acres is considered denning habitat. Upon completion of the active road closure, this habitat would again be available to grizzly bears. These acreages constitute less than 1% of existing overall and denning habitat in the Blue-Grass BMU. • However, for up to three seasons, grizzly bears would be displaced from a greater area than these direct impact acreages because of their documented avoidance of roads and human activity. • Once human activities cease in the work area, bears could resume using the temporarily affected habitat. Elimination of motorized disturbances in grizzly bear habitat over the long term (in areas proposed for motorized road closure) would provide more core area habitat in the BMU. This increase in core area habitat would be beneficial for grizzly bears because it would decrease human presence and activity in the portions of the BMU closed to motorized access.		

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Grizzly Bear (*Ursus arctos horribilis*) (Continued)	<u>Long-Term Maintenance and Use Actions</u> In addition to those effects stated above for all T&E wildlife species in the analysis areas: • Grizzly bears would continue to avoid existing roads, especially roads open to motorized use. • Under the No-Action Alternative, open motorized roads occur within 500 meters of these high-quality grizzly bear habitats in the Blue-Grass BMU: 8% of the denning habitat and 7% of the wet meadow habitat.	<u>Long-Term Maintenance and Use Actions</u> There would be direct and indirect detrimental and beneficial impacts to grizzly bear from long-term maintenance and use actions under the Proposed Action. Improved Human Access • Increased non-motorized public access along the improved Bog Creek Road could lead to the increased potential for mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears. • The Forest Service would continue monitoring the trails in the Blue-Grass BMU for potential high use (i.e., an average of more than 20 parties per week) and if this occurs, then a buffer of these trails would be removed from core area habitat. • Overall, the motorized road closure that would occur would reduce human access into those parts of the BMU, but human access along Bog Creek Road would be improved. Fragmentation and Linkages • As described in the detailed grizzly bear impacts under the Proposed Action in Section 3.2.5.2, grizzly bear use of areas declined as open road densities exceeded 1 mile per square mile (Wakkinen and Kasworm 1997). The Blue-Grass BMU is a linkage area for grizzly bears between the southern Selkirks and Canada. The moderate motorized use of Bog Creek Road and Blue Joe Creek Road (see Table 3.1.3) would increase motorized use in the BMU through which bears pass to move in a north–south direction. This would reduce the permeability of the movement corridor as a whole. However, motorized use on the seasonally restricted roads in the central portion of the BMU (an area important to grizzly bears) would remain low. • When combined with other activities within the SRZ, the moderate motorized use could cumulatively decrease genetic flow between the U.S. and Canadian bear populations, a detrimental impact for the SRZ bear population which already has low genetic diversity (IGBC 2017). Disturbance from Habitat, Road Avoidance, and Core Area Habitat • Moderate motorized use of Bog Creek Road and Blue Joe Creek Road would be a localized, long-term detrimental impact because it would fragment habitat that is effectively functioning as core habitat. This core habitat would be shifted to other parts of the Blue-Grass BMU, and bears currently using the habitat surrounding Bog Creek Road would have to change daily and seasonal habitat use patterns to avoid the motorized disturbances on Bog Creek Road. Because Blue Joe Creek Road would increase from low to moderate motorized use, bears would also be disturbed from the habitat surrounding this road.	<u>Long-Term Maintenance and Use Actions</u> The effects would be the same as those described under the Proposed Action.	<u>Long-Term Maintenance and Use Actions</u> The effects would be similar to those described under the Proposed Action, with these detrimental impact exceptions: Improved Human Access • Increased public access along the Alternative 4 open west to east access roads could lead to the increased potential for mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears. • Use of the roads by black-bear hunters would increase the potential for grizzly bear mistaken-identity kills. • Public food storage would still be required to comply with the 2011 Food Storage Order (see Appendix F), but with improved public access to the area, the potential for habituation and human–bear conflicts would increase. • Increased human presence could also increase the potential for bear mortality in defense of human life. Fragmentation and Linkages • Unlimited motorized public access (high motorized use as defined in Table 3.1.3) across the center of this important linkage area would detrimentally cumulatively impact the grizzly bear population connectivity in the SRZ because of grizzly bears' documented avoidance of roads, especially motorized roads (see Section 3.2.5.2). This effect would be greatest under Alternative 4. Disturbance from Habitat, Road Avoidance, and Core Area Habitat • Under Alternative 4, 27% of the denning habitat and 46% of the wet meadow habitat in the BMU would be within 500 meters of roads designated as having administrative open or publicly open motorized access. There is the potential for increased grizzly bear disturbance from 11 percentage points more denning habitat and 14 percentage points more wet meadow habitat than under the Proposed Action. Although there would be motorized road closures under Alternative 4 and the Access Amendment conditions would be within the standards, there would be greater disturbance impacts to grizzly bears using these high-value habitats under this alternative than under any other alternative.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Grizzly Bear (*Ursus arctos horribilis*) (Continued)		Long-Term Maintenance and Use Actions (Continued) • Under the Proposed Action, 16% of the denning habitat and 32% of the wet meadow habitat in the BMU would be within 500 meters of roads designated as having open motorized use (including administrative open). There is the potential for increased grizzly bear disturbance from 8 percentage points more denning habitat and 25 percentage points more wet meadow habitat than under the No Action. Although there would be motorized road closures under the Proposed Action and the Access Amendment conditions would be within the standards, there would be greater disturbance impacts to grizzly bears using these high value habitats under this alternative, than under the No Action.		
Selkirk Mountain Woodland Caribou (*Rangifer tarandus caribou*)	Short-Term Road Repair and Motorized Closure Actions In addition to those effects stated above for all T&E wildlife species in the analysis areas: Predator Access • The snowmobile trails allowed by the court-ordered closure within the Blue-Grass BMU would not change (see Figure 3.8.2). Fragmentation and Linkages • FSR 1322 and FSR 1322A, located within the Little Snowy Top/Continental Mountain linkage corridor, currently handle very low motorized use and vehicles travel at a relatively low speed; it is possible that they could temporarily disrupt caribou movement.	Short-Term Road Repair and Motorized Closure Actions Direct and indirect detrimental and beneficial impacts to Selkirk Mountain woodland caribou from road repair and motorized closure actions under the Proposed Action could occur. Predator Access • The motorized road closures would benefit the woodland caribou by reducing the amount of roads that caribou predators (wolves and mountain lions) could use to access areas with deep snowpack, potentially reducing winter predation pressure on caribou. • Motorized closure of FSR 1388 would benefit caribou because this road would be removed from the designated snowmobile trails, therefore reducing predator access. • Repair of Bog Creek Road may improve winter predator access because the road could be used by motorized winter CBP patrol. Winter predator access could increase as a result of CBP snowmobile use, compared with the No-Action Alternative. Fragmentation and Linkages • The motorized road closures of FSRs 1322 and 1322A, located within the Little Snowy Top/Continental Mountain linkage corridor, would benefit caribou. However, the motorized closure activities could temporarily displace caribou from the area, forcing them to choose a different route for seasonal movements. Habitat Removal • The Proposed Action would permanently affect less than 1% of the analysis area caribou habitat for the Bog Creek Road repair (21.6 acres); 62.2 acres would be temporarily affected until revegetation occurred. • These activities would mostly occur outside the caribou calving season (June 1 to July 7) and mostly outside calving habitat (see Section 3.2.5.2).	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: Predator Access • Alternative 3 proposes 6.8% fewer linear miles of motorized road closure than the Proposed Action, which would be slightly less beneficial for woodland caribou because predation pressures would be reduced in slightly fewer roaded areas. • FSR 1388 would not be closed to motorized use under Alternative 3. Habitat Removal • There would only be 59.5 acres temporarily affected instead of 62.2 acres, 2.7 acres less than under the Proposed Action. Over the long term, the Proposed Action would have 2.7 more acres of caribou habitat closed to motorized use.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Selkirk Mountain Woodland Caribou (*Rangifer tarandus caribou*), (Continued)	Long-Term Maintenance and Use Actions In addition to those effects stated above for all T&E wildlife species in the analysis areas: Predator and Human Access • Wolves and other predators could continue to use the existing roads (proposed for motorized closure under the action alternatives) to prey upon caribou. • Under the No-Action Alternative, 32.4 miles of open motorized roads occur within 250 meters of 9% of the caribou habitat in the caribou analysis area.	Long-Term Maintenance and Use Actions Direct and indirect detrimental impacts to caribou from long-term maintenance and use actions under the Proposed Action could occur. Human Noise and Activity • There would be 43.6 miles of open roads within caribou habitat in the analysis area under the Proposed Action, compared with 32.4 miles under the No-Action Alternative Predator and Human Access • The Proposed Action would not alter the level of winter recreation. Furthermore, Bog Creek Road and Blue Joe Creek Road would be closed to motorized public use year-round, and so would not increase the potential for the road to be compacted by public use in the winter. If CBP conduct motorized winter patrol within the caribou analysis area, there may be an increase in periodic caribou displacement and the likelihood of predators using the compacted trails, compared with the No-Action Alternative. • Bog Creek Road is an existing road corridor and currently has the potential to be used by wolves in the non-winter seasons. • Increased non-motorized recreational use of the road would occasionally increase detrimental impacts due to human noise and activity, as described in Long-Term Effects Common to All T&E Wildlife Species in the Analysis Areas. Motorized use would increase from very low and low to moderate (see Table 3.1.3). Fragmentation and Linkages • With only 12 caribou located in the 2016 U.S. census (DeGroot 2016), population connectivity is critical for the Selkirk Mountain woodland caribou herd. Bog Creek Road is north of several caribou linkage corridors (see the small inset map in Figure 3.2.2). Open administrative motorized use of Bog Creek Road and Blue Joe Creek Road could disrupt or disturb caribou that may be moving from north to south, detrimentally impacting their population connectivity. • Within the caribou analysis area, 12% of available caribou habitat occurs within 250 meters of administrative open and open roads under the Proposed Action, 3 percentage points more than under the No-Action Alternative.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be similar to those described under the Proposed Action, with these detrimental impact exceptions: Human Noise, Activity, and Access • There would be 59.8 miles of open roads within caribou habitat under Alternative 4, compared with 32.4 and 43.6 open miles under the No-Action Alternative and the Proposed Action, respectively. • The potential for accidental kills of woodland caribou by elk and deer hunters, or poaching, would be higher under Alternative 4 than the other alternatives. Fragmentation and Linkages • Unlimited motorized public access across the caribou analysis area could disrupt or disturb caribou that may be moving from north to south, detrimentally impacting their population connectivity. • Within the caribou analysis area, 16% of available caribou habitat occurs within 250 meters of administrative open and open roads under Alternative 4, 4 percentage points more than under the Proposed Action.
Canada Lynx (*Lynx canadensis*)	Short-Term Road Repair and Motorized Closure Actions In addition to those effects stated above for all T&E wildlife species in the analysis areas: Competitor Access • The snowmobile trails allowed by the court-ordered closure within the Blue-Grass BMU would not change (see Figure 3.8.2).	Short-Term Road Repair and Motorized Closure Actions Direct and indirect detrimental and beneficial impacts to Canada lynx from road repair and motorized closure actions under the Proposed Action could occur. Human Noise and Activity • Road repair and motorized closure activities would only take place during daylight hours (see Table 3.1.1) and would therefore not affect lynx evening or nighttime foraging activities.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: Competitor Access • Alternative 3 proposes 6.8% fewer linear miles of motorized road closure than the Proposed Action, which would be slightly less beneficial for Canada lynx because competition pressures would be reduced in slightly fewer roaded areas. Habitat Removal • There would only be 45.6 acres temporarily affected instead of 48.6 acres, 3.0 acres less than under the Proposed Action. Over the long term, the Proposed Action would have 3.0 more acres of lynx habitat closed to motorized use.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Canada Lynx (*Lynx canadensis*) (Continued)		<u>Short-Term Road Repair and Motorized Closure Actions (Continued)</u> Competitor Access • The motorized road closures would benefit the Canada lynx by reducing the amount of roads available for lynx competitors (coyotes) to access areas with deep snowpack, potentially reducing winter competition for lynx prey resources. • Lynx competitor access may be improved by CBP motorized winter patrol, if conducted following the repair of Bog Creek Road. This occasional snowmobile use may increase the likelihood of lynx competitors using the road, an indirect detrimental impact. Competition in the vicinity of Bog Creek Road could increase for lynx as a result of CBP snowmobile use, compared with the No-Action Alternative. Fragmentation and Linkages • Lynx avoidance of the active work zone during the up-to-three 4-month-long and 5-month-long seasons would be a temporary detrimental impact, but lynx could travel through other portions of the analysis area. • No defined linkage corridors would be affected. • Because the Bog Creek Road and Blue Joe Creek Road long-term administrative use designation changes would alter motorized use from very low and low to moderate (see Table 3.1.3), lynx movement along these roads could be affected. • No activities would occur during denning season (May to June). Habitat Removal • A total of 69.8 acres of lynx habitat would be impacted under the Proposed Action, which constitutes less than 1% of the available lynx habitat in the Canada lynx analysis area; 21.2 acres would be permanently removed for the Bog Creek Road repair. The habitat temporarily affected by motorized closure actions (48.6 acres) would provide reduced prey availability until those areas reached the early successional stage and returned to snowshoe hare habitat (the main prey species for lynx).		
	<u>Long-Term Maintenance and Use Actions</u> In addition to those effects stated above for all T&E wildlife species in the analysis areas: Human Access • Under the No-Action Alternative, 29.7 miles of open motorized roads occur within lynx habitat in the analysis area.	<u>Long-Term Maintenance and Use Actions</u> No impacts to Canada lynx from long-term maintenance and use actions under the Proposed Action are expected.	<u>Long-Term Maintenance and Use Actions</u> The effects would be the same as those described under the Proposed Action.	<u>Long-Term Maintenance and Use Actions</u> The effects would be similar to those described under the Proposed Action, with these exceptions: Improved Human Access • There would be 45.8 miles of administrative open and open roads in lynx habitat; this is 6.1 more miles than under the Proposed Action. • The potential for increased detrimental indirect effects on lynx, including: increased trapping of their prey species, incidental trapping (when other species are targeted), poaching, or those seeking to maliciously kill lynx, would be greatest under Alternative 4.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
Canada Lynx (*Lynx canadensis*) (Continued)		Long-Term Maintenance and Use Actions (Continued) Competitor and Human Access • There would be 39.7 miles of administrative open and open roads in lynx habitat within the analysis area under the Proposed Action; this is 10 more miles than under the No-Action Alternative. • CBP snowmobile use in the analysis area could increase (over the No Action) allowing competitors, such as coyotes, to use compacted snowmobile tracks to access prey in previously inaccessible areas. CBP snowmobile use may also increase the potential for temporary lynx displacement in the winter. • Because Bog Creek Road is currently heavily vegetated and the improvements would make it more passable on foot, it could have increased non-motorized recreational use by mountain bikers, hikers, hunters/trappers, and others. Lynx may avoid contact and could be displaced by these user groups until the humans leave the area. • The improved road may also increase indirect effects on lynx such as trapping of their prey species, incidental trapping (when other species are targeted), poaching, or malicious kills.		
North American Wolverine (*Gulo gulo luscus*)	Short-Term Road Repair and Motorized Closure Actions No effects beyond existing conditions other than those stated above for all T&E wildlife species in the analysis areas.	Short-Term Road Repair and Motorized Closure Actions Road repair and motorized closure activities under the Proposed Action would not jeopardize the continued existence of the North American wolverine. Human Noise and Activity • The Proposed Action activities do not constitute a threat to the North American wolverine. Reduced human presence would occur on the roads proposed for motorized closure, providing a benefit to wolverine. Fragmentation and Linkages • Wolverine avoidance of the active work zone during the up-to-three 4-month-long and 5-month-long seasons would be temporary, and wolverine could travel through other portions of the analysis area. Habitat Removal • Approximately 84.7 acres (less than 1%) of wolverine habitat would be impacted under the Proposed Action, 22.3 acres of which would be permanently removed for the Bog Creek Road repair; 5.8 acres of wolverine denning habitat would be permanently removed. • An estimated 62.4 acres of wolverine habitat, 13.5 acres of denning habitat, would be temporarily affected by the motorized road closures. • The road repair would start after July 16 and the motorized closure activities would start after June 16, so snow dens are unlikely to be occupied at this time (see Appendix B).	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with this exception: Habitat Removal • There would only be 59.3 acres temporarily affected instead of 62.4 acres, 3.1 acres less than under the Proposed Action. Over the long term, the Proposed Action would have 3.1 more acres of wolverine habitat closed to motorized use.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
THREATENED, ENDANGERED, AND PROPOSED SPECIES, CONTINUED				
North American Wolverine (*Gulo gulo luscus*) (Continued)	Long-Term Maintenance and Use Actions In addition to those effects stated above for all T&E wildlife species in the analysis areas: Human Access • Under the No-Action Alternative, 58.9 miles of administrative open and open roads occur in wolverine habitat in the analysis area.	Long-Term Maintenance and Use Actions Long-term maintenance and use actions would not jeopardize the continued existence of the North American wolverine. Human Access • There would be 71.8 miles of administrative open and open roads in wolverine habitat within the wolverine analysis area; this is 12.9 more miles than under the No-Action Alternative, • Because Bog Creek Road is currently heavily vegetated and the improvements would make it more passable on foot, there could be an increase under the Proposed Action to the effects on wolverine from trapping of their prey species, incidental trapping (when other species are targeted), or poaching.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be similar to those described under the Proposed Action, with these exceptions: Improved Human Access • There would be 88.2 miles of administrative open and open roads in wolverine habitat under Alternative 4; this is 16.4 miles more than the Proposed Action • The improved public access could detrimentally affect wolverine through increased trapping of their prey species, incidental trapping (when other species are targeted), or poaching.
Bull Trout (*Salvelins confluentus*) and Bull Trout Designated Critical Habitat (DCH)	Short-Term Road Repair and Motorized Closure Actions Under the No-Action Alternative, culvert failure or blowout could catastrophically release sediment downstream (Furniss et al. 1998). This detrimental impact to downstream bull trout and bull trout DCH would be short term until the stream channel stabilized and the banks revegetated (estimated at 5 to 10 years). If a failure or blowout were to occur, it would have the potential to temporarily contribute sediment to these streams occupied by bull trout (and mapped as DCH): Upper Priest River, Malcom Creek, and Lime Creek (from Table 3.2.5). Sedimentation can reduce habitat complexity and pool depth, spawning success, and insect larvae preyed upon by bull trout.	Short-Term Road Repair and Motorized Closure Actions The potential for detrimental and beneficial impacts to bull trout or bull trout DCH from repair and motorized closure actions under the Proposed Action exists. • No in-stream work would occur in stream segments occupied by bull trout or in bull trout DCH. Bull trout distribution and migratory corridors would not be affected by the Proposed Action. • Downstream sedimentation from in-stream work (culvert removal and replacement) on Continental Creek could temporarily affect mapped DCH downstream on Malcom Creek. • Sedimentation from culvert replacement could be measurable to 800 feet downstream (Forest Service 2013c), and 3,000 feet downstream of culvert removals (Foltz et al. 2008). These effects would be temporary, with 95% of sediment released within several hours to 24 hours of completing the culvert replacement or removal (Foltz et al. 2008). It is likely that bull trout are located over 4,000 feet downstream of this in-stream work (downstream of the Malcom Creek migratory barrier). • There would be a lower long-term potential, compared with the No-Action Alternative, for culvert failure at the road-stream crossings upstream of mapped bull trout DCH on Upper Priest River, Malcom Creek, and Lime Creek, following culvert replacement or removal; this is a long-term beneficial impact.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.
	Long-Term Maintenance and Use Actions No effects other than those discussed for Short-Term Road Repair and Motorized Closure Actions under the No-Action Alternative.	Long-Term Maintenance and Use Actions Impacts from maintenance and use actions under the Proposed Action would have no effect on bull trout or bull trout DCH. • During maintenance and use of Bog Creek Road, culvert cleaning on the Continental Creek culvert could produce occasional sediment pulses. This analysis assumes that periodic monitoring and culvert cleaning would be conducted at the culverts along Lime Creek and its tributaries to avoid culvert failure upstream of streams occupied by bull trout and bull trout DCH.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WILDLIFE				
All Wildlife Species in the Analysis Areas	<u>Short-Term Road Repair and Motorized Closure Actions</u> Human Noise and Activity • Current noise and traffic levels would continue and could result in occasional disturbance or displacement of wildlife species. • Mortality from vehicle strikes could occur, but is unlikely because of very low speed and low motorized use (see Table 3.1.3). Fragmentation and Linkages • Existing levels of fragmentation would remain the same. • Weed management would continue as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that weeds would reduce current habitat health.	<u>Short-Term Road Repair and Motorized Closure Actions</u> There would be direct and indirect detrimental and beneficial impacts to all wildlife species in the analysis areas from road repair and motorized closure actions under the Proposed Action. Design features (see Appendix B) would reduce erosion and avoid impacts to breeding individuals, unless otherwise discussed below. Human Noise and Activity • Because of their avoidance of the repair and motorized closure work areas, wildlife may temporarily experience increased stress and lose access to the resources and habitat available within these areas. This detrimental impact would be a short-term effect for up to three 4-month-long seasons (July 16 to November 15) for road repair and up to three 5-month-long seasons (June 16 to November 15) for motorized closure. • Vehicle and equipment operation could result in mortality of smaller-bodied or slow-moving species taking shelter in disturbed areas or in the path of moving vehicles. The potential for individual mortality would exist. • Long-term reduced human presence in the areas proposed for motorized closure would be a beneficial effect on wildlife (see Section 3.3.5.2 for more details). Fragmentation and Linkages • The repaired Bog Creek Road could act as a semipermeable movement barrier to certain species that are especially sensitive to fragmentation or human disturbance, such as gray wolves, fishers, small mammals, and amphibians (described in more detail in Section 3.3.5.2). These are species that 1) tend to avoid roads and also require large tracts of habitat for survival, or 2) are susceptible to vehicle strikes or human-caused mortality (hunting, trapping, defense of property). • Under the Proposed Action, the maintained and administratively open Bog Creek Road and Blue Joe Creek Road, would have an increased barrier effect to wildlife than under the No-Action Alternative because these roads would shift from very low and low motorized use to moderate (see Table 3.1.3). • The proposed increase in grizzly bear core area habitat (by 6.92 percentage points) would benefit all wildlife through reduced habitat fragmentation and improved connectivity. • Weeds would be managed as prescribed in the Priest Lake Noxious Weed Control Project Final EIS (Forest Service 1997) and the Bonners Ferry Ranger District Noxious Weed EIS (Forest Service 1995c). Therefore, it is unlikely that project-induced weeds would lead to an overall reduction in habitat health.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The suite of road segments proposed for motorized closure differs under Alternative 3, resulting in a larger contiguous non-roaded area in the center of the BMU. The effects would be the same as those described under the Proposed Action, with these exceptions: Fragmentation and Linkages • Three fewer acres would be affected by temporary disturbance under Alternative 3 than under the Proposed Action. • The proposed increase in grizzly bear core area habitat (by 7.46 percentage points) would benefit all wildlife through reduced habitat fragmentation; this alternative would increase core area habitat by 0.54 percentage points more than the Proposed Action. • Alternative 3 would be more beneficial for wildlife than the Proposed Action or Alternative 4.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WILDLIFE, CONTINUED				
All Wildlife Species in the Analysis Areas, continued	Long-Term Maintenance and Use Actions • Mortality from vehicle strikes could occur, but is unlikely because of very low speed and low motorized use (see Table 3.1.3). • Some of the roads would become progressively overgrown by alder trees and understory shrubs, whereas others would remain drivable and maintained (FSR 636, Upper 2464, and 1388). Over time, the overgrowth would reduce, and ultimately eliminate, the habitat fragmentation effects for all wildlife species. • Weed management would continue as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that weeds would reduce current habitat health.	Long-Term Maintenance and Use Actions There would be direct and indirect detrimental and beneficial impacts to all wildlife species in the analysis areas from long-term maintenance and use actions under the Proposed Action. Human Noise and Activity • Wildlife could be occasionally displaced by human noise and activity during maintenance and use of Bog Creek Road and Blue Joe Creek Road. • A small amount of additional habitat loss could occur from long-term vegetation management actions on a site-specific, as-needed basis. • Administrative motorized use of the Bog Creek Road and an increase in use of Blue Joe Creek Road would increase the long-term potential for direct wildlife mortality due to vehicle strikes. However, this road would be used for administrative purposes only, and would not be open to the public. Therefore, the number of vehicles would be limited, and vehicle speeds would be slow (25 mph), maintaining a low potential for mortality due to vehicle strikes. Administrative personnel accessing the analysis areas would receive training to reduce the potential for wildlife mortalities from human–wildlife interactions. • Motorized road closure also reduces the potential for wildlife displacement due to human noise and activity in those areas, because recreationists, hunters, and other users are less likely to use these roads as they become revegetated and more difficult to traverse. Fragmentation and Linkages • The roads closed to motorized use would over time naturally become revegetated. This would result in the same benefits as described above under Proposed Action Short-Term Road Repair and Motorized Closure Actions. • Weed management would continue as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that weeds would reduce current habitat health.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions Because under Alternative 4 there is a higher anticipated increase in motorize use, compared with the other action alternatives, a greater human presence in the analysis areas could occur. The detrimental effects would be similar to those described under the Proposed Action, with these exceptions: • Disturbance to wildlife from human motorized and non-motorized use would be greater. • The potential for wildlife mortality from vehicle strikes would be greater. • The potential for detrimental direct impacts, such as increased disturbance and mortality of wildlife, would exist beyond the habitat immediately surrounding the open roads. • The potential for the spread and/or establishment of noxious weeds or invasive plant species into the surrounding habitats would be higher.
Boreal toad (*Bufo boreas*)	Short-Term Road Repair and Motorized Closure Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Short-Term Road Repair and Motorized Closure Actions These actions may impact boreal toad or their habitat, but will not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species. • Approximately 0.1 acre of wetland habitat would be directly impacted by the Bog Creek Road repair, consisting of less than 1% of disturbance of total available boreal toad breeding habitat. • Up to 0.23 acre of wetlands or other waters of the U.S. would be affected by the in-stream work; boreal toads could be temporarily affected by sedimentation, but over the long term up- and downstream passage at these road-stream crossings would be improved. • Breeding locations (wetlands) may be temporarily lost or altered because of localized vegetation alterations; however, it is likely that temporarily displaced individuals would return to wetland habitats once these activities cease.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with this exception: • Up to 0.24 acre of wetlands or other waters of the U.S. would be affected by the in-stream work.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WILDLIFE, CONTINUED				
Boreal toad (*Bufo boreas*) (Continued)	Long-Term Maintenance and Use Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Long-Term Maintenance and Use Actions There would be a potential for direct and indirect detrimental impacts to boreal toad under the Proposed Action. • As roads closed to motorized use revegetate the potential for pollutants to enter aquatic habitats from these roads would decrease. • The long-term potential for direct mortality from vehicle strikes would be no longer exist in the areas where roads would be closed to motorized use. • The long-term actions along Bog Creek Road and Blue Joe Creek Road would not result in additional streamside vegetation removal or increase peak flow to a level that would result in stream channel degradation. • There could be negligible aquatic sedimentation impacts from road crossings during maintenance and use. • A long-term beneficial impact to RHCAs from IPNF Weed Management implementation would be the reduced density and distribution of weeds in the RHCAs.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The detrimental effects would be similar to those described under the Proposed Action, with these exceptions: • Unlimited public motorized access on Bog Creek Road and west to east access roads could result in a greater potential for degradation of aquatic habitats. • The risk of direct mortality to individual overland-dispersing or migrating boreal toads from vehicle strikes would be greatest under this alternative.
Sensitive Terrestrial Species	Short-Term Road Repair and Motorized Closure Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Short-Term Road Repair and Motorized Closure Actions These actions may detrimentally or beneficially impact sensitive terrestrial species or their habitat, but will not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species. • Less than 1% of the available habitat within either the project-scale or landscape-scale wildlife analysis area for all sensitive terrestrial species analyzed would be directly impacted under the Proposed Action. See also Tables 3.3.8 and 3.3.9. The acreages of permanently disturbed habitat under the Proposed Action by species would be: o harlequin duck: 3.6 acres o northern bog lemming: 0.1 acre o gray wolf: 22.4 acres o fisher: 1.7 acres • The percentage of motorized road closure mileage within each species habitat would be: o harlequin duck: 42% o northern bog lemming: 0% o gray wolf: 11% o fisher: 3% • Bog Creek Road repair could beneficially affect wolf predation success, but could increase the risk of direct mortality from trapping and illegal kills (poaching or malicious kills). • Motorized road closure would reduce opportunities for trappers to gain motorized access into fisher habitat, likely reducing the rates of human-caused mortality of this species, an indirect beneficial impact.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: • The acreages disturbed do not differ greatly between the Proposed Action and Alternative 3 (see also Tables 3.3.8 and 3.3.9). The acreages of permanently disturbed habitat under Alternative 3 by species would be: o harlequin duck: 3.7 acres o northern bog lemming: 0.1 acre o gray wolf: 22.3 acres o fisher: 1.7 acres • The percentage of motorized road closure mileage within each species habitat would be: o harlequin duck: 42% o northern bog lemming: 0% o gray wolf: 10% o fisher: 11%	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WILDLIFE, CONTINUED				
Sensitive Terrestrial Species (Continued)	Long-Term Maintenance and Use Actions Effects would be those stated above for all wildlife species within the analysis areas, as well as: • Wolves could continue to use existing roads to facilitate their pursuit of prey.	Long-Term Maintenance and Use Actions Effects would be similar to those stated above for Short-Term Road Repair and Motorized Closure, as well as: • Increased non-motorized recreational use of the road would increase impacts due to human noise and activity, as described in Effects Common to All Wildlife Species in the Analysis Areas above. • Motorized use of Bog Creek Road would increase from that of the existing condition (the No-Action Alternative) because the road is currently undrivable; this would have direct and indirect detrimental impacts to sensitive terrestrial species. • Potential effects on harlequin ducks, including human disturbance and noise could occur under long-term maintenance and use on Bog Creek Road and increased use of Blue Joe Creek Road. • Potential effects on northern bog lemmings include indirect impacts to habitat and direct mortality from vehicle strikes. However, the potential for this to occur is lower under the Proposed Action and Alternative 3 than under Alternative 4. • The use of Bog Creek Road for both motorized administrative purposes and by non-motorized recreationists, and the increased administrative use of Blue Joe Creek Road, has the potential to disturb gray wolves in the vicinity, though these disturbances would be occasional and infrequent. Increased public access would also increase the potential for mortality of gray wolves. • When the road is not in use by humans, gray wolves may use it as a travel corridor, which could result in increased rates of movement across the landscape as well as potentially facilitate an increase in large ungulate predation success by wolves. These effects would be greater than under the No-Action Alternative. • Potential effects on fisher from long-term maintenance and use activities include human disturbance and noise, and increased access for trappers.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The detrimental effects would be similar to those described under the Proposed Action, with these exceptions because of the unlimited motorized public access: • The potential for disturbance and harassment of foraging or nesting harlequin ducks would be greater. • A greater potential for degradation of aquatic habitats. • The risk of direct mortality of northern bog lemmings from vehicle strikes would be greater. • The potential for human disturbance of wolves (and prey species) and wolf mortality by hunters, trappers, poachers, those seeking to maliciously kill gray wolf, and in defense of human property would be highest under Alternative 4. • The potential for direct mortality for fishers from trappers would be higher. Additionally, human noise has the potential to disturb denning or resting fishers in the vicinity of the road under Alternative 4 more than the other alternatives.
Migratory Birds	Short-Term Road Repair and Motorized Closure Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Short-Term Road Repair and Motorized Closure Actions There would be the potential for direct and indirect detrimental and beneficial impacts to migratory birds under the Proposed Action. • Less than 1% of the available habitat within either the project-scale or landscape-scale wildlife analysis area for migratory birds analyzed would be directly impacted under the Proposed Action. See also Tables 3.3.10 and 3.3.11. Under the Proposed Action, 22.4 acres would be permanently disturbed. • The percentage of motorized road closure mileage within the migratory bird analysis areas would be: o project scale: 51% o landscape scale: 11% • Reproductive success, diversity, and density of birds would be expected to increase in areas of motorized road closure, an indirect beneficial impact.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: • Under Alternative 3, 22.3 acres would be permanently disturbed. • The percentage of motorized road closure mileage within the migratory bird analysis areas would be: o project scale: 50% o landscape scale: 10%	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WILDLIFE, CONTINUED				
Migratory Birds (Continued)	Long-Term Maintenance and Use Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Long-Term Maintenance and Use Actions Effects would be similar to those stated above for Effects Common to All Wildlife Species in the Analysis Areas, as well as: • When humans use Bog Creek Road and Blue Joe Creek Road, detrimental indirect impacts on migratory bird species would include energetic costs, behavioral changes (feeding, breeding, sheltering), loss of fitness (survival, growth, reproduction rates), site avoidance, and others. • The risk of direct mortality from vehicle strikes would exist.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be similar to those described under the Proposed Action, but the potential for those detrimental effects would be greater under Alternative 4 with unlimited motorized public access.
Northern Goshawk Nests	Short-Term Road Repair and Motorized Closure Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Short-Term Road Repair and Motorized Closure Actions There would be the potential for direct and indirect detrimental and beneficial impacts to nesting goshawks under the Proposed Action. • Direct removal of nests would not occur (see Appendix B). • If repair of Bog Creek Road occurs prior to August 15, it would begin on the west end of the road to avoid mechanical operations in the vicinity of the known active nests located on the east end of the road (see Appendix B). • Over the long term, there would be reduced human disturbance impacts to nesting individuals using the goshawk nest located near the roads proposed for motorized closure.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.
	Long-Term Maintenance and Use Actions No effects beyond existing conditions other than those stated above for all wildlife species within the analysis areas.	Long-Term Maintenance and Use Actions Effects would be similar to those stated above for Short-Term Road Repair and Motorized Closure, as well as the following: • The increase in administrative motorized use has the potential to negatively impact the two nests adjacent to Bog Creek Road if disturbance occurs during nesting or breeding seasons when goshawk are more sensitive to disturbance, though these disturbances would be occasional.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions Unlimited motorized use of Bog Creek Road and west–east access roads has the potential to negatively impact the four goshawk nests in the analysis area, if motorized use occurs during nesting or breeding seasons when goshawk are more sensitive to disturbance, though these disturbances would be occasional.
FISH				
Fish Habitat	Short-Term Road Repair and Motorized Closure Actions There would be the potential for direct and indirect detrimental and beneficial impacts to fish habitat under the No-Action Alternative. Sediment Delivery • Culvert failure or blowout could catastrophically release sediment downstream (Furniss et al. 1998). This impact would be short term until the stream channel stabilized and the banks revegetated, but could affect up to 6.6 miles of fish-bearing streams in Lime Creek and its tributaries, Malcom Creek, Bog Creek, and Grass Creek and its tributaries. The period of time and distance downstream over which sediment from such a release would be measurable, however, is difficult to estimate. Sedimentation can reduce habitat complexity and pool depth, spawning success, and insect larvae preyed upon by fish. Activities in the RHCAs • Vegetation would not be removed from RHCAs, so benefits provided by RHCAs would not change.	Short-Term Road Repair and Motorized Closure Actions There would be the potential for direct and indirect detrimental and beneficial impacts to fish habitat under the Proposed Action. Sediment Delivery • Under the Proposed Action, 11 road crossings on fish-bearing streams would be removed or replaced, and one new culvert would be installed on an unnamed tributary to Bog Creek, 500 feet upstream of its confluence with fish-bearing Bog Creek. • The long-term potential for culvert failure or blowout at the removed or replaced crossings would be low because the culverts would be hydraulically designed in accordance with Forest Service standards. This would be a long-term, beneficial impact to fish habitat. • Downstream sedimentation from in-stream work (culvert removal and replacement) could affect up to 4.7 miles of fish-bearing streams (4.9% of the available fish-bearing streams in the analysis area). Sedimentation from this culvert replacement could be measurable from 800 to 3,000 feet downstream of in-stream work (Foltz et al. 2008; Forest Service 2013c). This temporary detrimental effect would be temporary, with 95% of sediment released within 24 hours of completing the culvert replacement (Foltz et al. 2008).	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: Sediment Delivery • Twelve road-stream crossings are located on fish-bearing streams, instead of 11. • Up to 5.6 miles of fish-bearing streams (5.8% of the available fish-bearing streams in the analysis area) could be impacted, 0.9% more than under the Proposed Action. Activities in the RHCAs • Vegetation removal would occur in up to 9.6 acres of RHCAs, 0.6 more acres than under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
FISH, CONTINUED				
Fish Habitat (Continued)		<u>Short-Term Road Repair and Motorized Closure Actions (Continued)</u> Activities in the RHCAs • Vegetation removal would occur in up to 9.0 acres of RHCAs. These areas would revegetate within 5 to 10 years, leading to improved shading and reduced sedimentation, but large, woody debris at the road–stream crossing locations is unlikely to return. This vegetation removal from the RHCAs represents a detrimental impact, with less than 1% of the total RHCAs in the analysis area.		
	<u>Long-Term Maintenance and Use Actions</u> The effects would be the same as those discussed for Short-Term Road Repair and Motorized Closure Actions under the No-Action Alternative, with this addition: Activities in the RHCAs • A long-term beneficial impact to RHCAs from IPNF Weed Management implementation would be the reduced density and distribution of weeds in the RHCAs.	<u>Long-Term Maintenance and Use Actions</u> There would be the potential for direct and indirect detrimental impacts to fish habitat under the Proposed Action. Sediment Delivery • Culvert cleaning and grading, could occasionally contribute measurable sediment up to 3,000 feet downstream in 2.3 miles of five fish-bearing streams (see Table 3.4.8). Activities in the RHCAs • A long-term beneficial impact to RHCAs from IPNF Weed Management implementation would be the reduced density and distribution of weeds in the RHCAs.	<u>Long-Term Maintenance and Use Actions</u> The effects would be the same as those described under the Proposed Action.	<u>Long-Term Maintenance and Use Actions</u> The detrimental effects would be the same as those described under the Proposed Action, with these exceptions: • Increased motorized use could result in a greater potential for degradation of fish habitat than under the other alternatives. This could occur as a result of increased sedimentation of waterways from a greater number of vehicles traversing the roadway, or introduction of pollutants into fish habitat from roadway runoff. The incorporation of design features (see Appendix B) would reduce these potential impacts, though the reduction would be less than under the other alternatives. • Culvert cleaning and grading, could occasionally contribute measurable sediment up to 3,000 feet downstream in 4.9 miles of five fish-bearing streams (see Table 3.4.8). • Long-term maintenance actions along the open west to east access roads could affect 10 fish-bearing streams in the analysis area (twice as many as the Proposed Action and Alternative 3; see Table 3.4.8).
Fish Species	<u>Short-Term Road Repair and Motorized Closure Actions</u> The sensitive westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) and interior redband trout (*Oncorhynchus mykiss gairdneri*), and non-native eastern brook trout (*Salvelinus fontinalis*) could be affected by 1) the potential temporary sedimentation of fish habitat from culvert failure and blowout; and 2) the potential for culvert blockage (without removal or replacement) to inhibit up- and downstream population connectivity. The potential sedimentation could reduce spawning success and prey availability for a season, but is unlikely to affect long-term population persistence. However, culvert blockage has been shown to isolate upstream populations and inhibit genetic inflow (Wofford et al. 2005).	<u>Short-Term Road Repair and Motorized Closure Actions</u> There would be the potential for direct and indirect detrimental and beneficial impacts to fish species under the Proposed Action. • Under the Proposed Action, a dewatering and diversion plan would be developed prior to the removal or replacement of the 11 road-stream crossings (see Appendix B). This plan would include isolation of the in-stream work area. The potential exists for individual injury or mortality during the in-stream work. See Table 3.4.6 for the species per stream potentially affected by the Proposed Action. • The in-stream work could result in temporary sediment pulses measurable up to 3,000 feet downstream, affecting fish present within these areas for up to 24 hours following the completion of in-stream work. Individuals could move to available downstream habitats during this time period. The duration of in-stream work would be short (estimated at several days per crossing), and on fish-bearing streams would not occur during spawning periods, approximately March through July (see Appendix B) (Lee et al. 1997; NatureServe 2016). • Over the long term, the improved up- and downstream passage (from removed or replaced crossings) on these fish-bearing streams would benefit fish populations, providing improved passage to the available upstream habitat shown in Figure 3.4.1.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action, with these exceptions: • Twelve road-stream crossings are located on fish-bearing streams, instead of 11. During the work activities, this would be one more site where in-stream work could lead to 1) individual injury or mortality, and 2) downstream sedimentation. See Table 3.4.7 for the species per stream potentially affected by Alternative 3. • Up- and downstream passage would be improved at one more site (via culvert removal) under Alternative 3.	<u>Short-Term Road Repair and Motorized Closure Actions</u> The effects would be the same as those described under the Proposed Action.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
FISH, CONTINUED				
Fish Species (Continued)	Long-Term Maintenance and Use Actions Without long-term maintenance, the road–stream crossings along Bog Creek Road and roads proposed for motorized closure would likely become blocked and inhibit up- and downstream passage until culvert failure or blowout occurred. If fish are present in Malcom Creek and Bog Creek in the vicinity of Bog Creek Road, then their populations would not have improved long term up- and downstream passage under the No-Action Alternative because no culvert improvements would occur.	Long-Term Maintenance and Use Actions If fish are present in Malcom Creek, Bog Creek, Blue Joe Creek or its tributaries (see Table 3.4.8) in the vicinity of the bridge and culverts, which would be regularly inspected and maintained, then their populations would have improved long term up- and downstream passage under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions Similar to the Proposed Action, if fish are present in the vicinity of the bridge and nine culverts, which would be regularly inspected and maintained, then their populations would have improved long-term up- and downstream passage under Alternative 4.
SPECIAL STATUS PLANTS				
	Short-Term Road Repair and Motorized Closure Actions Under the No-Action Alternative, current conditions would remain, and minimal to no impacts to special status plants would occur. Until the Forest Service takes additional actions to meet the Access Amendment, there would continue to be potential direct detrimental impacts to some special status plants from the occasional, seasonally restricted administrative use of roads proposed for motorized closure. However, because many of these roads are currently brushed in, or are used only minimally with little to no maintenance or use, the impacts to special status plants from roads are likely minimal or negligible. The No-Action Alternative is not likely to result in effects on special status plants located off of the road prisms; therefore, the No-Action Alternative would likely result in no impacts to yellow sedge or poor sedge populations, which are located in peatland habitats adjacent to, but off of, the road prisms.	Short-Term Road Repair and Motorized Closure Actions The actions would directly and indirectly detrimentally impact special status plant species by removing vegetation and suitable habitat in the road prisms. However, those impacts would be unlikely to result in a trend toward Federal listing or a loss in population viability for the special status plant species in the analysis area. • Direct detrimental impacts on the suitable habitat for special status plants could occur as a result of soil disturbance or changes to forest canopy cover. • Indirect detrimental impacts from these activities could also potentially include a reduction in habitat function and reduced suitability from potential future environmental changes. • The actions could result in short-term direct detrimental impacts to special status plant individuals/populations or associated rare plant habitat guilds located on or adjacent to the roads. Such impacts could affect species known to occur in those areas, such as triangle moonwort and yellow sedge, as well as those potentially occurring in the immediate vicinity of the roads, such as poor sedge. • No impacts to whitebark pine are anticipated. • The actions could cause long-term indirect detrimental impacts to special status plant species and their associated rare plant habitat guilds including a reduction in habitat function and reduced suitability from potential environmental changes. However, project design features to protect special status plants and peatlands (see Appendix B) should reduce those potential impacts.	Short-Term Road Repair and Motorized Closure Actions The types of direct and indirect detrimental impacts to special status plant individuals or populations under Alternative 3 would be the same as under the Proposed Action, although Alternative 3 would impact slightly more area classified as suitable habitat for special status plants.	Short-Term Road Repair and Motorized Closure Actions The impacts under Alternative 4 would be the same as under the Proposed Action.
	Long-Term Maintenance and Use Actions No direct effects on special status plants occurring along the unrepaired Bog Creek Road prism would occur as a result of vehicle crushing or vegetation maintenance because no long-term maintenance or use would occur. The No-Action Alternative has the potential to result in indirect detrimental effects on special status plants located on and off of Bog Creek Road, including triangle moonwort, yellow sedge, or poor sedge populations, because the continued presence of the road (even in an unmaintained, unused status) could still influence the nearby, natural hydrologic systems, including adjacent fen peatlands, which provide habitat for special status plants.	Long-Term Maintenance and Use Actions The actions could result in long-term, direct detrimental impacts to any special status plants that reestablish in Bog Creek Road and Blue Joe Creek Road. • Direct detrimental impacts to special status plants on the road prism could occur from maintenance activities or from vehicle use. • Long-term, indirect detrimental impacts to special status plant species and the associated rare plant habitat (both on the road prism and in habitats nearby and adjacent to the road prism) could include a reduction in habitat function and reduced suitability from potential environmental changes. • Impacts would be likely to result in fewer and less severe indirect detrimental impacts to special status plants than the initial road repair activities would cause. Implementing project design features to protect special status plants and peatlands (see Appendix B) should reduce those potential impacts.	Long-Term Maintenance and Use Actions The types of direct and indirect detrimental impacts to special status plant individuals or populations under Alternative 3 would be the same as under the Proposed Action.	Long-Term Maintenance and Use Actions Detrimental impacts under Alternative 4 would be similar to those under the Proposed Action, with these exceptions: • There would be no limitation to the amount of vehicle traffic on Bog Creek Road, FSR 1011, FSR 636, and FSR 1009; therefore, the potential for direct impacts to special status plants on and adjacent to the road prism is higher under Alternative 4 than under any other alternative. • The potential for detrimental indirect impacts is higher under Alternative 4 than under any other alternative. • The potential for long-term, localized sediment delivery resulting from increased vehicle traffic could indirectly affect habitat for peatland-dependent sensitive plants, including documented occurrences of yellow sedge, as well as other undiscovered sensitive plants such as poor sedge.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WATER RESOURCES				
	Short-Term Road Repair and Motorized Closure Actions The No-Action Alternative would result in short-term detrimental direct and indirect impacts to water quality and water quantity. Water Quality • Because there would be no grading or vegetation removal within the RHCAs, there would be no potential for additional sediment contribution from these activities. • Erosion would continue along portions of Bog Creek Road and the roads proposed for motorized closure, and water quality along streams and in wetlands could potentially be compromised with the continual addition of sediment. • Without removal or replacement, the culverts could potentially fail or blow out along Bog Creek Road and the roads proposed for motorized closure, releasing sediment and potentially promoting further erosion. This detrimental impact would be short term until the stream channel stabilized and the banks revegetated. • No changes in management to impaired waters would occur, and there would be no change in beneficial uses to those waters. Water Quantity • If culverts remain blocked, local drainage patterns could be affected, and water could be impounded upstream. • The roads that would be closed are compacted gravel surfaces that generally do not allow infiltration of stormwater. Reduced infiltration of stormwater on these roads would continue; however, impacts to water quantity may not be measurable. Wetlands and other Waters of the U.S. • No effects beyond existing conditions.	Short-Term Road Repair and Motorized Closure Actions The actions would result in short-term detrimental direct and indirect impacts to water quality, water quantity, and wetlands and other waters of the U.S. Additionally, beneficial impacts to water quantity would result from maintenance of stream crossings. Water Quality • Of the 288 culverts along Bog Creek Road and the motorized closure roads, six would be replaced and six new culverts would be installed on Bog Creek Road, and 221 would be removed from the motorized closure roads. Potential sediment release would likely reach temporarily downstream aquatic habitats, but design features would be applied to reduce the potential for sediment to reach downstream aquatic habitats. • Road crossings at 11 fish-bearing streams would be removed or replaced, and one new culvert would be installed upstream of Bog Creek, which is fish bearing. Seventeen impaired waters would be detrimentally affected by in-stream work, for a total of 580 feet of stream crossings at impaired waters temporarily affected. • Vegetation removal would occur in up to 9.0 acres of RHCAs; this would be a short-term detrimental impact. These areas would revegetate within 5 to 10 years. Water Quantity • No water would be impounded; stream crossings would be designed to maintain natural flow patterns through new or removed culverts which would maintain hydrologic connection by not blocking water flow. • Potential detrimental impacts during motorized road closure to the 33 springs and 21 seeps would be temporary. Depending on the site, the hydrologic regime of springs and seeps would either be maintained to promote their stability, or be rehabilitated to a state more closely resembling the spring or seeps condition prior to construction of the original road system. • Road closure measures would increase stormwater infiltration and would offset temporary soil compaction impacts that would occur with the use of heavy equipment during road closure activities. Wetlands and other Waters of the U.S. • A total of 0.23 acre of wetlands or other waters of the U.S. would temporarily be detrimentally affected by the in-stream work.	Short-Term Road Repair and Motorized Closure Actions The effects would be the same as those described under the Proposed Action, with these exceptions: Water Quality • Of the 333 culverts along Bog Creek Road and the motorized closure roads, six would be replaced and six new culverts would be installed on Bog Creek Road, and 266 would be removed from the motorized closure roads. This is 55 more than under the Proposed Action, a greater beneficial long-term impact, but also a greater temporary detrimental impact from sedimentation due to in-stream work. • Twelve of these crossings are located on fish-bearing streams; one more than under the Proposed Action. • Up to 9.6 acres of RHCAs could be detrimentally affected in the short term; 0.6 more acres than under the Proposed Action. • A total of 20 impaired waters would be detrimentally affected by in-stream work, for a total of 618 feet of stream crossings at impaired waters temporarily affected. Water Quantity • Motorized road closure construction activities could temporarily detrimentally affect 25 springs and 45 seeps. This is eight fewer springs and 24 more seeps than under the Proposed Action. Wetlands and other Waters of the U.S. • A total of 0.24 acre of wetlands or other waters of the U.S. would be affected by the in-stream work.	Short-Term Road Repair and Motorized Closure Actions Impacts under Alternative 4 would be the same as discussed for the Proposed Action.
	Long-Term Maintenance and Use Actions The No-Action Alternative would result in both detrimental and beneficial impacts to water quality. Water Quality • The potential for erosion from road runoff contributing to water quality would continue. There would be no long-term change to sedimentation, the potential for temporary sediment pulses from culvert blowout or failure would exist. The continued vegetation growth would contribute shade near streams and beneficially aid in controlling water temperature. • Continued vegetation growth would contribute shade near streams and aid in controlling water temperature. Water Quantity • No effects beyond existing conditions. • Wetlands and other Waters of the U.S. • No effects beyond existing conditions.	Long-Term Maintenance and Use Actions The actions would result in long-term beneficial impacts to water quality and water quantity. Additionally, some occasional detrimental impacts to water quality would result from maintenance actions. Water Quality • Revegetation efforts would eventually eliminate erosion from surface disturbance, providing protection against sedimentation into streams. The revegetation would also eventually increase shading over streams, positively reducing stream temperature in the impaired waters. • Grading and general road maintenance could result in some occasional detrimental contribution of sediment at road crossings along Bog Creek Road.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions Impacts would be the same as those described under the Proposed Action, with the exception of these detrimental impacts that would result from increased motorized use along the west to east access roads: Water Quality • The potential for increased sedimentation from the roadway, compared with the Proposed Action. However, because the increase in motorized use would be very small relative to the overall watershed, the potential for roadway runoff and associated pollutants to enter wetlands and waters of the U.S. is small.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
WATER RESOURCES, CONTINUED				
		Long-Term Maintenance and Use Actions (Continued) Water Quality (Continued) • Administrative open designation along Blue Joe Creek Road would not require additional road maintenance or ground disturbance activities; impacts from increased motorized use would be very small relative to the overall watershed. Water Quantity • Following revegetation, there would be no long-term maintenance and use impacts because the Proposed Action would leave the watershed hydrologically stable. Culverts along Bog Creek Road would be regularly cleaned, thus maintaining hydrologic connectivity by allowing for passage of surface water downstream. • No impacts to groundwater resources would be expected. Wetlands and other Waters of the U.S. • No direct long-term impacts are anticipated.		
SOILS				
	Short-Term Road Repair and Motorized Closure Actions No additional detrimental impacts to soils would occur as a result of the No-Action Alternative beyond those which are already occurring at Bog Creek Road and the roads proposed for motorized road closure under the action alternatives. Soil erosion from damaged perennial and intermittent stream crossings along Bog Creek Road would continue, and as disclosed in Water Resources (Section 3.6), erosion would continue along portions of Bog Creek Road.	Short-Term Road Repair and Motorized Closure Actions There is the potential for short-term detrimental, and long-term beneficial, impacts to soils in the analysis area. Bog Creek Road Repair • A total of 0.5 acre of areas with high mass failure potential would be disturbed. • A total of 6.5 acres of areas with high subsurface erosion potential would be disturbed. Motorized Road Closure Actions • A total of 2.4 acres of areas with high mass failure potential would be disturbed. • A total of 2.6 acres of areas with high subsurface erosion potential would be disturbed. • By implementing design features that minimize site erosion (see Appendix B), Bog Creek Road repair and motorized closure activities would not be expected to substantially increase erosion, sediment delivery, or mass failure risk within the analysis area. • Motorized road closure activities that disturb soils would have short-term detrimental impacts to soils, but in the long term would have beneficial impacts to soils by minimizing the risk of erosion and downstream sedimentation.	Short-Term Road Repair and Motorized Closure Actions Beneficial and detrimental impacts under Alternative 3 would be the same as described for the Proposed Action, with these exceptions: Motorized Road Closure Actions: • A total of 2.7 acres of areas with high mass failure potential would be disturbed, 0.3 acre more than under the Proposed Action. • A total of 8.1 acres of areas with high subsurface erosion potential would be disturbed; 5.5 acres more than under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions Impacts under Alternative 4 would be the same as described for the Proposed Action.
	Long-Term Maintenance and Use Actions The continued maintenance and use of Forest Service roads would have detrimental long-term impacts to soils as related to erosion within the roadway prism.	Long-Term Maintenance and Use Actions Operational use of Bog Creek Road and Blue Joe Creek Road would be confined to the road prism and would not constitute an impact to soil resources. Long-term maintenance of Bog Creek Road and Blue Joe Creek Road would have long-term detrimental and beneficial impacts to soils within the Bog Creek Road prism: • Culvert cleaning would benefit soils by reducing erosion at stream crossings. • Routine road grading for maintenance has potential to impact soils. Implementation of design features would reduce impacts to not substantially increase erosion, sediment delivery, or mass failure risk.	Long-Term Maintenance and Use Actions Impacts under Alternative 3 would be the same as described for the Proposed Action.	Long-Term Maintenance and Use Actions Impacts under Alternative 4 would be the same as described for the Proposed Action. Long-term administrative and recreational motorized use of roads under Alternative 4 would be confined to the west to east access road prisms and would not constitute an impact to soil resources.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
RECREATION AND ACCESS				
	Short-Term Road Repair and Motorized Closure Actions Under the No-Action Alternative, there would be no change to the management of the existing route system. Thus, access to designated recreation sites, seasonal restrictions, and overall mileage of routes available to public motorized use would not change. Approximately 34 miles of routes would continue to be classified as "open," and approximately 97 miles of routes would continue to be seasonally restricted for public motorized use. Private Land Access • Special use authorization required for approximately 20.55 miles of Forest Service roads, conditioned to meet limitations (i.e., negotiated administrative motorized trip numbers, seasonal restrictions, etc.).	Short-Term Road Repair and Motorized Closure Actions Change in Total Miles of Existing Route System Available for Recreation Use: • Under the Proposed Action, 5.6 miles of Bog Creek Road and 7.4 miles of Blue Joe Creek Road would be designated administrative open (as-needed administrative motorized access) and closed to all public motorized travel. • A total of 26.5 miles of seasonally restricted Forest Service roads would be closed to all motorized and non-motorized recreational use. Miles of Routes Closed to Motorized Recreation Use Per Recreation Opportunity Spectrum (ROS) Classification: • A total of 7.4 miles of roads would be closed in roaded modified non-motorized ROS classification. • 20.1 miles of roads would be closed in semi-primitive non-motorized ROS classification. • There would be detrimental impacts to dispersed and non-motorized recreation opportunities resulting from some motorized closure activities that include on-the-ground site construction work. • Under the Proposed Action, public motorized use of 5.6 miles of Bog Creek Road and 7.4 miles of Blue Joe Creek Road would be restricted year-round. This represents no change from the No-Action Alternative; therefore, there would be no impact to motorized use of these roads. Changes in Access to Designated Recreation Sites and Trails: • Access to the Continental Creek Trail at Bog Creek Road may be temporarily detrimentally impacted during road repair activities by the west side equipment staging area, but the trailhead would remain open. • Access to the Continental Mountain Trail would remain difficult and the closure of FSR 1013D would affect a small subset of recreation users accessing the trail via this road. • A total of 5.3 miles of designated snowmobile route would be detrimentally impacted by the closure of FSR 1388. Changes to the Recreation Setting and Opportunities: • During road repair, short-term and localized detrimental impacts to recreation use of Bog Creek Road would occur as the repair work would progress linearly along the route. • After Bog Creek Road repair is complete, there would be a beneficial impact to non-motorized recreation because the repaired road would better facilitate non-motorized recreation activities. • Construction activities associated with motorized road closure would temporarily diminish the recreation setting and opportunities in the vicinity of the roads. • The closure of 26.5 miles of seasonally restricted roads would have both beneficial and detrimental impacts to recreation users in the Blue-Grass BMU, depending on the recreation use. Private Land Access • Special use authorization required for approximately 10.9 miles of Forest Service roads. The holder would not be required to negotiate the number of administrative motorized trips.	Short-Term Road Repair and Motorized Closure Actions Impacts under Alternative 3 would be the same as described under the Proposed Action, with the following exceptions: Change in Total Miles of Existing Route System Available for Recreation Use: • A total of 24.7 miles of seasonally restricted Forest Service roads would be closed to all motorized and non-motorized recreational use. Miles of Routes Closed to Motorized Recreation Use Per ROS Classification: • A total of 12.8 miles of roads would be closed in roaded modified non-motorized ROS classification. • A total of 11.9 miles of roads would be closed in semi-primitive non-motorized ROS classification. Changes in Access to Designated Recreation Sites and Trails: • Under Alternative 3, no impacts to designated snowmobile routes would occur (FSR 1388 would remain open as a designated snowmobile route). Changes to the Recreation Setting and Opportunities: • Impacts to recreation setting and opportunities under Alternative 3 would be the same as described under the Proposed Action, with the exception that 0.8 fewer miles of seasonally restricted Forest Service roads would be closed to motorized use. Private Land Access • The effects would be the same as those described under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions Impacts under Alternative 4 would be the same as described under the Proposed Action, with the following exceptions: Change in Total Miles of Existing Route System Available for Recreation Use: • A total of 5.6 miles of Bog Creek Road and 17.4 miles of the west–east access roads (portions of FSRs 2546, 1011, 636, and 1009) would change from seasonally restricted to open to motorized and non-motorized use year-round • A total of 1.0 mile of Blue Joe Creek Road would change designation from seasonally restricted to open to public motorized use and 7.4 miles would change to administrative open. Miles of Routes Closed to Motorized Recreation Use Per ROS Classification: • Under Alternative 4, the miles of route closed to recreational use under each ROS classification is the same as presented under the Proposed Action. Changes in Access to Designated Recreation Sites and Trails: • Under Alternative 4, changes in access to designated recreation sites and trails would be the same as presented under the Proposed Action. Changes to the Recreation Setting and Opportunities: • Designating 5.6 miles of Bog Creek Road and 17.4 miles of the west-east access approach access roads (portions of FSRs 2546, 1011, 636, and 1009) as open to public motorized use would greatly improve public motorized access to the interior of the Blue-Grass BMU. • Opening the 5.6-mile segment of Bog Creek Road to year-round motorized use would make access to the Continental Creek Trail at Bog Creek Road more convenient to a wider range of users. • Opening 17.4 miles of portions of FSRs 2546, 1011, 636, and 1009 to public motorized use would create new opportunities for motorized use, such as crossing the entire BMU from the east or west; or combining the 17.4 miles of routes into a loop route/routes with other existing, open-to-public-motorized-use routes. • Year-round motorized use of Bog Creek Road and 17.4 miles of portions of FSRs 2546, 1011, 636, and 1009 would have a detrimental impact on non-motorized recreational use for visitors who value non-motorized experiences, such as biking, horseback riding, and hiking. • Alternative 4 would conflict with the current ROS setting for semi-primitive non-motorized areas, which encompasses the 5.6-mile section of Bog Creek Road as well as portions of FSRs 2546, 1011, 636, and 1009. • The impacts to public motorized use and non-motorized use of Blue Joe Creek Road under Alternative 4 are the same as described under the Proposed Action and Alternative 3. Private Land Access • Special use authorization required for approximately 5.5 miles of Forest Service roads. The holder would not be required to negotiate the number of administrative motorized trips.

Table 2.4.2. Summary Comparison of Alternatives (Continued)

Resource	Alternative 1 – No-Action Alternative	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
RECREATION AND ACCESS, CONTINUED				
	Long-Term Maintenance and Use Actions Long-term maintenance and use of the existing road network and all existing recreational activities would continue to occur.	Long-Term Maintenance and Use Actions • Long-term recreational use of Bog Creek Road and Blue Joe Creek Road would be the same as described above under Road Repair and Motorized Closure Actions. • Maintenance activities on Bog Creek Road and Blue Joe Creek Road would have temporary, detrimental impacts to non-motorized recreation users; however, due to the anticipated infrequency of the maintenance activities, detrimental impacts to non-motorized recreation users would be minimal. • Long-term maintenance of Bog Creek Road would have a beneficial impact by maintaining the road condition for non-motorized recreation use. • No impacts from operation and maintenance activities would occur on motorized closed roads under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action.	Long-Term Maintenance and Use Actions The effects would be the same as those described under the Proposed Action. More roads in the BMU would be open to the public for motorized travel under Alternative 4. However, additional road maintenance beyond the current Maintenance Level 2 would not occur; therefore, additional impacts from long term maintenance are not anticipated.
HERITAGE RESOURCES				
	Short-Term Road Repair and Motorized Closure Actions No impacts to heritage resources would occur under the No-Action Alternative.	Short-Term Road Repair and Motorized Closure Actions No adverse effects on heritage resources would occur under the Proposed Action.	Short-Term Road Repair and Motorized Closure Actions No adverse effects on heritage resources would occur under Alternative 3.	Effects from Short-Term Road Repair and Motorized Closure Actions No adverse effects on heritage resources would occur under Alternative 4.
	Long-Term Maintenance and Use Actions No impacts to heritage resources would occur under the No-Action Alternative.	Long-Term Maintenance and Use Actions No direct or indirect impacts to heritage resources would occur under the Proposed Action.	Long-Term Maintenance and Use Actions No direct or indirect impacts to heritage resources would occur under Alternative 3.	Long-Term Maintenance and Use Actions No direct or indirect impacts to heritage resources would occur under Alternative 4.

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

CEQ regulations direct agencies to succinctly describe the environment that may be affected by the alternatives under consideration and provide a "full and fair discussion of significant environmental impacts" (40 CFR 1502.1). Chapter 3 describes existing physical, biological, and social resources (i.e., the affected environment) and the potential effects on those resources from implementation of each of the alternatives (i.e., the environmental consequences).

CBP developed an Ecological Conceptual Site Model (ECSM) (Appendix C) for the Bog Creek Road Project, as required by the NB PEIS (July 2012). The ECSM functions as a preliminary analysis of ecological and other environmental considerations for the DEIS and was used to inform the resources impact analysis sections in this DEIS, as relevant. It is presented in Appendix C in its original form. The ECSM contains errors and inaccuracies that have been corrected in the DEIS.

Chapter 3 is organized into sections of the issues requiring analysis (see Section 1.8 in Chapter 1 for additional details on issues development). For each resource section, a description of the affected environment is followed by analysis of the potential impacts that would be caused by implementation of each alternative. The Spatial and Temporal Scales of Analysis sections in each resource section provide context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. Analysis focuses on potential impacts from project actions taken during the short-term road repair and motorized road closure phase and during the subsequent long-term maintenance and use of Bog Creek Road (and other roads in the Blue-Grass BMU) and maintenance of areas closed to motorized use. To help the reader understand the type, timing, and duration of potential impacts, the project components described in Section 2.2.2 in Chapter 2 are grouped into "short-term road repair and motorized closure actions" and "long-term maintenance and use actions" as described below. Not all resources would be affected by every action. Each resource section identifies which actions could result in potential impacts for that resource. Unless otherwise stated in the resource analysis, temporary effects would be those that only occur during road repair and motorized closure activities. Depending on site conditions, short-term effects last up to 5 to 10 years following this period. Effects that take place over a period of time longer than 5 to 10 years, while Bog Creek Road and other roads in the Blue-Grass BMU are in maintenance and use, would be considered long-term effects.

Each resource section analyzes both beneficial and detrimental impacts that would result from implementing any of the alternatives considered in this DEIS. Impacts are classified as either direct and indirect or cumulative as defined by CEQ in 40 CFR 1508:

> Sec. 1508.8 Effects. "Effects" include: (a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and

other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Sec. 1508.7 Cumulative impact. "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.1.1 Project Actions List

3.1.1.1 Short-Term Road Repair and Motorized Closure Actions

Short-term road repair and maintenance[1] actions would return Bog Creek Road to a drivable condition that meets Forest Service maintenance level 2 standards. Specific actions associated with road repair activities are listed in Table 3.1.1. This does not include long-term maintenance and use actions associated with Bog Creek Road (see Section 3.1.1.2 below).

Motorized road closure would vary by site and could be accomplished through full road decommissioning, long-term storage, or administrative closure (see Section 2.2.2.2 for details). For the purposes of this EIS analysis, it is assumed that motorized road closure would be accomplished through full road decommissioning to ensure full disclosure of potential impacts. Specific short-term motorized road closure actions are listed in Table 3.1.1.

Table 3.1.1. Short-Term Road Repair and Motorized Closure Actions for Each Project Component

Project Component	Actions
Bog Creek Road repair and maintenance	• Road grading • Resurfacing areas of the road • Filling of potholes • Removal of protruding boulders • Replacement of 6 of the existing 67 corrugated metal pipe culverts • Installation of 6 new culverts • Grubbing or trimming of trees or other vegetation • Cut and fill construction where road no longer meets width requirements • Rebuilding of Spread Creek stream crossing area • Gathering and transport of fill materials • Use of dozer, grader, hydraulic excavator, and dump truck; in addition, several pickup trucks or SUVs would transport construction personnel to and from the area

[1] The Forest Service refers to these improvements as "reconstruction" in its access and travel management guidance.

Table 3.1.1. Short-Term Road Repair and Motorized Closure Actions for Each Project Component (Continued)

Project Component	Actions
Bog Creek Road repair and maintenance (Continued)	• Construction would occur between July 16 and November 15 and could last up to three seasons • Activities would occur during daylight hours only, i.e., no dark-hour construction work would occur, and no lighting would be used
Motorized road closure	• Installation of water bars along the full length of affected segments • Removal of drainage structures (culverts) • Full road bed recontouring of specific sections • Full or partial recontouring of the road prism, ripping of the road surface, removal of culverts and recontouring of stream crossings, planting and seeding, mulching, or slashing of disturbed areas • Use of dozer, grader, hydraulic excavator, and dump truck; in addition, several pickup trucks or SUVs would transport construction personnel to and from the area • Construction would occur between June 16 and November 15 and could last up to three seasons • Activities would occur during daylight hours only, i.e., no dark-hour construction work would occur, and no lighting would be used

3.1.1.2 Long-Term Maintenance and Use Actions

Upon completion of the Bog Creek Road repair, the road would be open for as-needed motorized administrative use or unlimited motorized access (depending on the action alternative) and would be maintained through the typical road maintenance activities listed in Table 3.1.2. Specific long-term motorized road closure actions are listed in Table 3.1.2.

Table 3.1.2. Long-Term Maintenance and Use Actions for Each Project Component

Project Component	Actions
Long-term maintenance and use of Bog Creek Road and other roads in the Blue-Grass BMU	• Under Alternatives 2 and 3, locking gates that are designed to minimize potential destruction, dismantling, or breaching would be installed at either end of the 5.6-mile Bog Creek Road, and the road would be signed PUBLIC MOTORIZED ENTRY PROHIBITED – THIS ROAD IS UNDER SURVEILLANCE – VIOLATORS WILL BE PROSECUTED by the Forest Service. • Under Alternatives 2 and 3, Bog Creek Road and Blue Joe Creek Road would be designated *administrative open* and be available for as-needed administrative motorized use. • Under Alternative 4, Bog Creek Road and portions of FSRs 2546, 1011, 636, and 1009 would be open to unlimited public motorized access year-round (outside the snowmobile closure season). There would be a gate added to FSR 2546, so that only open administrative access could occur on the 7.4 miles of FSR 2546 south of its intersection with FSR 1011. • Anticipated long-term motorized road use by alternative is presented in Table 3.1.3. • Grubbing or trimming of trees or other roadside vegetation • Culvert cleaning • Routine grading
Long-term maintenance of motorized road closure areas	• Weed management activities, as prescribed in existing plans (Forest Service 1995c, 1997) • Monitoring and maintenance (if necessary) of drainage features

Table 3.1.3. Long-Term Motorized Road Use by Alternative

Road Segment	Miles	Alternative 1 – No Action	Alternative 2 – Proposed Action	Alternative 3 – Modified Proposed Action	Alternative 4 – Blue-Grass BMU West–East Open Access
Bog Creek Road (FSR 1013)	5.6	Very Low	Moderate	Moderate	High
Blue Joe Creek Road (FSR 2546 – between its intersections with FSR 1013 and FSR 1011)	1.0	Low*	Moderate	Moderate	High
Blue Joe Creek Road (FSR 2546 – south from intersection with FSR 1011)	7.4	Low*	Moderate	Moderate	Moderate
Other West–East Access Roads (FSRs 1011, 636, and 1009)	16.4	Low*	Low	Low	High

Notes:

Very Low: Generally not available for motorized travel due to road condition; **Low**: Meets seasonal closure Access Amendment standards (fewer than 57 motorized trips per bear year); **Moderate**: Does not meet seasonal closure for Access Amendment standards (more than 57 motorized trips per bear year; administrative use only); **High**: Open to unlimited administrative and public motorized use.

* Forest Service Access Amendment monitoring reports to the USFWS indicate that Blue Joe Creek Road and the other west–east access roads have been exceeding the Access Amendment standards for open motorized route density for the past 5 years. These roads are classified as Low for the EIS analysis because the Forest Service long-term goal is to meet the Access Amendment standards.

3.1.2 Past, Ongoing, and Reasonably Foreseeable Future Activities

NEPA requires the analysis and disclosure of potential cumulative effects, which is the impact on the environment that results from the incremental impact of the action when added to other past, present (ongoing), and reasonably foreseeable actions, regardless of which agency or person undertakes such actions (40 CFR 1508.7). Cumulative effects analysis shall be carried out in accordance with 40 CFR 1508.7 and in accordance with the CEQ *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ 2005).

During project development, the ID team identified past activities that have occurred in the project area, activities that are ongoing at this time, and activities that are reasonably foreseeable to occur. Additional discussion of these activities is provided in Appendix D, Past, Ongoing, and Reasonably Foreseeable Future Activities.

The effects of past and ongoing activities are reflected in the description of existing conditions for each resource in Chapter 3, as appropriate. The effects of reasonably foreseeable activities are disclosed as part of the cumulative effects discussion for each resource in Chapter 3, as appropriate.

3.2 Threatened, Endangered, and Proposed Species

3.2.1 Introduction

Threatened, endangered, and proposed species must be analyzed to comply with a variety of laws, regulations, and memoranda of agreement (MOAs), including the ESA, the NFMA, and Forest Service Policy 2670 (Forest Service 2005). These regulations and guidance mandate that wildlife resources be managed and protected.

Key issues identified during public scoping that require analysis in the DEIS consist of concerns regarding potential impact to grizzly bear and habitat, general concerns about impacts to threatened and endangered species and how they are evaluated in the analysis process, and specific concerns regarding the potential for impacts to caribou (*Rangifer tarandus caribou*), lynx (*Lynx canadensis*), bull trout (*Salvelinus confluentus*), and wolverine (*Gulo gulo luscus*).

This analysis describes the existing condition of threatened, endangered, and proposed species (referred to collectively as T&E species) within the analysis area, as listed in Table 3.2.1 (see Section 3.2.3 for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on these resources are subsequently described and discussed. The Agencies have initiated consultation with the USFWS under Section 7(a)(2) of the ESA. The status of the consultation is summarized in Section 5.1.1. The results of the consultation will be discussed in the Final EIS (FEIS). Sensitive species are evaluated in Wildlife (Section 3.3), Fish (Section 3.4), and Special Status Plants (Section 3.5) in this EIS.

Table 3.2.1. Threatened, Endangered, and Proposed Species included in the Bog Creek Road Project EIS and the ESA Status of Each

Species	ESA Status
Grizzly bear (*Ursus arctos horribilis*)	Threatened
Woodland caribou (*Rangifer tarandus caribou*)	Endangered
Canada lynx (*Lynx canadensis*)	Threatened
North American wolverine (*Gulo gulo luscus*)	Proposed Threatened
Bull trout (*Salvelinus confluentus*)	Threatened

3.2.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on T&E species varies by species, and the analysis area for each species is detailed below. The temporal scale of effects considers the time frame beginning with repair and maintenance and motorized road closure, and ending when revegetation is complete, depending on the species and habitat.

3.2.2.1 Grizzly Bear

As directed by the Forest Plan, the grizzly bear (*Ursus arctos horribilis*) analysis area consists of the Blue-Grass BMU (Forest Service 2015a:110). BMUs were delineated in the original recovery plan to approximate the average home range size of an adult female in the Cabinet Mountains, which is about 62,000 acres (97 square miles) (Christensen and Madel 1982), and would be representative of bears in both the SRZ and Cabinet-Yaak Recovery Zone (CYRZ) (USFWS 1993a). This area is referred to as the grizzly bear analysis area and is shown in Figure 3.2.1. The Blue-Grass BMU encompasses approximately 57,329 acres (90 square miles). The SRZ will be the cumulative effects analysis area to evaluate population-level effects to grizzly bear (see Figure 3.2.6 in Section 3.2.5.4, Cumulative Effects). Although BMUs have not been established in Canada, the habitat available north in Canada is important to population connectivity and linkages. The BMU is located in the SRZ, and adjacent BMUs provide similar quality habitat to that in the Blue-Grass BMU (discussed in Section 3.2.3.1). The Blue-Grass BMU is approximately 25 miles west of the CYRZ and 7 miles west of the Bears Outside Recovery Zones (BORZ) (Mission-Moyie parcel), defined in the *Grizzly Bear Recovery Plan* (Recovery Plan) (USFWS 1993a).

3.2.2.2 Woodland Caribou

The Selkirk Mountain woodland caribou analysis area consists of three caribou management units (CMUs): Upper Priest, Grass, and Cow, encompassing a total of approximately 67,960 acres. Each CMU is approximately the size of the average home range of woodland caribou in the Selkirk Mountains (about 30 square miles or 19,200 acres) (Forest Service 1985). These CMUs assist with analyzing and tracking project and cumulative effects (Forest Service 1985). Selkirk caribou typically occur in the northwest corner of the Idaho Panhandle and the southern Selkirk Mountains, both west and south of these CMUs. However, they are known to occasionally occupy the Upper Priest, Grass, and Cow CMUs, including the Bog Creek Road corridor (Warren 2016). This area is referred to as the woodland caribou analysis area and is shown in Figure 3.2.2.
The woodland caribou Selkirk recovery zone will be the cumulative effects analysis area for evaluating population-level effects on Selkirk Mountain woodland caribou (see Figure 3.2.7 in Section 3.2.5.4, Cumulative Effects).

3.2.2.3 Canada Lynx

Lynx analysis units (LAUs) were designed in the *Canada Lynx Conservation Assessment and Strategy* (LCAS) (Interagency Lynx Biology Team [ILBT] 2013) as a management tool to facilitate analysis and monitoring of the effects of management actions on lynx habitat, with the goal of supporting a reproductive lynx population. LAUs do not depict actual lynx home ranges. Instead, they approximate the size of a female's home range and contain year-round habitat components. The Canada lynx analysis area consists of three LAUs: Upper Priest, Blue-Grass, and Saddle-Cow, and comprises approximately 86,434 acres (Figure 3.2.3). These three LAUs will also be the cumulative effects analysis area. To the north, the LAU borders follow the border between Canada and the United States and the Boundary Creek drainage. To the south, the LAUs are bounded by the border between the state of Idaho and NFS lands consisting of the headwaters of the Upper Priest River, Trapper Creek, Grass Creek, and Cow Creek. This area is referred to as the lynx analysis area and is shown in Figure 3.2.3.

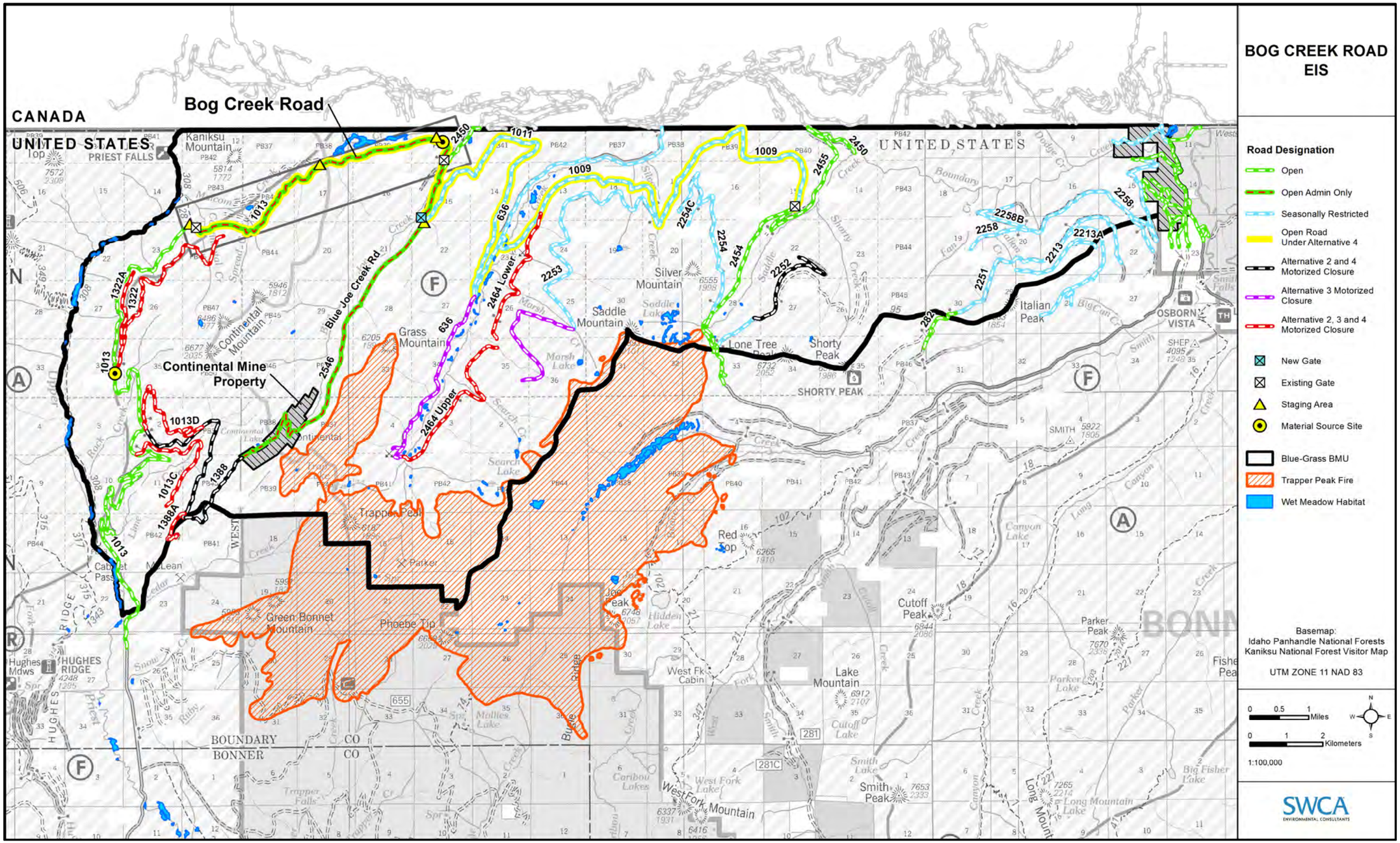

Figure 3.2.1. Grizzly bear analysis area.

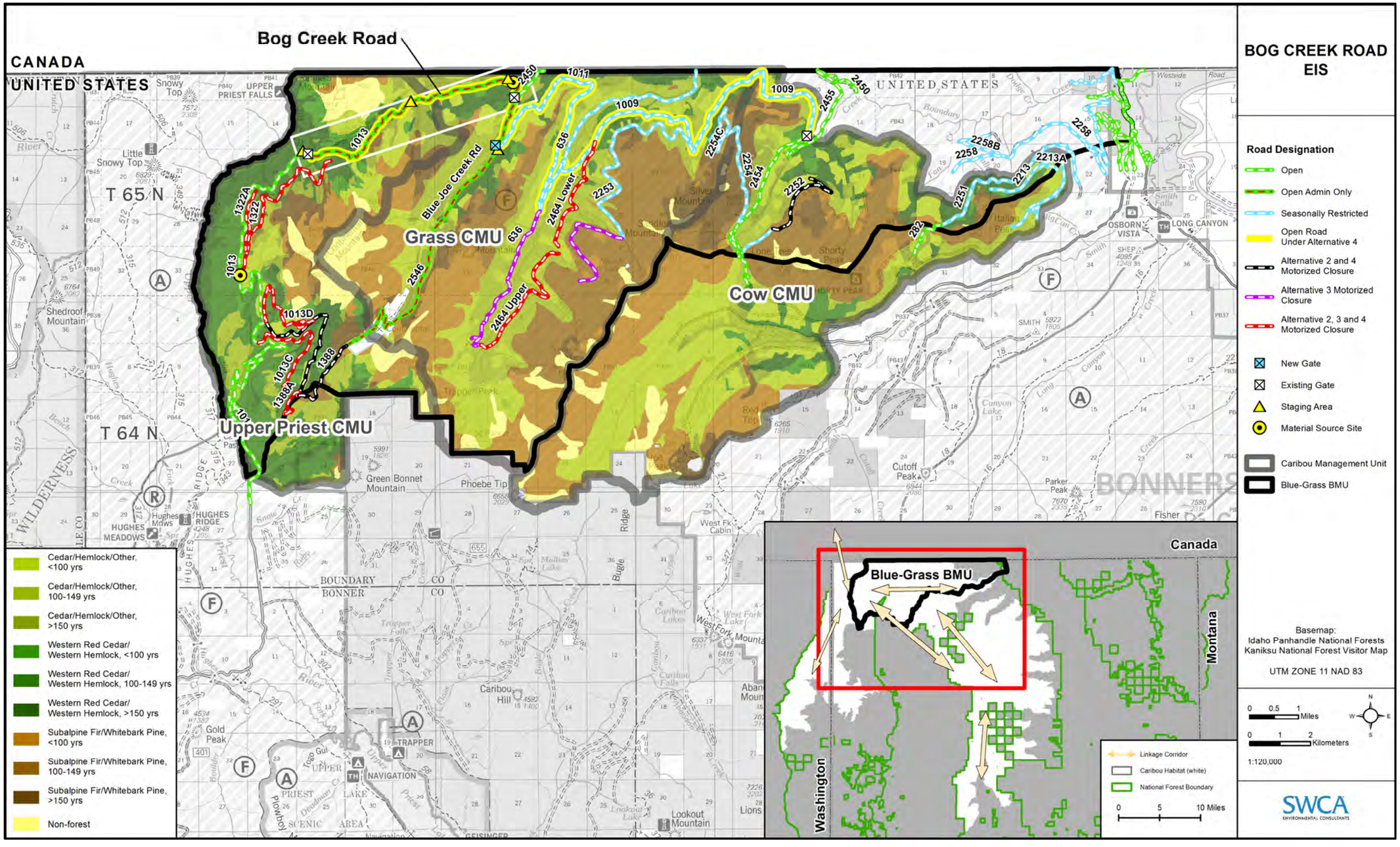

Figure 3.2.2. Woodland caribou analysis area.

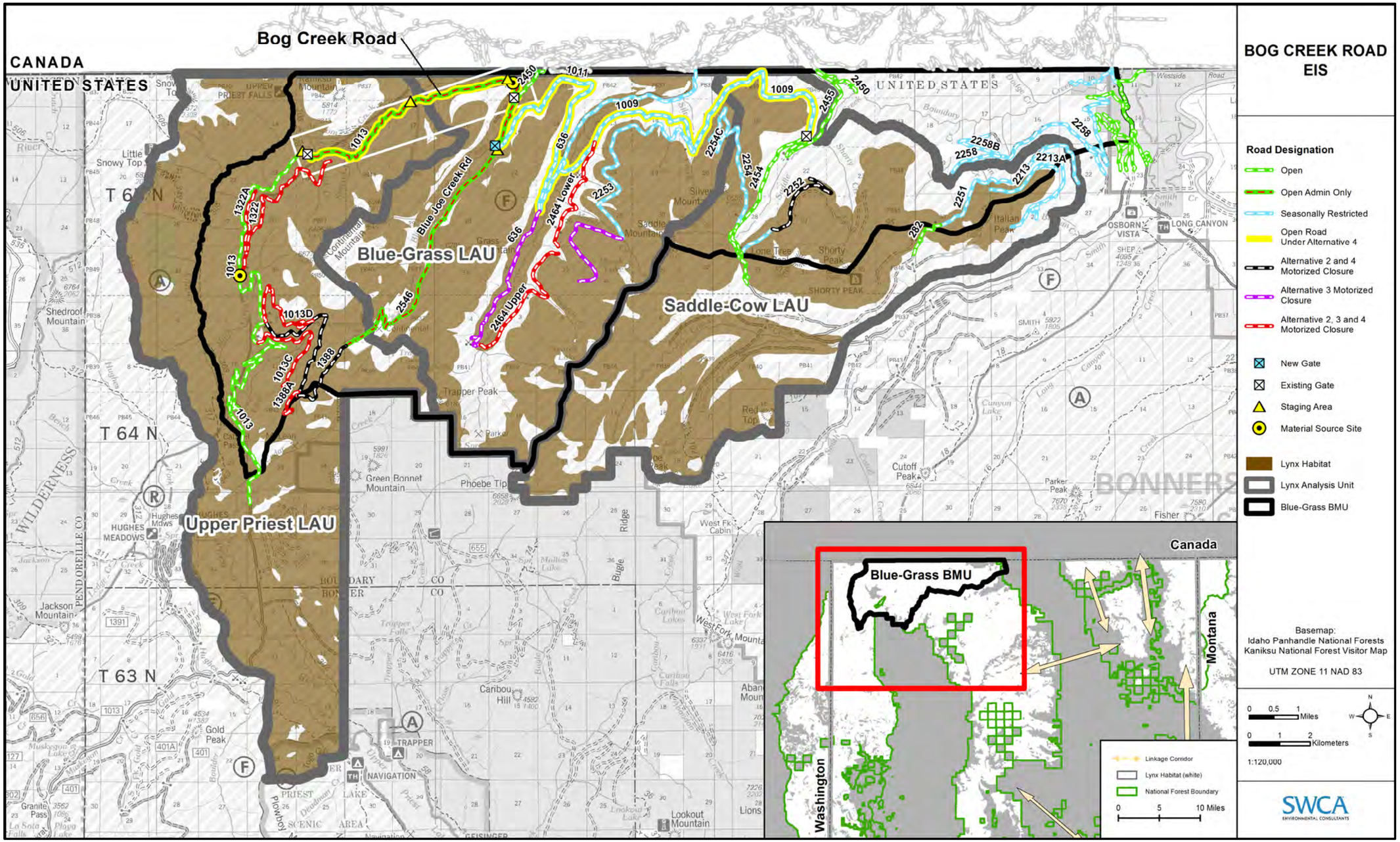

Figure 3.2.3. Lynx analysis area.

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3.2.2.4 North American Wolverine

The North American wolverine analysis area encompasses six subwatersheds: Ruby Creek–Upper Priest River (Hydrologic Unit Code [HUC] 170102150105), Blue Joe Creek (HUC 170101040602), Grass Creek (HUC 170101040601), Cow Creek (HUC 170101040502), Lower Smith Creek (HUC 170101040503), and Saddle Creek–Boundary Creek (HUC 170101040603), comprising approximately 117,545 acres. This area is also used as the landscape-scale wildlife analysis area (see Section 3.3.2). The wolverine can travel long distances on a daily or seasonal basis. Subwatersheds are appropriate for this species because they provide easily defined boundaries and units, within which impacts for this wide-ranging species can be meaningfully considered. Although biotic effects could occur outside these units, they become more difficult to accurately predict with increased distance from the source of the impact. This area is referred to as the wolverine analysis area, is shown in Figure 3.2.4, and will be the cumulative effects analysis area for wolverine.

3.2.2.5 Bull Trout

The bull trout analysis area is the Ruby Creek–Upper Priest River subwatershed; the only subwatershed known to be occupied by bull trout that is intersected by the action alternatives. This area is referred to as the bull trout analysis area, is shown in Figure 3.2.5, and will be the cumulative effects analysis area for bull trout, as well.

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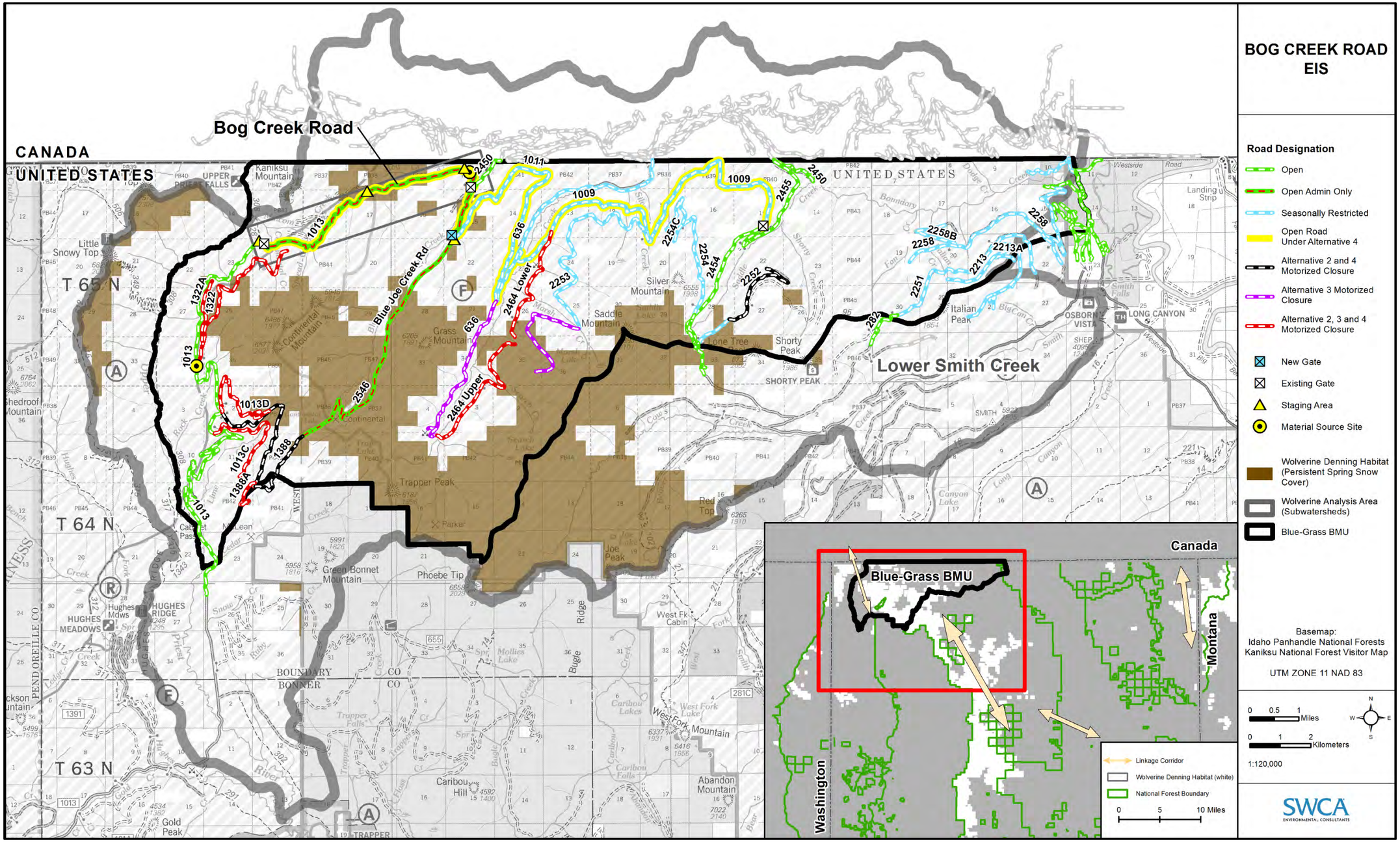

Figure 3.2.4. Wolverine analysis area.

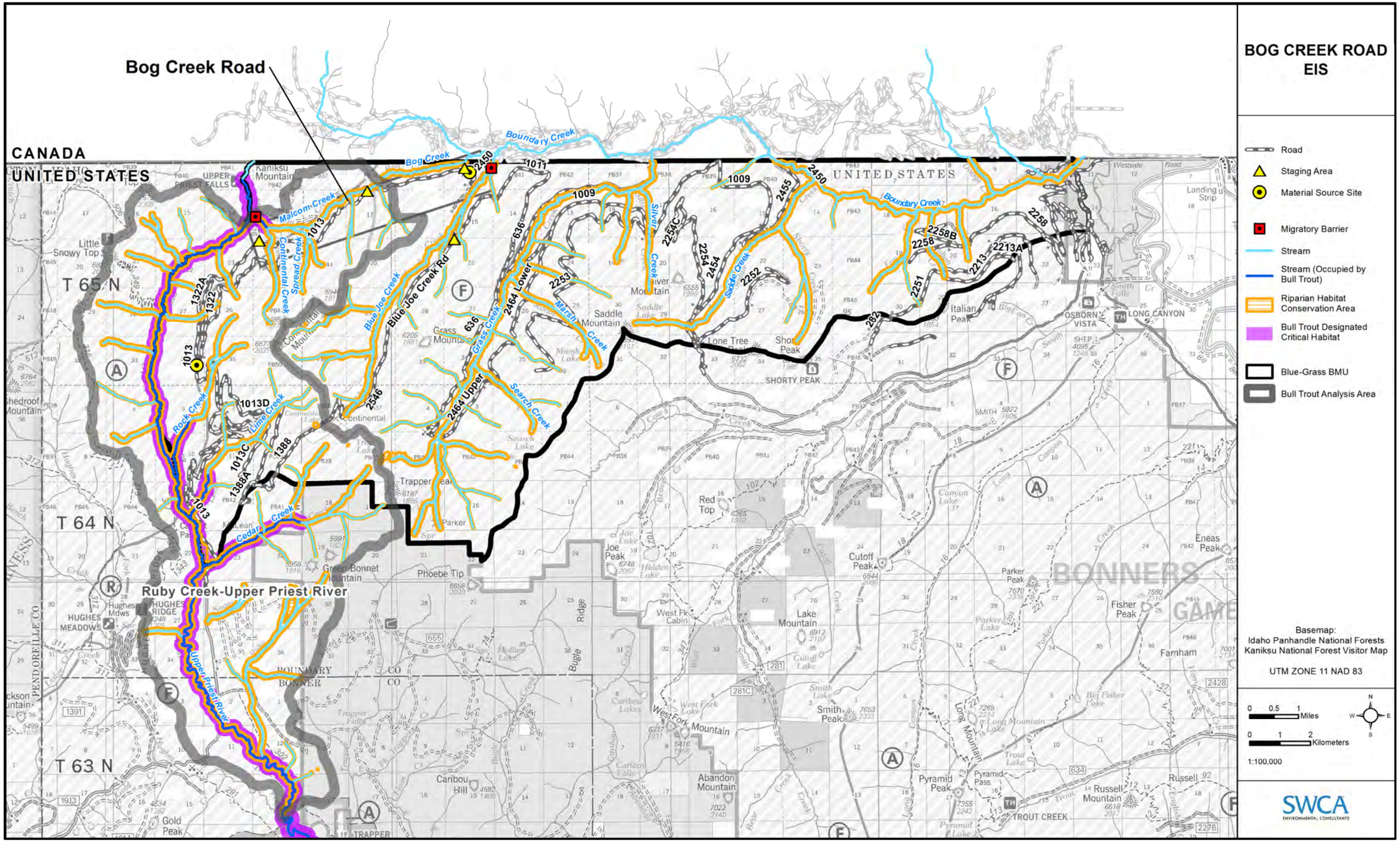

Figure 3.2.5. Bull trout analysis area.

3.2.3 Affected Environment

T&E species are managed under authority of the Federal ESA (36 U.S.C. 1531–1544) and the NFMA (16 U.S.C. 1600–1614) under the 2012 Forest Service planning rule (Forest Service 2012c); see also Section 3.2.4. The ESA requires that Federal agencies ensure all actions that they "authorize, fund, or carry out" are not likely to jeopardize the continued existence of any threatened or endangered species. Agencies are also required to develop and carry out conservation programs for threatened and endangered species.

The following section describes the existing condition (also called the affected environment) of T&E species and habitat that could be affected by the Bog Creek Road project. The species discussed in this section are those that were identified during scoping. A list of species considered in the DEIS was obtained from the USFWS's Information for Planning and Consultation (IPaC) System (USFWS 2016a).

3.2.3.1 Grizzly Bear

The grizzly bear was listed as threatened under the ESA in August 1975 (USFWS 1975) and is an Idaho Tier 1 Species of Greatest Conservation Need (S2) (Idaho Department of Fish and Game [IDFG] 2016a). Its historic range once included most of the continental United States west of the Great Plains, but widespread reductions in range and population numbers led to its listing. Today, it is confined to less than 2 percent of its former range and is represented in five or six population centers south of Canada, including the SRZ that is located in northeastern Washington, northern Idaho, and British Columbia. According to the most recent Recovery Plan, habitat loss and direct and indirect human-caused mortality are related to its decline (USFWS 1993a).

In 1993 and 1999, the USFWS found that reclassification from threatened to endangered in the Selkirk ecosystem was warranted due to existing threats to recovery. However, this reclassification has been precluded by work on higher-priority species (USFWS 1999a, 2015a). No grizzly bear critical habitat has been designated.

The *Grizzly Bear Recovery Plan* was approved on January 29, 1982, and a revised plan was completed on September 10, 1993 (USFWS 1993a). The most recent 5-Year Review of grizzly bear status was completed in August 2011. The 5-Year Review provides detailed status summaries and suggests that the 1993 Recovery Plan be revised, along with several other recommendations (USFWS 2011b). These standards were incorporated into the 2015 Forest Plan (Forest Service 2015a).

Management of grizzly bear habitat (BMUs within the SRZ) on the IPNF is dictated by the 2015 Forest Plan (Forest Service 2015a), which incorporated the 2011 Access Amendment direction related to motorized access in and around the SRZ. The 2011 Access Amendment established standards for core area, OMRD, and TMRD for each BMU in the recovery zones based on local research, as defined in Section 1.2, Background, in Chapter 1 (Forest Service 2011a; Wakkinen and Kasworm 1997).

Although core area and TMRD are static, OMRD is modeled based on the open motorized route density for a specific year, and it changes from year to year. To maintain OMRD below the Access Amendment standard, which requires that no more than 33 percent of the Blue-Grass BMU contain greater than 1 mile per square mile of open roads, there are numerous gates in the BMU. This allows the Agencies to control when and where

motorized activities occur. Calculation of OMRD is inclusive of open public motorized access. Also, gated road segments are administratively used to accommodate routine law enforcement, scheduled land management activities, research, and other administrative use. Sometimes motorized administrative use exceeds the trip limit restrictions for individual road segments (≤ 19 round trips in spring [April 1 through June 15]; ≤ 23 round trips in summer [June 16 through September 15]; and ≤ 15 round trips in fall [September 16 through November 15]). Although there are gates in the Blue-Grass BMU closed to the public, if agency personnel conduct motorized activities that exceed administrative trip use limits on some of the roads in the BMU, those roads are then modeled as "open" for that active bear year. Over the past 10 years, OMRD in the Blue-Grass BMU has ranged from 22.76 percent to 34.65 percent, averaging 29.86 percent (data available in the project record).

Habitat Relationships

Grizzly bear populations persist in those areas where large expanses of relatively secure habitat (habitat that provides privacy or seclusion) exist and where human-caused mortality is low. Grizzly bears are considered habitat generalists, using a broad spectrum of habitats. Use patterns are usually dictated by food distribution and availability, combined with habitat that provides privacy or seclusion. Grizzlies commonly choose low-elevation riparian areas and wet meadows during the spring and generally are found at higher elevation meadows, ridges, and open brush fields during the summer (Volsen 1994). Habitat use is highly variable between areas, seasons, local populations, and individuals (Almack 1985; Servheen 1983; Slone 2007; Volsen 1994; Wielgus et al. 1994).

Grizzly bear habitat across the region is often described in terms of the availability of large tracts of relatively undisturbed land that provide some level of secure habitat (habitat that provides privacy or seclusion) for grizzly bears from human depredation and competitive use of habitat by humans (including roading, logging, grazing, and recreation) (USFWS 1993a). The Recovery Plan indicates that the most important element in grizzly bear recovery is securing adequate effective habitat (USFWS 1993a). This is a reflection of an area's ability to support grizzly bears based on the quality of the habitat and the type/amount of human disturbance imposed on the area. Controlling and directing motorized access is one of the most important tools in achieving habitat effectiveness and managing grizzly bear recovery (USFWS 1993a).

Grizzly bears occupy higher elevation subalpine forests and shrub fields in the summer, early fall, and winter. Natural caves or excavated dens (typically above 5,000 feet in the SRZ) are entered after the first snowfall and occupied for 4 to 5 months (Forest Service 2013a). After emerging from the den, grizzly bears typically move to the areas where they can take advantage of food sources such as early greening herbaceous vegetation at low elevations, in riparian areas, and in melted-out avalanche chutes (USFWS 1993a).

These habitats consist of warmer sites or areas that are most likely to lose snow early and have an earlier green-up, such as wet meadows and peatlands. Research has shown that grizzly bears, particularly sows with cubs-of-the-year, remain close to their den sites for a few weeks or more post-emergence (Craighead and Craighead 1972; Mace and Waller 1997; Schoen et al. 1986; Vroom et al. 1977) and continue to rely on fat reserves during this time (Craighead and Sumner 1980 in Volsen 1994). Throughout spring and early

summer, grizzlies follow plant growth back to higher elevations. In late summer and fall, there is a transition to fruit and nut sources, as well as herbaceous materials. This is a general pattern, however. Bears will go where they can meet their food requirements (USFWS 1993a). Grizzly bears are opportunistic feeders and will prey or scavenge on almost any available food. The search for food has a prime influence on grizzly bear movements.

Selkirk Population

The most recent population estimate for the entire SRZ is 83 bears, with approximately 58 and 25 bears residing in the Canadian and U.S. portions, respectively (Proctor et al. 2012). This estimate is near the minimum population goal of 90 for the species within the SRZ as specified in the Recovery Plan, and reflects a steady increase in the grizzly bear population within the SRZ since the SRZ bear population was estimated at 26 to 36 bears in the 1980s (USFWS 1993a). Trapping and monitoring of bears currently occurs on both sides of the international border (Kasworm 2015), and a population estimate update is expected in the near future. The SRZ bear population has the lowest genetic diversity of the ESA-listed grizzly bear populations (Interagency Grizzly Bear Committee [IGBC] 2017). Bears cross roads throughout the SRZ to travel north or south. There is an extensive east-west-trending road system that is open to motorized use just north of the Canadian border. These Canadian roads, combined with roads open to motorized use within the U.S. portion of the SRZ, likely act as a semipermeable barrier to grizzly bear movement, due to bear road-avoidance behavior (Aune and Kasworm 1989; Kasworm and Manley 1990; Mace et al. 1999; McLellan and Shackleton 1988; Wakkinen and Kasworm 1997).

Past human activities (grazing, timber harvest, mining, and road building) in the south Selkirks largely displaced grizzly bears from the area. It is thought that the south Selkirks are slowly being repopulated by remnant bear populations in the north Selkirks as grizzly bear secure habitat conditions improve. This assumption is based on recent sightings of grizzly bears in the south Selkirks during annual population monitoring (Kasworm 2016), where they have not been observed for decades. Improvements to grizzly bear secure habitat conditions have likely occurred as a result of hunting regulation enforcement, hunter information and education, and reduced motorized access (Forest Service 2011a).

Blue-Grass Bear Management Unit

The grizzly bear analysis area is the Blue-Grass BMU, a management unit centrally located inside the SRZ. This BMU is 1 of 10 BMUs included in the U.S. portion of the SRZ. The Blue-Grass BMU has been designated Management Situation (MS) 1. MS 1 means that it is managed for grizzly bear habitat maintenance and improvement and the minimization of grizzly–human conflict and that management decisions favor the needs of grizzly bears when grizzly bear habitat and other land use values compete (IGBC 1986; USFWS 1993a).

Radio telemetry data collected by the IDFG from 21 grizzly bears demonstrated that approximately 22 percent of all collared grizzly bear use in the SRZ occurred in this BMU from 1986 to 2000 (Wakkinen and Kasworm 2004). One-third of the 2016 credible sightings in the SRZ occurred in the Blue-Grass BMU (Kasworm et al. 2017). Both very high frequency (VHF) and global positioning system (GPS) data document extensive

year-round use of the Blue-Grass BMU (monitoring data available from W. Kasworm, USFWS). Since 2007, 47 grizzly bears have been captured and radio collared in the SRZ, 11 in the United States (Kasworm et al. 2017). In 2016, 12 bears were collared in the SRZ, eight occurring mostly in British Columbia and four in the United States. Three different bears (two females and one male) have denned in the Blue-Grass BMU on seven different occasions between 2012 and 2016. An additional male grizzly was captured in 2016 and is currently being monitored (Kasworm 2016). Since 2007, the home range for one to 10 grizzly bears per year overlapped the Blue-Grass BMU (Kasworm et al. 2017). Within denning habitat on NFS lands, nine of 20 known denning sites from 1983 to 2001 occurred in this BMU (Forest Service 2011a). Since 2011, DNA hair-snare/remote camera sites have also documented grizzly bears in the Blue-Grass BMU during all months of the year when bears are not hibernating (Kasworm et al. 2017). In 2016, eight credible sightings of females with cubs were made in the SRZ, including two of these sightings occurring in the Blue-Grass BMU; since 2011, females with young have been sighted every year in the Blue-Grass BMU (Kasworm et al. 2017).

Each BMU is designed to possess all of the habitat components necessary to support grizzly bears throughout the year by including habitats typically used by bears during all four seasons and encompassing a wide variety of habitat types, aspects, and elevations. The Blue-Grass BMU encompasses spring, summer, fall, and denning bear habitat. Still, the suitability of the BMU as grizzly bear habitat varies from area to area and from season to season. Elevations in the BMU range from 1,800 feet (Kootenai River valley bottom) to 6,900 feet (Saddle Mountain), and preferred forage species are present throughout. In particular, bears forage on huckleberries, which are found in forested stands as well as in openings created by timber harvest and wildfire.

Although there are many different habitat types in the BMU, and bears can be observed across the BMU regardless of season, there are typical seasonal bear concentrations in certain locations. Typical seasonal bear concentrations follow the vegetation growing season, especially huckleberries. Volsen's 1980s grizzly bear research in the Selkirks showed that in the spring bears preferred habitat in the eastern portions of the BMU at lower elevations. There is a total of 200 acres of wet meadow/peatland habitat within the BMU. This is an important spring foraging habitat for grizzly bears, though this habitat is used throughout the active season. Of the 200 acres, 82 acres occur within 500 meters of existing open or seasonally restricted roads (not including Bog Creek Road since it is undrivable), resulting in 41 percent of existing habitats being subject to avoidance disturbance. In the summer and fall, grizzly bears preferred habitats on the upslope and western portions of the BMU as huckleberries ripened (Volsen 1994). The Trapper Peak burn occurred in 1967 in the Grass Creek headwaters (located along the southern border of the BMU and shown in Figure 3.2.1), and provides exceptional huckleberry production. This area is particularly important for bears (Volsen 1994), as demonstrated by a concentration of observed collared bear locations in the area. A total of approximately 26,256 acres of the BMU (45.8 percent) provides suitable denning habitat (Forest Service 2016b). Dens, typically natural caves or excavated dens, often above 6,000 feet, are entered after the first snowfall and occupied for 4 to 5 months (Forest Service 2011a:52). In the Selkirk ecosystem, research indicated that 74 percent of female grizzlies were in the den by November 15, with the remaining females denning by November 30 (Kasworm et al. 2017).

As shown in Table 1.2.1 in Chapter 1, the Blue-Grass BMU currently contains 48 percent core area habitat, which is 7 percentage points below the minimum core area habitat standard of 55 percent. The BMU currently does not meet the TMRD standard; 29 percent of the BMU has a TMRD greater than 2 miles per square mile. The standard requires that no more than 26 percent of the BMU contain greater than 2 miles per square mile of total roads. The BMU has not met the TMRD standard since the Access Amendment was finalized. The Blue-Grass BMU is the only BMU in the SRZ that is not currently meeting the motorized access standards as established in the 2015 Forest Plan. However, in 2016 open roads greater than 1 mile per square mile comprised approximately 30 percent of the BMU (Forest Service 2017), which is more than 3 percentage points less (is better than) than the OMRD standard, which requires that no more than 33 percent of the BMU contain greater than 1 mile per square mile of open roads. With the 2016 OMRD at 3 percentage points below the Access Amendment standard, the Agencies had some administrative motorized access flexibility throughout the BMU to accommodate motorized use for these activities: routine law enforcement, scheduled land management, and research. Figures 2.2.1 through 2.2.4 in Chapter 2 show the locations of core area habitat under the alternatives.

Fragmentation

The BMU has a history of road construction related to timber harvest and mining. There is currently a total of approximately 118 miles of roads in the BMU. Approximately 28 miles (24 percent) is classified as open, and 90 miles (76 percent) is restricted. Since 1999, motorized access has decreased within the BMU, resulting in substantial increases in core area habitat. TMRD was reduced by 5 percent, and core area habitat was increased by 6 percent (Forest Service 2010a:43). Although some roads in this area are not formally closed, many roads are overgrown with trees or brush, or gated, and so do not allow for motorized travel. These roads are functioning as grizzly bear core habitat because of their current undrivable status. Bog Creek Road is one such road that is currently undrivable, and so does not actually fragment core area habitat, even though it is formally designated as *seasonally restricted*.

The BMU has two popular non-motorized trails located within its boundaries (see Figure 3.8.1 in the Recreation section): the Upper Priest River (Trail #308) and American Falls (Trail #28). These trails are currently being monitored to ascertain whether they should be considered high-use trails. “High-use” trails are those trails receiving an average of more than 20 parties per week. Currently, these trails (Trails #308 and #28) have up to 16 parties per week during the busy summer season. High-use trails, recognized as having the potential to disturb/displace bears, are buffered in the same fashion as drivable roads (IGBC 1998). The buffered area surrounding high-use trails is removed from core area habitat.

Other past and ongoing activities within the BMU that contribute to fragmentation, to varying degrees, include the following (see also Figure 3.2.1):

- Timber harvest from the 1960s through 2010
- The 1967 Trapper Peak wildfire, which occurred along the southern boundary of the BMU
- Use of designated motorized over-the-snow routes (see Figure 3.8.2 in the Recreation section)

- Motorized access to grazing allotments (April–September)
- Private motorized access to the inactive Continental Mine
- Motorized access by CBP for patrol of the international border and by IPNF and other agencies for administrative use within the BMU

While vegetation regrowth has certainly occurred and fragmentation is less stark than immediately after these activities, vegetation in areas fragmented by harvest and fire likely have not reached that of a climax community only 45 to 55 years after disturbance.

Linkages

The Blue-Grass BMU provides an important movement corridor, as it provides high-quality habitat centrally located between the other BMUs in the SRZ and the Canadian portion of the SRZ.

3.2.3.2 Selkirk Mountain Woodland Caribou

There are seven subspecies of caribou throughout the world (Alaska Department of Fish and Game 2013). One of the subspecies, woodland caribou, occupies the boreal forest and alpine tundra of suitable mountainous habitats in North America. Woodland caribou are medium-sized members of the deer family, with large hooves, broad muzzles, and distinctive antlers that both sexes develop annually (USFWS 1994).

The woodland caribou subspecies is restricted to North America. In the past, it was divided into three different "ecotypes": boreal, northern, and mountain, based on differences in habitat use, feeding behavior, and migration patterns – not genetic characteristics (Heard and Vagt 1998). However, in 2011, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) reorganized the structure of several of the caribou populations or ecotypes in accordance with its "Designatable Unit" (DU) criteria (COSEWIC 2011). Caribou within the Selkirk Mountains were included in the "Southern Mountain" DU (DU 9), which currently comprises 15 subpopulations, between which no dispersal has been detected (Apps and McLellan 2006; van Oort et al. 2011; Wittmer et al. 2005). Caribou in this DU are associated with deep snow environments, where they feed almost exclusively on arboreal lichens during the winter months. The southern Selkirk Mountain population, occurring in the woodland caribou analysis area, is now the southernmost extant population of mountain caribou and the last remaining mountain caribou population in the United States (USFWS 1994).

The southern Selkirk Mountain population of woodland caribou was emergency listed as endangered in northeastern Washington, northern Idaho, and southeastern British Columbia under the ESA on January 14, 1983. Final listing as endangered occurred on February 29, 1984. They are an Idaho Tier 1 Species of Greatest Conservation Need (S1), and a state endangered species (IDFG 2016a). A Recovery Plan for Selkirk Mountain woodland caribou was approved by the USFWS in 1985 and revised in 1994 (USFWS 2012). Critical habitat has been designated approximately 1 mile west of the woodland caribou analysis area (USFWS 2012). The status of Selkirk Mountain woodland caribou is currently under review by the USFWS. An interagency group (the Selkirk Caribou International Technical Working Group) is finalizing a management plan which addresses recovery planning efforts for the South Selkirk Mountain caribou population. This document is expected to be completed in 2018. In 2014, the USFWS proposed to amend the current listing by including all 15 subpopulations of mountain caribou as an expanded

threatened distinct population segment (DPS) (this includes 14 others besides the South Selkirk international subpopulation). In addition, they proposed listing the entire DPS as threatened under the ESA. This proposal was followed by two comment periods in 2014 and 2015. The USFWS is currently also considering COSEWIC recommendations to list all mountain caribou in British Columbia as endangered (COSEWIC 2014).

Currently, management of Selkirk caribou on the IPNF is dictated by the 2015 Forest Plan direction (Forest Service 2015a). The specific Forest Plan desired future condition for Selkirk caribou includes the following:

- FW-DC-WL-07. Woodland Caribou find areas for movement on NFS lands within the recovery zone and connectivity with populations in Canada. Woodland caribou find areas with low levels of disturbance (Forest Service 2015a).

An intermediate population target of 100 to 109 caribou was initially set in the first *Selkirk Mountain Caribou Management/Recovery Plan* (USFWS 1985). Additionally, the 1994 Woodland Caribou Recovery Plan set a goal of maintaining two herds (in British Columbia and Idaho) and stated the desire to establish a herd in Washington as well (USFWS 1994). Neither the interim population target nor the creation and maintenance of herds in Idaho and Washington have been achieved at this time.

In the 1950s, the Selkirk population was estimated at approximately 100 animals (Flinn 1956), although others questioned this number (Evans 1960; Freddy 1974), with Freddy (1974) estimating less than 50 animals since the early 1900s. By the early 1980s, the population estimate was 25 to 30 individuals (USFWS 1994). In the late 1980s and 1990s, caribou from three source populations in British Columbia were introduced into the U.S. portion of the recovery area to increase the overall population size. In spite of these augmentation efforts, the past 5 years of winter surveys indicates that the population is declining: only 12 caribou (including one calf) were located during the 2016 U.S. census (DeGroot 2015, 2016). These individuals consistently use the Little Snowy Top/Shedroof divide area, which is located 2 miles west of the woodland caribou analysis area near the international boundary with British Columbia and the Washington state border.

There are six current threats to the Selkirk Mountain woodland caribou (USFWS 2008a):

1. Past and ongoing habitat destruction/fragmentation, consisting of mostly wildfire and the impact of insects and disease. Stand-replacing fires are probably the largest current threat to caribou habitat. Effects of habitat destruction and fragmentation may 1) reduce overall food resources to the point that the carrying capacity of an area to support caribou is reduced, 2) alter movement patterns, and 3) increase predation rates as habitat becomes fragmented and compressed.
2. Predation-caused mortality by mountain lions and wolves is considered to be one of the leading factors limiting woodland caribou recovery in the southern Selkirk population. Another source of mortality outside the analysis area is vehicular collisions along British Columbia Highway 3. Mortality due to poaching or mistaken identity is not thought to be affecting the Selkirk caribou population.
3. Motorized road access in caribou habitat could facilitate poaching opportunities, facilitate movement of predators within caribou habitat, and result in vehicular collisions and death (i.e., British Columbia Highway 3).
4. Further degradation of caribou habitat from timber harvest is an ongoing threat.

5. The contracting range of the Selkirk woodland caribou population, the small number of animals in the population (12 during the 2016 census), and the limited genetic exchange between this population and adjacent populations threatens their long-term population viability.
6. Climate change could alter the distribution and amounts of woodland caribou habitat by altering disturbance processes (i.e. fire regimes) and winter snowpack depths.

Habitat Relationships

The Selkirk Mountain population migrates seasonally between high and low elevations. It is primarily a grazing species during the non-winter months, consuming grasses (*Carex* spp., and *Juncus* spp.), as well as a variety of forbs and shrub leaves (e.g., huckleberry and *Pachistima* spp.). It typically prefers mature and old-growth subalpine fir forests. During the winter months, arboreal lichens, especially the genus *Bryoria*, constitute a critical source of food (Allen 1998a; Freddy 1974; Mountain Caribou Technical Advisory Committee 2002; Rominger and Oldemeyer 1989; Scott and Servheen 1984). From October through early January, mature and old-growth western red cedar (*Thuja plicata*) and western hemlock (*Tsuga heterophylla*) forests above 4,500 feet in elevation have been identified as important habitat (Allen 1998b; Freddy 1974; Kinley and Apps 2007; Rominger and Oldemeyer 1989; Scott and Servheen 1984; Servheen and Lyon 1989).

Pregnant females move to spring habitats for forage, but during the calving season (June 1 to July 7), the need to avoid predators influences habitat selection. Areas selected for calving are typically high-elevation, old-growth forest ridgetops that can be food limited, but are more likely to be predator free. Arboreal lichen becomes the primary food source for pregnant females and females with calves, since green forage is unavailable in these secluded and high-elevation habitats.

Caribou Management Units and Acres of Available Habitat

The recovery area for caribou in the Selkirk Mountains consists of approximately 1,477 square miles in southern British Columbia, northeastern Washington, and northern Idaho. The U.S. portion of the recovery area is divided into areas known as CMUs to facilitate habitat evaluation within the ecosystem and assist with analyzing and tracking cumulative effects (Forest Service 1985). Each CMU is approximately the size of the average home range of woodland caribou in the Selkirk Mountains (about 30 square miles or 19,200 acres). This document evaluates potential impacts from the Proposed Action on the three CMUs that coincide with the project: Upper Priest, Grass, and Cow (referred to collectively as the woodland caribou analysis area, shown in Figure 3.2.2).

The Forest Service has quantified woodland caribou habitat into three age categories (0–99, 100–150, and 151+ years old) and three dominant cover types: mature and old-growth Engelmann spruce/subalpine fir (SAF), western red cedar/western hemlock (CWH), and cedar/hemlock (CH/Other) to provide an up-to-date estimate of available caribou habitat on the IPNF by CMU, regardless of fixed topographic features that may also influence seasonal habitat selection (i.e., slope, elevation, aspect). Caribou habitat consists of all cover types that are greater than 100 years old. These habitats and seasons of use by caribou are described in Table 3.2.2.

Table 3.2.2. Caribou Habitat Definitions and Seasons of Use

Habitat Type	Description	Season of Caribou Use
SAF	Forest dominated by mature, old-growth Engelmann spruce and sub-alpine fir trees. Also includes whitebark pine-dominated high-elevation sites.	All seasons, including the transitional early wintertime period and calving.
CWH	Forest dominated by mature, old-growth western red cedar and western hemlock trees.	Used almost exclusively during early winter.
CH/Other	Forest dominated by mature, old-growth cedar and hemlock trees. The Other category represents cedar/hemlock habitat types with a combination of cedar, hemlock, lodgepole, Douglas fir, white fir, western larch cover types, which may/may not provide the characteristics associated with mature and old-growth cedar/hemlock stands so as not to exclude habitat.	Used almost exclusively during early winter.

Source: Forest Service (2016b).

Table 3.2.3 indicates that the combined acreage of the CMUs that forms the woodland caribou analysis area is 67,960 acres, with 93 percent of that area providing caribou habitat (Forest Service 2015a). Selkirk Mountain caribou typically occur in the northwest corner of the Idaho Panhandle (west of the woodland caribou analysis area) and the southern Selkirk Mountains (south of the woodland caribou analysis area). However, they have occasionally been documented both historically and recently in all three CMUs that make up the woodland caribou analysis area, including along the Bog Creek Road corridor (Warren 2016). They are not known to frequently calve in the analysis area.

Table 3.2.3. Woodland Caribou Habitat in the Upper Priest, Grass, and Cow CMUs by Cover Type

CMU	Size of CMU (acres)	Spruce/Subalpine Fir			Western Red Cedar/ Western Hemlock			Cedar/Hemlock/Other			Total Forested Caribou Habitat (acres)
		Age (years)			Age (years)			Age (years)			
		<100	100–149	>150	<100	100–149	>150	<100	100–149	>150	
Upper Priest	24,975	1,511	249	930	1,511	3,696	3,396	1,662	1,418	951	**15,324**
Grass	26,160	4,210	5,207	1,440	135	829	1,323	4,342	5,513	1,277	**24,276**
Cow	16,825	4,804	3,484	2,021	478	967	1,196	6,737	2,398	998	**23,083**
Total	**67,960**	**10,525**	**8,940**	**4,391**	**2,124**	**5,492**	**5,915**	**12,741**	**9,329**	**3,226**	**62,683**

Source: Forest Service (2016b).

Currently, the majority (60 percent) of SAF, CWH, and CH/Other habitat within the analysis area is greater than 100 years old, and these habitats are well distributed throughout the CMUs.

Habitat Destruction and Fragmentation

Past and ongoing activities that contribute to destruction and fragmentation of woodland caribou habitat consist of the following:

- Timber harvest and fires. The 1967 Trapper Peak wildfire occurred along the southern boundary of the analysis area (see Figure 3.2.1 for the location of this burn), replacing historical caribou habitat with younger stands. This area is no longer ideal caribou habitat (Forest Service and USFWS 2015).
- Roads. Caribou generally avoid roads and habitat adjacent to roads (DeCesare et al. 2012). Apps and McLellan (2006) found that remoteness from human presence, low road densities, and limited motorized access were important factors in explaining habitat occupancy by caribou subpopulations. Furthermore, Apps et al. (2013) found that wolf predation on caribou occurs more often in association with roads at the fine scale.
- Motorized over-the-snow routes. Controlling and managing motorized access improves Selkirk caribou habitat quality by reducing the risk of disturbance, displacement, and mortality. Caribou can be displaced by over-the-snow motorized vehicles. Additionally, tracks left by over-the-snow motorized vehicles can facilitate predator access (specifically wolves, but also bears and mountain lions) into caribou habitat (Whittington et al. 2011). Much of the analysis area has restricted over-the-snow motorized use due to a 2007 Federal court order (U.S. District Court, Eastern District of Washington, Court Order No. CV-05-0248-RHW) to protect Selkirk Mountain woodland caribou. This closure restricts motorized over-the-snow vehicle access to designated timing and trails on NFS lands (see Figure 3.8.2 in the Recreation section). In the Canadian portion of the caribou recovery zone (see Figure 3.2.7 in Section 3.2.5.4, Cumulative Effects), restrictions to over-the-snow motorized vehicle use and closure areas are determined based on coordination between government biologists and local snowmobiling groups.
- Livestock grazing. Two cattle grazing allotments occur in 14,295 acres of woodland caribou habitat in the Grass and Cow CMUs.
- Mining. The inactive Continental Mine inholding is located in the woodland caribou analysis area.
- Law enforcement patrol. The winter motorized closure provides an exception for national security and law enforcement purposes; if necessary, the Agencies' law enforcement personnel can access the area any time. In the winter, the CBP prefers aerial patrol of this area, and over-the-snow motorized use off of designated trails is infrequent. To the extent possible, the Agencies limit patrol activities of the high-elevation ridge tops during calving (June 1 to July 7).
- Recreational activities. Much of the high-elevation habitat that is ideal for caribou cows with calves is also some of the most popular recreation destinations for summertime backpacking, hiking, and camping. Disturbance from recreationists may push caribou into areas where they are more susceptible to predation.

Linkages

Ensuring connectivity between existing woodland caribou core use areas in British Columbia and suitable habitats in the United States is important for maintaining demographic stability, and ultimately achieving the Selkirk Mountain Woodland Caribou Recovery Plan goal of having a herd or subpopulation in the United States (USFWS 1994). Wakkinen and Slone (2010) examined 20 years of Selkirk caribou radio telemetry data (1987 to 2006) in tandem with a landscape habitat model (Kinley and Apps 2007) to

examine potential caribou movement corridors. They mapped 12 potential movement corridors from one area of high-quality habitat to the next, with seven of these in the United States (Wakkinen and Sloane 2010:31–32). One of these is Little Snowy Top to Continental Mountain via the Upper Priest River/American Falls drainage at about 4,000 feet elevation (see inset map in Figure 3.2.2). Factors that may influence the overall effectiveness and utility of these modeled potential travel corridors by caribou movements include 1) the presence of roads—particularly roads receiving frequent and high-speed vehicular traffic, which may influence caribou movements and survival year-round (Freddy 1979; Johnson 1976, 1985; USFWS 1994); 2) early seral vegetation conditions (due to timber harvest or large stand-replacing burns), which may impede movements across the landscape if the area is large enough and habitat quality is limited (Heard and Vagt 1998; Simpson et al. 1997) and associated higher rates of predation (Wittmer et al. 2007); 3) topographic features, including steep cliff faces and avalanche prone slopes (Scott and Servheen 1984; Servheen and Lyon 1989); and 4) recreational activities, including snowmobile activity, which may influence caribou movements during the winter season (Simpson 1987; Simpson and Terry 2000).

3.2.3.3 Canada Lynx

The Canada lynx is a medium-sized cat with large feet adapted to walking on snow. It has long legs, tufts on the ears, and a black-tipped tail (USFWS 2013a). Snowshoe hare (*Lepus americanus*) are the primary prey of lynx, and form the majority of their diet throughout most of their distribution, especially in the winter.

On July 8, 1998, the USFWS published a proposed rule to list the Canada lynx in the contiguous United States as a threatened species under the ESA (USFWS 1998). On March 24, 2000, the USFWS issued a final rule determining that the contiguous U.S. "Distinct Population Segment" of the Canada lynx is threatened (USFWS 2000). This final rule was reaffirmed in 2003 (USFWS 2003a). Critical habitat has been designated for the species (USFWS 2014a).[1] The nearest designated critical habitat (DCH) occurs approximately 20 miles east of the Canada lynx analysis area. They are also listed as threatened by the State of Idaho (IDFG 2016a).

In September 2005, the USFWS issued its *Recovery Outline, Contiguous United States Distinct Population Segment of the Canada Lynx* (USFWS 2005). This document serves as an interim strategy to guide recovery efforts until a draft Canada Lynx Recovery Plan is completed. Management of lynx habitat on the IPNF is currently dictated by the 2015 Forest Plan, which incorporates the 2007 *Northern Rockies Lynx Management Direction* (NRLMD) amendment (Forest Service 2007, 2008a, 2015a). Appendix E details the applicable standards, objectives, and guidelines as presented by the NRLMD and the ways in which the Proposed Action does or does not comply.

Lynx populations in the contiguous United States appear to be influenced by lynx population dynamics in Canada. Many populations in Canada are directly interconnected

[1] This critical habitat designation could change. The September 2014 final rule on designated critical habitat for the Canada lynx Distinct Population Segment, 79 Federal Register 54, 782 et seq., has been remanded to the USFWS for further action consistent with the 9/7/2016 U.S. District Court for the District of Montana order (Wildearth Guardians et al. *v.* U.S. Department of the Interior). The final rule will remain in effect until the USFWS issues a new final rule on lynx critical habitat, at which time the September 2014 final rule will be superseded.

with the U.S. populations, and are probably a source of emigration into contiguous U.S. populations. It is assumed that, regionally, lynx in the contiguous United States and adjacent Canadian provinces interact as metapopulations (USFWS 2005).

Research of radio-collared lynx indicates that starvation is a significant cause of mortality, especially in the winter (ILBT 2013). In addition to starvation, other mortality risk factors include incidental trapping and predation, especially on kittens by coyotes, wolves, mountain lions, bobcats, and birds of prey. Other risk factors include increased competition from hare predators and displacement from human activity. Road and trail access and recreational use are also risk factors that can impact lynx populations. Roads and trails facilitate human access, escalating the likelihood for lynx and human interactions and increasing lynx vulnerability to incidental trapping and shooting. Conversely, roads also facilitate trapping and hunting of predator species that may prey on lynx kittens or compete with lynx. Winter motorized use of roads compacts the snow, which may facilitate access by predators of lynx and competitors with lynx in areas from which they would otherwise be excluded due to the deep snowpack. Although it is uncommon, lynx have been trapped or shot in the Northern Rocky Mountains geographic area. Currently, trapping or shooting lynx is illegal in Idaho, Montana, and Washington; however, legal trapping of other species occurs (Forest Service 2013a).

Habitat Relationships

Individual lynx maintain large home ranges, generally from 12 to 83 square miles (about 7,700–53,120 acres), depending on the abundance of prey, the animal's gender and age, the season, and the density of lynx populations (USFWS 2013a). Lynx are highly mobile and have a propensity to disperse long distances, particularly when prey becomes scarce. Lynx also make long-distance exploratory movements outside their home ranges (USFWS 2005).

Snowshoe hares are the principal prey of lynx and form the bulk of the lynx diet throughout its range. In northern Canada, lynx populations fluctuate with the hare abundance cycle. Although snowshoe hare populations in the southern portion of the range in the contiguous United States may fluctuate, they do not show strong, regular population cycles as in the north. The degree to which regional lynx population fluctuations are influenced by local snowshoe hare population dynamics is unknown (USFWS 2005). Lynx also prey opportunistically on other species, including red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus*, *Dendragopus* spp., *Lagopus* spp.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii*, *S. richardsonii*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus* spp.), voles (*Microtus* spp.), shrews (*Sorex* spp.), and fish. Ungulate carrion may also be consumed (USFWS 2013a). Red squirrels may be an especially important prey species for lynx, especially when hare populations are low (Forest Service 2013a).

Lynx habitat is generally moist boreal forests with cold, snowy winters and a high-density snowshoe hare base. Lynx also incorporate non-boreal forest habitat elements into their home ranges and use them for traveling between patches of boreal forest, where most foraging occurs. "Lynx habitat in North Idaho has been more narrowly defined to include only subalpine fir/Engelmann spruce habitats (primary habitat except on the Priest Lake RD, where moist cedar-hemlock is also considered primary vegetation) and cool/moist

habitat types occurring adjacent to primary habitat to create a transition between lynx habitat and non-lynx habitat" (Forest Service 2013b:20).

Recent research in northwest Montana demonstrates that mature, multistoried forests provide important winter snowshoe hare habitat, and are more important than younger stands (Forest Service 2007). Lynx primarily use multi-story stands in the spruce-fir types during winter, as these contain a high amount of horizontal cover and therefore snowshoe hare habitat (Squires et al. 2010). Lynx will also use other stand types during the year, and snowshoe hare appear to occur in an array of stands as long as they provide abundant horizontal cover. Summer foraging habitat consists of early successional stages of dense, young forests (approximately 17 to 40 years old on the IPNF). Generally, maintaining no more than 30 percent of a lynx home range in early succession habitat is considered good for lynx management (Forest Service 2007).

Breeding occurs through March and April in the north. Denning habitat consists of mature stands of spruce, subalpine fire, lodgepole pine, cedar, or hemlock forest with a complex structure of large downed trees to provide cover for kittens. Female lynx select mature, dense forest habitats with lots of downed woody debris, for example jack-strawed logs, to provide secure habitat (habitat that provides privacy or seclusion) and thermal cover (Koehler 1990; Koehler and Aubry 1994). Lynx with kittens need well-distributed patches of denning habitat throughout their home range (Forest Service 2013a).

Timber harvest and natural disturbance processes—including fire, insect infestations, catastrophic wind events, and disease outbreaks—can provide foraging habitat for lynx when resulting understory stem densities and structure provide the forage and cover needs of hare. Snow conditions and vegetation types are important factors to consider in defining lynx habitat. Good snowshoe hare habitat varies but has a common denominator of dense, horizontal vegetative cover 3 to 10 feet above the ground or snow level (Koehler and Aubry 1994; Ruggiero et al. 2000; USFWS 2005).

Lynx Analysis Units and Acres of Available Habitat

Of the 35 LAUs on the IPNF, 15 are located within the Selkirks. As shown in Figure 3.2.3, the analysis area intersects three LAUs: Upper Priest, Blue-Grass, and Saddle-Cow. The combination of these three LAUs forms the Canada lynx analysis area.

As the available knowledge of lynx habitat requirements has increased, lynx habitat in North Idaho has been more narrowly defined to include only subalpine fir/Engelmann spruce habitats (primary vegetation, except on the Priest Lake Ranger District, where moist cedar-hemlock is also considered primary vegetation) and cool/moist habitat types occurring adjacent to primary vegetation to create a transition between lynx habitat and non-lynx habitat (Forest Service 2013b).

Table 3.2.4 provides total LAU acreages and acreages of lynx habitat within the analysis area LAUs (Forest Service 2015a). The combined acreage of these LAUs is approximately 86,434 acres, with 75 percent of that area providing lynx habitat (Forest Service 2015a).

Table 3.2.4. Acreage and Percentage of Lynx Habitat in the Analysis Area

LAU	Total Acreage of LAU	Acres of Lynx Habitat in the LAU (% of LAU)
Upper Priest	33,571	30,109 (90%)
Blue-Grass	25,709	18,253 (71%)
Saddle-Cow	27,154	16,614 (61%)
Total	**86,434**	**64,976 (75%)**

Source: Forest Service (2016b).

Lynx presence has been well documented, historically and currently, throughout the Idaho Panhandle. There are infrequent, but consistent, lynx sightings in the Selkirks (Forest Service 2016b). Snow-tracking surveys on the Priest Lake Ranger District did not result in any observation of lynx tracks or signs. In 1998, a survey for lynx using hair-snagging techniques and DNA analyses was conducted in the Priest Lake, Bonners Ferry, and Sandpoint Ranger Districts. Lynx hair was collected at five separate locations across the survey area (Ruediger et al. 2000). Recent forest carnivore research in this part of north Idaho has resulted in three confirmed sightings of lynx in the Selkirks and Purcells (Lucid et al. 2016). In 2010, a male Canada lynx was photographed at a forest carnivore DNA hair-snare/remote camera site in the Grass Creek LAU (Lucid, Robinson, et al. 2011; Lucid, Robinson, and Ehlers 2016).

Habitat Destruction and Fragmentation

Past and ongoing activities that contribute to destruction and fragmentation of Canada lynx habitat consist of the following:

- Timber harvest and fires transform lynx habitat into an early succession stand initiation forest structural stage. Once the trees are tall enough to protrude above the snow in the winter, this structural stage provides snowshoe hare and winter lynx foraging habitat. Very little lynx habitat has been changed to the stand initiation structural stage due to timber harvest in the Canada lynx analysis area in the past 10 years.
- Motorized access. Lynx are afforded secure habitat (habitat that provides privacy or seclusion) via the secure habitat already provided for bears and caribou within the Canada lynx analysis area.
- Livestock grazing occurs in the Canada lynx analysis area.
- Motorized and non-motorized recreational use occurs in the analysis area. Human presence has the potential to displace or disturb Canada lynx, although lynx mortality due to recreational activities is unlikely.
- Lynx are not legally trapped but may be incidentally captured during trapping for other species.
- Recreational special use permits have potential to disturb or displace lynx, especially those that allow for winter motorized travel.

Linkages

Broad-scale lynx linkage areas have been identified and are intended to assist in land use planning in order to maintain connectivity and allow for movement of animals between blocks of habitat that are otherwise separated by intervening non-habitat areas such as

basins, valleys, and agricultural lands, or where habitat naturally narrows due to topographic features (Claar et al. 2003; Forest Service 2007). None of the identified linkage areas occur within the analysis area; the nearest identified linkage runs from east to west across U.S. Route 95 and the Kootenai Valley, linking the Purcells to the Selkirks (see Figure 3.2.3).

3.2.3.4 North American Wolverine

The wolverine is an Idaho State Species of Greatest Conservation Need (S1) and was a candidate for Federal listing until August 2014, when the USFWS determined that listing was not warranted (USFWS 2014b). However, this decision was overturned by the District Court of Montana, and the decision was returned to the agency for further consideration. In October 2016 the USFWS reopened the comment period for Federal listing of the wolverine as threatened (USFWS 2016b). For these reasons, the species is currently managed as a proposed threatened species.

A programmatic biological assessment (BA) for the North American Wolverine was finalized in 2014 (Forest Service 2014a). The purpose of the programmatic BA is to describe and analyze a variety of actions routinely conducted on NFS lands within the Northern Region that are not likely to jeopardize the continued existence of the species. Road repair, culvert repair or replacement, and motorized road closure activities are analyzed under threat factor A2(b), *Habitat impacts due to human use and disturbance, infrastructure development* (Forest Service 2014a:4).

Threats to the species include habitat removal, loss of connectivity between populations, displacement, climate change, and mortality (Forest Service 2013b; IDFG 2014).

Habitat Relationships

The wolverine primarily eats carrion killed by other predators, but occasionally preys on small mammals and birds, and also eats fruits, insects, and berries. It occupies a variety of habitats throughout the year, but requires large tracts of land to accommodate large home ranges and extensive movements to search for food (Banci 1994; IDFG 2005).

In the summer, the wolverine is most often found in higher elevation, steep, remote areas, including wilderness and roadless areas. Winter foraging habitat consists of mid-elevation conifer forests. The wolverine dens in areas that are cold, have persistent spring snow (April 24 to May 15), and where food stores may be cached (Copeland et al. 2010; USFWS 2013b). Within these areas, it is typically found in north-facing high-elevation zones (Copeland, McKelvey, et al. 2010; Copeland, Peek, et al. 2007). It is thought that persistent spring snow cover is important for denning, because den sites occur in areas with heavy snowfall; for these reasons, these areas are especially important for the continuance of the species (Copeland et al. 2010).

Figure 3.2.4 displays areas with a consistent persistent spring snowpack (at least 5 of 7 years). These are the areas with the potential to contribute to wolverine reproduction.

Acres of Available Habitat

The entirety of the North American wolverine analysis area, or 117,545 acres, is considered to be wolverine foraging and movement/dispersal habitat, and IDFG considers the area a Tier 1 priority conservation area for wolverine (IDFG 2014). Of this, 25,107 acres (21 percent) is wolverine denning habitat, having consistent snowpack

(at least 5 of 7 years) that persists into the spring (see Figure 3.2.4). Wolverine have been observed within the analysis area (Forest Service 2016b; IDFG 2014: Figure 3).

Habitat Destruction and Fragmentation

Past and ongoing activities that contribute to destruction and fragmentation of wolverine habitat are the same as described for grizzly bear, woodland caribou, and Canada lynx.

Linkages

Maintaining population connectivity is critical to wolverine not being listed as threatened under the ESA (IDFG 2014). Because of its persistent snowpack and lack of human infrastructure and development, the analysis area is located in a predicted moderate-use dispersal corridor for wolverine (IDFG 2014:Figure 8). This corridor provides population linkage between the Bitterroot, Cabinet, and Selkirk Mountains.

3.2.3.5 Bull Trout

Bull trout in the conterminous United States were listed as threatened on November 1, 1999 (USFWS 1999b). They are also listed as threatened by the State of Idaho (S4) (IDFG 2016a). The streams and rivers in the bull trout analysis area are located in the Columbia Headwaters Recovery Unit (see Figure 9 in USFWS 2015b:42). Bull trout are native to streams and rivers within the Columbia River Basin in Idaho (Rieman and McIntyre 1993) and within the analysis area are known to occupy the Upper Priest River and the lower portions of Malcom Creek, Rock Creek, Lime Creek, and Cedar Creek (Table 3.2.5; see Figure 3.2.5) (Glaza et al. 2014; Idaho Department of Environmental Quality [IDEQ] 2016a; USFWS 2011c). Maps of known and presumed occupied bull trout waters did not show Grass Creek or Boundary Creek as occupied by bull trout (USFWS 2011c), and recent sampling efforts did not document bull trout in Grass Creek (Forest Service 2016c). Critical habitat was designated for bull trout in 2010 (USFWS 2010). Within the bull trout analysis area, bull trout DCH is mapped in the same locations as the streams known to be occupied by bull trout (see Figure 3.2.5 and Table 3.2.5). On Malcom Creek, bull trout likely occur only as far upstream of the Upper Priest River as a documented fish migratory barrier, 1,200 feet upstream of the confluence with the Upper Priest River (Irving 1987; Fredericks et al. 2002; Forest Service 2014b). This location is 2,500 feet downstream from the Bog Creek Road corridor.

Table 3.2.5. Streams Occupied by Bull Trout and Bull Trout DCH in the Bull Trout Analysis Area: Mileage Available

	Available in the Analysis Area
Stream Name	**Stream Occupied by Bull Trout and Bull Trout DCH (miles)**
Upper Priest River	16.8
Malcom Creek	0.5
Lime Creek	1.0
Rock Creek	1.2
Cedar Creek	2.3
Total	**21.8**

Source: Forest Service (2016b); USFWS (2010).

Bull trout have more specific habitat requirements than most other salmonids (Rieman and McIntyre 1993), which are often referred to as "the four Cs": cold, clean, complex, and connected habitat. This includes cold water temperatures (often less than 54 degrees Fahrenheit [°F]); complex stream habitat, including deep pools, overhanging banks, and large, woody debris; and connectivity between spawning and rearing areas and downstream foraging, migration, and overwintering habitats (USFWS 2015b). With the exception of the Upper Priest River, the streams in the analysis area are 303(d) listed (see Tables 3.6.1 and 3.6.2) for temperature as not supporting salmonid spawning beneficial use. Monitoring has documented temperatures in these streams as ranging from 46°F to 53°F. Spawning and rearing areas are often associated with cold-water springs, groundwater infiltration, or the coldest streams in a watershed. Bull trout typically spawn from August to November during periods of decreasing water temperatures (Rieman and McIntyre 1993). For spawning and early rearing, bull trout require loose, clean gravel relatively free of fine sediments. Sedimentation can reduce egg survival and emergence (Pratt 1992). Because bull trout have a relatively long incubation and development period within spawning gravel (greater than 200 days), transport of bedload in unstable channels may kill young bull trout. Bull trout use migratory corridors to move from spawning and rearing habitats to foraging and overwintering habitats and back. Different habitats provide bull trout with diverse resources, and migratory corridors allow local populations to connect, which may increase the potential for gene flow and support refounding of populations (Forest Service 2013a:178). The bull trout occupying streams in the analysis area could be resident or fluvial (Upper Priest River–living) populations; connected migratory corridors throughout the streams in the analysis area, and south to Priest Lake, provide gene flow for these analysis area populations. Bull trout are opportunistic feeders with food habits primarily a function of size and life history strategy. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macrozooplankton, and small fish. Adult migratory bull trout are primarily piscivorous, feeding on various fish species (Rieman and McIntyre 1993).

Maintaining bull trout habitat requires stream channel and flow stability (Rieman and McIntyre 1993). According to Lee et al. (1997), bull trout are widely distributed across the Columbia River Basin, although their current range is about 60 percent of historic distribution. Although many populations of native aquatic species are stable or improving, bull trout are considered to be in decline across their range. Watersheds that are predicted to be strong spawning and rearing areas represent less than 10 percent of the historic range (Lee et al. 1997:1177). The greatest factors affecting bull trout are intensive land management activities such as road construction and timber harvest, which have affected habitat conditions for the species (introducing sedimentation and reducing stream channel complexity), the presence of man-made migratory barriers, and the introduction of non-native species (USFWS 1999b). The historic road construction, timber harvest, and mining that have occurred in the analysis area have likely reduced the habitat quality (sedimentation and reduction of large woody debris inputs) and connectivity (blockage from culverts) of analysis area streams occupied by bull trout and bull trout DCH.

3.2.4 Management Framework

The regulations, laws, and policies governing T&E species management in the analysis areas include those listed in Table 3.2.6. Please also refer to Table 3.3.5 in the Wildlife

section and Table 3.4.3 in the Fish section. The reader is referred to the Forest Plan (available in the project record) for additional guidance.

Table 3.2.6. T&E Species-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**GOAL-[Wildlife (WL)]-01.** The IPNF manages wildlife habitat through a variety of methods (e.g., vegetation alteration, prescribed burning, invasive species treatments, etc.) to promote the diversity of species and communities and to contribute toward the recovery of threatened and endangered terrestrial wildlife species.
All MAs	**[Forestwide (FW)]-STD-WL-01.** The Northern Rockies Lynx Management Direction (Forest Service 2007) and ROD shall be applied.
All MAs	**FW-STD-WL-02.** The Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zone Management Direction and ROD is included in Appendix B of the 2015 Forest Plan, and shall be applied.
All MAs	**FW-DC-WL-03.** Recovery of the terrestrial threatened and endangered species is the long-term desired condition. Foraging, denning, rearing, and secure habitat [i.e. habitat lacking human presence] is available for occupation. Populations trend toward recovery through cooperation and coordination with USFWS, State agencies, other Federal agencies, tribes, and interested groups.
All MAs	**GOAL-WL-01.** The IPNF manages wildlife habitat through a variety of methods (e.g., vegetation alteration, prescribed burning, invasive species treatments, etc.) to promote the diversity of species and communities and to contribute toward the recovery of threatened and endangered terrestrial wildlife species.
All MAs	**FW-DC-WL-01.** Nests and den sites and other birthing and rearing areas for terrestrial threatened, endangered, proposed, or sensitive species are relatively free of human disturbance during the period they are active at these sites. Individual animals that establish nests and den sites near areas of pre-existing human use are assumed to be accepting of that existing level of human use at the time the animals establish occupancy.
All MAs	**FW-OBJ-WL-01.** The outcome is the maintenance or restoration of wildlife habitat on 1,000 to 5,000 acres of NFS lands, annually, with an emphasis on restoration of habitats for threatened and endangered listed species and sensitive species.
All MAs	**FW-DC-[Aquatic Species (AQS)]-04. Bull trout.** Recovery and delisting of bull trout is the long-term desired condition. Spawning, rearing, and migratory habitat is widely available and inhabited. Bull trout have access to historic habitat and appropriate life history strategies (e.g., resident, fluvial, and adfluvial) are supported. Recovery is supported through accomplishment of bull trout recovery plan tasks under Forest Service jurisdiction. Bull trout population trends toward recovery through cooperation and coordination with USFWS, tribes, State agencies, other Federal agencies, and interested groups.
All MAs	**FW-DC-AQS-05. Bull trout.** Habitat conditions improve in occupied bull trout streams and in connected streams that were historically occupied, resulting in an increase in the overall number of stronghold populations. Bull trout habitat and populations continue to be protected through the application of standards and guidelines for aquatic habitat and species.
All MAs	**FW-DC-WL-02.** A forestwide system of large remote areas is available to accommodate species requiring large home ranges and low disturbances, such as some wide-ranging carnivores (e.g., grizzly bear).
All MAs	**FW-DC-WL-04.** All grizzly BMUs have low levels of disturbance to facilitate denning activities, spring use, limit displacement, and reduce human/bear conflicts and potential bear mortality. Spring, summer, and fall forage is available for the grizzly bear.
All MAs	**FW-DC-WL-05.** Recovery of the grizzly bear is promoted by motorized access management within the IPNF portion of the CYRZ and SRZ.
All MAs	**FW-DC-WL-07.** Woodland caribou find areas for movement on NFS lands within the recovery zone and connectivity with populations in Canada. Woodland caribou find areas with low levels of disturbance.
All MAs	**FW-DC-WL-11.** A mosaic of aquatic and riparian habitats with a low level of disturbance is available for associated species.

Table 3.2.6. T&E Species-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-DC-WL-18.** Forest management contributes to wildlife movement within and between national forest parcels. Movement between those parcels separated by other ownerships is facilitated by management of the NFS portions of linkage areas identified through interagency coordination. Federal ownership is consolidated at these approach areas to highway and road crossings to facilitate wildlife movement.
All MAs	**FW-DC-WL-20.** By trending toward the desired conditions for vegetation, habitat is provided for native fauna adapted to open forests and early seral habitats, or whose life/natural history and ecology are partially provided by those habitats.
All MAs	**FW-STD-WL-03.** Permits and operating plans (e.g., special use, grazing, and mining) shall specify sanitation measures and adhere to the IPNF's food/attractant storage order (Appendix F) in order to reduce human/wildlife conflicts and mortality by making wildlife attractants (e.g., garbage, food, livestock carcasses) inaccessible through proper storage or disposal.
All MAs	**FW-STD-WL-04.** No grooming of snowmobile routes in grizzly bear core area habitat after April 1 of each year.
All MAs	**FW-GDL-WL-01. Grizzly Bear.** Management activities should avoid or minimize disturbance in areas of predicted denning habitat during spring emergence (April 1 through May 1).
All MAs	**FW-GDL-WL-02. Woodland Caribou**. Management activities in seasonal caribou habitat should trend vegetation toward target stand condition. Exceptions may occur when using prescribed fire or natural ignitions to emulate natural disturbance patterns to benefit other listed species (e.g., grizzly bears, lynx) as well as for the long-term maintenance of caribou habitat.
All MAs	**FW-GDL-WL-03. Woodland Caribou**. From June 1 to July 15, disturbance from management activities in known occupied caribou calving habitat should be avoided or minimized.
All MAs	**FW-GDL-WL-04. Woodland Caribou**. During the winter period of December 1 to April 30, disturbance from over-snow vehicle use should be avoided or minimized in areas known to be occupied by caribou.
All MAs	**FW-GDL-WL-17. Connectivity.** In wildlife linkage areas identified through interagency coordination, Federal ownership should be maintained.
All MAs	**FW-GDL-WL-18. Grizzly Bear.** Elements contained in the most recent *Interagency Grizzly Bear Guidelines*, or a conservation assessment once a grizzly bear population is delisted, would be applied to management activities.
All MAs	**FW-GDL-WL-19. Woodland Caribou**. From July 8 to October 16, avoid or minimize disturbance in occupied caribou summer habitat.
MA 1b	**MA1b-DC-WL-01.** Large remote areas with little human disturbance such as those found in this MA (in conjunction with MAs 1a, 1c, 1e and 5) are retained and contribute habitats for species with large home ranges such as wide-ranging carnivores (e.g., grizzly bear). Habitat conditions within these management areas contribute to wildlife movement within and across the Forest.
MA 5	**MA5-DC-WL-01.** Large remote areas with little human disturbance such as those found in this MA (in conjunction with MAs 1a, 1b, 1c, and 1e) are retained and contribute habitats for species with large home ranges. Habitat conditions within these management areas contribute to wildlife movement within and across the Forest. These areas also provide foraging, secure [i.e. habitat that provides privacy or seclusion], denning, and nesting habitat for wildlife.
Priest Lake GA	**GA-DC-WL-[Priest Lake (PR)]-01.** NFS lands provide habitat conditions for wildlife movement, especially woodland caribou, throughout the SRZ.
Priest Lake GA	**GA-DC-WL-PR-02.** Low levels of human disturbance allow for denning activities of wide-ranging carnivores that are sensitive to human disturbance (e.g., grizzly bear). Areas with low levels of disturbance are available for use by woodland caribou throughout the year.
Priest Lake GA	**GA-DC-WL-PR-03.** Habitat conditions for wildlife movement on the divide between Idaho and Washington, from the Canadian border south are retained.
Priest Lake GA	**GA-DC-WL-PR-04.** The winter motorized trail system provides groomed routes and access to an array of off-trail areas while providing undisturbed wintering areas for woodland caribou in the Selkirk area.

Table 3.2.6. T&E Species-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
Lower Kootenai GA	**GA-DC-WL-[Lower Kootenai (LK)]-01.** National Forest System lands contribute habitat conditions for wildlife movement between the Yaak and the Selkirk Mountain range, between the Cabinet and the Selkirk mountain ranges, and also to the Canadian border.
Lower Kootenai GA	**GA-DC-WL-LK-03.** Low levels of human disturbance allow for denning activities of wide-ranging carnivores that are sensitive to human disturbance (e.g., grizzly bear) in the upper elevations of Northwest Peaks and the Selkirk Mountains. Areas in the Selkirk Mountain range with low levels of disturbance are used by mountain goat and woodland caribou during the winter.

Other regulations, laws, and policies governing T&E species management for this EIS are summarized below in Table 3.2.7, in Table 3.3.6 in the Wildlife section, and in Table 3.4.4 in the Fish section.

Table 3.2.7. Other Regulations, Laws, and Policies Governing T&E Species Management

Relevant Regulations, Laws, and Policy	Summary
NFMA	The NFMA states that the Secretary will "promulgate regulations" under the principles of the Multiple Use–Sustained Yield Act of 1960, to "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the Plan" (Public Law 94-588:5(g)(3)(B)). The 2012 Forest Service planning rule provisions "are focused on providing the ecological conditions necessary to support the diversity and persistence of native plant and animal species" (Forest Service 2012c:21216). "This approach meets the requirements of NFMA" (Forest Service 2012c:21176).
ESA, as amended	The ESA provides requirements for Federal agencies with regard to species listed under the act. Section 2 states that "all federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this act." Section 5 directs the Secretary of Agriculture to "establish and implement a program to conserve fish, wildlife, and plants," including federally listed species. Section 7 directs Federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of their critical habitats.
Access Amendment (Montana, Idaho, Washington)	Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones: reducing total and open motorized route density and providing core area habitat (areas with low levels of human presence and no motorized use) for grizzly bear recovery.
NRLMD – Forest Service (Montana, Idaho, and Wyoming)	Provides management direction and guidance that conserves and promotes recovery of Canada lynx by eliminating adverse land management activities on NFS lands.
Idaho Furbearer Trapping Regulations	Guidance provided by IDFG regarding upland game and furbearer species for trapping, and hunting requirements.
Forest and Rangeland Renewable Resources Planning Act of 1974 – Forest Service	Provides for maintenance of land productivity and the need to protect and improve the soil and water resources.

Table 3.2.7. Other Regulations, Laws, and Policies Governing T&E Species Management (Continued)

Relevant Regulations, Laws, and Policy	Summary
INFISH – Forest Service and Bureau of Land Management	The *Inland Native Fish Strategy: Interim Strategies for Managing Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and Portions of Nevada* (INFISH) was prepared in July 1995 to provide interim direction to protect habitat and populations of resident native fish in Idaho (Forest Service 1995b). Under the authority of 36 CFR 219.10(f), the decision amended regional guidelines for the Forest Service's Intermountain, Northern, and Pacific Northwest Regions and Forest Plans in the 22 affected forests, including the IPNF. The Forest Plan includes the 1995 INFISH ROD. The ROD gives an interim direction to "maintain options for inland native fish by reducing risk of loss of populations and reducing potential negative impacts to aquatic habitat" (Forest Service 1995b). The riparian management objectives of INFISH aim to "achieve a high level of habitat diversity and complexity through a combination of habitat features, to meet the life history requirements of the fish community inhabiting the watershed" (Forest Service 1995b). Standards and guidelines in INFISH relating to road management may be relevant to this project because of proposed road repair and motorized closure activities. INFISH states that: "For each existing or planned road, meet Riparian Management Objectives and avoid adverse effect to inland native fish by: . . . avoiding sediment delivery to streams from the road surface . . . avoiding disruption of natural hydrologic flow paths . . . and avoiding side-casting of soils or snow." INFISH also led to the establishment of Riparian Habitat Conservation Areas, which are buffers along riparian corridors, wetlands, and intermittent streams within which activities are subject to restrictions.
Clean Water Act	Under authority of the Clean Water Act, the U.S. Environmental Protection Agency and the States must develop plans and objectives that will not further harm, but will eventually restore, streams that do not meet beneficial uses of the State. In Idaho, these beneficial uses include fully supporting cold-water aquatic life and spawning salmonids. The Forest Service has developed design features as outlined in the *Soil and Water Conservation Practices Handbook* (Forest Service Manual [FSM] 2509.22; Forest Service 1988) and the *National Best Management Practices for Water Quality Management on National Forest System Lands* (Forest Service 2012a), to meet the intent of the water quality standards of the State of Idaho.
Forest Service policy	FSMs and Forest Service Handbooks within the 2600 file code designation contain direction for threatened, endangered, and sensitive plant and animal management. This policy (FSM 2600, Chapter 2670 [Forest Service 2005]) states that regional sensitive species will be identified and management taken to ensure that these species do not trend toward Federal listing as a result of management actions.

3.2.5 Environmental Consequences

This section discusses the environmental effects of implementation of the alternatives on federally threatened, endangered, and proposed species.

3.2.5.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential effects on T&E species.

Issue Indicators

Wildlife habitat is defined by the presence or absence of a species in an area within a particular vegetation community type or using a particular resource (e.g., streams or wetlands). Because the presence of wildlife species is so closely tied to the presence and quality of a vegetation community or resource, the analysis of impacts to wildlife is typically measured by acres of habitat removed or degraded, which can then be compared among alternatives.

Table 3.2.8 lists the issues identified for this resource and the indicators used to assess impacts for this DEIS. See also Section 3.1, Introduction, for a full description of the project actions causing these impacts. Direct, indirect, and cumulative effects for threatened, endangered, and proposed wildlife resources are estimated using quantifiable indicators, where possible.

Table 3.2.8. Issues and Indicators Used to Assess Impacts to Threatened, Endangered, and Proposed Wildlife Resources

Issue	Effects from Short-Term Road Repair and Motorized Closure Actions	Effects from Long-Term Maintenance and Use Actions	Analysis Measure
Grizzly bear	X	X	The potential for human presence (noise and activity) to cause disturbance and avoidance
	X	X	The potential for illegal kills (poaching or malicious kills), mistaken identity kills, or kills in defense of human life
	X	X	Impacts to linkage corridors
	X	X	Change in percent of grizzly bear core area habitat
	X	X	Changes in open and total motorized route densities
Selkirk Mountain woodland caribou	X	X	The potential for human presence (noise and activity) to cause disturbance and avoidance
	X	X	Changes in predator access
	X	X	Impacts to linkage corridors
	X	_	Change in acres of woodland caribou habitat
Canada lynx	X	X	The potential for human presence (noise and activity) to cause disturbance and avoidance
	X	X	The potential for illegal kills (poaching or malicious kills), incidental trapping mortality, and changes in competition
	X	_	Impacts to linkage corridors
	X	_	Change in acres of Canada lynx habitat
North American wolverine	X	X	The potential for human presence (noise and activity) to cause disturbance and avoidance
		X	The potential for illegal kills (poaching) and incidental trapping mortality
	X	_	Impacts to linkage corridors
	X	_	Change in acres of wolverine habitat
Bull trout	X	X	Potential for pollutants, including herbicides, to enter streams occupied by bull trout or bull trout DCH
	X	_	Change in bull trout distribution
	X	_	Potential for in-stream work to cause sedimentation of streams occupied by bull trout or bull trout DCH

Impacts to wildlife could occur as a result of the road repair, motorized closure actions, as well as long-term maintenance and use actions (the actions are further detailed in Section 3.1, Introduction). The impacts below are described in detail according to these categories.

Repair and motorized closure actions analyzed consist of all activities necessary to repair and maintain Bog Creek Road and conduct motorized road closures. Long-term maintenance and use actions analyzed consist of changes in administrative use designations for roads across the Blue-Grass BMU, varying between action alternative. Long-term vegetation maintenance, culvert cleaning, and routine grading would also occur.

3.2.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

The analysis below includes evaluation of the potential for short-term direct and indirect effects on T&E species from the alternatives.

Alternative 1 – No Action

Under the No-Action Alternative, construction-related activities in the Blue-Grass BMU are not anticipated in the near term. Current noise and motorized use would continue throughout the Blue-Grass BMU within the seasonal administrative trip restrictions and could result in occasional disturbance or displacement of T&E wildlife species, including along Bog Creek Road and the roads identified under the action alternatives for motorized road closure. Figure 3.8.2 in the Recreation section shows the snowmobile trails within the Blue-Grass BMU because of the court-ordered snowmobile closure. The grizzly bear core area habitat would remain as modeled in Figure 2.2.1 of Chapter 2. Although not mapped as core area habitat, the area surrounding Bog Creek Road currently functions as core habitat because of its undrivable condition and would continue to function as core habitat under the No-Action Alternative. The roads that are currently heavily vegetated and undrivable would not pose a threat for mortality from vehicle strikes, and on the roads that are drivable mortality from vehicle strikes is unlikely due to low motorized use (see Table 3.1.3) and limited human presence in the BMU. Under the No-Action Alternative, current wildlife movement patterns would not change from the existing condition.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in T&E wildlife species impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative. With the No-Action Alternative OMRD modeled at 14.87 percent, over 18 percentage points below the Access Amendment standard of 33, the agencies would have administrative motorized access flexibility throughout the BMU to accommodate motorized use for these activities: routine law enforcement, scheduled land management, and research.

Weed management would continue as prescribed in the *Priest Lake Noxious Weed Control Project Final Environmental Impact Statement* (Forest Service 1997) and the *Bonners Ferry Ranger District Noxious Weed Management Projects Final Environmental Impact Statement* (Forest Service 1995c). Therefore, it is unlikely that weeds would reduce current habitat health.

Without removal or replacement, the culverts could potentially fail or blow out along Bog Creek Road and the roads proposed for motorized closure under the action alternatives.

There is the potential that culvert failure or blowout could occur in streams occupied by bull trout or upstream of bull trout DCH, which would catastrophically release sediment downstream (Furniss et al. 1998). The period of time and distance downstream over which sediment from such a release would be measurable; however, it is difficult to estimate because it is dependent on stream type, flow regime, and the road–stream crossing fill quantity. This impact to downstream bull trout and bull trout DCH would be short term until the stream channel stabilized and the banks revegetated (estimated at 5 to 10 years), and has the potential to temporarily contribute sediment to these streams occupied by bull trout (and mapped as DCH): Upper Priest River, Malcom Creek, and Lime Creek (from Table 3.2.5 and shown in Figure 3.2.5).[2] The closest stream mapped as occupied by bull trout and as DCH downstream of the action alternatives evaluated in this EIS is mapped on lower Malcom Creek. It is located 2,500 feet downstream of the Bog Creek Road crossing of Continental Creek. Foltz et al. (2008) observed that during culvert removal in streams similar to those in the analysis area, sediment was measurable up to approximately 3,000 feet downstream and that 95 percent of the sediment was released within the first 24 hours following in-stream work. With the possibility of culvert failure or blowout likely to release a larger sediment slug than culvert removal, additional downstream bull trout habitat and bull trout DCH could be affected and for a longer time period. Sedimentation can reduce: habitat complexity and pool depth, spawning success, and insect larvae preyed upon by bull trout.

Alternative 2 – Proposed Action

The following section presents an analysis of effects that would occur on T&E species under the Proposed Action. This section begins with an analysis of impacts that would be common to all T&E wildlife species and then describes species-specific impacts.

Effects Common to All Threatened, Endangered, and Proposed Wildlife Species in the Analysis Areas

This section details common effects to T&E species under the Proposed Action such as behavioral changes in response to human noise and activity and habitat fragmentation. Additional impacts that are specific to each species are discussed under their respective sections.

Human Noise and Activity

Human activity, vehicle traffic, and noise associated with the repair and maintenance of Bog Creek Road or closure of other Forest Service roads would temporarily affect wildlife behavior. Road repair and motorized closure activities would include the use of heavy equipment and vehicle traffic, which can produce a range of sound from 55 to 85 A-weighted decibels (dBA) at 50 feet, but would decrease as the distance into the forest away from these activities increased. Because of the attenuating effect from the analysis areas' dense forest, noise levels would be less than an estimated 45 to 58 dBA at 1,500 feet from the activities, and less than 39 to 52 at 0.5 mile away from the activities (Federal Highway Administration 2006 [FHWA]). Noise levels without the equipment and associated activities, are estimated by the American National Standards Institute (ANSI) and Acoustical Society of America (ASA) to range from 37 to 43 dBA for "very

[2] Because Rock Creek and Cedar Creek are not downstream of the roads proposed for repair and maintenance or motorized closure under any action alternatives, impact analysis was not conducted for those streams because there is no mechanism by which they would be affected by the proposed project.

quiet, sparse suburban or rural areas" (ANSI and ASA 2013). Studies have shown that wildlife is often negatively impacted by human-produced noise (Knight and Cole 1995a; Taylor and Knight 2003). Negative impacts consist of modified behavior, which can alter the animal's vigor (e.g., increase stress levels) and productivity, especially if disturbed during critical times of year such as breeding and wintering (Gabrielsen and Smith 1995; Knight and Cole 1995b). The noise produced from repair and motorized closure activities would only impact individuals that are in the range of the produced sound. Repair and motorized closure noise impacts would be temporary and would cease when these activities are completed.

All Bog Creek Road repair activities would occur between July 16 and November 15 and motorized closure activities would occur between June 16 and November 15, lasting up to three seasons. Summer-to-fall timing of repair and motorized closure would minimize the effects human noise and activity would have on T&E wildlife because these activities would not be conducted during sensitive periods (such as breeding and wintering) for these species.

Because of the high proportion of similar habitat that occurs in the considered analysis areas, any species displaced due to human noise and activity would be able to use equivalent suitable habitat available on adjacent lands during the temporary repair and motorized closure period.

Noise related to road repair and motorized closure would be unlikely to detrimentally affect T&E wildlife populations or result in a long-term change in distribution (avoidance or abandonment of preferred areas), a reduction in population size, or a shift in the population demographics.

Fragmentation and Linkages

Repairing and maintaining Bog Creek Road would effectively add 5.6 miles of dirt or graveled road that could act as a movement barrier to some wildlife species (Forman et al. 2003). The 25-mile-per-hour (mph) speed limit would limit the likelihood of vehicle strike mortalities, compared with paved highways with speed limits of 55 mph or higher (Gunther et al. 1998; Jochimsen et al. 2004; Meisingset et al. 2014). Nevertheless, administratively open Bog Creek Road and Blue Joe Creek Road would have an increased barrier effect on migrating wildlife due to the shift from very low and low motorized use to moderate (see Table 3.1.3). The grizzly bear is especially sensitive to roads and fragmentation (described in more detail below) and could be more affected by the road as a semipermeable barrier to movement. Because of the lower speed limit (25 mph) and moderate (not high) motorized use (see Table 3.1.3), a detrimental reduction in gene flow throughout the analysis area is unlikely for Canada lynx or wolverine, but could occur for grizzly bear and woodland caribou (as discussed in those species' sections below, including cumulative effects).

Under the Proposed Action, 26.5 miles of Forest Service roads would be closed to all motorized use within the Blue-Grass BMU. This would allow the Forest Service to meet the Access Amendment grizzly bear core area habitat requirement of 55 percent and the TMRD (greater than 2 miles per square mile) requirement of 26 percent, as shown in Table 3.2.9. Figures 2.2.1 through 2.2.4 in Chapter 2 show core area habitat under the alternatives. Under the Proposed Action, the OMRD would be 23.26 percent, 9.74 percentage points less than the Access Amendment standard of 33 percent.

The Agencies would therefore have motorized access flexibility elsewhere in the BMU, although this is almost half as much as the flexibility that would be provided by the No-Action Alternative. Some of the gated road segments in the Blue-Grass BMU could accommodate motorized use for these administrative activities: routine law enforcement, scheduled land management, and research.

Table 3.2.9. Proposed Action (Alternative 2) Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	BMU Priorities (1, 2, or 3)	Alternative 2 Proposed Action	Selected Standard (maximum)	Alternative 2 Proposed Action	Selected Standard (maximum)	Alternative 2 Proposed Action	Selected Standard (minimum)	% NFS Land
Blue-Grass	1	23.26%	33%	19.64%	26%	55.17%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

The proposed increase in grizzly bear core area habitat would not only benefit bears, but also all other T&E wildlife. The presence of core habitat eliminates habitat fragmentation in these areas. Habitat fragmentation from roads can impact wildlife by displacement through avoidance, augmentation of typical travel patterns, and allowing competitor or predator species into previously inaccessible areas. Wildlife benefit when these pressures are removed.

Activities associated with repair and motorized closure actions could decrease habitat quality through the introduction of weeds to roadside vegetation. Weed management would occur as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that project-induced weeds would lead to reduced habitat health.

Grizzly Bear

The following effects would occur in addition to those described as being common to all T&E wildlife. Impacts to grizzly bears may occur during repair and motorized closure activities associated with the Proposed Action (repair of Bog Creek Road and the proposed motorized road closures). Temporary impacts would occur during road repair activities, such as road clearing and blading and culvert removal and replacement. Additional potential impacts to grizzly bears include both impacts to individual animals and impacts to grizzly bear habitat. The effects on grizzly bears consist of behavioral impacts resulting from disturbance associated with human noise and activity during repair and motorized closure (including disrupting movements through linkage corridors), habitat removal, changes in behavior associated with avoidance of particular areas, and increased human access.

Human Noise and Activity

During the up to three seasons of road repair and motorized closure, the seasonal vehicle trip restrictions would be exceeded on the roads identified as administrative open and open in Figure 3.2.1. Upon completion of Bog Creek Road repair, Bog Creek Road (FSR 1013) and Blue Joe Creek Road (FSR 2546) would change from their current seasonally restricted designation to an administrative open designation. Bog Creek Road is currently not drivable, so additional motorized use would occur on this road under the Proposed Action, compared with the No-Action Alternative. The motorized use for these roads

under the No-Action Alternative would alter from very low and low to moderate under the Proposed Action (see Table 3.1.3). Motorized use under the Proposed Action would exceed that of the No Action and detrimentally impact grizzly bears. This increased motorized use would result in behavioral changes stemming from avoidance of the road due to human noise and activity. The timeline for bears' avoidance of Bog Creek Road would occur as active avoidance during repair and motorized closure actions, and continue indefinitely with the long-term administrative motorized use. A slight increase in bears' use of the habitat adjacent to the road may eventually occur after the most intense motorized repair activity is completed.

All repair activities associated with Bog Creek Road would occur between July 16 and November 15 and motorized closure of Forest Service roads would occur between June 16 and November 15, and would last up to three seasons. Human noise and activity, consisting of the use of heavy equipment and human voices, would increase during these periods. Grizzly bears would likely avoid areas of human activity, forgoing available resources in the vicinity of the human noise and activity. Summer-to-fall timing of repair and motorized closure would reduce the effects of human noise and activity on grizzly bears because these activities would be conducted in a season during which grizzly bears are typically found at higher elevations where fruit and nut food resources are the most plentiful (USFWS 1993a).

Although human presence would increase in the analysis area as a result of the action alternatives, the 2011 Food Storage Order (see Appendix F) applies to the Blue-Grass BMU. During repair and motorized closure activities, food or drink would be stored in worker vehicles, and vehicle windows and doors would be kept closed to prevent bear entry. These management actions would reduce the probability that bears would be attracted to the repair and motorized closure sites, reducing the potential for habituation and human–bear conflicts, which typically lead to bear relocation or mortality. The 2011 Food Storage Order would remain in effect beyond the temporary repair and motorized closure period (see also Section 3.2.5.3).

Fragmentation and Linkages

The Blue-Grass BMU provides an important grizzly bear movement corridor, because it provides high-quality habitat centrally located between the other BMUs in the SRZ and the Canadian portion of the SRZ. Repair and motorized closure activities would increase motorized use in the BMU through which bears pass to move in a north–south direction, thereby reducing the permeability of the movement corridor as a whole. Due to bear road-avoidance behavior described above, this could discourage some bear individuals from moving through the BMU, ultimately decreasing the genetic flow between the U.S. and Canadian bear populations. The timeline for bears' avoidance of Bog Creek Road would occur as active avoidance during repair and motorized closure actions, and continue indefinitely with the long-term administrative motorized use. Refer also to Section 3.2.5.4 for further cumulative effects discussion.

Although Bog Creek Road is currently designated as "seasonally restricted," it is grown over with vegetation and undrivable. For this reason, the surrounding habitat has been effectively functioning as core grizzly habitat because the unused road does not fragment the habitat. Bog Creek Road repair and maintenance would result in a long-term semipermeable barrier to grizzly bear movement because the vegetation would be

removed, it would be maintained, and vehicles would drive on the road. The surrounding habitat would no longer function as core habitat. Refer also to Section 3.2.5.3 for long-term effects from road designation changes.

Habitat Removal, Road Avoidance, and Core Area Habitat

As shown in Table 3.2.10, direct impacts would occur to 84.7 acres under the Proposed Action, of which 22.3 acres would constitute permanent grizzly bear habitat removal on Bog Creek Road and 62.4 acres would constitute temporary habitat removal during motorized road closure activities. Of this, permanent and temporary direct impacts would occur to 11.7 acres and 33.7 acres, respectively, of grizzly bear denning habitat. This habitat removal would account for less than 1 percent of existing overall and denning habitat in the Blue-Grass BMU. Permanent (on Bog Creek Road) and temporary (during motorized road closure activities) vegetation removal would account for a portion of the area of direct impacts. This vegetation removal would primarily consist of removal of grass, alder, and common roadside shrubs. The grasses and shrubs may currently provide a food source for bears, especially during the spring. The loss of this food resource would force bears to find food in other areas. However, this impact would be less than 1 percent of the available habitat and, with the exception of Bog Creek Road, would be temporary until revegetation is successful (estimated at 5 to 10 years). Bears avoid motorized human access (Forest Service 2011a). Bears may resume using the habitat surrounding the roads closed to motorized use as soon as closure activities are complete and humans are no longer present in the area. Furthermore, elimination of motorized disturbances in grizzly bear denning habitat over the long term would be a beneficial impact.

Table 3.2.10. Grizzly Bear Analysis Area Habitat: Acreage and Percentage of Grizzly Bear Habitat Available and Removed by Alternative

		Proposed Action and Alternative 4 Impacts (acres/% of available)		Alternative 3 Impacts (acres/% of available)	
Habitat Type	**Available Habitat (acres)**	**Permanent***	**Temporary†**	**Permanent***	**Temporary†**
Grizzly Bear Analysis Area (Blue-Grass BMU)	57,329	22.3 (<1%)	62.4 (<1%)	22.3 (<1%)	59.3 (<1%)
Denning	26,256	11.7 (<1%)	33.7 (<1%)	11.7 (<1%)	27.7 (<1%)

Source: Forest Service (2016b).

* Bog Creek Road repair and maintenance.

† Motorized road closure activities.

The Proposed Action would repair Bog Creek Road, which occurs within 500 meters of 50 acres of high-quality, contiguous wet meadow/peatland habitat. Although repair activities would not begin until July 16 (outside the spring season, when these habitats are most important to foraging), because bears occupy them throughout the active season, there would be indirect detrimental impacts to bears having to avoid these habitats during repair of Bog Creek Road and over the long term with the administrative open motorized use. Grizzly bears could be disturbed by human activity and noise during repair activities, and avoid the area, resulting in the use of lower quality habitats. During long-term maintenance and use, it is expected that grizzly bears still have the potential to be disturbed, but the disturbance would only occur during administrative motorized use along Bog Creek Road. The Proposed Action would also close 26.5 miles of currently open or

seasonally restricted roads within the BMU, resulting in 1 acre less of wet meadow/peatland habitat occurring within 500 meters of open roads. While a total of 22 acres of wet meadow/peatland habitat occurs within 500 meters of roads proposed for motorized closure, a total of 21 of these acres also occurs within 500 meters of another road that would remain open or seasonally restricted under this alternative, resulting in only 1 acre more of this habitat where disturbance to bears would be lessened. Impacts from motorized road closure activities would be similar to those described for Bog Creek Road, with the exception that after the up-to-three seasons of activity, there would not be disturbance to bears associated with these roads because the roads would no longer have motorized use.

As illustrated in the scientific literature, roads are known to displace bears from the adjacent habitat (Aune and Kasworm 1989; Kasworm and Manley 1990; Mace et al. 1999; McLellan and Shackleton 1988; Wakkinen and Kasworm 1997). Even if a road is not open to traffic other than a controlled amount of vehicles, research still indicates that grizzly bears tend to avoid roads. Research also shows that grizzly bear use of an area declines as the density of roads increases. Grizzly bear use of areas declined as total road densities (open and closed roads) exceeded 2 miles per square mile and open road densities exceeded 1 mile per square mile (Wakkinen and Kasworm 1997). The magnitude of any displacement is related to habitat quality within the potential zone of displacement. For this reason, grizzly bears would be displaced from an area greater than that reported above for habitat removal during repair and motorized closure activities.

As described previously, the Blue-Grass BMU is currently not meeting the Access Amendment standards due to high TMRD and lack of core area habitat. However, the Proposed Action would bring this BMU into compliance with these standards.
The purpose of core area habitat is to allow for sufficient space for grizzly bears to roam and effectively use available habitats. It is a reflection of an area's ability to support grizzly bears based on the quality of the habitat and the type and amount of human disturbance imposed on it. By definition, core area habitat is an area or space outside or beyond the influence of high levels of human activity where human interactions are minimized (Forest Service 2011a). The increase in core area habitat under the Proposed Action would be beneficial for grizzly bears because over the long term it would increase the area in the BMU without high levels of human activity. Figure 2.2.2 in Chapter 2 shows the locations of the proposed core area habitat under the Proposed Action.

As described above and shown in Table 3.2.10, 22.3 acres of grizzly bear habitat would be permanently removed under the Proposed Action with the Bog Creek Road repair and long-term vegetation removal. However, less than 1 percent of the available habitat would be removed from the BMU, and overall core area habitat would be increased over the long term.

There would be direct and indirect detrimental impacts from road repair and motorized closure actions under the Proposed Action. Grizzly bears would be likely to avoid these areas during repair and motorized closure activities, which affects the bears' use of available resources. Also, during repair activities and over the long term, the Bog Creek Road repair would fragment habitat that has been effectively functioning as core area habitat because the road is currently impassable to motorized use. Refer also to Section 3.2.5.3 for long-term effects from road designation changes.

Selkirk Mountain Woodland Caribou

The following direct and indirect effects would occur in addition to those described as being common to all T&E wildlife species in the analysis areas. Additional potential effects on caribou include the potential for vehicle strikes and disruption of linkage corridors (due to human activity), habitat removal, and improved human and predator access.

Human Noise and Activity

Human noise and activities associated with Bog Creek Road would be completed between July 16 and November 15 or between June 16 and November 15 for the closure of Forest Service roads, and would last for up to three seasons. Caribou avoidance of the active work zone during the 4- to 5-month periods would be a temporary effect.

Under the Proposed Action, upon completion of road repair activities, Bog Creek Road and Blue Joe Creek Road would have a 25-mph speed limit and long-term motorized use would be administrative only. Therefore, caribou mortality from vehicle strikes is unlikely to occur.

Predator Access

The motorized road closures proposed under the Proposed Action would benefit the woodland caribou by reducing the amount of roads that caribou predators (wolves, as well as mountain lions) could use to access areas with deep snowpack (Whittington et al. 2011). Wolves have been observed using trails compacted by snowmobiles to access previously inaccessible areas and exploit new resources (Whittington et al. 2011). If roads are closed to motorized use, winter predation pressure on woodland caribou would likely decrease in those areas. Motorized closure of FSR 1388 would benefit caribou because this road would be removed from the designated snowmobile trails, therefore reducing predator access.

Because of the court-ordered snowmobile closure, the repair of Bog Creek Road would not improve public winter motorized access. However, winter predator access, having an indirect impact on caribou, may be improved by CBP winter motorized patrol, if conducted along Bog Creek Road following its repair. This occasional snowmobile use may increase the likelihood of predators using the road or displace caribou. Winter predator access into the vicinity of Bog Creek Road could increase as a result of CBP snowmobile use, compared with the No-Action Alternative.

Fragmentation and Linkages

Although Bog Creek Road is an existing road, its current condition (heavily vegetated, undrivable, and lacking human presence) does not impair caribou habitat connectivity. Under the Proposed Action, repair and maintenance activities on Bog Creek Road could reduce caribou population connectivity via the Little Snowy Top/Continental Mountain movement corridor because of the presence of human noise and activity in the vicinity of a caribou movement corridor (see Figure 3.2.2). However, human activity on Bog Creek Road would have minimal impact to connectivity because the road is located east of the defined movement corridor and is directly south of the steep topography of Kaniksu Mountain. For this reason, caribou may not consistently cross Bog Creek Road during seasonal movements (Warren 2016) under current conditions. The human activity and noise on Bog Creek Road would constitute a temporary detrimental direct impact on

caribou movement patterns, which would cease after the human activity has been completed.

Two roads proposed for motorized closure, FSR 1322 and FSR 1322A, are located within the defined Little Snowy Top/Continental Mountain movement corridor (see Figure 3.2.2). Under current conditions, caribou cross both roads during seasonal movements (Warren 2016). These roads are currently gated and blocked with boulders, but not yet formally closed to motorized access. Caribou would indirectly benefit in the long term from motorized closure of these roads. However, the human activities associated with motorized closure of these roads would temporarily displace caribou from the area, forcing them to choose a different route for seasonal movements for up to three 5-month-long seasons.

Habitat Removal

Approximately 93 percent of the woodland caribou analysis area is caribou habitat. The Proposed Action would directly affect less than 1 percent of the caribou habitat in the analysis area for Bog Creek Road repair and motorized road closure activities (Table 3.2.11).

Caribou calving generally occurs between June 1 and July 7. There is no high-elevation subalpine fir habitat along the Bog Creek Road repair corridor. Motorized closure activities along 2.9 miles of high-elevation subalpine fir habitat could impact late-calving caribou and young calves during the first few weeks of the proposed work. However, this impact is unlikely because the Selkirk Mountain woodland caribou are not known to frequent and calve in the analysis area. Overall, most of the repair and proposed motorized road closure would occur in low-elevation areas, where calving caribou would not be present.

Road repair of Bog Creek Road could cause temporary caribou displacement within the woodland caribou analysis area. Beyond the 4-month repair and 5-month motorized closure activity periods that could occur for up to three seasons, caribou use of the analysis area could be altered under the administrative open designation. The motorized use under the Proposed Action, for Bog Creek Road and Blue Joe Creek Road, would alter from very low and low, respectively, to moderate (see Table 3.1.3). Long-term displacement effects are further discussed below in Section 3.2.5.3.

Direct and indirect temporary impacts from road repair and motorized closure actions under the Proposed Action could affect Selkirk Mountain woodland caribou. However, conducting the repair and motorized closure activities after calving season and outside calving habitat reduces the potential to affect the sensitive caribou calving period.

Canada Lynx

The following effects would occur in addition to those described as common to all T&E wildlife. Impacts to Canada lynx could occur during activities associated with the Proposed Action (repair and maintenance of Bog Creek Road and the proposed motorized road closures). Temporary direct and indirect impacts could occur during road repair and motorized closure activities. Additional potential effects on lynx include habitat fragmentation (disrupting population linkage corridors), habitat removal, displacement, and increased public access due to the improved road conditions.

Table 3.2.11. Woodland Caribou Analysis Area Habitat: Acreage and Percentage of Available Caribou Habitat Removed by Alternative

CMU	Spruce/Subalpine Fir			Western Red Cedar/ Western Hemlock			Cedar/Hemlock/Other			Total Forested Caribou Habitat
	Impacted Acres (% Available by Age)			Impacted Acres (% Available by Age)			Impacted Acres (% Available by Age)			Impacted Acres (%Available)
Age (years)	**<100**	**100–149**	**>150**	**<100**	**100–149**	**>150**	**<100**	**100–149**	**>150**	
Proposed Action, Alternative 3, and Alternative 4 – Permanent (Bog Creek Road Repair and Maintenance)										
Upper Priest	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)
Grass	0.0 (0%)	0.0 (0%)	0.0 (0%)	2.6 (2%)	0.0 (0%)	1.0 (<1%)	2.0 (<1%)	0.0 (0%)	3.5 (<1%)	9.1 (<1%)
Cow	0.0 (0%)	0.0 (0%)	1.6 (<1%)	0.8 (<1%)	0.0 (0%)	7.0 (<1%)	0.5 (<1%)	0.0 (0%)	2.6 (<1%)	12.5 (<1%)
Total	**0.0 (0%)**	**0.0 (0%)**	**1.6 (<1%)**	**3.4 (<1%)**	**0.0 (0%)**	**8.0 (<1%)**	**2.5 (<1%)**	**0.0 (0%)**	**6.1 (<1%)**	**21.6 (<1%)**
Proposed Action and Alternative 4 – Temporary (Motorized Road Closures)										
Upper Priest	0.2 (<1%)	2.7 (<1%)	0.6 (<1%)	0.0 (0%)	0.2 (<1%)	1.3 (<1%)	0.8 (<1%)	0.0 (0%)	0.2 (<1%)	6.0 (<1%)
Grass	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.5 (<1%)	3.0 (<1%)	9.9 (<1%)	1.6 (<1%)	15.0 (<1%)
Cow	0.0 (0%)	1.4 (<1%)	2.3 (<1%)	7.6 (2%)	6.7 (<1%)	9.3 (<1%)	9.4 (<1%)	2.2 (<1%)	2.3 (<1%)	41.2 (<1%)
Total	**0.2 (<1%)**	**4.1 (<1%)**	**2.9 (<1%)**	**7.6 (<1%)**	**6.9 (<1%)**	**11.1 (<1%)**	**13.2 (<1%)**	**12.1 (<1%)**	**4.1 (<1%)**	**62.2 (<1%)**
Alternative 3 – Temporary (Motorized Road Closures)										
Upper Priest	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)
Grass	0.5 (<1%)	6.2 (<1%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.5 (<1%)	3.5 (<1%)	18.4 (<1%)	1.6 (<1%)	30.7 (<1%)
Cow	0.0 (0%)	0.0 (0%)	0.0 (0%)	5.3 (<1%)	6.5 (<1%)	6.8 (<1%)	6.9 (<1%)	1.8 (<1%)	1.5 (<1%)	28.8 (<1%)
Total	**0.5 (<1%)**	**6.2 (<1%)**	**0.0 (0%)**	**5.3 (<1%)**	**6.5 (<1%)**	**7.3 (<1%)**	**10.4 (<1%)**	**20.2 (<1%)**	**3.1 (<1%)**	**59.5 (<1%)**

Source: Forest Service (2016b).

Human Noise and Activity

During Bog Creek Road repair or the motorized closure of Forest Service Roads, lynx individuals could be displaced from parts of the analysis area due to site-specific noise and human activity. Displacement due to repair and motorized closure activities would be a temporary direct impact, and would only persist for the three 4- to 5-month-long seasons during which these activities would occur. Repair and motorized closure would also only take place during daylight hours (see Table 3.1.1) and would therefore not affect lynx evening or nighttime foraging activities. If displacement occurs from areas where hare habitat is present, individuals would be prevented from using an available food resource, rendering a that portion of an animal's home range unusable, and forcing lynx to increase energetic costs to expand the home range size. This direct impact is unlikely, however, because less than 1 percent of the available suitable habitat would be impacted by project implementation (as shown in Table 3.2.12 below).

Competitor Access

Similar to the above discussion regarding caribou predators, the motorized road closures proposed under the Proposed Action would benefit the Canada lynx by reducing the amount of roads available for lynx competitors (coyotes) to access areas with deep snowpack. Winter competition for lynx prey resources could decrease, an indirect beneficial impact.

Because of the court-ordered snowmobile closure, the repair of Bog Creek Road would not improve public winter motorized access. However, lynx competitor access may be improved by CBP winter motorized patrol, if conducted following the repair of Bog Creek Road. This occasional snowmobile use may increase the likelihood of lynx competitors using the road, an indirect detrimental impact. Competition in the vicinity of Bog Creek Road could increase for lynx as a result of CBP snowmobile use, compared with the No-Action Alternative.

Fragmentation and Linkages

The nearest habitat linkage identified by the NRLMD is located approximately 20 miles southeast of the Canada lynx analysis area (see Figure 3.2.3). This linkage crosses U.S. Route 95 and the Kootenay Valley. Because of its distance from the Proposed Action, effective use of this linkage would not be impacted by the project.

A recent analysis on the Okanogan National Forest in Washington showed that lynx neither preferred nor avoided forest roads (McKelvey et al. 2000; USFWS 2000). In fact, along less-traveled roads where the vegetation provides good hare habitat, lynx occasionally use roadbeds for travel and foraging (Koehler and Brittell 1990). However, an active road could affect denning areas, as lynx appear to avoid active road type disturbance (Ruggiero et al. 2000). Squires et al. (2010) found that lynx did not avoid gravel forest roads, and further concluded that low vehicular use had little effect on lynx resource-selection patterns in Montana. Because the Bog Creek Road and Blue Joe Creek Road long-term administrative use designation changes would alter motorized use from very low and low to moderate (see Table 3.1.3), lynx movement along these roads could be affected.

The short-term road repair and motorized closure activities in the analysis area would affect less than 1 percent of the lynx habitat in the combined LAUs. Lynx avoidance of

the active work zone during the up to three 4-month (July 16 to November 15) repair and 5-month (June 16 to November 15) motorized closure periods would be a temporary direct detrimental impact.

Outside the 4-month repair and 5-month motorized closure periods, lynx seasonal use and movement patterns in the analysis area would remain unchanged. Repair and motorized closure activities are planned to occur after denning season (May to June), so lynx reproduction would not be impacted. Because more than 99 percent of lynx habitat is available to the lynx during active road repair and motorized closure activities and their 4- to 5-month duration (for up to 3 years), this effect would not reduce the lynx population in the analysis area.

Habitat Removal

Table 3.2.12 and Figure 3.2.3 display the acres of lynx habitat available in each LAU that form the Canada lynx analysis area, along with the amount of habitat that would be removed by action alternative. A total of 69.8 acres of lynx habitat would be impacted under the Proposed Action, which constitutes less than 1 percent of the available lynx habitat in the Canada lynx analysis area.

Table 3.2.12. Canada Lynx Analysis Area Habitat: Acreage and Percentage of Lynx Habitat Available and Removed by Alternative

LAU Name	Total Acreage of LAU	Acres of Lynx Habitat Available in the LAU (% of LAU)	Proposed Action and Alternative 4 Impacts (acres/% of available)		Alternative 3 Impacts (acres/% of available)	
			Permanent*	Temporary†	Permanent*	Temporary†
Upper Priest	33,571	30,109 (90%)	12.3 (<1%)	40.9 (<1%)	12.3 (<1%)	28.3 (<1%)
Blue-Grass	25,709	18,253 (71%)	8.9 (<1%)	1.8 (<1%)	8.9 (<1%)	17.3 (<1%)
Saddle-Cow	27,154	16,614 (61%)	0 (0%)	5.9 (<1%)	0 (0%)	0 (0%)
Total	**86,434**	**64,976 (75%)**	**21.2 (<1%)**	**48.6 (<1%)**	**21.2 (<1%)**	**45.6 (<1%)**

Source: Forest Service (2016b).

* Bog Creek Road repair and maintenance.

† Motorized road closure activities.

These direct impacts would occur in all three LAUs. Bog Creek Road repair would permanently impact approximately 21.2 acres of lynx habitat and occur in the Blue-Grass (8.9 acres) and Upper Priest (12.3 acres) LAUs; all other reported direct habitat impacts would be temporary and occur during motorized road closure activities. Vegetation removal for Bog Creek Road repair and all motorized road closure activities would primarily consist of removal of grass, alder, and common roadside shrubs, which is the vegetation that has grown on the existing road beds. This vegetation may currently serve as early successional snowshoe hare habitat, and may provide a source of prey for Canada lynx. Removal of this vegetation would reduce local lynx food availability. Effects from habitat removal due to the Bog Creek Road repair would persist into the long term because the vegetation in these areas would not be allowed to return to the conditions necessary to serve as lynx habitat for the life of Bog Creek Road. Effects from habitat removal for the motorized road closure activities would be temporary, as the road beds would be allowed to revegetate in the long term.

Direct and indirect impacts from repair and motorized closure activities under the Proposed Action could affect Canada lynx.

North American Wolverine

The following direct and indirect effects would occur in addition to those described as being common to all T&E wildlife. Impacts to North American wolverine may occur during the repair and motorized closure activities associated with the Proposed Action (repair and maintenance of Bog Creek Road and proposed motorized road closures). Temporary impacts would occur during road repair and motorized closure activities. Additional potential effects on wolverine include disruption of linkage corridors, habitat removal, and human noise and activity.

Human Noise and Activity

The following effects analysis is paraphrased from the *Programmatic Biological Assessment for the North American Wolverine*, in which the human noise and activity analyzed in this DEIS are analyzed as "human use and disturbance" (Forest Service 2014a). Wolverine habitat is recognized to be generally inhospitable to human use and occupation because of the elevation and persistence of snow cover. It is also considered somewhat insulated from human disturbance resulting from industry, agriculture, infrastructure development, or recreation. Part of this insulation is because most wolverine habitat is federally managed in ways that must consider environmental impacts (USFWS 2013b:7877). Overall, human disturbances have likely resulted in some minor, but unquantified, direct loss of wolverine habitat, but the wolverine has also been documented to persist and reproduce in areas with high human use and disturbance (USFWS 2013b:7877). The USFWS analyzed four categories of human use and disturbance, which were estimated to account for most of the human activities that occur in occupied wolverine habitat: dispersed recreational activities, infrastructure development, transportation corridors, and land management (USFWS 2013b:7877).

According to Appendix A of the programmatic BA for the North American wolverine (Forest Service 2014a), the following activities fall under the threat of infrastructure development: reopening a closed road or road segment; bridge or stream culvert repair or replacement; and motorized road closures, including installation of closure devices, revegetation, and/or recontouring of the road prism (USFWS 2013b:7878). Such developments may affect wildlife directly by eliminating habitats, or indirectly by displacing animals from suitable habitat near developments. The USFWS concludes that wolverines do not avoid human development of the types that occur within suitable wolverine habitat and that there is no evidence that wolverine dispersal is affected by infrastructure development. The USFWS further states that there is no evidence that human development and associated activities are preventing wolverine movements between suitable habitat patches (USFWS 2013b). The infrastructure repair and maintenance and closure from the Proposed Action do not constitute a threat to the North American wolverine. Reduced human presence would occur on the roads proposed for motorized closure under the Proposed Action, providing a benefit to wolverine.

Fragmentation and Linkages

The repair and motorized closure activities in the analysis area would occur in the IDFG-identified wolverine linkage corridor shown in Figure 3.2.4 (IDFG 2014). These activities could disrupt population connectivity for up to three seasons during the 4-month repair

(July 16 to November 15) and 5-month motorized closure period (June 16 to November 15). This would be a temporary direct impact, and individual wolverines could travel through other available dispersal habitat within the analysis area during the repair and motorized closure period.

Habitat Removal

Because wolverines are habitat generalists and can disperse far distances, the entirety of the wolverine analysis area (117,545 acres) is considered to be wolverine habitat. IDFG (2014) considers the area a Tier 1 priority conservation area for wolverine (Table 3.2.13). Approximately 84.7 acres (less than 1 percent) of this habitat would be directly impacted under Alternative 2, 22.3 acres of which would be permanently removed for the Bog Creek Road repair. However, because these animals have large home ranges (as large as 130–168 square miles [83,200–107,520 acres]), less than 1 percent of an individual wolverine's home range would be affected by the Proposed Action. See also Appendix G, the summary sheet for the wolverine programmatic BA.

Table 3.2.13. North American Wolverine Analysis Area Habitat: Acreage and Percentage of Wolverine Habitat Available and Removed by Alternative

Habitat Type	Available Habitat (Acres)	Proposed Action and Alternative 4 Impacts (acres/% of available)		Alternative 3 Impacts (acres/% of available)	
		Permanent*	Temporary†	Permanent*	Temporary†
General (foraging, movement/dispersal)	117,545	22.3 (<1%)	62.4 (<1%)	22.3 (<1%)	59.3 (<1%)
Denning	25,107	5.8 (<1%)	13.5 (<1%)	5.8 (<1%)	13.9 (<1%)

Source: Forest Service (2016b).

* Bog Creek Road repair and maintenance.

† Motorized road closure activities.

Areas important for wolverine reproduction consist of high-elevation, north-facing zones with persistent spring snowpack (Copeland, McKelvey, et al. 2010; Copeland, Peek, et al. 2007). The persistence of wolverine reproductive habitat is important to maintain or grow local populations. Approximately 25,107 (21 percent) of the wolverine analysis area consists of suitable denning habitat (see Figure 3.2.4). Approximately 19.3 acres (less than 1 percent) of this denning habitat would be directly impacted by permanent and temporary repair and motorized closure activities under the Proposed Action (see Table 3.2.13). Direct impacts to denning individuals would be avoided because of two design features: 1) repair would start after July 16 and motorized closure would start after June 16, so snow dens are unlikely to be occupied at this time; and 2) if active dens are discovered prior to repair and motorized closure activities, then disturbance would be avoided or minimized within 1 mile of the den until the pups disperse (see Appendix B).

For wolverine, a proposed threatened species, direct and indirect impacts from repair and motorized closure activities under the Proposed Action would not jeopardize the continued existence of the species.

Bull Trout

The reader is also referred to Section 3.6, Water Resources, for a more detailed discussion of the water quality and quantity analyses. The following analysis is based on the incorporation of several key features designed to avoid or minimize effects on streams occupied by bull trout and bull trout DCH from the road repair and motorized closure actions (see Appendix B). These include the following:

- Implementation of Forest Plan standards and guidelines for Watershed, Soils, Riparian, Aquatic Habitat, and Aquatic Species (Forest Service 2015a).
- Design features such as erosion control, spill prevention planning, and the commitment to not store hazardous materials or petroleum products within Riparian Habitat Conservation Areas (RHCAs).

Bull Trout Distribution

Under the Proposed Action, no in-stream work would occur in stream segments occupied by bull trout or designated as critical habitat. Bull trout distribution and migratory corridors would not be affected by the Proposed Action. In-stream work would occur upstream of streams occupied by bull trout and DCH and has the potential to cause downstream impacts; these are further discussed in the Sedimentation from In-Stream Work section below.

Sedimentation from In-Stream Work

Within the bull trout analysis area, bull trout DCH is mapped in the same locations as the streams known to be occupied by bull trout (see Figure 3.2.5 and Table 3.2.5). Under the Proposed Action, downstream sedimentation from in-stream work (culvert removal and replacement) on Continental Creek could temporarily directly affect mapped DCH on Malcom Creek (represented by the shaded value in Table 3.2.14). Sedimentation from culvert removal could be measurable to approximately 3,000 feet downstream of in-stream work (Foltz et al. 2008); and up to 800 feet downstream of culvert replacement (Forest Service 2013c). This direct effect would be short lived, with 95 percent of sediment released within 24 hours of completing the culvert removal (Foltz et al. 2008); and several hours with culvert replacements (Forest Service 2013c). Foltz et al. (2008:336) estimate that sediment pulses could range from 0.0002 to 0.0034 ton (0.0003 to 0.0044 cubic yard) when erosion controls, such as straw bales, are used during culvert removal (see Appendix B). This represents less than one shovelful of sediment and, as mentioned in the No-Action Alternative, it is likely that bull trout are located 4,000 feet downstream of this in-stream work. At the closest, the other culvert removal locations are more than 2,000 feet (at the FSR 1322A culvert removals) from the distance at which sedimentation would be measurable downstream due to in-stream work. No other streams occupied by bull trout or bull trout DCH would be affected by the road repair and motorized closure actions.

Table 3.2.14. Potential for Downstream Impacts to Streams Occupied by Bull Trout and Bull Trout DCH from In-Stream Work under the Proposed Action, Alternative 3, and Alternative 4

Stream Name*	Distance Downstream from In-Stream Work to Stream Occupied by Bull Trout and Bull Trout DCH (feet)	FSR No. Where In-Stream Work Would Occur	Stream Name Containing In-Stream Work
Upper Priest River	4,900	1322A	Unnamed Tributary to Upper Priest River
Lime Creek	6,300	1013C	Unnamed Tributary to Lime Creek
Malcom Creek	2,500†	1013	Continental Creek

Sources: Forest Service (2016b); USFWS (2010).

* Because Rock Creek and Cedar Creek are not downstream of the roads proposed for repair and maintenance or motorized closure under any action alternatives, impact analysis was not conducted for those streams because there is no mechanism by which they would be affected by the proposed project.

† Note: Shaded values indicate the potential for sediment to temporarily affect bull trout or bull trout DCH because it would be measurable to 3,000 feet downstream of in-stream work (Foltz et al. 2008).

Under the Proposed Action, there would be a lower long-term potential than under the No-Action Alternative for culvert failure at the road–stream crossings upstream of mapped bull trout DCH on Upper Priest River, Malcom Creek, and Lime Creek, following culvert replacement or removal. This is because 1) the new culvert at the Continental Creek crossing (upstream of Malcom Creek) would be hydraulically designed in accordance with Forest Service standards and receive regular (at least annual) maintenance; 2) the culvert removal locations (upstream of Upper Priest River and Lime Creek) would be reshaped to resemble the natural channel up- and downstream. The reduced potential for culvert failure to contribute sediment to downstream bull trout DCH is a long-term beneficial direct impact.

As described above and shown in Table 3.2.14, impacts from road repair and motorized closure actions under the Proposed Action could temporarily directly affect bull trout or bull trout DCH downstream from in-stream work on Continental Creek.

Alternative 3 – Modified Proposed Action

Impacts to T&E wildlife would be identical to those described under the Proposed Action, except for the habitat impacts shown in Tables 3.2.10 through 3.2.13.

Under Alternative 3, 24.7 miles of Forest Service roads would be closed to all motorized use within the Blue-Grass BMU, 1.75 miles fewer than under the Proposed Action and Alternative 4. Like for the Proposed Action, this alternative would allow the Forest Service to meet the Access Amendment grizzly bear core area habitat requirement of 55 percent and the TMRD (greater than 2 miles per square mile) requirement of 26 percent, as shown in Table 3.2.15. The roads chosen for closure would consist of a different suite of road segments than those under the Proposed Action, and would create core area habitat in 55.71 percent of the BMU, 0.54 percentage points more than the Proposed Action. The road segments were chosen under this alternative to increase the amount of contiguous core area and to create a large core area in the central portion of the BMU. Figures 2.2.1 through 2.2.4 in Chapter 2 show core area habitat under the alternatives.

Table 3.2.15. Alternative 3 – Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	**BMU Priorities (1, 2, or 3)**	**Alternative 3**	**Selected Standard (maximum)**	**Alternative 3**	**Selected Standard (maximum)**	**Alternative 3**	**Selected Standard (minimum)**	**% NFS Land**
Blue-Grass	1	23.26%	33%	20.87%	26%	55.71%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

Creation of a large contiguous core area would be beneficial for all T&E wildlife, including grizzly bears, because it would provide a large area within the BMU where human disturbance would be minimized and wildlife would have sufficient space to roam and effectively use available habitats. Alternative 3 would create the largest core area of all of the alternatives. During the motorized road closure activities, Alternative 3 would impact 6 fewer acres of grizzly bear denning habitat than the Proposed Action (see Table 3.2.10), but long-term motorized disturbance would be eliminated from 6 more acres of grizzly bear denning habitat under the Proposed Action than under Alternative 3. As with the Proposed Action, the repaired Bog Creek Road would be within 500 meters of 50 acres of high-quality, contiguous wet meadow/peatland habitat under Alternative 3. This could disturb foraging grizzly bears, especially in the spring season, a detrimental direct impact. The motorized closure of 24.7 miles of currently open or seasonally restricted road within the BMU would result in 16 acres of wet meadow/peatland habitat that would no longer occur within 500 meters of an open road. While a total of 38 acres of wet meadow/peatland habitat occurs within 500 meters of roads proposed for motorized closure, a total of 22 of these acres also occurs within 500 meters of another road that would remain open or seasonally restricted under this alternative, resulting in 16 acres of this habitat that would no longer be near roads with motorized access. This is 15 more acres of wet meadow/peatland habitat with roads closed to motorized access than under the Proposed Action. Therefore, more of this habitat would be improved for grizzly bear foraging under Alternative 3 than under the Proposed Action.

Alternative 3 proposes 2.7 miles of proposed motorized road closure in high-elevation subalpine fir habitat, 0.2 mile less than the Proposed Action. This would result in less potential temporary disturbance to late-calving caribou. Overall, 6.8 percent fewer linear miles of motorized road closure would occur than under the Proposed Action, which would have a slightly less beneficial indirect impact to woodland caribou and Canada lynx because predation and competition pressures would be reduced in slightly fewer roaded areas.

Repair and motorized closure impacts to streams occupied by bull trout and bull trout DCH under Alternative 3 would be the same as described for the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

All short-term direct and indirect effects from Bog Creek Road repair and motorized road closure under Alternative 4 would be identical to those described under the Proposed Action. After Bog Creek Road repair is complete, the difference between the Proposed

Action and Alternative 4 would be changes to the road miles available for motorized use in the Blue-Grass BMU. The open designation under Alternative 4 would allow unrestricted non-winter public motorized travel through the BMU as shown in Figure 2.2.4. The long-term effects of this change are described below in Section 3.2.5.3, Effects from Long-Term Maintenance and Use Actions.

3.2.5.3 Effects from Long-Term Maintenance and Use Actions

The following section details direct and indirect effects on wildlife from long-term maintenance and use actions in the analysis areas, which consists of motorized travel designation changes, grubbing or trimming of trees and other vegetation, culvert cleaning, and routine grading. The long-term effects of managing the roads proposed for motorized closure under each alternative are also described in this section.

Alternative 1 – No Action

Under the No-Action Alternative, tree-trimming and grubbing would not take place on Bog Creek Road, and the roads proposed for motorized closure in this DEIS may not be formally closed. Some of these roads would become progressively overgrown by alder trees and understory shrubs, whereas others would remain drivable and maintained (FSRs 636, Upper 2464, and 1388). Over time, this overgrowth would reduce and ultimately eliminate the habitat fragmentation effects for all T&E wildlife species. Motorized use within the Blue-Grass BMU would still be restricted, but would not occur on Bog Creek Road because it is undrivable. Motorized and non-motorized use within the BMU would likely remain the same as in the existing condition (including snowmobile use).

Weed management would continue as prescribed in existing plans (Forest Service 1995c, 1997). Therefore, it is unlikely that weeds would reduce current habitat health.

Under the No-Action Alternative, open motorized roads occur within 500 meters of these high-quality grizzly bear habitats: 8 percent of the denning habitat and 7 percent of the wet meadow habitat (as shown below in Table 3.2.17); and within 250 meters of 9 percent of caribou habitat (as shown below in Table 3.2.18). Grizzly bear and caribou have the potential to be displaced from the habitats within those respective distances of open motorized roads (Dyer et al. 2001; Wakkinen and Kasworm 1997).

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards shown in Table 3.2.16. According to the 2011 Access Amendment, these standards must be met. It is unknown exactly which roads would be closed to motorized use to meet the Access Amendment standards. Bears would continue to avoid existing roads, especially roads open to motorized use (a detrimental direct impact), and wolves and other predators could continue to use the existing roads to prey upon caribou (a detrimental indirect impact).

Table 3.2.16. Comparison of the Access Amendment Standards Relative to the No-Action Alternative Calculations

BMU	BMU Priorities (1, 2, or 3)	OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		% NFS Land
		No Action (Alternative 1)	Selected Standard (maximum)	No Action (Alternative 1)	Selected Standard (maximum)	No Action (Alternative 1)	Selected Standard (minimum)	
Blue-Grass	1	14.87%	33%	28.95%	26%	48.25%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

Under the No-Action Alternative, no impacts would occur to bull trout or bull trout DCH, other than what is discussed in the No-Action Alternative portion of the Effects from Short-Term Road Repair and Motorized Closure Actions section. These effects could include catastrophic culvert failure or blowout contributing sediment downstream, which can reduce habitat complexity and pool depth, spawning success, and insect larvae preyed upon by bull trout.

Alternative 2 – Proposed Action

The following section discusses direct and indirect effects from long-term maintenance and use actions on T&E wildlife that would occur under the Proposed Action. Bog Creek Road (FSR 1013) and Blue Joe Creek Road (FSR 2546) would be designated administrative open roads, which would not allow public motorized use but the roads would no longer have seasonal trip restrictions. Locking gates that minimize potential destruction, dismantling, or breaching would be installed at either end of the 5.6-mile Bog Creek Road, and the road would be signed PUBLIC MOTORIZED ENTRY PROHIBITED – THIS ROAD IS UNDER SURVEILLANCE – VIOLATORS WILL BE PROSECUTED (see Appendix B, Design Features), and the road would have a 25-mph speed limit. The entire length of Blue Joe Creek Road would change in designation from seasonally restricted to administrative open road, and it would also have a 25-mph speed limit.

Effects Common to All Threatened, Endangered, and Proposed Wildlife Species in the Analysis Areas

The direct and indirect impacts described in this section are applicable to all T&E wildlife. Impacts specific to a species are described below.

Human Noise and Activity

The long-term maintenance and use actions could occasionally displace T&E wildlife from the vicinity of Bog Creek Road and Blue Joe Creek Road due to the associated human noise and activity that would occur (a detrimental direct effect). There would be no limit on administrative motorized use on the roads. Projected motorized use would increase from very low to moderate on Bog Creek Road and from low to moderate on Blue Joe Creek Road, compared with the No-Action Alternative (see Table 3.1.3). As both roads are closed to all public winter motorized use, wildlife would be more likely to be displaced during the non-winter seasons when motorized use would occur. CBP may occasionally access these roads via snowmobile during the winter, as winter restrictions do not apply to law enforcement activities; CBP snowmobile use of these roads could increase from that of the No-Action Alternative. Displacement of an individual or family

group would not be likely to affect species at the population level. Studies show that effects on wildlife from vehicle noise are proportionate to both the volume of traffic on roads and the speed at which the vehicles are traveling (Forman and Alexander 1998). Because motorized use of Bog Creek Road and Blue Joe Creek Road would be limited to administrative only, and these roads would have a 25-mph speed limit, road noise effects on T&E wildlife are not anticipated to have population-level impacts.

An increase in motorized use of Bog Creek Road and Blue Joe Creek Road (see Table 3.1.3) would increase the long-term potential for direct wildlife mortality due to vehicle strikes. However, these roads would be used for administrative purposes only, and would not be open to the public. Therefore, the number of vehicles would be limited, and vehicle speeds would be slower (25-mph speed limit), maintaining a low potential for mortality due to vehicle strikes. Also, administrative personnel accessing the analysis areas would receive training to reduce the potential for wildlife mortalities from human–wildlife interactions.

The motorized road closure also reduces the potential for wildlife displacement due to human noise and activity, because recreationists, hunters, and other users would be less likely to use these roads as they become revegetated and more difficult to traverse.

Fragmentation and Linkages

The roads closed to motorized use under the Proposed Action would over time naturally become revegetated. This would result in the same benefits as described under Effects from Short-Term Road Repair and Motorized Closure Actions, Effects Common to All Threatened and Endangered Wildlife Species in the Analysis Areas.

Compared with the No-Action Alternative, the repaired and maintained Bog Creek Road and its designation change to administrative open, along with Blue Joe Creek Road changing from seasonally restricted to the administrative open designation, would have an increased barrier effect on migrating T&E wildlife. However, this effect would be reduced through the restricted human presence within the various species' analysis areas under the Access Amendment guidelines (see Tables 3.2.9 and 3.2.15) and the 2007 court-ordered snowmobile closure (Court Order No. CV-05-0248-RHW). Long-term population connectivity would be detrimentally impacted by the Proposed Action for grizzly bears and woodland caribou (further discussed below for these species), but would not be for the Canada lynx and wolverine.

During maintenance and use of Bog Creek Road, weed management would occur as prescribed in existing plans (Forest Service 1995c, 1997). Because the presence of weeds often reduces local biodiversity and can outcompete higher quality sources of forage, preventing weed establishment would maintain the quality of the habitat for the wildlife that currently use these areas (an indirect beneficial effect). On-going maintenance activities—weed management, grubbing or trimming of trees, culvert cleaning, and routine grading—on Blue Joe Creek Road would not change from current conditions.

Grizzly Bear

Improved Human Access

Repair and maintenance of Bog Creek Road would facilitate non-motorized recreational use of the corridor by mountain bikers, hikers, and hunters. Increased non-motorized public access along the improved Bog Creek Road could lead to the increased potential

for direct mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears. Increased non-motorized use of the road by black bear hunters would increase the potential for mistaken identity kills of grizzly bear. Increased presence of non-motorized user groups could also increase the potential for bear mortality in defense of human life along the repaired road. The motorized road closure that would occur elsewhere would reduce human access into those parts of the BMU, but human access along Bog Creek Road would be improved. The Forest Service would continue monitoring the trails in the Blue-Grass BMU for potential high use (i.e., an average of more than 20 parties per week) and if this occurs, then a buffer of these trails would be removed from core area habitat (see Table 3.2.20).

Fragmentation and Linkages

As described in Section 3.2.5.2, the Blue-Grass BMU provides an important grizzly bear movement corridor between the other BMUs in the SRZ and the Canadian portion of the SRZ. Although the OMRD, TMRD, and core area habitat would be in compliance with the Access Amendment standards (see Table 3.2.9), the administrative open motorized use of Bog Creek Road and Blue Joe Creek Road—shifting these roads from very low and low motorized use to moderate (see Table 3.1.3)—would increase motorized use in the BMU through which bears pass to move in a north–south direction. This would reduce the permeability of the movement corridor as a whole and could discourage some bear individuals from moving through the BMU. However, with the administrative open motorized use available on the west side of the BMU, motorized use on the seasonally restricted roads in the central portion of the BMU would remain low. This central portion contains the historical Trapper Peak burn and the Grass Creek drainage, where a female grizzly bear with cubs has been documented in recent years (Kasworm et al. 2017). Refer also to Section 3.2.5.4 for further cumulative effects discussion.

Disturbance from Habitat, Road Avoidance, and Core Area Habitat

Long-term administrative open motorized use of Bog Creek Road would have a long-term indirect impact because it would fragment habitat that is currently functioning as core habitat under the No-Action Alternative. The current very low motorized use on the road would increase to moderate (see Table 3.1.3). In essence, this core habitat would be shifted to other parts of the BMU, and bears currently using the habitat surrounding Bog Creek Road would have to change daily and seasonal habitat use patterns to avoid the motorized disturbances on the road. The timeline for bears' avoidance of Bog Creek Road would occur as active avoidance during repair, and continue indefinitely with the long-term administrative open motorized use. A slight increase in bears' use of the habitat adjacent to the road may eventually occur after the intense road repair activity is completed. Because Blue Joe Creek Road would increase from low to moderate motorized use, bears would also be disturbed from the habitat surrounding this road (see Table 3.1.3).

Under the Proposed Action, the OMRD, TMRD, and core area habitat would be in compliance with the Access Amendment standards (see Table 3.2.9). However, a comparison of denning and wet meadow habitat available to grizzly bears under varying long-term motorized use per alternative demonstrates detrimental indirect disturbance impacts to grizzly bears from the Proposed Action (Table 3.2.17). Under the Proposed Action, 16 percent of the denning habitat and 32 percent of the wet meadow habitat in the

BMU would be within 500 meters of roads designated as having open motorized use (including administrative open). (These calculations do not include seasonally restricted roads because the motorized use on those roads would remain low, as defined in Table 3.1.3.) There is the potential for increased grizzly bear disturbance from 8 percentage points more denning habitat and 25 percentage points more wet meadow habitat than under the No Action. Although there would be motorized road closures under the Proposed Action and the Access Amendment conditions would be within the standards, there would be greater disturbance impacts to grizzly bear using these high value habitats under this alternative than under the No Action.

Table 3.2.17. Grizzly Bear Analysis Area Habitat: Long-Term Acreage of Denning and Wet Meadow Habitat within 500 Meters of Roads Designated as Administrative Open and Open by Alternative

Habitat Type	Available Habitat in the BMU (acres)	No Action (Alternative 1) Impacts (acres/% of available)	Proposed Action and Alternative 3 Impacts (acres/% of available)	Alternative 4 Impacts (acres/% of available)
Denning	26,256	1,972.1 (8%)	4,232.4 (16%)	6,987.7 (27%)
Wet Meadow	200	13.7 (7%)	63.8 (32%)	91.1 (46%)

Source: Forest Service (2016b).

There would be direct and indirect detrimental impacts to grizzly bears from long-term maintenance and use actions under the Proposed Action.

Selkirk Mountain Woodland Caribou

Human Noise and Activity

The designation of Bog Creek Road and Blue Joe Creek Road as administrative open under the Proposed Action would increase the potential for direct caribou mortality from vehicle strikes; however, with a 25-mph speed limit, caribou mortality from vehicle strikes is unlikely to occur on these roads. There would be 43.6 miles of open roads within caribou habitat in the analysis area under the Proposed Action, compared with 32.4 miles under the No-Action Alternative (Table 3.2.18, below). In addition, administrative motorized use along the segments of road occurring in high-elevation subalpine fir habitat has the potential to disturb cows with calves during calving (June 1 to July 7). However, this impact is unlikely because the Selkirk Mountain woodland caribou are not known to frequent and calve in the analysis area and only 1.3 miles of the roads (0.91 more miles than under the No Action) that would be open to unlimited motorized use occur in this high-elevation habitat. Most administrative open and open roads occur in low-elevation areas, where calving caribou would not be present.

Predator and Human Access

Predators in the Selkirk caribou range, specifically wolves and mountain lions, have had a major impact on the Selkirk population in recent years (Forest Service and USFWS 2015). Wolves are known to travel on road corridors to access prey (Apps et al. 2013; Whittington et al. 2011). In the winter, wolves use trails compacted by snowmobiles to access areas that were previously inaccessible due to deep snowpack (Whittington et al. 2011).

Bog Creek Road and Blue Joe Creek Road would be closed to motorized public use year-round, and would not increase the potential for the roads to be compacted by motorized public use in the winter; therefore, facilitation of wolf winter access from public winter motorized recreation would not occur. Also, with one exception, the Proposed Action would not alter the level of winter recreation (e.g., snowmobiling, heli-skiing, and snow-cat skiing) in the analysis area because currently these activities are restricted to specific areas under the 2007 court-ordered closure (Court Order No. CV-05-0248-RHW). The exception to this being the proposed motorized closure of FSR 1388 (a designated snowmobile trail), which would reduce the level of winter recreation near Continental Mountain, benefiting caribou in the long term. This beneficial indirect impact would not occur under Alternative 3, under which FSR 1388 would remain a snowmobile trail. The snowmobile closure allows winter motorized law enforcement patrol. Under the Proposed Action, if CBP conducts winter motorized patrol within the caribou analysis area, there may be an increase in periodic caribou displacement and the likelihood of predators using the compacted trails, compared with the No-Action Alternative. Bog Creek Road is an existing road corridor and currently has the potential to be used by wolves in the non-winter seasons. For this reason, Bog Creek Road repair is unlikely to alter levels of non-winter wolf use resulting in caribou predation.

Repair of Bog Creek Road would facilitate non-motorized recreational use of the corridor by mountain bikers, hikers, hunters, and others. Increased non-motorized recreational use of the road would increase impacts from human noise and activity, as described in Effects Common to All Threatened, Endangered, and Proposed Wildlife Species in the Analysis Areas. Non-administrative motorized use would be prohibited; therefore, public motorized use would not occur on Bog Creek Road. Under the administrative open designation, there would be only administrative vehicles, and vehicle speeds would be slower (25-mph speed limit), which would minimize levels of disturbance from human use. Because the road is currently undrivable and heavily overgrown, motorized human use would increase from that of the No-Action Alternative.

Fragmentation and Linkages

With only 12 caribou located in the 2016 U.S. census (DeGroot 2016), population connectivity is critical for the Selkirk Mountain woodland caribou herd. Bog Creek Road is north of several caribou linkage corridors (see the small inset map in Figure 3.2.2). Caribou generally avoid roads and habitat adjacent to roads (DeCesare et al. 2012). Apps and McLellan (2006) found that remoteness from human presence, low road densities, and limited motorized access were important factors in explaining habitat occupancy by caribou subpopulations. Road avoidance behavior by caribou has been observed within 250 meters of linear features, including roads (Dyer et al. 2001). Administrative motorized use along Bog Creek Road and Blue Joe Creek Road—increasing from very low and low motorized use to moderate (see Table 3.1.3)—could disrupt or disturb caribou moving from north to south, detrimentally impacting their population connectivity. In addition, for species sensitive to human disturbance such as caribou, projected increased motorized use on the roads could result in a decrease in habitat accessibility and lower the quality of otherwise high-value habitat in the vicinity of roads (Fahrig and Rytwinski 2009). Table 3.2.18 indicates that 12 percent of available caribou habitat in the analysis area occurs within 250 meters of administrative open and open roads under the Proposed Action, 3 percentage points more than under the No-Action Alternative. The Proposed Action

would directly impact caribou population connectivity when compared to the No-Action Alternative because of caribou disturbance from the area surrounding Continental Mountain and its adjacent caribou habitat.

Table 3.2.18. Acreage of Caribou Habitat within 250 Meters of Administrative Open and Open Roads, and the Total Mileage of those Roads, by Alternative

	Available Habitat in the Analysis Area	No Action (Alternative 1) Impacts	Proposed Action and Alternative 3 Impacts	Alternative 4 Impacts
Caribou Habitat Acreage (Percent of Available Habitat)	62,683	5,442.3 (9%)	7,547.1 (12%)	10,214.1 (16%)
Total Miles of Administrative Open and Open Roads		32.4	43.6	59.8

Source: Forest Service (2016b)

Direct and indirect impacts from long-term maintenance and use actions under the Proposed Action could affect Selkirk Mountain woodland caribou.

Canada Lynx

Competitor and Human Access

There would be 39.7 miles of administrative open and open roads in lynx habitat within the analysis area under the Proposed Action; this is 10 more miles than under the No-Action Alternative with the potential to directly and indirectly impact Canada lynx.

Bog Creek Road and Blue Joe Creek Road are closed to snowmobiles as a result of the legal rulings relating to the recovery of woodland caribou, and this closure would remain in place under the Proposed Action. Law enforcement actions are exempt from the snowmobile closure, and CBP may conduct winter patrols via snowmobile along the roads in the analysis area. The Proposed Action could increase CBP snowmobile use in the analysis area (over the No Action), allowing competitors, such as coyotes, to use compacted snowmobile tracks to access prey in previously inaccessible areas. CBP snowmobile use may also increase the potential for temporary lynx displacement in the winter. Also, the improved non-motorized human access afforded to trappers by the repaired Bog Creek Road could increase the potential for incidental lynx mortality.

Repair and subsequent maintenance of Bog Creek Road would facilitate non-motorized recreational use of the corridor by mountain bikers, hikers, hunters/trappers, and others. Lynx may avoid contact and could be displaced by these user groups until the humans leave the area. Because the road is currently heavily vegetated and the improvements would make it more passable on foot, there could be an increase under the Proposed Action in the indirect effects on lynx from trapping of their prey species, incidental trapping (when other species are targeted), or poaching and malicious killing. With improved non-motorized public access along Bog Creek Road, it is possible that non-motorized public access could increase along Blue Joe Creek Road from current conditions.

Direct and indirect impacts from long-term maintenance and use actions under the Proposed Action could affect Canada lynx.

North American Wolverine

Human Access

There would be 71.8 miles of administrative open and open roads in wolverine habitat within the analysis area under the Proposed Action. This is 12.9 more miles than under the No-Action Alternative with the potential to directly and indirectly impact wolverine.

As with the Canada lynx, because Bog Creek Road is currently heavily vegetated and the improvements would make it more passable on foot, there could be an increase under the Proposed Action in the effects on wolverine from trapping of their prey species, incidental trapping (when other species are targeted), or poaching. Non-motorized public access may also increase along Blue Joe Creek Road from current conditions under the Proposed Action. These would be detrimental indirect impacts.

Direct and indirect impacts from long-term maintenance and use actions under the Proposed Action would not jeopardize the continued existence of the North American wolverine, a proposed threatened species.

Bull Trout

The reader is also referred to Section 3.6, Water Resources, for a more detailed discussion of that analysis. The following analysis is based on the incorporation of several key features designed to avoid or minimize effects on streams occupied by bull trout and bull trout DCH from the long-term maintenance and use actions (see Appendix B). These include the following:

- Until the IPNF Noxious Weed Treatment Project is finalized (anticipated in January 2019) and other Forest Service guidance is available from that decision, herbicide application would follow existing weed management plans (Forest Service 1995c, 1997). These plans are limited in their use of newer herbicides, with fewer environmental effects and more flexibility in the treatments near water.
- Maintenance of erosion control structures (for example, water bars).
- Design features such as the commitment to not store hazardous materials or petroleum products within RHCAs.

During long-term maintenance and use of Bog Creek Road, culvert cleaning on the Continental Creek culvert could produce occasional sediment pulses in mapped DCH downstream in Malcom Creek. This analysis assumes that periodic monitoring and cleaning would be conducted at the remaining culverts along Lime Creek and its tributaries to avoid culvert failure upstream of streams occupied by bull trout and bull trout DCH.

No impacts to bull trout or bull trout DCH would be expected from long-term maintenance and use actions under the Proposed Action.

Alternative 3 – Modified Proposed Action

All long-term maintenance and use direct and indirect impacts under Alternative 3 would be identical to those described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

Under Alternative 4, Bog Creek Road (FSR 1013), 1 mile of Blue Joe Creek Road (FSR 2546), and segments of FSR 1011, FSR 636, and FSR 1009 (referred to here as the west to east access roads) would be designated open to unlimited public motorized use. A locking gate would be installed at the intersection of Blue Joe Creek Road (FSR 2546) with FSR 1011, and Blue Joe Creek Road south from this intersection would be signed ADMINISTRATIVE USE ONLY – NO PUBLIC MOTORIZED ACCESS, limiting 6.4 miles to administrative use only (see Table 3.1.3). Because of the court-ordered closure (U.S. District Court, Eastern District of Washington, Court Order No. CV-05-0248-RHW), snowmobiling would be restricted to designated trails November 20 to June 30. Therefore, all of the Alternative 4 west to east access roads would be closed to all recreational winter motorized use. As with the Proposed Action, after repair of Bog Creek Road, winter motorized CBP patrol may occur in the analysis areas. This would be an increase from the No-Action Alternative, and would cause the same direct and indirect impacts as the Proposed Action and Alternative 3 (and therefore it is not further discussed below). While the direct and indirect effects of long-term maintenance and use of Bog Creek Road and Blue Joe Creek Road would be similar to those described for the Proposed Action and Alternative 3, the level of impact from some effects on T&E wildlife species would be greater because of the high motorized use anticipated on the west to east access roads (see Table 3.1.3). The impacts that would change from those described under the Proposed Action and Alternative 3, specifically impacts from the designation of the west to east access roads as open to unlimited public motorized use, are described below.

The primary difference between the Proposed Action and Alternative 4 is a change in OMRD status, because OMRD would be modeled with unlimited west to east motorized access across the BMU (see Figure 2.2.4 and Table 3.1.3). As shown in Table 3.2.19, Alternative 4 would result in the same Access Amendment conditions (TMRD and core area habitat) as the Proposed Action, except for the higher OMRD of at least 31.28 percent. This is 8.02 percentage points higher than the OMRD under the Proposed Action (i.e., Alternative 4 proposes more motorized access) and 1.72 percentage points less than the Access Amendment standard of 33 percent (i.e., still within the Access Amendment maximum for OMRD). Under Alternative 4, the Agencies would be limited in their motorized access flexibility in other areas of the Blue-Grass BMU because they would only have 1.72 percentage points available, instead of more than 9 percentage points as under the other alternatives. Under Alternative 4, the motorized use for administrative activities such as routine law enforcement, scheduled land management, and research would be more restricted than under any other alternative.

Table 3.2.19. Alternative 4 – Access Amendment Conditions

		OMRD > 1 mile per square mile (%)		TMRD > 2 miles per square mile (%)		Core Area Habitat (%)		
BMU	**BMU Priorities (1, 2, or 3)**	**Alternative 4**	**Selected Standard (maximum)**	**Alternative 4**	**Selected Standard (maximum)**	**Alternative 4**	**Selected Standard (minimum)**	**% NFS Land**
Blue-Grass	1	31.28%	33%	19.64%	26%	55.17%	55%	96%

Note: Table 1.2.1 provides detailed definitions of OMRD, TMRD, and Core Area.

Effects Common to All Threatened, Endangered, and Proposed Wildlife Species in the Analysis Areas

Improved Human Access

Alternative 4 is the only alternative that would include unlimited motorized public access (outside the snowmobile closure season) on Bog Creek Road, a portion of Blue Joe Creek Road, and identified west to east access roads (see Figure 2.2.4). Although the speed limit on these roads would be 25 mph, the potential for vehicle strikes (a direct detrimental effect) would be higher under Alternative 4 than under any other alternative because these roads would have more motorized use. Compared with the No-Action Alternative, motorized use would increase to high on these roads that had previously had very low or low motorized use (see Table 3.1.3). With motorized public access across the center of the analysis areas, recreation and hunting would increase in the vicinity of the open roads. Although there would be gates restricting public motorized access off of the open roads, non-motorized access in the Blue Joe Creek, Grass Creek, and Silver Creek drainages and their surrounding habitat would also be highest under Alternative 4. The potential for detrimental direct impacts, such as increased disturbance and mortality of T&E wildlife, would exist beyond the habitat immediately surrounding the open roads.

Fragmentation and Linkages

The effects from Alternative 4 on T&E wildlife would be similar to those under the Proposed Action, although with these roads open to motorized west to east public access across the analysis areas, T&E wildlife are more likely to be directly disturbed or indirectly avoid the area beyond the initial road repair period because of the long-term human activity.

The migratory barrier posed by all of the open west to east access roads would be less permeable for T&E wildlife under Alternative 4 than under the Proposed Action or Alternative 3 because the latter alternatives limit motorized use to administrative only, whereas Alternative 4 would allow an unlimited amount of public motorized use (outside the snowmobile closure season). Under Alternative 4, the unlimited public motorized use on Bog Creek Road (which is currently undrivable) and the other west to east roads would have a greater detrimental direct impact to T&E wildlife population connectivity than the other alternatives because motorized use would increase from very low and low to high (see Table 3.1.3).

Grizzly Bear

Improved Human Access

The potential for human-caused grizzly bear direct mortality increases with the proximity to roads with open motorized access. From 1982 through 2011, 73 percent of human-caused mortalities occurred within 0.3 mile from roads with open motorized access (Forest Service 2011a:60–61). Increased public access along the Alternative 4 open west to east access roads could lead to the increased potential for mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears. Use of the roads by black bear hunters would increase the potential for mistaken identity kills of grizzly bear. Public food storage would still be required to comply with the 2011 Food Storage Order (see Appendix F), but with improved public access across the Blue-Grass BMU, the potential for habituation and human–bear conflicts would increase. Increased human

presence could also increase the potential for bear mortality in defense of human life. The Forest Service would continue monitoring the non-motorized trails in the Blue-Grass BMU for potential high use (i.e., an average of more than 20 parties per week) and if this occurs, then a buffer of these trails would be removed from core area habitat (see Table 3.2.20). Conversely, the proposed motorized road closures would reduce human access into those parts of the BMU.

Fragmentation and Linkages

As described in Section 3.2.5.2, the Blue-Grass BMU provides an important grizzly bear movement corridor between the other BMUs in the SRZ and the Canadian portion of the SRZ. The administrative open and open roads under Alternative 4 would further increase the area of motorized use in the BMU through which bears pass to move in a north–south direction, thereby reducing the permeability of the movement corridor as a whole. This detrimental direct impact to bear movement through the BMU would be greater under Alternative 4, compared with the other alternatives, including inhibiting bear movement from the Trapper Peak burn area through the Grass Creek drainage – an area documented to be important for bears (Kasworm et al. 2017). Refer also to Section 3.2.5.4 for further cumulative effects discussion.

Disturbance from Habitat, Road Avoidance, and Core Area Habitat

As described in the detailed grizzly bear impacts under the Proposed Action in Section 3.2.5.2, grizzly bear use of areas declined as open road densities exceeded 1 mile per square mile (Wakkinen and Kasworm 1997). Scientific literature documents roads displacing bears from the adjacent habitat (Aune and Kasworm 1989; Kasworm and Manley 1990; Mace et al. 1999; McLellan and Shackleton 1988; Wakkinen and Kasworm 1997). The Blue-Grass BMU (including the Continental Mountain area), which the Alternative 4 open west to east access roads would cross, is a linkage area for grizzly bears between the southern Selkirks and Canada. Although the Access Amendment conditions would be within the standards for the Blue-Grass BMU, OMRD (at 31.28 percent) would be highest under Alternative 4 than under any other alternative. Unlimited motorized public access in the center of this important linkage area would directly impact the grizzly bear population connectivity in the SRZ because of grizzly bears' documented avoidance of roads, especially motorized roads (Aune and Kasworm 1989; Kasworm and Manley 1990; Mace et al. 1999; McLellan and Shackleton 1988; Wakkinen and Kasworm 1997).

Under Alternative 4, the Access Amendment conditions would be within the standards (see Table 3.2.19). However, a comparison of denning and wet meadow habitat available to grizzly bears under varying long-term motorized use by alternative demonstrates the detrimental indirect disturbance impacts to grizzly bears from Alternative 4 (see Table 3.2.17). Under Alternative 4, 27 percent of the denning habitat and 46 percent of the wet meadow habitat in the BMU would be within 500 meters of roads designated as having administrative open or publicly open motorized access. (These calculations do not include roads that would have seasonally restricted administrative motorized access because the motorized use on those roads would remain low, as defined in Table 3.1.3.) There is the potential for increased grizzly bear disturbance from 11 percentage points more denning habitat and 14 percentage points more wet meadow habitat than under the Proposed Action. Although there would be motorized road closures under Alternative 4 and the Access Amendment conditions would be within the standards, there would be greater

disturbance impacts to grizzly bears using these high value habitats under this alternative than under any other alternative.

There would be direct and indirect detrimental impacts to grizzly bears from long-term maintenance and use actions under Alternative 4.

Selkirk Mountain Woodland Caribou

Human Noise, Activity, and Access

The designation of roads as open to unlimited public motorized use under Alternative 4 would increase the potential for direct caribou mortality from vehicle strikes, and motorized road access in caribou habitat could facilitate poaching opportunities. However, with the 25-mph speed limit, caribou mortality from vehicle strikes is unlikely to occur on these roads. There would be 59.8 miles of open roads within caribou habitat under Alternative 4, compared with 32.4 and 43.6 open miles under the No-Action Alternative and the Proposed Action, respectively (see Table 3.2.18). In addition, unlimited motorized use along the segments of road occurring in high-elevation subalpine fir habitat has the potential to disturb cows with calves during calving (June 1 to July 7). However, similar to the Proposed Action and Alternative 3, this impact is unlikely because the Selkirk Mountain woodland caribou are not known to frequent and calve in the analysis area and only 1.3 miles of the roads that would be open to unlimited motorized use occurs in this high-elevation habitat. Most administrative open and open roads occur in low-elevation areas, where calving caribou would not be present.

Overall, the potential for indirect disturbance, and direct accidental kills of woodland caribou by elk and deer hunters, or poaching, would be higher under Alternative 4 than under the other alternatives.

Fragmentation and Linkages

As described for the Proposed Action above, only 12 caribou were located in the 2016 U.S. census (DeGroot 2016); therefore, population connectivity is critical for the Selkirk Mountain woodland caribou herd. Bog Creek Road is north of several caribou linkage corridors (see the small inset map in Figure 3.2.2). Caribou generally avoid roads and habitat adjacent to roads (DeCesare et al. 2012). Unlimited motorized public access along the west to east access roads could disrupt or disturb caribou moving from north to south, directly impacting their population connectivity. In the caribou analysis area, 16 percent of available caribou habitat in the analysis area occurs within 250 meters of open roads (see Table 3.2.18), and caribou road avoidance behavior has been documented within this distance (Dyer et al. 2001). Under Alternative 4, the proposed unlimited public motorized access on the roads would have a greater detrimental impact to caribou population connectivity, because of caribou dependence on the area surrounding Continental Mountain and its adjacent caribou habitat, than the other alternatives.

There would be direct and indirect detrimental impacts to Selkirk Mountain woodland caribou from long-term maintenance and use actions under Alternative 4.

Canada Lynx

Improved Human Access

The improved human access afforded by the roads could increase the potential for direct lynx mortality due to vehicle strikes. Projected motorized use could be high (see Table 3.1.3). However, with the 25-mph speed limit, lynx mortality from vehicle strikes is unlikely to occur on these roads. There would be 45.8 miles of administrative open and open roads in analysis area lynx habitat under Alternative 4. This is 16.1 more miles of open roads than under the No-Action Alternative and 6.1 miles more than the Proposed Action and Alternative 3, with the potential to directly and indirectly impact Canada lynx. Because the open roads would allow public motorized access across the analysis area, there could be an increase under Alternative 4 in the effects on lynx from trapping of their prey species, incidental trapping (when other species are targeted), poaching, or malicious killing.

Fragmentation and Linkages

Designation of the roads as open to unlimited public motorized use would facilitate increased motorized and non-motorized recreational use through the center of the analysis area. Lynx may avoid contact and could be displaced by these user groups until the humans leave the area. However, as described in detail in above for the Proposed Action, a recent analysis on the Okanogan National Forest in Washington showed that lynx neither preferred nor avoided forest roads (McKelvey et al. 2000; USFWS 2000).

Overall, the potential for disturbance and direct mortality of Canada lynx would be higher under Alternative 4 than under the other alternatives.

There would be direct and indirect detrimental impacts to Canada lynx from long-term maintenance and use actions under Alternative 4.

North American Wolverine

Improved Human Access

With the high projected motorized use (see Table 3.1.3) across the wolverine analysis area, Alternative 4 could increase the potential for direct mortality from vehicle strikes, and the indirect effects on wolverine from trapping of their prey species, incidental trapping (when other species are targeted), or poaching along all roads that would be open to unlimited public motorized use. There would be 88.2 miles of administrative open and open roads in analysis area wolverine habitat under Alternative 4. This is 29.3 more miles of open roads than under the No-Action Alternative and 16.4 miles more than the Proposed Action and Alternative 3 with the potential to directly and indirectly impact wolverine.

Overall, the potential for disturbance and direct mortality of wolverine would be higher under Alternative 4 than under the other alternatives.

There would be direct and indirect detrimental impacts to wolverine from long-term maintenance and use actions under Alternative 4.

Bull Trout

Similar to the Proposed Action and Alternative 3, no impacts to bull trout or bull trout DCH would be expected from long-term maintenance and use actions under the Alternative 4.

3.2.5.4 Cumulative Effects

The species-specific analysis areas described in Section 3.2.2 for Canada lynx, wolverine, and bull trout are also used for the cumulative effects analysis areas. The grizzly bear and woodland caribou cumulative effects analysis areas are those species' Selkirk recovery zones, referred to below as the grizzly bear SRZ and the woodland caribou SRZ (see Figure 3.2.6 and Figure 3.2.7). Effects from past and present actions on T&E species are addressed in Section 3.2.3 and in the analysis of the No-Action Alternative in Section 3.2.5. The species-specific analysis areas have been affected by past and ongoing activities, including historic timber harvest, historic mining and mine reclamation, grazing, recreation, and wildfire. These activities have contributed to current levels of fragmentation in each species' analysis area by creating edge habitat and reducing the quantity and quality of interior wildlife habitat. There is currently a total of approximately 118 miles of road in the Blue-Grass BMU. Approximately 28 miles (24 percent) is classified as open, and 90 miles (76 percent) is restricted. Proposed motorized road closures (FSR 1388A under all of the action alternatives and FSR 1388 under the Proposed Action and Alternative 4) would increase core area habitat from 62% to 63% in the Sullivan-Hughes BMU to the west (see Figure 3.2.6). This would improve the overall core area habitat available in the grizzly bear SRZ. However, there is an extensive east–west-trending road system that is open to motorized use just north of the Canadian border. Through the center of the grizzly bear and caribou SRZs in Canada, British Columbia Highway 3 is a major east–west highway that likely provides a migratory barrier to grizzly bears and woodland caribou, similar to highways studied by Servheen et al. (2003). On the Canadian roads within both species' SRZs, timber harvest, recreation, hunting, grazing, and motorized use (including over-the-snow motorized access) are occurring and would continue to occur. These activities north of the border would not be limited by the ESA or by Forest Service management guidelines. The action alternatives would increase motorized use in the center of the species' SRZ through which they pass to move in a north–south direction. This would reduce the permeability of the movement corridor as a whole. This could discourage some grizzly bears and woodland caribou individuals from moving through the SRZs, ultimately decreasing the genetic flow between the U.S. and Canadian portions of the SRZs. This would be a detrimental impact for the SRZ bear population, which already has low genetic diversity (IGBC 2017), and for the SRZ woodland caribou population, with the U.S. census at only 12 caribou in 2016 (DeGroot 2016). Improvement and motorized use of Bog Creek Road, Blue Joe Creek Road, and the west to east access roads (under Alternative 4) would contribute to fragmentation for all T&E species, except bull trout, by creating and maintaining edge habitat and increasing human noise and activity in the analysis areas due to the presence of vehicles and recreationists.

Reasonably foreseeable future activities are listed in Appendix D. Cumulative direct and indirect effects from these actions are discussed below in Table 3.2.20.

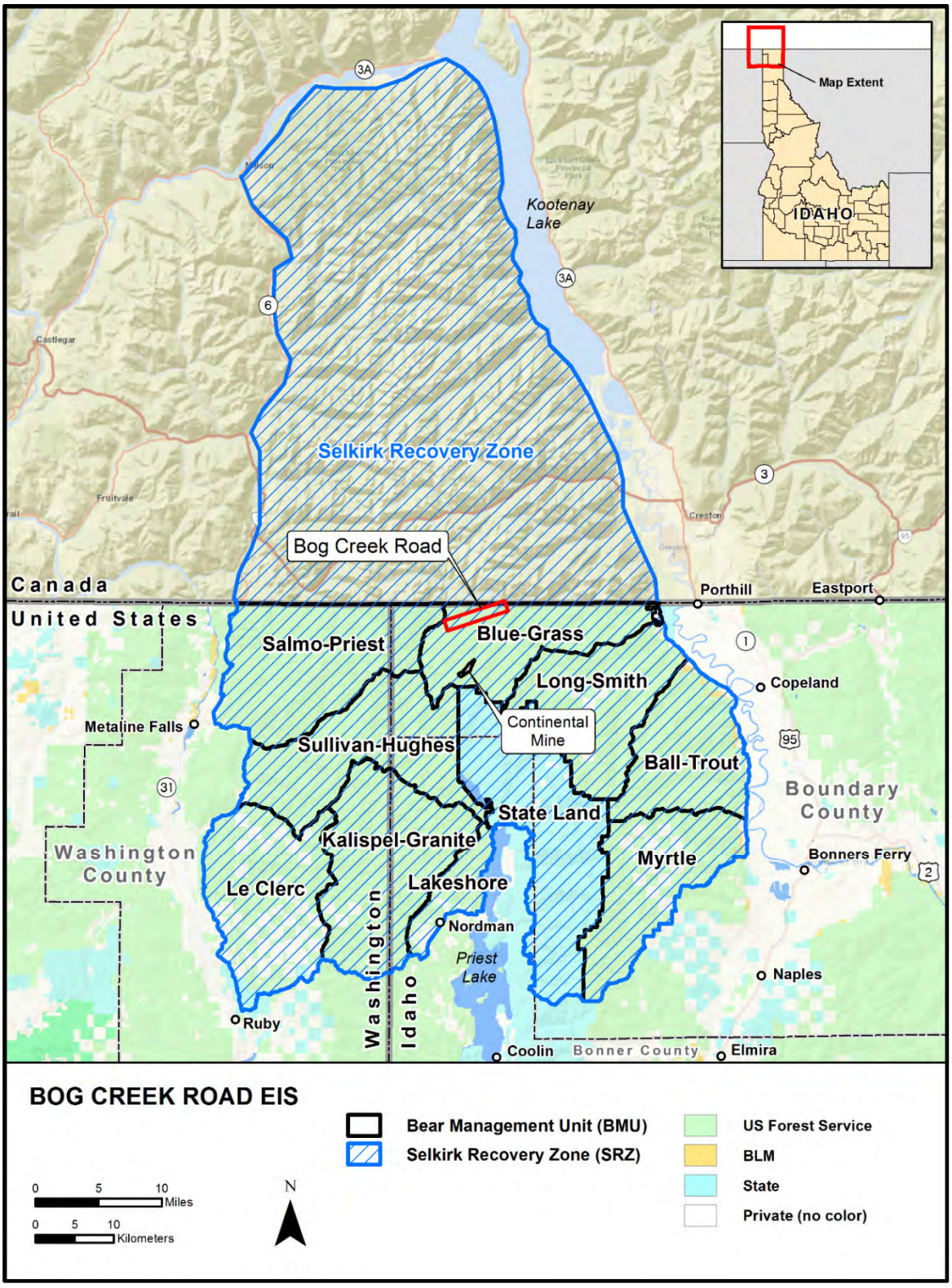

Figure 3.2.6. Grizzly bear cumulative effects analysis area.

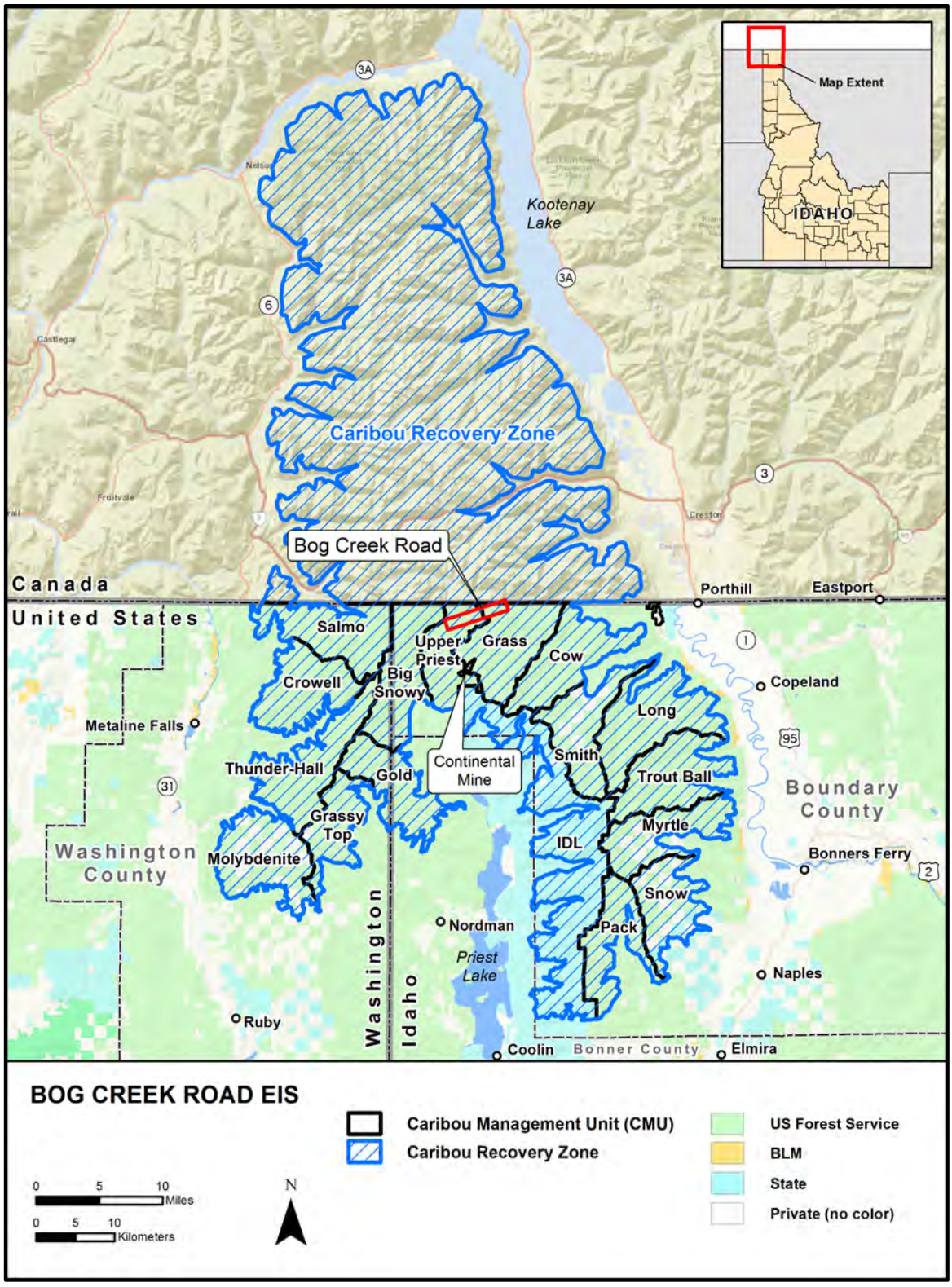

Figure 3.2.7. Selkirk Mountain woodland caribou cumulative effects analysis area.

Table 3.2.20. Cumulative Effects on T&E Species from Reasonably Foreseeable Future Activities, Combined with the Action Alternatives

T&E Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
All T&E species, including bull trout	• Motorized law enforcement patrol • Recreation: gathering, hunting, fishing, camping, hiking, biking. There is the potential for two high-use non-motorized trails (Trails #308 and #28); guiding and outfitting also occurs • Priest Lake and Bonners Ferry Noxious Weed Control Projects	• Future human noise and activity would generally be located along open and seasonally restricted forest roads, and consist of the noises produced by authorized vehicles and human activity for mining, law enforcement patrol, and recreation. Dispersed motorized use results in periodic vehicle noise in backcountry areas year-round, which may cause T&E species to flee while vehicles are present in an area. • Timber harvest reduces the availability of large, unfragmented habitat patches by creating road networks and forest edge, which continue after active harvesting activities have ceased. The region is fragmented by roads (county, private, forest), recreational trails (motorized and non-motorized), logged forest patches, and recent and historical mining activities. These activities have contributed to current levels of fragmentation by creating edge habitat and reducing the quantity and quality of interior T&E species' habitat. With no further timber harvest on NFS lands (Reasonably Foreseeable Future [RFF] harvest on private lands is discussed below) planned in the analysis areas, none of the RFF activities propose future ground disturbance or vegetation removal. • Improvement of Bog Creek Road and long-term administrative open motorized use of Bog Creek Road and Blue Joe Creek Road would contribute to fragmentation by creating and maintaining edge habitat and increasing human noise and activity in the vicinity of Bog Creek Road, due to the presence of vehicles and recreationists. The closure of 26.5 miles of road would provide an overall reduction in habitat fragmentation from current conditions, in addition to reducing the potential for sedimentation of waterways and degradation of aquatic and riparian habitats.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation and human disturbance would be slightly less. Alternative 3 proposed less motorized road closure upstream of streams occupied by bull trout than the Proposed Action, which would overall provide slightly less benefit to bull trout.	• Cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited motorized use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the west to east access roads, as well as the increased risk of direct mortality from vehicle strikes or humans.

Table 3.2.20. Cumulative Effects on T&E Species from Reasonably Foreseeable Future Activities, Combined with the Action Alternatives (Continued)

T&E Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
All T&E species, including bull trout (Continued)		• The Forest Service periodically monitors Trails #308 and #28 for high use. If current or future monitoring data shows that these trails are exceeding an average of 20 parties per week, they would be buffered, and the buffered area surrounding the trails would be removed from core area habitat. This would reduce core area within the Blue-Grass BMU and the adjacent Salmo-Priest and Sullivan-Hughes BMUs. With a reduction in core area, the adjacent BMUs would still be expected to meet their core area standards, but the Blue-Grass BMU may not, depending upon which segment(s) of trail incur high use and which alternative is chosen for implementation. If this situation occurs, the Forest Service would then evaluate approaches to ensure that the 55% core area standard for the Blue-Grass BMU is maintained. No further evaluation related to this potential shift in core area from high-use trails is included in this DEIS. • Generally, weed control (which would also occur under the No-Action Alternative) takes place along road edges, as vehicles tend to carry and disperse noxious weed and invasive plant species seeds. Weed control would increase the quantity and quality of aquatic and terrestrial T&E species' habitat in the cumulative effects analysis areas by reducing the presence of non-native plants and encouraging native vegetation to grow, including within the RHCAs. Depending on the exact locations of the treatments and restoration, these projects could also reduce habitat fragmentation and increase connectivity. • The repair of Bog Creek Road and motorized road closures (26.5 miles), followed by subsequent weed control programs, would result in an overall habitat improvement (reduction in fragmentation and increase in habitat quality) across the analysis areas, despite the existing habitat fragmentation resulting from past land use and current levels of disturbance caused by non-motorized and motorized human disturbance.		
All T&E species, except bull trout	• Grass Creek allotment (90 cow/calf pairs from July 1–October 1)	• Annually, 4 months of grazing would continue to occur within the analysis areas contributing to vegetation removal and the potential for non-motorized and motorized human disturbance. No grazing occurs within the bull trout analysis area.	• The effects under Alternative 3 would be the same as those under the Proposed Action.	• The effects under Alternative 4 would be the same as those under the Proposed Action.

Table 3.2.20. Cumulative Effects on T&E Species from Reasonably Foreseeable Future Activities, Combined with the Action Alternatives (Continued)

T&E Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
Grizzly bear **North American wolverine**	• Future potential private timber harvest on 550 acres in the northeast corner of the analysis areas • Ongoing silvicultural treatments in the Italian Peak area • Kaniksu Over-The-Snow Travel Management Planning (TMP), currently in progress	In addition to those listed above for all T&E species: • The only RFF ground-disturbing or vegetation-removal activities in the analysis areas for these species would consist of timber harvest. Most recently, timber harvest occurred on NFS lands in the Italian Peak area in 2004 and ongoing silvicultural activities (precommercial thinning) are expected to occur in the area in the future. Private timber harvest land owned by Hancock within the analysis areas were most recently harvested in 2014, and it is possible that up to 550 additional acres of timber harvest could occur. Harvesting timber (including precommercial thinning) creates temporary human noise and activity at the harvest site, potentially displacing grizzly bears and wolverine and forcing individuals to forgo resources that are otherwise available. In the long term, timber harvest reduces the availability of large, unfragmented habitat patches by creating road networks and forest edge. • Dispersed snowmobile use results in periodic vehicle noise in backcountry areas in the winter, which may disturb hibernating grizzly bears or denning wolverine. The Kaniksu Over-The-Snow TMP NEPA analyses would include additional disclosure of potential impacts from over-the-snow motorized use.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation and human disturbance would be slightly less. Alternative 3 would remove motorized access from within 500 meters of a greater acreage of wet meadow/peatland habitat, resulting in an overall greater reduction of grizzly bear disturbance than the Proposed Action.	• The cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited public use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the west to east access roads. This would also increase the potential for direct mortality of grizzly bears and wolverine from human activities, such as hunting, incidental trapping, poaching, or malicious killing, as well as increase the risk of direct mortality from vehicle strikes.

Table 3.2.20. Cumulative Effects on T&E Species from Reasonably Foreseeable Future Activities, Combined with the Action Alternatives (Continued)

T&E Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
Canada lynx **Woodland caribou**	• Ongoing silvicultural treatments in the Italian Peak area • Kaniksu Over-The-Snow TMP, currently in progress	In addition to those listed above for all T&E species: • The only RFF vegetation-removal activities in the analysis areas for these species would consist of ongoing silvicultural treatments (precommercial thinning) in the Italian Peak area (harvested last in 2004). Silvicultural activities (including precommercial thinning) create temporary human noise and activity at the harvest site, potentially displacing Canada lynx and woodland caribou and forcing individuals to forgo resources that are otherwise available. • Dispersed snowmobile use results in periodic vehicle noise in backcountry areas in the winter, which may cause Canada lynx and woodland caribou to flee. • Closure of existing roads would reduce the available miles that could facilitate opportunistic predation of caribou by predator species that may use the roads as travel corridors or compete with Canada lynx for prey species. However, the potential for these impacts would be increased through over-the-snow motorized use in the analysis areas, including use that may be authorized by the Kaniksu Over-The-Snow TMP. The Kaniksu Over-The-Snow TMP NEPA analyses would include additional disclosure of potential impacts from over-the-snow motorized use.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation, human disturbance, and facilitated predator/ competitor access would be slightly less.	• Cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited public use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the roads. This would also increase the potential for direct mortality of caribou from hunting or vehicle strikes and lynx from human activities, such as incidental trapping, poaching, or malicious killing, as well as increase the risk of direct mortality from vehicle strikes.
North American wolverine **Bull trout**	• Recreation and timber harvest on State of Idaho lands	In addition to those listed above for all T&E species: • The cumulative effects described above from human disturbance to North American wolverine and bull trout on NFS lands, could also occur from human disturbance on State of Idaho lands to the south under the Proposed Action.	• The effects under Alternative 3 would be the same as those under the Proposed Action.	• The effects under Alternative 4 would be the same as those under the Proposed Action.

Table 3.2.20. Cumulative Effects on T&E Species from Reasonably Foreseeable Future Activities, Combined with the Action Alternatives (Continued)

T&E Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
Grizzly bear Woodland caribou	• Recreation and timber harvest on lands in Canada	In addition to those listed above for all T&E species: • The cumulative effects described above from human disturbance to grizzly bears and woodland caribou on NFS lands, could also occur from human disturbance on lands in Canada to the north under the Proposed Action.	• The effects under Alternative 3 would be the same as those under the Proposed Action.	• The effects under Alternative 4 would be the same as those under the Proposed Action.

Timber harvest and its associated road networks have historically had the potential to increase sedimentation to streams occupied by bull trout and bull trout DCH (Reid and Dunne 1984). The 550 acres of timber harvest on private lands (discussed above in Table 3.2.20) would not occur within the bull trout analysis area. Timber harvest from State of Idaho lands must comply with the Idaho Forest Practices Act, which includes best management practices (BMPs) to limit or reduce impacts to water quality and fish habitat. Also Appendix B of the Forest Plan summarizes retained existing decisions that would avoid or reduce future detrimental effects on bull trout (Forest Service 2015a). Through implementation of RHCAs and INFISH guidelines (Forest Service 2015a:137–150) and the Access Amendment standards (Forest Service 2015a:151–155), management objectives in the analysis area include avoidance or minimization of activities in the RHCAs, watershed restoration (including road decommissioning), reduced total and open motorized route density, and providing grizzly bear core area habitat (areas with low levels of human presence and no motorized use) (Forest Service 2015a). Efforts are underway by the State of Idaho and the Forest Service to achieve beneficial use water quality standards (see Section 3.6, Water Resources, for further details), including for cold water aquatic life and spawning salmonids, to avoid future detrimental effects on bull trout in the bull trout analysis area.

Climate change is likely to affect the distribution, growth, and function of Pacific Northwest forests; the seasonality and amounts of snowpack and runoff; and disturbance regimes over time (e.g., frequency and severity of fire or disease outbreaks), which would subsequently influence the availability and distribution of wildlife habitat and species in the analysis areas. Some species would likely experience detrimental impacts from these changes. Some species may thrive with more frequent fires (Dalton et al. 2013). Wolverines, however, are particularly vulnerable to projected loss of alpine and subalpine habitat provided by snow cover and high-elevation tree species. Climate change is recognized as having both direct and indirect effects on wolverine (including reductions in habitat from climate change, climate effects on wolverines, reduced snowpack and earlier spring runoff, ecosystem changes associated with climate change, timing of climate effects, and the magnitude of climate effects on wolverine), but the nature of these effects (positive, neutral, or negative) is subject to some uncertainty because of the potential interactions of other variables (Forest Service 2014a). Wolverine habitat is projected to decrease in size and become more fragmented in the future as a result of climate change, with both direct and indirect negative impacts to wolverine populations in the northern Rocky Mountains and elsewhere. Habitat and range loss from climate warming is identified as the primary threat to wolverine populations (USFWS 2013b:7886). The goods and services provided by NFS programs and activities have been, and will undoubtedly continue to be, affected by climate change (Forest Service 2012b).

Climate models for the Pacific Northwest suggest that the region will continue to experience increasing year-round annual temperatures, particularly during summer months (Dalton et al. 2013). Climate models also suggest an overall decrease in summer precipitation, resulting in drier summers and lower stream flow. As one report states, “Snow-dominant watersheds are projected to shift toward mixed rain-snow conditions, resulting in earlier and reduced spring peak flow, increased winter flow, and reduced late-summer flow” (Dalton et al. 2013:xxiii). These climate shifts could increase stream temperatures and decrease dissolved oxygen levels, thereby affecting the health and the extent of bull trout suitable habitat, particularly where bull trout occur in streams having

temperatures near the upper range of their thermal tolerance. Maintenance of in-stream flows and stream shading can help offset stream warming and improve resilience. Because the action alternatives would not measurably affect in-stream flows, stream shading, or large, woody debris recruitment beyond current conditions under the No-Action Alternative, implementation of the action alternatives would not lead to greater impacts to bull trout under likely climate scenarios. See also the water resources Cumulative Effects section, Section 3.6.5.4.

The action alternatives would reduce available habitat, increase habitat fragmentation, and reduce connectivity for certain species, which could exacerbate effects experienced by wildlife under climate warming trends, though in a long-term landscape-scale perspective, the magnitude of these effects would be limited.

3.2.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

Grizzly Bear, Selkirk Mountain Woodland Caribou, Canada Lynx, Bull Trout, and Bull Trout DCH

The action alternatives would adhere to the threatened and endangered species requirements of the Forest Plan (Forest Service 2015a) (see Table 3.2.6) and be in compliance with the ESA and the NFMA under the 2012 Forest Service planning rule (Forest Service 2012c). As stated in Section 3.2.3.1, the Blue-Grass BMU is MS 1, meaning that it is managed for grizzly bear habitat maintenance and improvement and the minimization of grizzly–human conflict and that management decisions favor the needs of the grizzly bears when grizzly bear habitat and other land use values compete (IGBC 1986; USFWS 1993a). All of the action alternatives propose motorized road closures, so that the BMU would be in compliance with its TMRD, OMRD, and core area habitat Access Amendment standards. Specific design features implemented to reduce effects on grizzly bears (Features Designed to Protect Special-Status Wildlife Species) and bull trout (Features Designed to Protect Fish Species and Habitat, Features Designed to Protect Waters of the U.S.) are discussed in Appendix B.

North American Wolverine

The analyses presented in this section meet the requirements for a biological evaluation (BE) for the North American wolverine, as outlined in Forest Service Manual (FSM) 2672.42 (Forest Service 2005). All alternatives are consistent with the Forest Plan and policy direction to “ensure that these species do not trend toward federal listing as a result of management actions.” None of the action alternatives would result in a threat to the North American wolverine (Forest Service 2014a). Design features implemented to reduce effects on wolverine are discussed in Appendix B, Design Features.

3.3 Wildlife

3.3.1 Introduction

Wildlife resources must be analyzed to comply with a variety of laws, regulations, and MOAs, including the ESA, the Migratory Bird Treaty Act (MBTA), the NFMA, Executive Order (EO) 13186, and FSM 2670 (Forest Service 2005). These regulations mandate that wildlife resources be protected and managed. The existence of healthy wildlife populations is also important to the public to fulfill recreation, economic, and social values.

In this analysis, the term *wildlife species* applies to any mammals, birds, reptiles, or amphibians with the potential to occur in the vicinity of the proposed project. *Wildlife habitat* refers to an area that contains the resources (food, water, cover) necessary for the survival of a particular species or group of species.

Key issues were identified during public scoping that require analysis in this DEIS. These issues consist of requests that 1) wildlife species analyzed for impacts include the IPNF's sensitive species listed in its Forest Plan (species not analyzed in detail and supporting rationale are included in Table 3.3.1; Forest Service 2015a); 2) monitoring and inventory studies be conducted; 3) anticipated impacts to habitat be described; and 4) mitigation measures be developed to minimize impacts to wildlife.

This analysis describes the existing condition of wildlife species and habitats within specific analysis areas (see Section 3.3.3 for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on wildlife species and habitat are subsequently described and discussed. Threatened, endangered, and proposed species are evaluated in the Threatened, Endangered, and Proposed Species section of this DEIS (Section 3.2).

Table 3.3.1. Species Not Further Analyzed in Detail and Supporting Rationale

Species	Scientific Name	Potential for Impact	Rationale for Not Analyzing in Detail
American peregrine falcon	*Falco peregrinus anatum*	No Impact	This species prefers open habitat with cliffs for nesting and is strongly associated with water. There are no known current or historical breeding territories or nests in the landscape-scale analysis area, and no observations of individuals have been recorded within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a). Therefore, no impacts to breeding activities or disturbance would result from the proposed project actions.
Bald eagle	*Haliaeetus leucocephalus*	No Impact	Bald eagle breeding habitat most commonly includes areas within 2.5 miles of rivers, lakes, reservoirs, or other bodies of water that could provide primary food sources such as fish and waterfowl (Andrew and Mosher 1982; Campbell et al. 1990; Green 1985), and is used between February 1 and August 15. Three large water bodies (Upper Priest Lake, Priest Lake, and the Kootenai River) occur within 2.5 miles of the landscape-scale wildlife analysis area, but project actions are more than 2.5 miles from these water bodies. There is one historic nesting territory near the landscape-scale wildlife analysis area, located along the Kootenai River (IDFG 2007). Because known nesting territories occur more than 2.5 miles from the proposed actions, direct impacts would not occur.

Table 3.3.1. Species Not Further Analyzed in Detail and Supporting Rationale (Continued)

Species	Scientific Name	Potential for Impact	Rationale for Not Analyzing in Detail
Bald eagle (Continued)	*Haliaeetus leucocephalus*	No Impact	Wintering areas are commonly associated with open water, though in some regions bald eagles use habitats with little or no open water (such as montane areas) if upland food resources are readily available (Great Basin Bird Observatory 2010). Large areas of open water are not present within the landscape-scale analysis area, and the presence of wintering bald eagles in the montane portions of the analysis area is highly unlikely due to the availability of more suitable habitat in the vicinity. Therefore, no impacts to wintering bald eagles are anticipated from the proposed project actions.
Black-backed woodpecker	*Picoides arcticus*	May Impact	Black-backed woodpeckers are early post–forest fire specialists and therefore are more abundant in recently burned forests because standing dead trees rapidly become infested with wood-boring beetle larvae, an important part of the woodpecker diet (Dixon and Saab 2000). Individuals will quickly immigrate into recently burned locations, and 4 to 6 years post-fire as prey availability decreases, woodpecker populations will also decrease (Hutto 1995; Kreisel and Stein 1999). Stand-replacement burns are more readily occupied than burns of low and moderate severity (Kotliar et al. 2002). Areas of beetle-killed trees also serve as important habitat. While black-backed woodpeckers are known to occur within the landscape-scale wildlife analysis area, the action alternatives would not remove areas of burned trees or other habitat features important to this species. Noise and human activity from project activities may have temporary impacts in the unlikely event that individuals nest near the road repair and motorized closure activities, and long-term road designation changes to Blue Joe Creek Road and segments of FSRs 1011, 636, and 1009 may increase the potential for intermittent motorized use to disturb individuals to a minor degree.
Black swift	*Cypseloides niger*	No Impact	Black swift breeding sites include cliffs, waterfalls, caves, and other sites inaccessible to terrestrial predators and where shade, cool temperatures, and high humidity are found (Gunn et al. 2012; Knorr 1961; Levad et al. 2008). Main habitats occur at edges of montane evergreen forest and secondary forest (del Hoyo et al. 1999). This swift forages at long distances and for long periods of time away from the nest (Collins and Peterson 1998), using weather patterns to pursue pockets of concentrated flying insects (Udvardy 1954). Suitable breeding sites do not occur within the area of proposed project disturbance; therefore, there would be no impacts to breeding. Observations of individuals have been recorded within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a); however, because the species forages on the wing, the disturbances at the ground level from project activities would be unlikely to affect foraging behaviors.
Common loon	*Gavia immer*	No Impact	This species prefers habitats that include lakes larger than 59 acres with clear water, an abundance of small fish, numerous small islands, and an irregular shoreline that creates coves. Rivers are not used for nesting habitat unless oxbow-like areas with minimal current are available. Water quality is important for successful breeding because loons are visual predators; therefore, clear water is crucial for efficient foraging. Observations of individuals have been recorded within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a). The landscape-scale analysis area is more than 2 miles from large waterbodies that could provide habitat for breeding loons (Upper Priest Lake, Priest Lake, and the Kootenai River); therefore, proposed project actions would not have an effect on breeding loons.

Table 3.3.1. Species Not Further Analyzed in Detail and Supporting Rationale (Continued)

Species	Scientific Name	Potential for Impact	Rationale for Not Analyzing in Detail
Coeur d'Alene salamander	*Plethodon idahoensis*	No Impact	The species is endemic to northern Idaho, northwestern Montana, northeastern Washington, and southern British Columbia, and is primarily found within coniferous forests in talus areas along splash zones of creeks, where seeps run (Forest Service 2015a), or in moist forest debris (Slater and Slipp 1940) in proximity to water. The salamander feeds on invertebrates and forages in seepage areas, splash zones, and streamside rocks and vegetation. No observations of individuals have been recorded within the landscape-scale analysis area, and they are not thought to occur in the Selkirk Mountains (Forest Service 2016b; IDFG 2016a). Therefore, proposed project actions would not impact this species.
Flammulated owl	*Otus flammeolus*	No Impact	This species is a habitat specialist of dry, interior, open-canopied conifer forests containing ponderosa pine or forests with similar features (McCallum 1994a). In Idaho, flammulated owls occupy older ponderosa pine and open, multistoried Douglas-fir/mixed-conifer stands with large trees, large snags, pockets of dense vegetation, and a patchy grass or shrub understory. Flammulated owls are secondary cavity nesters, typically using large snags with natural cavities or holes excavated by large primary cavity nesters (Bull et al. 1990; Goggans 1986; McCallum 1994b). Nest sites may also occur in live conifer and deciduous trees with suitable nesting cavities (Arsenault et al. 2003). Flammulated owls occupy breeding ranges from late April to mid-September (McCallum 1994a). There are no recorded observations of individuals within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a). There is little (if any) suitable habitat in the vicinity of the proposed project actions, and no alteration of suitable habitat would occur. Therefore, proposed project actions are unlikely to affect the breeding activities of this species.
Pygmy nuthatch	*Sitta pygmaea*	No Impact	In northern Idaho, the pygmy nuthatch occurs locally as a common resident (Burleigh 1972). Primarily associated with ponderosa pine forests and woodlands, this species may also inhabit other dry forest habitat types, such as Douglas-fir (Kingery and Ghalambor 2001). Since this species nests in dead pines and live trees with dead sections, it prefers old-growth, mature, undisturbed forests (Szaro and Balda 1982). There are no recorded observations of individuals within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a). There is little (if any) suitable habitat in the vicinity of the proposed project actions, and no alteration of suitable habitat would occur. Therefore, proposed project actions are unlikely to affect the breeding activities of this species.
Fringed myotis	*Myotis thysanodes*	No Impact	In Idaho, the fringed myotis has been most frequently encountered at low- and mid-elevation mines, as well as in steep river valleys, large canyons, or other sites with steep, rocky terrain. Dominant vegetation at capture sites has included sagebrush, mountain mahogany, and ponderosa pine. This species often forages close to vegetative canopy and is believed to roost in caves, mines, rock crevices, buildings, and other protected sites. There are no recorded observations of individuals within the landscape-scale analysis area (Forest Service 2016b; IDFG 2016a). While there are no caves in the project-scale wildlife analysis area, there is the potential for inactive open adits to be present on the Continental Mine property. However, as no individuals have been recorded in the landscape-scale wildlife analysis area and the property is nearly 1 mile from the nearest area of proposed project activity that could potentially disturb the species, proposed project actions are unlikely to affect breeding, hibernacula, or foraging of this species.

Table 3.3.1. Species Not Further Analyzed in Detail and Supporting Rationale (Continued)

Species	Scientific Name	Potential for Impact	Rationale for Not Analyzing in Detail
Townsend's big-eared bat	*Corynorhinus townsendii*	No Impact	This species ranges throughout the western United States from sea level to over 10,000 feet in elevation, and appears to only be absent from extremely high elevations. It is found in a wide variety of habitats, both xeric and mesic, but occurrence is correlated with availability of caves or other appropriate roosting habitat (Pierson et al. 1999). It primarily roosts in caves and old mines (particularly as hibernacula), but has been found in buildings with attics and other structures (Pierson et al. 1999). This species is a lepidopteran specialist, with moths making up more than 90% of the diet (Dalton et al. 1986). It uses edge habitats along streams, areas adjacent to and within wooded habitats, and low-use roads. Townsend's big-eared bats have been observed in the landscape-scale wildlife analysis area (Forest Service 2016b; IDFG 2016a), and while there are no caves in the project-scale wildlife analysis area, there is the potential for inactive open adits to be present on the Continental Mine property. However, as the property is nearly 1 mile from the nearest area of proposed project activity that could potentially disturb the species, proposed project actions are unlikely to affect breeding, hibernacula, or foraging of this species.

3.3.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on wildlife resources varies by species, depending on the scale at which the impact would be experienced (Table 3.3.2).

Table 3.3.2. Wildlife Analysis Area Spatial Scale by Species

Wildlife Analysis Area Spatial Scale	Species (or Species Groups)
Project scale	Boreal toad, harlequin duck, northern bog lemming, and other migratory birds
Landscape scale	Gray wolf, fisher, migratory birds

A project spatial scale is used for three species and one species group (migratory birds), and consists of a 500-meter buffer of the Bog Creek Road repair, Blue Joe Creek Road, segments of FSRs 1011, 636, and 1009, and the roads proposed for motorized closure within the BMU. This area is referred to as the project-scale wildlife analysis area and is shown in Figure 3.3.1. This analysis area is appropriate for species with small home ranges or territories.

A landscape spatial scale is used for two species and one species group (migratory birds), and encompasses six subwatersheds: Ruby Creek–Upper Priest River (HUC 170102150105), Blue Joe Creek (HUC 170101040602), Grass Creek (HUC 170101040601), Cow Creek (HUC 170101040502), Lower Smith Creek (HUC 170101040503), and Saddle Creek–Boundary Creek (HUC 170101040603). This area is referred to as the landscape-scale wildlife analysis area and is shown in Figure 3.3.1. As gray wolves (*Canis lupus*) travel long distances on a daily or seasonal basis, and fishers (*Martes pennanti*) maintain a territory or home range that may also be larger than the size of the Blue-Grass BMU, these species are discussed on a landscape scale.

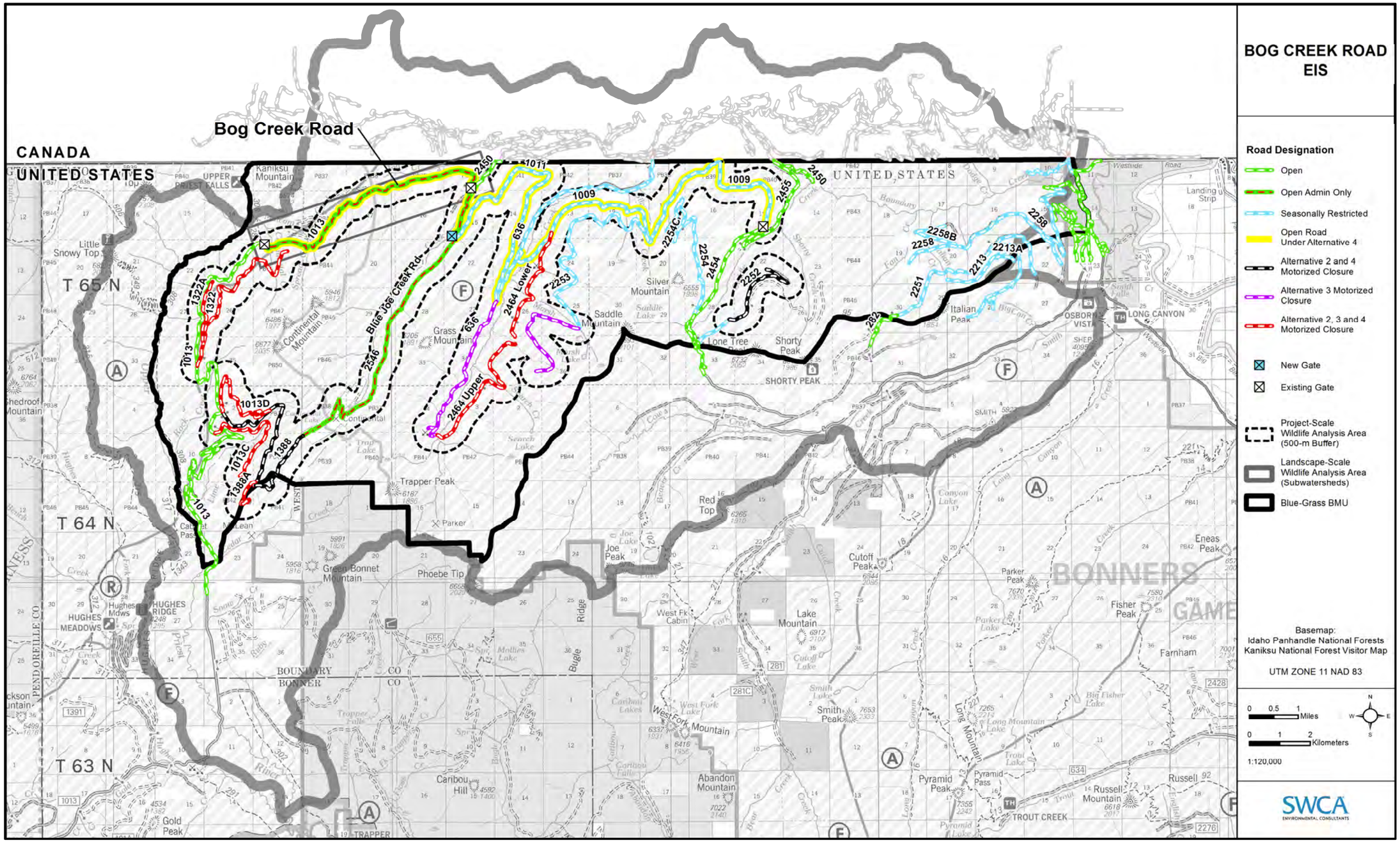

Figure 3.3.1. Wildlife analysis area.

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Subwatersheds are appropriate because they provide easily defined boundaries and units, within which impacts for wide-ranging species can be meaningfully considered. Although biotic effects could occur outside these units, they become more difficult to accurately predict with increased distance from the source of the impact. Migratory birds are discussed on both project and landscape spatial scales; because it is such a large and varied group, each scale would apply to certain species.

The temporal scale of effects considers the time frame beginning with road repair and motorized closure activities and ending when revegetation is complete, depending on the species and habitat.

3.3.3 Affected Environment

The following section describes the current condition for wildlife species and habitat that could be affected by implementation of the Bog Creek Road repair and maintenance, road designation changes, and motorized road closures. The species discussed in this section are those that were identified in public and Forest Service processes as being of high interest, as well as Forest Service sensitive species. IPNF sensitive species that are known or suspected to occur within the project-scale or landscape-scale wildlife analysis areas are analyzed in this section.

The landscape-scale analysis area has a history of road construction related to timber harvest and mining. Although some roads in this area are not formally closed, many roads are overgrown with trees or brush, or gated, and so do not allow for motorized travel. These roads are currently undrivable. Bog Creek Road is one such road that is currently undrivable, and so does not actually fragment wildlife habitat, even though it is formally designated as "seasonally restricted."

There are two popular non-motorized trails located within the landscape-scale analysis area (see Figure 3.8.1 in the Recreation section): the Upper Priest River (Trail #308) and American Falls (Trail #28). These trails are currently being monitored to ascertain whether they should be considered high-use trails, meaning those trails that receive an average of more than 20 parties per week. Currently, these trails (Trails #308 and #28) have up to 14 parties per week during the busy summer season.

Other past and ongoing activities within the BMU that contribute to wildlife habitat fragmentation, to varying degrees, include the following:

- Timber harvest from the 1960s through 2010
- The 1967 Trapper Peak wildfire, which occurred along the southern boundary of the landscape-scale analysis area
- Use of designated motorized over-the-snow routes (see Figure 3.8.2 in the Recreation section)
- Motorized access to grazing allotments (April–September)
- Private motorized access to the inactive Continental Mine (shown in Figure 2.2.1)
- Motorized access by CBP for patrol of the international border and by IPNF and other agencies for administrative use within the BMU

While vegetation regrowth has certainly occurred and wildlife habitat fragmentation is less stark than immediately after these activities, vegetation in areas fragmented by

harvest and fire likely have not reached that of a climax community only 45 to 55 years after disturbance.

3.3.3.1 Boreal Toad

This section summarizes current species information for the boreal toad (*Bufo boreas*), the only IPNF sensitive aquatic species with potential for impacts from the project actions. Boreal toad are primarily found in wetlands, seeps, springs, and streams. This species remains close to water during the day, but may range further at night, and is analyzed within the project-scale wildlife analysis area because of its relatively small home ranges and low potential for long-distance movement. Boreal toad daily movements are generally less than 164 feet, with a recorded greatest single-day movement of 1,440 feet (Keinath and McGee 2005). Forty-eight wetlands and 53 perennial streams were identified in the project-scale wildlife analysis area, all of which may serve as potential boreal toad habitat (CBP 2015a; Forest Service 2016b).

The boreal toad is found in low-elevation beaver ponds, reservoirs, streams, marshes, lakeshores, potholes, wet meadows and marshes, high-elevation ponds, fens, and tarns at or near tree line (Forest Service 2015a). The toad is known to migrate between aquatic breeding and terrestrial non-breeding habitats. It burrows in loose soil and may overwinter in terrestrial burrows or cavities. It is considered fairly common and well distributed throughout Idaho, but is considered to be in widespread decline throughout its range. During a presence/absence survey for northern bog lemming in 2014 in which all observations of boreal toad adults, tadpoles, or breeding pools were to be recorded, no such observations were made; however, the presence of appropriate breeding habitat for boreal toad was noted (CBP 2014). Threats to this species include direct mortality from vehicle strikes during mass migrations and predation, fungal infections (*Batrachochytrium dendrobatidis* and *Saprolegnia ferax*), habitat degradation due to sedimentation or physical disturbance of habitats, and water pollution.

Approximately 78 miles of road is present in the project-scale analysis area (of which 68 miles are seasonally restricted, with the remaining 10 miles open to unlimited public motorized use), though only Bog Creek Road intersects wetland habitats. Roads act as filters to movement, reducing the permeability of the landscape and affecting dispersal or emigration and immigration rates of a species (Dyer et al. 2002; van der Ree 2006). Despite this fragmentation, the wetlands and streams of the project-scale wildlife analysis area function as boreal toad habitat. Roads also have the potential to increase sediment inputs, cause turbidity, and introduce pollutants into aquatic systems, reducing stream habitat (at the road crossing itself) and detrimentally affecting water quality and, subsequently, riparian and aquatic habitats. Roads also provide human access, and the activities that accompany this access can magnify the detrimental effects on aquatic systems beyond those caused solely from roads. Impacts from roads include physical disturbance of riparian vegetation, direct mortality of wildlife from vehicles, and increased suspended sediment loads from erosion. Additionally, increased sediment loads contribute to destabilized stream channels and scoured riparian vegetation during high stream flows (Furniss et al. 2000). Increased sediment reduces interstitial spaces (small spaces between particles of substrate) and flow used by many aquatic species, and can reduce algal production, the primary food source of many invertebrates (Chutter 1969; Hynes 1970). Invertebrates are an important food source for boreal toad. Roadway runoff may also be transported into aquatic systems and decrease the water quality (Ouren et al. 2007).

Currently, 26 wetlands occur within 300 feet of seasonally restricted roads in the project-scale wildlife analysis area, and no wetlands occur within 300 feet of roads open to unlimited public motorized use.

3.3.3.2 Sensitive Terrestrial Species

This section discusses Forest Service sensitive species that rely on terrestrial habitats: harlequin duck (*Histrionicus histrionicus*), northern bog lemming (*Synaptomys borealis*), gray wolf, and fisher. Each species occurs in a unique combination of habitat types, as reported in Table 3.3.3. Furthermore, each species is analyzed at either the project-scale wildlife analysis area or landscape-scale wildlife analysis area, depending on behavioral characteristics such as the ability to travel long distances and the typical home-range or territory size. The amount of habitat available for each species is listed in Table 3.3.3.

The project- and landscape-scale wildlife analysis areas currently consist of large patches of coniferous forest interspersed with grassland and meadow patches, as well as peatlands. Motorized roads and non-motorized trails occur throughout the landscape.

Table 3.3.3. Sensitive Terrestrial Species by Analysis Area, Habitat Type, and Acres of Available Habitat

Species	Wildlife Analysis Area	Wildlife Habitat Types	Available Acres in Analysis Area (% of Total Analysis Area)
Harlequin duck	Project scale	Riparian	2,696 (14%)
Northern bog lemming	Project scale	Wetland	94 (<1%)
Gray wolf	Landscape scale	All	117,545 (100%)
Fisher	Landscape scale	Modeled suitable habitat	12,458 (11%)
Migratory birds	Project scale	All	19,220 (100%)
Migratory birds	Landscape scale	All	117,545 (100%)

Source: Forest Service (2016b).

Harlequin Duck

The harlequin duck is an inland-breeding sea duck, and the Pacific breeding population extends through Idaho, Montana, and Wyoming (Cassirer et al. 1996). Breeding begins in late May and ends in mid-August, and nests are generally located on the ground concealed in vegetation (del Hoyo et al. 1992), almost exclusively along swiftly flowing clear mountain streams with rocky substrates (Cassirer et al. 1994) in mature and old-growth forests. This species feeds almost entirely on animal matter, which during the breeding season consists of mostly macroinvertebrate larvae. This species has been observed in the vicinity of, and suitable habitat occurs within, the proposed project-scale analysis area (Forest Service 2016b). Harlequin ducks are extremely sensitive to human disturbance, which can cause them to abandon nesting sites (Cassirer and Groves 1991). They are also sensitive to high stream flow events, which can flood nests and reduce invertebrate prey (Cassirer et al. 1996).

Currently, 9 miles of road open to unlimited public motorized use occur within suitable riparian habitats of the project-scale wildlife analysis area. The presence of roads is

correlated with changes in the hydrologic and geomorphic processes that shape aquatic systems and riparian habitat (Gucinski et al. 2001). These changes include severing connections between streams and adjacent floodplain networks, the conversion of subsurface to surface flow by intercepting groundwater flow paths, and diverting flow to streams, which can increase runoff, the likelihood of flash floods, and erosion (Forman 2004; Gucinski et al. 2001). Aquatic insect larvae population numbers and diversity are negatively correlated with increased road density (McGurk and Fong 1995). These larvae are an important food source for harlequin ducks. Roads can impact nesting habitats and availability of prey, in addition to facilitating human access into habitat, which may disturb nesting harlequin ducks or increase poaching opportunities.

Northern Bog Lemming

The northern bog lemming occurs most frequently in boggy habitats near second-growth stands and sometimes in old-growth forest (Groves 1994). In Idaho, this species occupies wetland habitat in montane forest or the subalpine zone, and has been found in sphagnum bogs near stands of Engelmann spruce (*Picea engelmannii*), lodgepole pine (*Pinus contorta*), and subalpine fir (*Abies lasiocarpa*) (Groves and Yensen 1989). The northern bog lemming feeds on grasses and other herbaceous vegetation, and occupies surface runways and burrow systems that can be up to 12 inches deep. Individuals are thought to maintain a home range of less than 1 acre, though population densities may reach up to 36 individuals per acre. Loss of sphagnum or other bog mats and corridors for inter-patch movement might affect population viability. The greatest threat to this species is habitat degradation, which may be caused by road construction, timber harvest, livestock grazing, or snowmobiling. These activities also indirectly impact aquatic systems by increasing sedimentation of waterways, which can also degrade wetland habitat. In 2014, presence/absence surveys were conducted for northern bog lemming along Bog Creek Road that did not record any observations; however, the presence of appropriate habitat for northern bog lemming was noted (CBP 2014). Currently, there are no roads within the wetland habitats used by this species (see Section 3.6.3.3), and due to Forest Plan design features (see Appendix B), future road construction is likely to avoid these habitats.

Gray Wolf

The gray wolf does not exhibit any particular habitat preference, occurring where prey can be found on a year-round basis and where levels of human disturbance are low. This species primarily feeds on native ungulates (e.g., deer, elk, and moose), but will prey on domestic livestock and eat rodents, vegetation, and carrion. Pack territories average about 200 square miles, and gray wolf individuals and packs are residents and transients in the forests and non-forest lands of the Northern Rockies. In this area, individuals disperse an average of 60 miles, but dispersals of more than 500 miles have been documented (Mack et al. 2010). During the summer months, the wolf pack stays near den and rendezvous sites, which serve as pack activity centers after denning and are often located at forest edges or meadows within forested areas that offer easy accessibility to water and prey. In 2015, two pack territories were estimated to occur in the landscape-scale wildlife analysis area, belonging to the Cutoff Peak and Farnham packs (IDFG 2015). During 2014, canid (wolf or coyote) sign was observed along the entire Bog Creek Road (CBP 2014:Figure 3). No den or rendezvous sites have been identified to date in the landscape-scale analysis area (IDFG 2016b).

Road density is a useful index of the effect of roads on wildlife populations (Forman et al. 1997), as an indicator of habitat fragmentation and degradation, and of the potential for human disturbance of wildlife. The effects of route density on wildlife vary by species; however, areas with route density greater than two miles per square mile exceed thresholds for many terrestrial wildlife species (Trombulak and Frissell 2000; Wisdom et al. 2004). The maximum threshold for a naturally functioning landscape containing sustained populations of large mammals, which provide an important prey base for gray wolves, has been determined to be 1.0 mile per square mile (Forman and Hersperger 1996). There are 238 miles of road in the landscape-scale analysis area, occurring at a density of 1.3 miles per square mile. Approximately 93 miles of these roads are seasonally restricted and not open to public motorized use, and 114 miles are open to unlimited public motorized use.

Studies in Wisconsin, Michigan, Ontario, and Minnesota indicate a strong relationship between road density and the presence or absence of wolves (Fuller 1989; Jensen et al. 1986; Mech et al. 1988; Thiel 1985). These studies show that wolves generally failed to survive in areas with road densities greater than 0.9 mile per square mile, whereas they persist in similar areas with lower densities of roads. Roads facilitate human access into wolf habitat, and human-caused mortality is the greatest cause of mortality of wolves in Idaho (of 359 wolf mortalities in Idaho in 2015, 355 [99 percent] were human caused [IDFG 2015]). The majority of wolf mortality (72 percent) results from legal harvest (hunting and trapping), lethal control in response to livestock depredation or in defense of property (15 percent), other control activities meant to mitigate impacts of wolf predation on ungulate populations (6 percent), or illegal take (4 percent). Direct mortality from vehicle strikes resulted in four wolf mortalities (1 percent of the total) in Idaho in 2015 (IDGF 2015). In areas where the human population has a higher tolerance of wolves, wolves are able to exist in areas of higher road densities. Areas with high road densities that are adjacent to areas of low road densities may act as “sink” populations (habitat in which the rate of mortality is greater than reproduction) for wolves, which may contribute to the high mortality levels observed in road density studies.

Studies have also shown that wolves select linear features as travel corridors (James and Stuart-Smith 2000; Whittington et al. 2004) and are more likely to kill ungulate prey near linear features (James and Stuart-Smith 2000), including caribou (Whittington et al. 2011). Snowmobile tracks can facilitate wolf access into areas with deep snowpack (Whittington et al. 2011). Figure 3.8.2 in the Recreation section shows the snowmobile trails within the Blue-Grass BMU allowed by the court-ordered snowmobile closure.
A study of Scandinavian gray wolves concluded that wolves were 3.5 and 5.2 times more likely to travel on gravel roads during the day and night, respectively, than off roads. Wolves appear to use roads as travel corridors to access fragmented habitat patches or hunting areas. By increasing the permeability of the landscape, roads can contribute to an increase in functional connectivity and population viability for wolves. The contrast between increased mortality of wolves in areas of higher road density and use of roads by wolves as travel corridors appear to be at odds, but traffic levels on individual roads likely either restrict (high) or allow (low) use of roads as travel corridors, and may facilitate the risk for disturbance or human-caused mortality.

Fisher

Fisher occupy upland and lowland forests, including coniferous, mixed, and deciduous forest habitats with high canopy closure and live and dead trees, often found in moist forest and riparian habitats. This species uses multilayered canopies to protect against predation, snags for dens, and downed logs for denning and resting (Forest Service 2015a). The fisher feeds on a variety of food types, including small mammals, reptiles, amphibians, bird eggs, fish, and fruit. The species has been observed in areas with low levels of human disturbance in the project- and landscape-scale wildlife analysis areas (Forest Service 2015a; IDFG 2016a). Currently, 13 miles of road occur within modeled suitable habitat across the landscape-scale wildlife analysis area (of which approximately 10 miles are seasonally restricted, with the remaining 3 miles are open to unlimited public motorized use). These roads, particularly the 3 miles of road that allow unlimited motorized use, facilitate human access and may result in disturbance to this species. The primary threats to fisher populations are overharvesting by trappers, habitat fragmentation and degradation caused by timber harvesting, and disturbance from human activities. Vegetation management and fire suppression have altered the prey availability, composition, and structure of fisher habitat.

3.3.3.3 Migratory Birds

Migratory birds are analyzed at both the project-scale wildlife analysis area and the landscape-scale wildlife analysis area, as behavioral characteristics such as the ability to travel long distances and the typical home-range or territory size may vary significantly between species. The amount of habitat available for each analysis area is listed in Table 3.3.4.

Table 3.3.4. Migratory Birds by Wildlife Analysis Area, Habitat Type, and Acres of Available Habitat

Species Group	Wildlife Analysis Area	Wildlife Habitat Types	Available Acres in Analysis Area (% of Total Analysis Area)
Migratory birds	Project-scale	All	19,220 (100%)
Migratory birds	Landscape-scale	All	117,545 (100%)

Source: Forest Service (2016b)

Migratory birds that may occur in the project- and landscape-scale wildlife analysis areas include red-naped sapsucker (*Sphyrapicus nuchalis*), brown creeper (*Certhia americana*), Swainson's thrush (*Catharus ustulatus*), western tanager (*Piranga ludoviciana*), ruby-crowned kinglet (*Regulus calendula*), and cedar waxwing (*Bombycilla cedrorum*). These species are protected under the MBTA (as discussed below in Table 3.3.6) and are managed through conservation strategies detailed by various plans, including the *Landbird Strategic Plan* (Forest Service 2000) and the *North American Landbird Conservation Plan* (Rich et al. 2004). Additional Birds of Conservation Concern (USFWS 2008b) that may occur within the analysis areas include Cassin's finch (*Carpodacus cassinii*), fox sparrow (*Passerella iliaca*), olive-sided flycatcher (*Contopus cooperi*), willow flycatcher (*Empidonax traillii*), calliope hummingbird (*Stellula calliope*), rufous hummingbird (*Selasphorus rufus*), Lewis's woodpecker (*Melanerpes lewis*), short-eared owl

(*Asio flammeus*), Swainson's hawk (*Buteo swainsoni*), and western grebe (*Aechmophorus occidentalis*) (Appendix C).

Threats to migratory birds include habitat loss, displacement, and mortality. Roads fragment habitat and create edge effects, modifying the habitat in favor of species that use edges. In some locations, increased water runoff from roads produces lush vegetation ("edge effects"), which attracts birds for breeding, nesting, or foraging activities (Clark and Karr 1979). The attraction of bird species to these edge habitats can lead to greater risk of mortality from collisions with vehicles (Mumme et al. 2000). Surveys of songbirds in two national forests of northern Minnesota found 24 species of birds more abundant along roads than away from them (Hanowski and Niemi 1995). Close to one-half of these species were associated with edges, including birds like crows and blue jays, which use roads as corridors to find food. Increasing edge-preferring bird diversity may negatively affect interior species abundance (Anderson et al. 1977). Vehicular traffic is also a source of noise that has the potential to disturb wildlife along any type of road or trail (Bowles 1995). In some studies, traffic noise has led to significant reductions in breeding bird densities (Reijnen et al. 1995). There are 3 miles of roads open to unlimited public motorized use in the project-scale analysis area and 114 miles of roads open to unlimited public motorized use in the landscape-scale analysis area.

3.3.3.4 Goshawk Nests

The northern goshawk maintains a territory or home range that may also be larger than the size of the project-scale wildlife analysis area, and so is discussed at the landscape scale. This species nests in large patches of mature conifer forests with closed canopies and open understories (Kennedy 2003). Nests are generally located in large trees on gentle topography with northern aspects. Foraging habitat includes a variety of forest successional stages, often with open understories, and the species primarily feeds on birds and small mammals. Northern goshawk are found in Idaho year-round, but are more commonly observed in summer.

There are four identified northern goshawk (*Accipiter gentilis*) nests within the landscape-scale analysis area, and all are located within 0.5 mile of either Bog Creek Road, roads proposed for designation changes, or the roads proposed for motorized closure, for a total of 6 miles of project roads within 0.5 mile of the nests. Approximately 1 mile of these roads is open to unlimited public motorized use, and the remaining 5 miles are seasonally restricted. One nest is located at the west end of Bog Creek Road, and two nests (very close to one another) are located at the east end. In recent years, nesting activity has been observed at the two nests located at the east end of Bog Creek Road. The fourth nest is located at the north end of FSR 2464.

Birds of prey, such as goshawks, are sensitive to harassment and human presence, often facilitated by road access. Potential productivity reduction, increased energy expenditure, or habitat displacement can occur (Bennett 1991; Mader 1984), particularly if goshawk are disturbed during breeding or nesting. Additionally, reproductive success for birds of prey is linked to prey availability (Murphy 1975). Loss and changes in vegetation caused by roads can degrade habitats used by raptor prey species, resulting in habitat fragmentation and direct mortality by vehicles (Ouren et al. 2007). These impacts, over time, can result in prey species' population decrease, which can impact birds of prey reproductive success and, consequently, birds of prey populations.

3.3.4 Management Framework

The regulations, laws, and policies governing wildlife management in the analysis areas include the following (Table 3.3.5). The reader is referred to the Forest Plan (available in the project record) for additional guidance.

Table 3.3.5. Wildlife-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**GOAL-[Wildlife (WL)]-02.** The IPNFs manage and schedule activities to avoid or minimize disturbance to sensitive species and manages habitat to promote their perpetuation into the future.
All MAs	**[Forestwide (FW)]-GDL-WL-20. Raptors.** Management activities on NFS lands should avoid/minimize disturbance at known active raptor nests, including owls. Timing restrictions and distance buffers should be based on the best available information, as well as site-specific factors (e.g., topography, available habitat, etc.). Birds that establish nests near pre-existing human activities are assumed to be tolerant of that level of activity.
All MAs	**FW-DC-WL-08.** Peregrine falcon nests have a low level of disturbance during periods of use. Forest landbirds and small mammals are abundant and support the current and expanding population of peregrine falcons on the Forest.
All MAs	**FW-DC-WL-09.** Habitat for native ungulates is available and well-distributed across the landscape to provide prey for carnivores.
All MAs	**FW-DC-WL-10.** Productive plant communities, with a mosaic of successional stages, structures, and species, are available for neotropical and other migratory landbirds. These habitats support nesting activities or use during bird migration across the IPNFs.
All MAs	**FW-DC-WL-11.** A mosaic of aquatic and riparian habitats with a low level of disturbance is available for associated species.
All MAs	**FW-DC-WL-12.** Old growth, or other stands having many of the characteristics of old growth, exists for terrestrial species associated with these habitats (refers to FW-DC-[Vegetation (VEG)]-03, FW-STD-VEG-01, FW-STD-VEG-02, FW-GDL-VEG-01, and FW-GDL-VEG-02).
All MAs	**FW-DC-WL-16.** Caves, mines, and snags with loose bark provide areas for roosting, hibernation, or maternity sites for various species of bats (refer to FW-DC-VEG-07, FW-GDL-VEG-04, and FW-GDL-VEG-05).
All MAs	**FW-DC-WL-17.** Habitat for native ungulates (elk, deer, moose, and mountain goat) is managed in coordination with state agencies. Cover is managed according to FW-DC-VEG-01, FW-DC-VEG-02, FW-DC-VEG-04, FW-DC-VEG-05, and FW-DC-VEG-11.
All MAs	**FW-DC-WL-18.** Forest management contributes to wildlife movement within and between national forest parcels. Movement between those parcels separated by other ownerships is facilitated by management of the NFS portions of linkage areas identified through interagency coordination. Federal ownership is consolidated at these approach areas to highway and road crossings to facilitate wildlife movement.
All MAs	**FW-DC-WL-19.** Secure denning and rendezvous sites are available for wolf packs and avoided by management activities during critical biological periods (e.g., whelping, rearing).
All MAs	**FW-GDL-WL-22. Wolf.** Management activities should avoid or minimize disturbance to wolves near den and rendezvous sites during the times those sites are in use based on the best available information.
All MAs	**FW-OBJ-WL-01.** The outcome is the maintenance or restoration of wildlife habitat on 1,000 to 5,000 acres of NFS lands, annually, with an emphasis on restoration of habitats for threatened and endangered listed species and sensitive species.
All MAs	**FW-STD-WL-03.** Permits and operating plans (e.g., special use, grazing, and mining) shall specify sanitation measures and adhere to the IPNF's food/attractant storage order (see Appendix F) in order to reduce human/wildlife conflicts and mortality by making wildlife attractants (e.g., garbage, food, livestock carcasses) inaccessible through proper storage or disposal.
All MAs	**FW-GDL-WL-23. Harlequin Duck.** Management activities should avoid or minimize disturbance near known active nesting and rearing areas based on the best available information.

Table 3.3.5. Wildlife-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-GDL-WL-17.** Connectivity. In wildlife linkage areas identified through interagency coordination, Federal ownership should be maintained.
All MAs	**FW-GDL-WL-25.** Management activities on NFS lands should avoid/minimize disturbance at known active nesting or denning sites for other sensitive species not covered under other forest-wide guidelines. Use the best available information to set a timeframe and a distance buffer around active nests or dens. Individual animals that establish nests and den sites near areas of pre-existing human use, inconsistent with the timeframes and distances in the other forest-wide wildlife guidelines or in the best available information, are assumed to be accepting of that existing higher level of human use at the time the animals established occupancy. In those instances, as long as the individual animals continue to use the site, the higher intensity, duration, and extent of disturbance could continue but would not be increased beyond the level existing at the time the animals established occupancy.
MA 1b	**MA1b-DC-WL-01.** Large remote areas with little human disturbance such as those found in this MA (in conjunction with MAs 1a, 1c, 1e, and 5) are retained and contribute habitats for species found primarily in these habitats such as mountain goat. Habitat conditions within these management areas contribute to wildlife movement within and across the Forest.
MA 5	**MA5-DC-WL-01.** Large remote areas with little human disturbance such as those found in this MA (in conjunction with MAs 1a, 1b, 1c, and 1e) are retained and contribute habitats for species with large home ranges. Habitat conditions within these management areas contribute to wildlife movement within and across the Forest. These areas also provide foraging, security, denning, and nesting habitat for wildlife.
Lower Kootenai GA	**GA-DC-WL-[Lower Kootenai (LK)]-01.** NFS lands contribute habitat conditions for wildlife movement between the Yaak and the Selkirk Mountain ranges, between the Cabinet and the Selkirk Mountain ranges, and also to the Canadian border.
Lower Kootenai GA	**GA-DC-WL-LK-03.** Areas in the Selkirk Mountain range with low levels of disturbance are used by mountain goat during the winter.
Priest Lake GA	**GA-DC-WL-[Priest Lake (PR)]-03.** Habitat conditions for wildlife movement on the divide between Idaho and Washington, from the Canadian border south, are retained.

Other regulations, laws, and policies governing wildlife management for this DEIS are summarized in Table 3.3.6.

Table 3.3.6. Other Relevant Regulations, Laws, and Policies, Regarding Wildlife Management

Relevant Regulations, Laws, and Policies	Summary
Forest and Rangeland Renewable Resources Planning Act of 1974	Provides for maintenance of land productivity and the need to protect and improve the soil and water resources.
Idaho Furbearer Trapping Regulations	Guidance provided by IDFG regarding upland game and furbearer species for trapping, and hunting requirements.
NFMA	The NFMA states that the Secretary will “promulgate regulations” under the principles of the Multiple Use–Sustained Yield Act of 1960, to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the Plan” (Public Law 94-588:5(g)(3)(B)). The 2012 Forest Service planning rule provisions “are focused on providing the ecological conditions necessary to support the diversity and persistence of native plant and animal species” (Forest Service 2012c:21216). “This approach meets the requirements of NFMA” (Forest Service 2012c:21176).

Table 3.3.6. Other Relevant Regulations, Laws, and Policies, Regarding Wildlife Management (Continued)

Relevant Regulations, Laws, and Policies	Summary
MBTA of 1918, as amended	Addresses concerns for migratory birds. In a subsequent MOA from 2001 with the USFWS, the Forest Service agreed to 1) incorporate migratory bird habitat and population objectives and recommendations into the agency planning process in cooperation with other governments, States, Federal agencies, and non-Federal partners; 2) and strive to protect, restore, enhance, and manage habitat of migratory birds and prevent the further loss or degradation of remaining habitats on NFS lands.
EO 13186	This EO, Responsibilities of Federal Agencies to Protect Migratory Birds, was issued by President Bill Clinton in furtherance of the purposes of the MBTA, the Bald and Golden Eagle Protection Acts, the Fish and Wildlife Coordination Act, the ESA, and NEPA. This order requires including effects of Federal actions on migratory birds as part of the environmental analysis process. On January 17, 2001, the Forest Service and the USFWS signed an MOA to complement the EO.
Forest Service policy	This policy (FSM 2600, Chapter 2670 [Forest Service 2005]) states that regional sensitive species will be identified and management taken to ensure that these species do not trend toward Federal listing as a result of management actions.

3.3.5 Environmental Consequences

3.3.5.1 Methodology

The following section describes the issue indicators and approaches that were used to evaluate potential effects on wildlife and specify the criteria that were used to determine effects.

Issue Indicators

Wildlife habitat is defined by the presence or absence of a species in an area within a particular vegetation community type or using a particular resource (e.g., wetlands). Because the presence of wildlife species is so closely tied to the presence and quality of a vegetation community or resource, the analysis of impacts to wildlife is typically measured by acres of habitat lost or degraded, which can then be compared among alternatives. Additionally, the potential for human disturbance of wildlife species can be measured by mileage of road designation changes or density of roads in a geographic area.

Table 3.3.7 lists the issues identified for wildlife resources and the indicators used to assess impacts to these resources in this DEIS. See also Section 3.1, Introduction, for a full description of the project actions causing these impacts. Direct, indirect, and cumulative effects for wildlife resources are estimated using quantifiable indicators, where possible.

Table 3.3.7. Issue Indicators for Sensitive Wildlife Species

Issue	Analysis Measure
Boreal toad	• Acres of suitable breeding habitat (wetlands) disturbed • Miles of permanent road: improved, with changed designation, and/or closed to motorized use
Harlequin duck	• Acres of suitable habitat disturbed (RHCAs) • Miles of permanent road: improved, with changed designation, and/or closed to motorized use • Qualitative analysis of fragmentation/human disturbance

Table 3.3.7. Issue Indicators for Sensitive Wildlife Species (Continued)

Issue	Analysis Measure
Northern bog lemming	• Acres of suitable habitat (wetlands) disturbed
Gray wolf	• Acres of suitable habitat disturbed • Miles of permanent road: improved, with changed designation, and/or closed to motorized use • Qualitative analysis of fragmentation/human disturbance • Qualitative analysis of mortality risk
Fisher	• Acres of modeled suitable habitat disturbed • Miles of permanent road: improved, with changed designation, and/or closed to motorized use • Qualitative analysis of fragmentation/human disturbance • Qualitative analysis of mortality risk
Migratory birds	• Acres of suitable habitat disturbed • Qualitative analysis of fragmentation/human disturbance

Impacts to wildlife could occur as a result of the road repair, and motorized closure actions, as well as maintenance and use actions (the actions are further detailed in Section 3.1, Introduction). The impacts below are described in detail according to these categories. Repair and motorized closure actions analyzed consist of all activities necessary to repair and maintain Bog Creek Road and conduct motorized road closures. Long-term maintenance and use actions analyzed consist of a change in motorized use designations for roads across the Blue-Grass BMU, varying between action alternative; long-term vegetation maintenance, culvert cleaning, and routine grading would also occur.

3.3.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

The analysis below includes evaluation of the potential for short-term direct and indirect effects on wildlife species from the alternatives.

Alternative 1 – No Action

Under the No-Action Alternative, construction-related activities in the Blue-Grass BMU are not anticipated in the near term. Current noise and motorized use levels would continue in the wildlife analysis areas within the seasonal administrative trip restrictions, and could result in occasional disturbance or displacement of wildlife that are sensitive to noise levels, as well as cause mortality from vehicle strikes. Figure 3.8.2 in the Recreation section shows the snowmobile trails within the Blue-Grass BMU allowed by the court-ordered snowmobile closure. Under the No-Action Alternative, wildlife movement would not change, and habitat fragmentation would remain the same as under current conditions. The currently undrivable Bog Creek Road would not be repaired and maintained, so the potential for mortality and new road barrier effects would not occur. No motorized road closures would take place, and the landscape would persist at current levels of fragmentation (except Bog Creek Road). The potential for mortality of wildlife from vehicle strikes would not increase, and there would be no change in habitat quality or habitat fragmentation. Under the No-Action Alternative, current wildlife movement patterns would not change from the existing condition.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road

closure could result in wildlife impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

The No-Action Alternative would include weed management along Forest Service roads throughout the project-level wildlife analysis area in accordance with existing plans (Forest Service 1995c, 1997). Because the presence of weeds often reduces local biodiversity and can outcompete higher quality sources of forage, preventing weed establishment would maintain habitat quality for the wildlife that currently use the area.

Without removal or replacement, the culverts could potentially fail or blow out along Bog Creek Road and the roads proposed for motorized closure under the action alternatives. There is the potential that culvert failure or blowout could occur, which would catastrophically release sediment downstream (Furniss et al. 1998). Sediment releases of that nature could have the potential to temporarily (estimated at 5 to 10 years) degrade downstream aquatic habitats, until the affected stream channel stabilized and the banks revegetated. The effect a failure or blowout would have on aquatic habitat is difficult to anticipate, as it is dependent on stream type, flow regime, and the road-stream crossing fill quantity.

Alternative 2 – Proposed Action

The following section presents an analysis of effects that would occur on wildlife under the Proposed Action. This section begins with an analysis of impacts that would be common to all species in the analysis areas and then describes species-specific impacts.

Effects Common to All Wildlife Species in the Analysis Areas

This section details effects common to all wildlife species under the Proposed Action, such as behavioral changes in response to human noise and activity and habitat fragmentation. Additional impacts that are specific to each species are discussed under their respective sections.

Human Noise and Activity

The Proposed Action would result in a total of 84.8 acres of potential surface disturbance. During the up to three seasons of road repair and motorized closure, the seasonal vehicle round-trip restrictions would be exceeded on the roads identified as administrative open and open in Figure 3.3.1. Upon completion of Bog Creek Road repair, Bog Creek Road (FSR 1013) and Blue Joe Creek Road (FSR 2546) would change from their current seasonally restricted designation (limited motorized access) to an administrative open designation. Bog Creek Road is currently not drivable, so additional motorized use would occur on this road under the Proposed Action, compared with the No-Action Alternative. The motorized road use for these roads under the No-Action Alternative would change from very low and low to moderate under the Proposed Action (see Table 3.1.3). Road repair and motorized closure activity, traffic, and noise could temporarily affect wildlife behavior or, for individual species present in the work corridor, cause mortality. During the three seasons when repair and motorized road closure activities could take place (between July 16 and November 15 for road repair and June 16 to November 15 for motorized closure), activities would include the use of heavy equipment and vehicle traffic. This equipment and associated activities can produce a range of sound from

55 to 85 dBA at 50 feet, but would decrease as the distance into the forest away from these activities increased. Because of the attenuating effect from the analysis areas' dense forest, noise levels would be less than an estimated 45 to 58 dBA at the edge of the project-scale analysis area, and less than 39 to 52 at 0.5 mile away from the activities (FHWA 2006). Noise levels without the equipment and associated activities are estimated to range from 37 to 43 dBA for "very quiet, sparse suburban or rural areas" (ANSI and ASA 2013).

Studies have shown that wildlife can be detrimentally impacted by human-produced noise (Knight and Cole 1995a; Taylor and Knight 2003), and noise is considered a form of human disturbance. Detrimental impacts consist of modified behavior, which can alter the animal's vigor (e.g., increase stress levels) and productivity, especially if disturbed during critical times of year such as breeding and wintering (Gabrielsen and Smith 1995; Knight and Cole 1995b). Proposed activities under the Proposed Action would increase current noise in the project-scale analysis area. However, the noise would be produced sporadically and temporarily, and would only impact individual wildlife that are in the range of the produced sound. Noise from road repair and motorized closure activities would also cease when work is completed. Therefore, noise related to repair and motorized closure would be unlikely to detrimentally affect wildlife populations or result in a long-term change in distribution (avoidance or abandonment of preferred areas), a reduction in population size, or a shift in population demographics.

Vehicle and equipment operation during road repair and motorized closure activities could result in mortality of smaller-bodied or slow-moving species—such as rodents, reptiles, or amphibians—taking shelter in disturbed areas or in the path of moving vehicles. However, the potential for mortality would be minimized due to low speeds of moving vehicles (25 mph), and restriction of repair and motorized closure activities to daylight hours (i.e., wildlife would therefore be more visible on the roads). The Proposed Action would also temporarily increase traffic on the roads proposed for motorized closure. However, because of the low speed limit (25 mph) and moderate level of long-term motorized road use (see Table 3.1.3), a detrimental reduction in population size or a shift in demographics throughout the analysis area is unlikely.

Under Alternative 2, approximately 26 miles of Forest Service roads in the BMU would be closed to all motorized use. This would result in a long-term decrease in human noise and activity that could disturb wildlife in the analysis areas. The risk of direct wildlife mortality from vehicle strikes would also be reduced, as motorized use of the existing roads would no longer be possible. The decrease in motorized use from these road closures would provide long-term benefits to wildlife by reducing human disturbance (by reducing access). Indirect causes of mortality (hunting, trapping, poaching, malicious killing) of wildlife species would also be reduced, as would disturbance of wildlife by humans during breeding or foraging.

Fragmentation

The Proposed Action would repair 5.6 miles of Bog Creek Road. Roads can act as a movement barrier to some wildlife species, especially when the road is wide, paved, and handling high levels of traffic (Forman et al. 2003). The repaired and maintained Bog Creek Road would have a dirt or graveled surface and would not handle high levels of traffic, and motorized vehicles would be restricted to 25 mph. Wildlife vehicle strike mortality studies reviewed for this DEIS were focused on paved highways with speed

limits of 55 mph or higher (Gunther et al. 1998; Jochimsen et al. 2004; Meisingset et al. 2014); literature for roads similar to those in the analysis areas—gravel with a 25-mph speed limit—did not focus on vehicle strikes. Because 25 mph is at least 30 mph slower than the speed limits at which wildlife vehicle strike mortalities were observed, and driving 30 mph slower would provide drivers with more reaction time, this DEIS analysis assumes that the 25-mph speed limit reduces the likelihood of vehicle strike mortalities. The road could still act as a semipermeable movement barrier to certain species that are especially sensitive to fragmentation or human disturbance, such as gray wolves, fishers, small mammals, and amphibians (described in more detail below). These are species that 1) tend to avoid roads and also require large tracts of habitat for survival, or 2) are susceptible to vehicle strikes or human-caused mortality (hunting, trapping, poaching, or malicious killing). Under the Proposed Action, the maintained and administratively open Bog Creek Road and Blue Joe Creek Road would have an increased barrier effect on wildlife, compared with the No-Action Alternative, because these roads would shift from very low and low motorized use to moderate (see Table 3.1.3). However, because of the low speed limit (25 mph), unpaved nature of the roads, and moderate (not high) level of motorized road use, a detrimental reduction in gene flow throughout the landscape-scale analysis area is unlikely. Additionally, the proposed motorized road closures that would be implemented with the Proposed Action would provide a net decrease in total road mileage and density across both the project-scale and landscape-scale analysis areas.

Activities associated with repair and motorized closure actions could decrease habitat quality through the introduction and spread of weeds to roadside vegetation. Weeds would be managed as prescribed in the *Priest Lake Noxious Weed Control Project Final Environmental Impact Statement* (Forest Service 1997) and the *Bonners Ferry Ranger District Noxious Weed Management Projects Final Environmental Impact Statement* (Forest Service 1995c). Therefore, it is unlikely that project-induced weeds would lead to reduced habitat health.

The decrease in vehicle traffic from the motorized closure of approximately 26 miles of roads would provide long-term benefits to wildlife by reducing habitat fragmentation (after revegetation) and human disturbance (by reducing access). Closure of these roads would reduce disturbance to wildlife from human noise and activity, and mortality of wildlife from vehicle strikes or hunting and trapping because recreationists, hunters, and other users are less likely to access closed (and overgrown) roads. Motorized road closure creates larger patches of contiguous habitat, which act as refuge areas for wildlife to complete important activities (such as breeding) without disturbance (such as noise) associated with motorized use. There would also be an overall reduction in route density across the landscape-scale analysis area, which would facilitate easier movement of wildlife throughout the area, increasing fitness and the potential for gene flow by reconnecting populations that are currently subject to, at least, semipermeable barriers.

Boreal Toad

The Bog Creek Road repair would directly affect approximately 0.1 acre of wetland habitat, which is less than 1 percent of total available boreal toad breeding habitat within the project-scale analysis area. Repair would necessitate the grubbing or trimming of trees and other vegetation, which could alter available potential sensitive aquatic habitat, but would not eliminate surface and subsurface water flow. Displaced boreal toads could move into adjacent undisturbed wetland habitat. To reduce the potential for soil

compaction and impacts to wetland habitat, repair and motorized road closure actions would be guided by water resource and wildlife design features, as described in Appendix B. Motorized closure of approximately 26 miles of roads could involve recontouring of the road prism, removal of culverts, and installation of water bars, which would temporarily and indirectly alter aquatic habitats by disturbing existing vegetation and contribute to temporary increases in sediment yield.

Repair of Bog Creek Road would require both replacement of and installation of additional new permanent culverted stream crossings with associated fill material. Six culverts would be replaced, and six new culverts would be installed along Bog Creek Road. Along the roads proposed for motorized closure, 221 culverts would be removed. The total disturbance area of these stream crossing removals and replacements is estimated at 0.23 acre. There is the potential for boreal toads to occur in the wetland habitat provided by streams on which culverts would be replaced or constructed. Because individual boreal toads may use the culverts to travel between habitat patches, currently plugged road crossings would no longer fragment their habitat. Sedimentation associated with culvert installation could enter the tributaries and settle in adjacent wetlands. However, research indicates that the inclusion of design features, such as placing straw bales immediately downstream during culvert removal, are effective at reducing sediment loads by 97 percent (Foltz et al. 2008). Sediment control design features (see Appendix B) would be implemented to reduce the potential impacts from sediment movement into waterways to a level unlikely to be harmful to boreal toad. Additionally, the repair of damaged culverts and removal of culverts along decommissioned roads would reduce the potential for failure or blowout of these culverts, of which the resulting catastrophic sediment release could degrade downstream aquatic habitats.

During the road repair and motorized closure, streamside vegetation removal would occur in riparian habitats. A total of 3.7 acres of riparian habitat (less than 1 percent of the total riparian habitat in the water resources analysis area [see Section 3.6, Water Resources, for more detail]) would potentially be subject to some vegetation removal. Design features (see Appendix B) proposed to control erosion and sedimentation include leaving riparian vegetation along water bodies whenever feasible. In instances where vegetation removal would be required, the following design features would be implemented as appropriate: immediate revegetation efforts following wetland crossing, or culvert installation and installation of streamside erosion control structures until the banks have reestablished vegetation. These design features would reduce the potential impacts to shade, temperature, and woody debris to a degree unlikely to be substantial enough to degrade aquatic habitat.

Because of the strict breeding habitat associations of the boreal toad, individuals may be affected by alterations to wetland habitats. Individual boreal toads could be temporarily displaced from the work areas or could be crushed by machinery. It is unknown whether boreal toads currently breed in the project-scale analysis area; however, if they do, breeding locations may be temporarily lost or altered because of localized vegetation alterations. However, because the surface and subsurface water flow would remain unchanged following repair and motorized closure activities, it is likely that temporarily displaced individuals would return to wetland habitats once these activities cease. Boreal toads are highly mobile and would also be able to travel overland or through the existing

hydrology to access other breeding sites within wetland complexes and riparian corridors where repair and motorized road closure activities are not occurring.

In the long term, as roads closed to motorized use revegetate, sediment delivery would decrease and aquatic habitats would improve. Direct and indirect impacts to aquatic habitat would decrease with a reduction in opportunities for roadway runoff to enter aquatic habitats. Additionally, direct mortality associated with vehicles would be lessened with a reduction in total road mileage, which would also reduce risks to boreal toads dispersing or migrating overland. Physical disturbance of riparian vegetation and suspended sediment loads from erosion would decrease. When water quality improves, habitat quality for amphibians also improves. Because of the above discussion, and the results discussed in Section 3.6.5 of the Water Resources section, the Proposed Action would improve long-term water quality of aquatic habitats.

Sensitive Terrestrial Species

Impacts to wildlife may occur during repair and motorized road closure activities associated with the Proposed Action. Temporary impacts would occur during road repair and closure activities, such as road clearing and blading and culvert replacement. Table 3.3.8 displays acres of habitat disturbance for each sensitive terrestrial species by alternative. Less than 1 percent of the available habitat within either the project-scale or landscape-scale wildlife analysis area for all sensitive terrestrial species analyzed would be impacted under the Proposed Action. Table 3.3.9 displays the mileage of roads proposed to be closed within suitable habitat for each sensitive terrestrial species by alternative, as well as the percentage of mileage closed.

Table 3.3.8. Comparison of Acres of Temporary and Permanent Disturbed Habitat per Alternative, Sensitive Terrestrial Species

Species	Wildlife Analysis Area	Direct Impacts for No-Action (Alternative 1) Acres Disturbed (% of available analysis area habitat), acres returned	Direct Impacts for the Proposed Action (Alternative 2) and Alternative 4 Acres Disturbed (% of available analysis area habitat), acres returned	Direct Impacts for Alternative 3 Acres Disturbed (% of available analysis area habitat), acres returned
Harlequin duck	Project scale	0 (0%), 0	9.0 (<1%), 5.4	9.6 (<1%), 5.9
Northern bog lemming	Project scale	0 (0%), 0	0.1 (<1%), 0	0.1 (<1%), 0
Gray wolf	Landscape scale	0 (0%), 0	84.8 (<1%), 62.4	81.7 (<1%), 59.4
Fisher	Landscape scale	0 (0%), 0	4.4 (<1%), 2.7	9.3 (<1%), 7.6

Table 3.3.9. Comparison of Road Miles Closed per Alternative, Sensitive Terrestrial Species

Species	Wildlife Analysis Area	No-Action (Alternative 1) Existing Mileage in Habitat (% of existing road mileage proposed for closure)	Proposed Action (Alternative 2) and Alternative 4 Existing Road Mileage Closed in Habitat (% of existing road mileage proposed for closure)	Alternative 3 Existing Road Mileage Closed in Habitat (% of existing road mileage proposed for closure)
Harlequin duck	Project scale	5.5 (0%)	2.3 (42%)	2.3 (42%)
Northern bog lemming	Project scale	0 (0%)	0 (0%)	0 (0%)

Table 3.3.9. Comparison of Road Miles Closed per Alternative, Sensitive Terrestrial Species (Continued)

Species	Wildlife Analysis Area	No-Action (Alternative 1) Existing Mileage in Habitat (% of existing road mileage proposed for closure)	Proposed Action (Alternative 2) and Alternative 4 Existing Road Mileage Closed in Habitat (% of existing road mileage proposed for closure)	Alternative 3 Existing Road Mileage Closed in Habitat (% of existing road mileage proposed for closure)
Gray wolf	Landscape scale	238.2 (0%)	26.5 (11%)	24.7 (10%)
Fisher	Landscape scale	31.7 (0%)	1.1 (3%)	3.2 (11%)

The following effects, discussed below, would occur in addition to those described as being common to all wildlife species in the analysis areas.

Harlequin Duck

Potential effects on harlequin ducks include loss of habitat and behavioral impacts resulting from disturbance associated with human activities during road repair and motorized closure.

Habitat removal associated with repair and motorized closure has the potential to impact this species between June 16 and mid-August, when repair and motorized road closure activities would overlap the breeding and brood-rearing seasons. Approximately 9.0 acres of suitable habitat within the project-scale analysis area would be disturbed during these activities (see Table 3.3.8). This would constitute less than 1 percent of the suitable habitat available within the analysis area. There would be a permanent habitat loss of 3.6 acres from the Bog Creek Road repair. It is unknown whether harlequin ducks nest within the disturbance area, though suitable habitat exists. Additionally, the noise produced by the activities has the potential to disturb nesting or foraging harlequin ducks beyond the areas of ground disturbance, leading them to seek nesting and foraging habitat elsewhere, which is readily available.

Approximately 5.4 acres of suitable habitat within the project-scale analysis area would revegetate following motorized road closure of 2.3 miles of roads under the Proposed Action (see Tables 3.3.8 and 3.3.9); providing long-term beneficial impacts to the species. This would provide greater connectivity between areas of suitable habitat and facilitate movement of harlequin ducks. Roads closed to motorized use would no longer contribute sediment and contaminants into waterways. Therefore, turbidity in impacted waterways could be lessened, and water temperature could regulate through regrowth of vegetation. The Proposed Action would reduce fine sediment loads, which could lead to improved invertebrate assemblages, an important food resource for harlequin ducks.

Direct human access into harlequin duck habitat via roads would be reduced under the Proposed Action. This would result in a reduction in impacts to breeding and foraging behavior from human disturbance from current levels, potentially allowing for greater reproductive success.

Northern Bog Lemming

As discussed in Section 3.3.3.2, a presence/absence survey was conducted during the 2014 field season for northern bog lemming and did not record any observations (CBP 2014).

However, the presence of appropriate habitat for northern bog lemming was noted. Potential effects on northern bog lemmings consist of habitat degradation.

As shown in Tables 3.3.8 and 3.3.9, wetland habitats that could be used by this species would not be directly impacted, though sedimentation and changes in hydrology may indirectly impact habitat and cause temporary degradation of water quality and detrimental, short-term impacts to plant communities. Sediment associated with culvert installation could enter associated waterways and settle in adjacent wetlands; however, research indicates that inclusion of design features, such as placing straw bales immediately downstream during culvert removal, are effective at reducing sediment loads by 97 percent (Foltz et al. 2008). Design features (see Appendix B) to decrease the sediment yield would be implemented. Northern bog lemmings moving between habitat patches could potentially be crushed or struck by vehicles or heavy equipment.

The proposed motorized road closures could result in net increases in aquatic habitat over time. In the long term, as closed roads revegetate, sediment delivery would decrease and aquatic habitats would improve. Additionally, the revegetation of roads closed to motorized use would result in improved connectivity between habitat patches, facilitating movement of this species across the landscape by removing the barriers that roads and human use of roads create, as well as reducing the potential for mortality from vehicle strikes.

Gray Wolf

In addition to the effects common to all wildlife species in the analysis areas discussed above (at the beginning of the Proposed Action part of Section 3.3.5.2), potential effects on gray wolves consist of behavioral impacts resulting from disturbance associated with human activities, loss of habitat, changes in behavior associated with use of roads for travel, human access into habitat, and impacts of road density on prey species.

All activities would occur for up to three seasons between July 16 and November 15 for road repair and June 16 to November 15 for motorized closure. Human noise and activity, consisting of the use of heavy equipment and human voices, would increase in volume and duration during these periods. The timeline for wolves' avoidance of Bog Creek Road would occur as active avoidance during repair; however, potential human disturbance from repair and motorized closure activities is unlikely to affect gray wolf populations because of this species' ability to travel long distances to find food and other resources, and also because of the design feature that would protect active dens and rendezvous sites in place until the pups have dispersed (see Appendix B), if these locations are identified. To date, none have been identified within the landscape-scale analysis area. Non-breeding individuals would be temporarily displaced from areas proposed for road repair and motorized closure due to human noise and activity, but could use resources available in adjacent areas. There are large amounts of similar habitat available in the landscape-scale wildlife analysis area (see following discussion).

Direct impacts to habitat would occur to 84.8 acres under Alternative 2, 22.4 acres of which would constitute permanent gray wolf habitat loss on Bog Creek Road and 62.4 acres of which would constitute temporary habitat loss during motorized road closure activities (see Table 3.3.8). This habitat removal accounts for less than 1 percent of existing habitat in the landscape-scale analysis area. Eventual revegetation of roads closed to motorized use, accounting for 62.4 acres of temporary habitat disturbance, would

improve general habitat conditions and reduce habitat fragmentation. Revegetation would also facilitate movement of wolves across the landscape by removing the barriers that roads and human use of roads can present.

Road density is positively correlated with wolf mortality when the human population does not have tolerance for wolves (see Section 3.3.3.2). Roads tend to increase the risk of direct mortality of wolves from both legal and illegal human activities, such as hunting, trapping, poaching, or malicious killing. The motorized road closure of approximately 26 miles (11 percent) of existing roads within the landscape-scale analysis area would reduce the route density from 1.3 to 1.15 miles per square mile. This would potentially reduce human-caused mortality of wolves facilitated by the motorized access into habitat provided by open roads from current conditions (No-Action Alternative), but would not reduce route density to below the 0.9 mile per square mile threshold at which wolves generally fail to persist (Fuller 1989; Jensen et al. 1986; Mech et al. 1988; Thiel 1985), as discussed in Section 3.3.3.2. Additionally, it would also not reduce route density to below that of the 1.0 mile per square mile threshold at which a naturally functioning landscape containing sustained populations of large mammals occurs (Forman and Hersperger 1996), which provides an important prey base for gray wolves. The reduction in route density would still have a beneficial impact to gray wolves and populations of prey species over current conditions (No-Action Alternative).

Because of the court-ordered snowmobile closure (see Figure 3.8.2 in the Recreation section), repair of Bog Creek Road would not improve public winter motorized access. However, winter predator access may be improved by law enforcement motorized winter patrol, if conducted along Bog Creek Road following its repair. This occasional snowmobile use may increase the likelihood of gray wolves using the road. Winter gray wolf access into the vicinity of the Bog Creek Road could increase as a result of law enforcement snowmobile use, compared with the No-Action Alternative.

Fisher

The following effects would occur in addition to those described as being common to all wildlife species in the analysis areas discussed above (at the beginning of the Proposed Action part of Section 3.3.5.2). Potential effects on fishers consist of behavioral impacts resulting from disturbance associated with human activities, loss of habitat, and increased risk of human poaching or trapping.

Direct impacts to habitat would occur to 4.4 acres under the Proposed Action, 1.7 of which would constitute permanent fisher habitat loss on Bog Creek Road and 2.7 acres of which would constitute temporary habitat loss during motorized road closure activities (see Table 3.3.8). Road repair and motorized closure activities would not remove snags, which are important denning and resting habitat features for this species. Overall, both temporary and permanent habitat removal accounts for less than 1 percent of existing suitable habitat in the landscape-scale analysis area. During road repair and motorized closure, individuals near the work activities would be temporarily displaced due to associated human noise and activity, but would be able to use resources available in adjacent areas. There are large amounts of similar habitat available in the landscape-scale wildlife analysis area.

Motorized road closure of approximately 1 mile (3 percent) of existing roads within suitable fisher habitat would result in reduced human access to these areas (see Table

3.3.9), decreasing the potential for human disturbance. Additionally, motorized road closure would reduce opportunities for trappers to gain motorized access into fisher habitat, likely reducing the rates of human-caused mortality of this species within the landscape-scale analysis area. Motorized road closure would also facilitate movement of this species across the landscape by reducing habitat fragmentation and removing the barriers that roads, and human use of roads, create for a species that is susceptible to human disturbance. A decrease in habitat fragmentation would also increase available habitat for prey species, which could have a beneficial impact to fisher populations and reproductive success.

Migratory Birds

The following effects would occur in addition to those described as being common to all wildlife species in the analysis areas.

Potential effects on migratory birds include loss of habitat and behavioral impacts resulting from disturbance associated with human activities. Table 3.3.10 shows acres of habitat disturbance for migratory birds at the project scale and landscape scale by alternative. Table 3.3.11 gives the mileage of Forest Service roads proposed for motorized closure within suitable habitat for migratory birds at the project scale and landscape scale by alternative, as well as the percentage of mileage closed.

Table 3.3.10. Comparison of Acres of Temporary and Permanent Disturbed Habitat per Alternative, Migratory Birds

Species	Wildlife Analysis Area	Direct Impacts for No-Action (Alternative 1) Acres Disturbed (% of available analysis area habitat), acres of habitat returned	Direct Impacts for the Proposed Action (Alternative 2) and Alternative 4 Acres Disturbed (% of available analysis area habitat), acres of habitat returned	Direct Impacts for Alternative 3 Acres Disturbed (% of available analysis area habitat), acres of habitat returned
Migratory birds	Project scale	0 (0%), 0	84.8 (<1%), 62.4	81.7 (<1%), 59.4
Migratory birds	Landscape scale	0 (0%), 0	84.8 (<1%), 62.4	81.7 (<1%), 59.4

Table 3.3.11. Comparison of Road Miles Closed per Alternative, Migratory Birds

Species	Wildlife Analysis Area	No-Action (Alternative 1) Existing Mileage in Habitat (% of existing road mileage proposed for closure)	Proposed Action (Alternative 2) and Alternative 4 Closure of Existing Road Mileage in Habitat (% of existing road mileage proposed for closure)	Alternative 3 Closure of Existing Road Mileage in Habitat (% of existing road mileage proposed for closure)
Migratory birds	Project scale	48.8 (0%)	25.1 (51%)	24.2 (50%)
Migratory birds	Landscape scale	238.2 (0%)	26.5 (11%)	24.7 (10%)

Implementation of the Proposed Action would remove less than 1 percent of the migratory bird habitat available in both the project-scale and landscape-scale analysis areas (see Table 3.3.10). The presence of roads can reduce species richness (the number of species present), diversity, and abundance of migratory birds through a decline in arthropod (food) abundance from vegetation removal and mowing (Rolando et al. 2007). However,

because of the availability of large amounts of similar habitat in the project- and landscape-scale wildlife analysis areas, these impacts to migratory birds would be minimized.

Indirect impacts to songbirds would consist of disturbance from human noise and activities related to repair and motorized closure. Songbirds are the most sensitive wildlife group to noise disturbance, experiencing impacts on breeding populations beginning at approximately 42 dBA, which is lower than the sound of human conversation at normal levels (Reijnen et al. 1996). Migratory birds would experience a temporary increase in noise from repair and motorized closure activities, as sound from the use of heavy equipment and vehicle traffic ranges from 55 to 85 dBA at 50 feet, but would decrease as the distance into the forest away from these activities increased. Because of the attenuating effect from the analysis areas' dense forest, noise levels would be less than an estimated 45 to 58 dBA at the edge of the project-scale analysis area, and less than 39 to 52 at 0.5 mile away from the activities (FHWA 2006). Noise levels without the equipment and associated activities are estimated to range from 37 to 43 dBA for "very quiet, sparse suburban or rural areas" (ANSI and ASA 2013).

This alternative would provide long-term benefits to migratory birds by closing approximately 26 miles of existing roads. Table 3.3.11 displays the mileage of Forest Service roads proposed for motorized closure within suitable migratory bird habitat at the project- and landscape-scale analysis areas by alternative, as well as the percentage of mileage closed. This would result in a decrease in habitat fragmentation, and long-term human disturbance would decrease from current levels, benefiting migratory birds by creating larger contiguous tracts of available habitat. This would increase areas of refuge, and net beneficial effects on breeding, nesting, and fledging would occur. Reproductive success, diversity, and density of birds would be expected to increase in areas of motorized road closure.

Goshawk Nests

There are four goshawk nests within 0.5 mile of the Bog Creek Road repair and motorized closure areas. Direct removal of these nests would not occur, and these nest trees would be left in place. However, the potential for disturbance of goshawk would increase as a result of the human noise and activity associated with road repair and motorized road closures. The design feature to begin Bog Creek Road repair after July 15 and motorized closure activities after June 15 would reduce the likelihood of potential goshawk nest abandonment (see Appendix B). Also, if repair of Bog Creek Road occurs prior to August 15, it would begin on the west end of the road to avoid mechanical operations in the vicinity of the known active nests located on the east end of the road (see Appendix B). Nestlings could still be in the nests as late as August but would be gaining independence. Should adults be temporarily disturbed from the nest in August, abandonment would be unlikely, as the young would be independent enough to be capable of moving from the disturbance area (Toyne 1997). Potential indirect impacts include human disturbance to hunting goshawks or disturbance of prey species. However, these effects would be temporary, and goshawks would be capable of hunting in habitat outside the disturbance area.

One mile of existing road within 0.5 mile of a known goshawk nest would be closed to all motorized use under this alternative. Over the long term, this would reduce human

disturbance at this nest as well as reduce habitat fragmentation of prey species in proximity to this nest site, which could improve reproductive success.

Alternative 3 – Modified Proposed Action

Under Alternative 3, the Bog Creek Road repair would occur as described under the Proposed Action, resulting in permanent disturbance of 22.4 acres. Motorized road closure would take place on a suite of roads that differs from the Proposed Action, totaling 59.4 acres of temporary disturbance—3.0 fewer acres than under the Proposed Action. Impacts to wildlife would be identical to those described under the Proposed Action, except for the habitat impacts displayed in Tables 3.3.8 and 3.3.9 for sensitive terrestrial species and in Tables 3.3.10 and 3.3.11 for migratory birds. Under Alternative 3, approximately 25 miles of Forest Service roads would be closed to all motorized use within the Blue-Grass BMU. The roads chosen for motorized closure would result in a larger contiguous non-roaded area in the center of the BMU (see Figures 2.2.2 and 2.2.3 for a visual comparison). The closure of these roads would result in a route density within the landscape-scale analysis area of 1.16 miles per square mile, 0.01 mile per square mile greater than under the Proposed Action. Alternative 3 would also result in an estimated 4 percent larger area of stream-crossing removals and replacements (0.24 acre instead of 0.23 acre).

Alternative 4 – Blue-Grass BMU West–East Open Access

All short-term direct and indirect effects from Bog Creek Road repair and motorized road closure under Alternative 4 would be identical to those described under the Proposed Action. After the Bog Creek Road repair is complete, the difference between the Proposed Action and Alternative 4 would be changes to the road miles available for motorized use in the Blue-Grass BMU. The open designation under Alternative 4 would allow unrestricted non-winter public motorized travel through the BMU as shown in Figure 2.2.4. The long-term effects of this change are described below in Section 3.3.5.3, Effects from Long-Term Maintenance and Use Actions.

3.3.5.3 Effects from Long-Term Maintenance and Use Actions

The following section details direct and indirect effects on wildlife from long-term maintenance and use actions in the analysis areas, which consist of motorized travel designation changes, grubbing or trimming of trees and other vegetation, culvert cleaning, and routine grading. The long-term effects of managing the roads proposed for motorized closure under each alternative are also described in this section.

Alternative 1 – No Action

Under the No-Action Alternative, tree trimming and grubbing would not take place on Bog Creek Road, and the roads proposed for motorized closure in this DEIS may not be formally closed. Some of these roads would become progressively overgrown by alder trees and understory shrubs, whereas others would remain drivable and maintained (such as FSR 636, Upper 2464, and 1388). Over time, this overgrowth would reduce and ultimately eliminate the habitat fragmentation effects for all wildlife species. Motorized use within the Blue-Grass BMU would still be restricted, but would not occur on Bog Creek Road. Motorized and non-motorized use within the BMU would likely remain the same as in the existing condition (including snowmobile use). As discussed in Chapter 2,

the Forest Service would continue to work toward meeting the Access Amendment TMRD and Core standards under the No-Action Alternative. Future motorized road closure could result in wildlife impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

The No-Action Alternative would include weed management along Forest Service roads throughout the project-scale analysis area in accordance with existing plans (Forest Service 1995c, 1997). Because the presence of weeds often reduces local biodiversity and can outcompete higher quality sources of forage, preventing weed establishment would maintain habitat quality for the wildlife that currently use the area.

Under the No-Action Alternative, no impacts would occur to aquatic habitats, other than what is discussed in the No-Action Alternative portion of the Effects from Short-Term Road Repair and Motorized Closure Actions section.

Alternative 2 – Proposed Action

The following section discusses direct and indirect effects from long-term maintenance and use actions on wildlife that would occur under the Proposed Action. Bog Creek Road (FSR 1013) and Blue Joe Creek Road (FSR 2546) would be designated administrative open roads, which would not allow public motorized use but the roads would no longer have seasonal trip restrictions. Locking gates that minimize potential destruction, dismantling, or breaching would be installed at either end of the 5.6-mile Bog Creek Road, and the road would be signed PUBLIC MOTORIZED ENTRY PROHIBITED – THIS ROAD IS UNDER SURVEILLANCE – VIOLATORS WILL BE PROSECUTED (see Appendix B, Design Features). Vehicles would be prohibited from traveling more than 25 mph. The entire length of Blue Joe Creek Road would change in designation from seasonally restricted to an administratively open road. The speed limit would be the same as for Bog Creek Road.

Effects Common to All Wildlife Species in the Analysis Areas

The direct and indirect impacts described in this section are applicable to all wildlife. Impacts specific to a species are described below.

The Bog Creek Road and Blue Joe Creek Road long-term maintenance and use actions could occasionally displace wildlife from the vicinity of these roads due to the associated human noise and activity that would occur (a detrimental direct effect). There would be no limit on administrative motorized use of the roads. Projected motorized use would increase from very low to moderate on Bog Creek Road and from low to moderate on Blue Joe Creek Road, compared to the No-Action Alternative (see Table 3.1.3). As both roads are closed to all public winter motorized use, wildlife would be more likely to be displaced during the non-winter seasons when road use would occur. CBP may occasionally access these roads via snowmobile during the winter, as winter restrictions do not apply to law enforcement activities; CBP snowmobile use of these roads could increase from that of the No-Action Alternative. Human noise and activity would consist of occasional maintenance activities, motorized use by administrative personnel, and non-motorized recreationists. Wildlife would be displaced while human activity occurs, although any individual displacement would not be likely to affect species at the population level as the disturbances would be intermittent and be limited to individuals in

the vicinity of the roads. Wildlife sensitive to human noise could flee into adjoining undisturbed habitat until the disturbance ceased.

Administrative motorized use of Bog Creek Road and an increase in use of Blue Joe Creek Road would increase the long-term potential for direct wildlife mortality due to vehicle strikes. However, this road would be used for administrative purposes only, and would not be open to the public. Therefore, the number of vehicles would be limited, and vehicle speeds would be slow (25 mph), maintaining a low potential for mortality due to vehicle strikes. Also, administrative personnel accessing the analysis areas would receive training to reduce the potential for wildlife mortalities from human-wildlife interactions.

Small amounts of new habitat loss could also occur from vegetation management actions, although effects are not quantifiable because management would occur on a site-specific, as-needed basis, and these actions are not yet planned. The design features listed in Appendix B would be implemented to ensure that impacts to active nests and dens from vegetation removal are avoided. During long-term maintenance and use, herbicides would be applied along roadsides in the analysis areas to reduce the potential for weed establishment in accordance with existing plans (Forest Service 1995c, 1997). Because the presence of weeds often reduces local biodiversity and can outcompete higher quality sources of forage, preventing weed establishment would maintain habitat quality for the wildlife that currently use the area. Maintenance activities on Blue Joe Creek Road would not change from current conditions.

The roads closed to motorized use under the Proposed Action would over time naturally become revegetated. This would result in the same benefits as described under Effects from Short-Term Road Repair and Motorized Closure Actions, Effects Common to All Wildlife Species in the Analysis Areas.

Boreal Toad

Long-term maintenance and use actions along Bog Creek Road and Blue Joe Creek Road (the administrative open roads) would not result in additional streamside vegetation removal or increase water yield and peak flow to a level that would result in stream channel degradation. Eleven wetlands occur within 300 feet of these two roads, in addition to perennial streams. Because revegetation of the disturbed areas along the closed roads would take place over time, sedimentation to affected perennial streams would be eliminated in the long term in all project areas except at crossings along the administrative open roads. Specific design features are included in the Proposed Action (see Appendix B), and these would be implemented throughout long-term maintenance and use of Bog Creek Road and Blue Joe Creek Road to avoid aquatic habitat degradation.
The incorporation of design features such as installing erosion control structures would substantially reduce the potential impacts from sediment movement along maintained roadways. There could be negligible aquatic sedimentation impacts from road crossings during long-term maintenance and use.

Long-term maintenance and use would include herbicide application in the project-scale analysis area in accordance with existing plans (Forest Service 1995c, 1997). A long-term beneficial impact from IPNF weed management implementation along the administrative open roads would be the reduced density and distribution of weeds in RHCAs. Other activities would consist of occasional non-motorized recreation by the public and general road maintenance by the Forest Service. Individual overland dispersing or migrating

boreal toads could suffer from direct mortality from vehicle strikes, though the moderate motorized use and speed limitations would reduce the potential for this to occur. The extent of these actions would be dependent on local site conditions, but are not expected to have long-term impacts to boreal toad habitat.

Sensitive Terrestrial Species

Impacts to sensitive terrestrial species from long-term maintenance and use actions would be the same as described in Section 3.3.5.2, Effects from Short-Term Road Repair and Motorized Closure Actions. The following effects would occur in addition to those described as being common to all wildlife species in the analysis areas.

Harlequin Duck

Potential effects on harlequin ducks include human disturbance, and could occur under long-term maintenance and use on Bog Creek Road and increased use of Blue Joe Creek Road. The current very low motorized use on Bog Creek Road would increase to moderate, and because Blue Joe Creek Road would increase from low to moderate motorized use (see Table 3.1.3), individual harlequin ducks could be disturbed from the suitable habitat surrounding the roads. The noise produced by maintenance and use has the potential to disturb nesting or foraging harlequin ducks beyond the extent of the roads, though these disturbances would be occasional and infrequent. Under the Proposed Action, approximately 4 miles of road within RHCAs would be subject to the projected increase in motorized use. The repair of Bog Creek Road could provide increased non-motorized access for recreationists, which could inadvertently disturb nesting or foraging harlequin ducks. These effects would be greater than under the No-Action Alternative.

Northern Bog Lemming

Potential effects on northern bog lemmings include indirect impacts to habitat and direct mortality from vehicle strikes. Eleven wetlands occur within 300 feet of these roads. Long-term maintenance and use on Bog Creek Road and increased use of Blue Joe Creek Road could continue to contribute sediment into waterways, potentially impacting wetland habitats downstream of the roads and contributing to habitat degradation. Additionally, the potential risk of direct mortality of individual northern bog lemmings from vehicle strikes would increase with increased administrative use of the roads. However, the potential for this to occur is lower under the Proposed Action and Alternative 3 than under Alternative 4, and would be further reduced by the low speeds (25 mph) on both roads. These effects would be greater than under the No-Action Alternative.

Gray Wolf

Potential effects on gray wolves include risk of mortality from both legal and illegal human activities, such as hunting, trapping, poaching or malicious killing, human disturbance, and increased use as travel corridors. There would be 114 miles of road open to public motorized use and an additional 13 miles of road (Bog Creek Road and Blue Joe Creek Road) that would be designated as administratively open within the landscape-scale analysis area, compared with 114 miles under the No-Action Alternative. The repair and maintenance of Bog Creek Road would facilitate non-motorized recreational use of the corridor by mountain bikers, hikers, and hunters. Increased public access resulting from repair of Bog Creek Road could lead to gray wolf impacts by increasing the potential for mortality due to non-motorized use of the road by hunters, trappers, poachers, or those

seeking to maliciously kill gray wolf. Increased non-motorized use of Bog Creek Road could also increase non-motorized use of Blue Joe Creek Road from current conditions. The increased presence of non-motorized user-groups could also increase the potential for wolf mortality in defense of property. These effects would be slightly greater under the Proposed Action than the No-Action Alternative, since Bog Creek Road is currently heavily overgrown.

The use of Bog Creek Road for both motorized administrative purposes and by non-motorized recreationists, and the increased administrative use of Blue Joe Creek Road, has the potential to disturb gray wolves in the vicinity, though these disturbances would be occasional and infrequent. Projected motorized use would increase from very low to moderate on Bog Creek Road and from low to moderate on Blue Joe Creek Road, compared with the No-Action Alternative (see Table 3.1.3); however, as motorized use of Bog Creek Road and Blue Joe Creek Road is limited to administrative purposes and would occur at low speeds (25 mph), this use is not expected to increase the potential for direct wolf mortality from vehicle strikes. When the road is not in use by humans, gray wolves may use it as a travel corridor, which could result in increased rates of movement across the landscape as well as potentially facilitate an increase in large ungulate predation success by wolves. These effects would be greater than under the No-Action Alternative.

Fisher

Potential effects on fisher include human disturbance, and could occur under long-term maintenance and use activities. Approximately 2 miles of the administratively open roads would occur within fisher habitat. The noise produced by maintenance and use of Bog Creek Road, along with increased administrative use of Blue Joe Creek Road, has the potential to disturb denning or resting fishers beyond the extent of the road itself; however, these disturbances would be occasional and infrequent. The current very low motorized use on Bog Creek Road would increase to moderate, and because Blue Joe Creek Road would increase from low to moderate motorized use, individual fisher would be disturbed from the habitat surrounding the roads (see Table 3.1.3). Under the Proposed Action, approximately 3 miles of road within suitable fisher habitat would be subject to the projected increase in administrative motorized use. Additionally, the repaired Bog Creek Road could provide increased non-motorized access for trappers that could result in direct mortality to fishers, and recreationists could inadvertently disturb fisher activities while using Bog Creek Road. Increased non-motorized use of Bog Creek Road could also increase non-motorized use of Blue Joe Creek Road from current conditions. These effects would be greater than under the No-Action Alternative.

Migratory Birds

The following effects would occur in addition to those described as being common to all wildlife species in the analysis areas. Potential effects on migratory birds include human disturbance and impacts to habitat, which could occur under long-term maintenance and use of Bog Creek Road, and increased administrative use of Blue Joe Creek Road. The current very low motorized use on Bog Creek Road would increase to moderate, and Blue Joe Creek Road would increase from low to moderate motorized use (see Table 3.1.3). There would be 10 miles open to unlimited public motorized use and 13 miles that would be administratively open (in the project-scale analysis area) and 114 miles of road open to unlimited public motorized use and 13 miles that would be administratively open

(in landscape-scale analysis area), compared with the 10 miles (in the project-scale analysis area) and 114 miles (in the landscape-scale analysis area) under the No-Action Alternative.

Increased maintenance on Bog Creek Road and increased administrative use of both roads would increase the potential to affect breeding, nesting, and successful fledging of migratory bird species directly and indirectly along both roads. Impacts include energetic costs, behavioral changes (feeding, breeding, sheltering), loss of fitness (survival, growth, reproduction rates), site avoidance, and others. Additionally, potential risk of direct mortality from vehicle strikes could increase with increased administrative use; however, this effect would be reduced because of low vehicle speeds (25 mph). Non-motorized use of Bog Creek Road by recreationists would increase the potential for human disturbance, though the disturbance would be occasional and infrequent. Increased non-motorized use of Bog Creek Road could also increase non-motorized use of Blue Joe Creek Road from current conditions. Small amounts of additional habitat loss could also occur from vegetation management actions on Bog Creek Road, although effects are not quantifiable because management would occur on a site-specific, as-needed basis, and are not yet planned. These effects would impact nesting and foraging habitat for migratory birds, though migratory birds could use adjacent unaffected habitat. These effects would be greater than under the No-Action Alternative.

Goshawk Nests

Under the Proposed Action, three active goshawk nests are present within 0.5 mile of Bog Creek Road and have the potential to be indirectly impacted during breeding or nesting by long-term maintenance and use activities. Direct impacts to the nests would not occur from maintenance activities because the nest trees would not be removed and maintenance activities would be conducted after July 15 (see Appendix B). The current very low motorized use on Bog Creek Road would increase to moderate (see Table 3.1.3). Open administrative use has the potential to impact these nests if motorized use occurs during nesting or breeding seasons when goshawk are more sensitive to disturbance, though these disturbances would be occasional and infrequent. Non-motorized use of the road by recreationists would have human disturbance effects, though these effects would be occasional and infrequent. These effects would be greater than under the No-Action Alternative.

Alternative 3 – Modified Proposed Action

All long-term maintenance and use effects under Alternative 3 would be identical to those described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

Under Alternative 4, Bog Creek Road, 1 mile of Blue Joe Creek Road (FSR 2546), and FSR 1011, FSR 636, and FSR 1009 (referred to here as the west to east access roads) would be designated open to unlimited public motorized use. A locking gate would be installed at the intersection of Blue Joe Creek Road with FSR 1011, and Blue Joe Creek Road would be signed ADMINISTRATIVE USE ONLY – NO PUBLIC MOTORIZED ACCESS by the Forest Service, limiting 7.4 miles to administrative use only (see Table 3.1.3). Because of the court-ordered closure (U.S. District Court, Eastern District of Washington, Court Order No. CV-05-0248-RHW), snowmobiling would be restricted to designated trails

November 20 to June 30 (see Figure 3.8.2 in the Recreation section). Therefore, all of the Alternative 4 west to east access roads, along with Bog Creek Road and Blue Joe Creek Road, would be closed to all recreational winter motorized use. As with the Proposed Action, after repair of Bog Creek Road, winter law enforcement patrol may occur in the analysis areas via snowmobile. This would represent an increase from the No-Action Alternative, and would cause the same direct and indirect impacts as the Proposed Action and Alternative 3 (therefore, these are not further discussed below). While the direct and indirect effects of long-term maintenance and use of Bog Creek Road and Blue Joe Creek Road would be similar to those described under the Proposed Action and Alternative 3, the level of impact from some effects on wildlife species would be greater because of the high motorized use anticipated on the west to east access roads (see Table 3.1.3). The impacts that would change from those described under the Proposed Action and Alternative 3, and impacts from the designation of the west to east access roads as open to unlimited public motorized use, are described below.

Effects Common to All Wildlife Species in the Analysis Areas

Alternative 4 is the only alternative that would include unlimited motorized public access (outside the snowmobile closure season) on Bog Creek Road, a portion of Blue Joe Creek Road, and identified west to east access roads (see Figure 2.2.4). Although the speed limit on these roads would be 25 mph, the potential for vehicle strikes (a direct detrimental effect) would be higher under Alternative 4 than under any other alternative because these roads would see more motorized use. Projected motorized use would increase from very low to high on Bog Creek Road, from low to moderate or high (depending on segment) on Blue Joe Creek Road, and from low to high on the west to east access roads, compared with the No-Action Alternative (see Table 3.1.3). With motorized public access, recreation and hunting would increase in the vicinity of the open roads—as well as non-motorized access in the Blue Joe Creek and Grass Creek and Silver Creek drainages (where there would be gates restricting further public motorized access) and the surrounding habitat—above all other alternatives. The potential for detrimental direct impacts, such as increased disturbance and mortality of wildlife, would exist beyond the habitat immediately surrounding these roads. As all roads would be maintained for high-clearance vehicles, vehicle speeds would remain under the planned 25-mph speed limit, which would reduce the potential for vehicle strikes of faster, larger-bodied species, compared with slower, smaller-bodied species such as rodents or amphibians.

Unlimited public motorized use of roads would increase the potential for the spread and/or establishment of noxious weeds or invasive plant species into the surrounding habitats. This potential effect would be greatest under Alternative 4, compared with all other alternatives.

Boreal Toad

Unlimited public motorized access on Bog Creek Road and west to east access roads could result in a greater potential for degradation of aquatic habitats than under the other alternatives. This could occur as a result of increased sedimentation of waterways from a greater number of vehicles traversing the roadway, or introduction of pollutants into aquatic habitats from roadway runoff. Under Alternative 4, 14 wetlands (approximately 7 acres of wetland habitat [6.5 percent of total available in the analysis area]) would occur within 300 feet of roads that would be open to unlimited public motorized use.

The incorporation of design features (see Appendix B), such as installing erosion control structures, would reduce the potential impacts from sediment movement along roadways, though due to the increased motorized use under Alternative 4, the potential for sediment movement would be greater than under all other alternatives.

The risk of direct mortality to individual overland-dispersing or migrating boreal toads from vehicle strikes would be greatest under Alternative 4, compared with the other alternatives, because of the unlimited public motorized use of the roads.

Sensitive Terrestrial Species

Impacts on sensitive terrestrial species due to maintenance and use actions would be the same as described for the Proposed Action in Section 3.3.5.2, Effects from Short-Term Road Repair and Motorized Closure Actions. The following effects would occur in addition to those described as being common to all wildlife species in the analysis areas.

Harlequin Duck

The potential for disturbance and harassment of foraging or nesting harlequin ducks by humans under Alternative 4 would be greater than that described under the Proposed Action. Under the Proposed Alternative, approximately 5 miles of road within RHCAs would be subject to the projected increase in motorized use. As public access would be unlimited, the effects of human disturbance would be greater under Alternative 4 than under the other alternatives.

Northern Bog Lemming

Unlimited motorized use of Bog Creek Road and west to east access roads could increase the contribution of sediment into waterways as a result of projected high motorized use (see Table 3.1.3), potentially impacting wetland habitats and contributing to habitat degradation. Under Alternative 4, 14 wetlands (approximately 7 acres of wetland habitat [6.5 percent of total available in the analysis area]) occur within 300 feet of roads that would be open to unlimited public motorized use, and these areas could experience habitat degradation as a result of high motorized use. The incorporation of design features (see Appendix B), such as installing erosion control structures, would reduce the potential impacts from sediment movement along roadways. However, due to the increased motorized use under Alternative 4, the potential for sediment movement would be greater than under all other alternatives.

Additionally, risk of direct mortality of northern bog lemmings from vehicle strikes would be highest under Alternative 4, with high motorized use of the roads.

Gray Wolf

Under Alternative 4, there would be 23 miles of road that would be newly open to unrestricted public motorized use, occurring within the territories of two known wolf packs. Overall, there would be 137 miles of open road within the landscape-scale analysis area, compared with 114 miles under the Proposed Action and Alternative 3. An increase in public motorized use of Bog Creek Road and west to east access roads could lead to increased mortality potential for gray wolves, from hunters and trappers during the gray wolf hunting (August 1 to March 31) and trapping (November 15 to March 31) seasons and year-round by poachers or those seeking to maliciously kill gray wolves, to the

greatest degree of all alternatives. The increased presence of motorized recreationists could also increase the potential for wolf mortality in defense of property.

The unlimited motorized (and non-motorized) human access on these roads has the potential to disturb gray wolves in the vicinity, though these disturbances would be occasional. The increased level of motorized human access would also have the potential to increase disturbance, or increase mortality due to vehicle strikes and increased big-game hunting pressure. The potential disturbance of gray wolves and displacement or mortality of prey species, could result in indirect effects on gray wolf habitat use. This effect would be greater under Alternative 4 than under any other alternative. During times the road is not in use by humans, which would occur less often than under the Proposed Action or Alternative 3, gray wolves may use it as a travel corridor.

Overall, impacts to gray wolf would be greater under Alternative 4 than under any other alternative.

Fisher

Unlimited motorized use of Bog Creek Road and west to east access roads could provide both motorized and non-motorized access for trappers, which could result in increased direct mortality of fishers. Under Alternative 4, approximately 5 miles of road open to unlimited public motorized use within suitable fisher habitat would be subject to the projected high motorized use (see Table 3.1.3). Noise from recreationists or long-term maintenance and use activities has the potential to disturb denning or resting fishers in the vicinity of the road, though these disturbances would be occasional. Overall, these effects would be greatest under Alternative 4 than under any other alternative.

Migratory Birds

Unlimited motorized use would increase effects on breeding, nesting, and successful fledging of migratory bird species directly along Bog Creek Road and west to east access roads. There would be 23 miles (in the project-scale analysis area) and 137 miles of open road (in landscape-scale analysis area), compared with 10 miles (in the project-scale analysis area) and 114 miles (in the landscape-scale analysis area) under the No-Action Alternative. Indirect impacts on migratory bird species would likely increase, and include energetic costs, behavioral changes (feeding, breeding, sheltering), loss of fitness (survival, growth, reproduction rates), site avoidance, and others. Additionally, potential risk of direct mortality from vehicle strikes could increase with increased motorized and non-motorized use in the analysis areas; however, this effect would be reduced because of low vehicle speeds (25-mph speed limit). Overall, impacts to migratory birds would be greater under Alternative 4 than under any other alternative.

Goshawk Nests

Under Alternative 4, the three active goshawk nests present within 0.5 mile of Bog Creek Road could be disturbed by human noise and activity during breeding and nesting by the unlimited public motorized use of Bog Creek Road. Additionally, there is one active goshawk nest within 300 feet of one of the west to east access roads (FSR 1009) at the north end of FSR 2464, which would also be subject to similar disturbance as the nests along Bog Creek Road. Projected motorized use would increase from very low to high on Bog Creek Road and from low to high on the west to east access roads, compared with the No-Action Alternative (see Table 3.1.3). Both motorized and non-motorized use of the

roads could increase effects from human disturbance. Overall, impacts to goshawks would be greatest under Alternative 4 than under any other alternative.

3.3.5.4 Cumulative Effects

The spatial and temporal bounds of analysis for cumulative effects on wildlife resources is identical to the direct and indirect spatial scales described in Section 3.3.2. The Forest Plan does not provide quantitative thresholds for evaluating cumulative effects on wildlife resources. However, qualitative desired conditions, standards, and goals are considered below. Effects from past and present actions on wildlife resources are addressed in Section 3.3.3 and in the analysis of the No-Action Alternative in Section 3.3.5.
The analysis areas have been affected by past and ongoing activities, including historic timber harvest, historic mining and mine reclamation, grazing, recreation, and wildfire. These activities have contributed to current levels of fragmentation in the analysis areas by creating edge habitat and reducing the quantity and quality of interior wildlife habitat. Current human noise and activity is generally located along 238 miles of open and seasonally restricted forest roads within the landscape-scale analysis area, and consists of the noises produced by vehicles and human activity. Dispersed motorized recreation (ATV and snowmobile use) results in periodic vehicle noise in backcountry areas year-round, which may cause wildlife to flee. There is an extensive east-west-trending road system that is open to motorized use just north of the Canadian border. Timber harvest, recreation, hunting, grazing, and motorized use (including over-the-snow motorized access) are occurring on these Canadian roads within the analysis area and would continue to occur. These activities would not be limited by Forest Service management guidelines. Reasonably foreseeable future activities are listed in Appendix D. Cumulative effects from these actions are discussed below in Table 3.3.12.

When combined with the effects anticipated from the reasonably foreseeable future activities, which would have both detrimental and beneficial impacts to wildlife resources, implementation of the action alternatives would increase available habitat, decrease habitat fragmentation, and increase connectivity for certain highly mobile species, such as the gray wolf and fisher (see Section 3.3.5.2). The analysis area and broader landscape would continue to maintain a mosaic of wildlife habitats, allow for wildlife movement, and ensure the viability of all special-status and other wildlife populations.

Climate change is likely to affect the distribution, growth, and function of Pacific Northwest forests; the seasonality and amounts of snowpack and runoff; and disturbance regimes (e.g., frequency and severity of fire or disease outbreaks) over time, which would subsequently influence the availability and distribution of wildlife habitat and species in the landscape-scale analysis area. The goods and services provided by NFS programs and activities have been, and will undoubtedly continue to be, affected by climate change (Forest Service 2012b). The Proposed Action, Alternative 3, and Alternative 4 would increase available habitat, decrease habitat fragmentation, and improve connectivity for certain species over time as closed roads revegetate, which could mitigate effects experienced by wildlife under climate warming trends. However, the magnitude of the effect is anticipated to be limited, given that the roads designated as open to unlimited public motorized use (including the repaired and maintained Bog Creek Road) and other retained roads would continue to affect wildlife and their habitats in the analysis area.

Table 3.3.12. Cumulative Effects on Wildlife from Reasonably Foreseeable Future Activities Combined with the Action Alternatives

Wildlife Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
All Wildlife Species in the Analysis Areas	• Grass Creek allotment (90 cow/calf pairs from July 1–October 1) • Motorized law enforcement patrol • Recreation: gathering, hunting, fishing, camping, hiking, biking. There is the potential for two high-use non-motorized trails (Trails #308 and #28); guiding and outfitting also occurs • Priest Lake and Bonners Ferry Noxious Weed Control Projects	• Future human noise and activity would generally be located along open and seasonally restricted forest roads, and consist of the noises produced by authorized vehicles and human activity for mining, grazing, law enforcement patrol, and recreation. Dispersed motorized use results in periodic vehicle noise in backcountry areas year-round, which may cause wildlife to flee while vehicles are present in an area. • With no further timber harvest on NFS lands (reasonably foreseeable future [RFF] harvest on private lands is discussed below) planned in the analysis areas, none of the RFF activities propose future ground-disturbing or vegetation removal (other than 4 months of cattle grazing). Timber harvest reduces the availability of large, unfragmented habitat patches by creating road networks and forest edge, which continue after active harvesting activities have ceased. The region is fragmented by roads (county, private, forest), recreational trails (motorized and non-motorized), logged forest patches, and recent and historical mining activities. These activities have contributed to current levels of fragmentation by creating edge habitat and reducing the quantity and quality of interior wildlife habitat. There is currently a total of approximately 118 miles of road in the Blue-Grass BMU. Approximately 28 miles (24%) is classified as open, and 90 miles (76%) is restricted. • Improvement of Bog Creek Road and long-term administrative open motorized use of Bog Creek Road and Blue Joe Creek Road would contribute to fragmentation by creating and maintaining edge habitat and increasing human noise and activity in the vicinity of these roads, due to the presence of vehicles and recreationists. The closure of 26.5 miles of road would provide an overall reduction in habitat fragmentation and wildlife disturbance from current conditions, in addition to reducing the potential for sedimentation of waterways and degradation of aquatic and riparian habitats.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation and human disturbance would be slightly less. Alternative 3 would remove or replace stream crossings at 0.24 acre instead of 0.23 acre, leading to slightly more area where impacts could occur during repair and motorized closure, but over the long term, reducing roads in riparian habitats by 0.01 acre more than the Proposed Action.	• Cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited motorized use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the west to east access roads, as well as the increased risk of direct mortality from vehicle strikes.

Table 3.3.12. Cumulative Effects on Wildlife from Reasonably Foreseeable Future Activities Combined with the Action Alternatives (Continued)

Wildlife Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
All Wildlife Species in the Analysis Areas (Continued)	• Grass Creek allotment (90 cow/calf pairs from July 1–October 1) • Motorized law enforcement patrol • Recreation: gathering, hunting, fishing, camping, hiking, biking. There is the potential for two high-use non-motorized trails (Trails #308 and #28); guiding and outfitting also occurs • Priest Lake and Bonners Ferry Noxious Weed Control Projects	• Future human noise and activity would generally be located along open and seasonally restricted forest roads, and consist of the noises produced by authorized vehicles and human activity for mining, grazing, law enforcement patrol, and recreation. Dispersed motorized use results in periodic vehicle noise in backcountry areas year-round, which may cause wildlife to flee while vehicles are present in an area. • With no further timber harvest on NFS lands (reasonably foreseeable future [RFF] harvest on private lands is discussed below) planned in the analysis areas, none of the RFF activities propose future ground-disturbing or vegetation removal (other than 4 months of cattle grazing). Timber harvest reduces the availability of large, unfragmented habitat patches by creating road networks and forest edge, which continue after active harvesting activities have ceased. The region is fragmented by roads (county, private, forest), recreational trails (motorized and non-motorized), logged forest patches, and recent and historical mining activities. These activities have contributed to current levels of fragmentation by creating edge habitat and reducing the quantity and quality of interior wildlife habitat. There is currently a total of approximately 118 miles of road in the Blue-Grass BMU. Approximately 28 miles (24%) is classified as open, and 90 miles (76%) is restricted. • Improvement of Bog Creek Road and long-term administrative open motorized use of Bog Creek Road and Blue Joe Creek Road would contribute to fragmentation by creating and maintaining edge habitat and increasing human noise and activity in the vicinity of these roads, due to the presence of vehicles and recreationists. The closure of 26.5 miles of road would provide an overall reduction in habitat fragmentation and wildlife disturbance from current conditions, in addition to reducing the potential for sedimentation of waterways and degradation of aquatic and riparian habitats.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation and human disturbance would be slightly less. Alternative 3 would remove or replace stream crossings at 0.24 acre instead of 0.23 acre, leading to slightly more area where impacts could occur during repair and motorized closure, but over the long term, reducing roads in riparian habitats by 0.01 acre more than the Proposed Action.	• Cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited motorized use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the west to east access roads, as well as the increased risk of direct mortality from vehicle strikes.

Table 3.3.12. Cumulative Effects on Wildlife from Reasonably Foreseeable Future Activities Combined with the Action Alternatives (Continued)

Wildlife Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
All Wildlife Species in the Analysis Areas (Continued)		• Generally, weed control (which would also occur under the No-Action Alternative) takes place along road edges, as vehicles tend to carry and disperse noxious weed and invasive plant species seeds. Weed control would increase the quantity and quality of wildlife habitat in the cumulative effects analysis areas by reducing the presence of non-native plants and encouraging native vegetation to grow. Depending on the exact locations of the treatments and restoration, these projects could also reduce habitat fragmentation and increase connectivity. • The combination of existing habitat fragmentation resulting from past land use, current levels of disturbance caused by non-motorized and motorized human disturbance, and weed control programs, combined with the repair of Bog Creek Road and closure of 26.5 miles of existing roads, would result in an overall reduction in habitat fragmentation and increase in habitat quality across the analysis areas.		
Boreal toad Northern bog Lemming	• Motorized over-snow travel (Travel Management Plan [TMP] in progress)	In addition to the effects listed above for all wildlife species in the analysis areas: • Dispersed snowmobile use results in periodic vehicle noise in backcountry areas in the winter, which may disturb hibernating animals, such as boreal toad and bog lemming. The reduction in overall mileage of motorized roads would reduce the potential for impacts from snowmobile use during winter.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in disturbance would be slightly less.	• The effects under Alternative 4 would be the same as those under the Proposed Action.

Table 3.3.12. Cumulative Effects on Wildlife from Reasonably Foreseeable Future Activities Combined with the Action Alternatives (Continued)

Wildlife Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
Gray wolf **Fisher** **Migratory birds**	• Future potential private timber harvest on 550 acres in the northeast corner of the landscape-scale analysis area • Ongoing silvicultural treatments in the Italian Peak area • Motorized over-snow travel (TMP currently in progress) • Recreation, grazing, and timber harvest on State of Idaho lands	In addition to the effects listed above for all wildlife species in the analysis areas: • The only RFF ground-disturbing or vegetation removal activities in the landscape-scale analysis area would consist of timber harvest. Most recently, timber harvest occurred on NFS lands in the Italian Peak area in 2004, and ongoing silvicultural activities (precommercial thinning) are expected to occur in the area in the future. Private timber harvest land owned by Hancock within the analysis areas was most recently harvested in 2014, and it is possible that up to 550 additional acres of timber harvest could occur. Harvesting timber (including precommercial thinning) creates temporary human noise and activity at the harvest site, potentially displacing gray wolf, fisher, and migratory birds and forcing individuals to forgo resources that are otherwise available. In the long term, timber harvest reduces the availability of large, unfragmented habitat patches by creating road networks and forest edge. • Dispersed snowmobile use results in periodic vehicle noise in backcountry areas in the winter, which may cause wildlife to flee, such as gray wolf or fisher. • The combination of existing habitat fragmentation resulting from past land use, current and future timber harvest and other silvicultural activities, current levels of disturbance caused by non-motorized and motorized human disturbance (including snowmobile use), and weed control programs, combined with the repair of Bog Creek Road and closure of 26.5 miles of existing roads, would result in an overall reduction in habitat fragmentation and increase in habitat quality across the analysis areas. Additionally, closure of existing roads would provide a reduction in available miles that would facilitate opportunistic predation of caribou by gray wolves that may use the routes as travel corridors.	• Cumulative effects under Alternative 3 would be nearly identical to those described under the Proposed Action, though because it would close 1.75 fewer miles of roads, the reduction in habitat fragmentation and human disturbance would be slightly less.	• Cumulative effects under Alternative 4 would be nearly identical to those described under the Proposed Action, though because it would also designate 23 miles of roads (including Bog Creek Road) open to unlimited motorized use, this alternative would increase levels of human noise and activity more than any other alternative, due to the projected increased presence of vehicles and humans in the vicinity of the west to east access roads. This would also increase the potential for direct mortality of gray wolf and fisher from both legal and illegal human activities, such as hunting, trapping, poaching, or malicious killing, as well as increase the risk of direct mortality from vehicle strikes.

Table 3.3.12. Cumulative Effects on Wildlife from Reasonably Foreseeable Future Activities Combined with the Action Alternatives (Continued)

Wildlife Species Potentially Affected	Reasonably Foreseeable Future Activities Located Within the Analysis Area(s)	Cumulative Effects under the Proposed Action	Cumulative Effects under Alternative 3	Cumulative Effects under Alternative 4
Gray wolf Fisher Migratory birds (Continued)		• The cumulative effects described above from human disturbance on NFS lands, could also occur from human disturbance on State of Idaho lands to the south and lands in Canada to the north under the Proposed Action.		

3.3.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

All alternatives are consistent with the Forest Plan and policy direction to "ensure that these species do not trend toward Federal listing as a result of management actions." Neither action alternative would affect more than 1 percent of potentially suitable sensitive species habitat in the project-scale wildlife analysis area, and would affect a lower percentage of habitat available in the landscape-scale analysis area. Therefore, these actions would also be consistent with the NFMA requirements under the 2012 Forest Service planning rule to "support the diversity and persistence of native plant and animal species" (Forest Service 2012c:21216). As a result, the project would also be in compliance with the MBTA and EO 13186.

The sensitive species analyses in this document serve as a BE as outlined in FSM 2672.42 (Forest Service 2005) and find for the species analyzed, for the reasons stated above, that the No-Action Alternative, the Proposed Action, Alternative 3, or Alternative 4 may impact individuals or habitat, but would not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species.

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3.4 Fish

3.4.1 Introduction

Guidance in the Forest Plan (Forest Service 2015a) requires compliance with agency policy and regulatory mechanisms such as INFISH (Forest Service 1995b), the ESA, and the Clean Water Act (CWA) to reduce impacts to fish habitat and species. Adherence to these policies helps to prevent fish habitat degradation during project implementation.

Key issues identified during public scoping that require analysis in; the EIS consist of potential impacts to downstream fish habitat and to native or sensitive fish species, such as the westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) and bull trout. Commenters also requested that the DEIS consider how proposed actions would contribute to the recovery of ESA-listed species, and that fish passage be maintained or improved. Bull trout, a species listed as threatened under the ESA, is evaluated in Section 3.2 of this DEIS. Species not analyzed further in this DEIS and supporting rationale are included in Table 3.4.1.

Table 3.4.1. Species Not Further Analyzed in Detail and Supporting Rationale

Species	Scientific Name	Rationale for Not Analyzing in Detail
Kootenai River white sturgeon (Endangered)	*Acipenser transmontanus*	This species occurs in large lakes and rivers in approximately 134 river miles of the Kootenai River watershed (USFWS 1993b). The nearest Kootenai River designated critical habitat is over 50 river miles away from the fish analysis area.
Burbot (Sensitive)	*Lota lota*	This species has been petitioned for listing under ESA. This species is found only in the Kootenai River in Idaho (Forest Service 2015a:186) and does not occur in the fish analysis area.
Western pearlshell mussel (Sensitive)	*Margaritifera falcata*	In Idaho, the historical range of *M. falcata* includes sites in the Snake, Coeur d'Alene, Lost, and Salmon River drainages (Frest and Johannes 1999, cited in Forest Service 2013a:191). Populations are thought to persist in north Idaho in the Coeur d'Alene, St. Joe, and St. Maries Rivers, but not as far north as the Priest and Kootenai River drainages, containing the fish and wildlife analysis areas (IDFG 2016c).

This analysis describes the existing condition of fish and fish habitats within the analysis area (see Section 3.4.3 for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on fish habitat and species are subsequently described and discussed.

3.4.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on fish and their habitat must incorporate the potential for direct, indirect, and cumulative impacts. The fish analysis area includes the project footprint where it intersects with fish-bearing streams, as well as any portions downstream from that intersection. Because the potential effects on surface water diminish as downstream distance increases, the analysis area is limited to the downstream confluence of the next major watercourse (Foltz et al. 2008; Grant et al. 2008; Hubbart et al. 2007).

This area is referred to as the fish analysis area or, more generally in this section, the analysis area, and is shown in Figure 3.4.1.

Because effects on water resources would affect fish and their habitat, the temporal scale of effects is the same as for water resources. Therefore, the temporal scale of analysis for this DEIS considers the time frame beginning with road repair and motorized closures and ending when streamside revegetation is complete. Depending on the site conditions, it is assumed that revegetation would occur within 5 to 10 years.

3.4.3 Affected Environment

The analysis area spans the U.S.–Canada border and lies west of the Continental Divide. In general, the analysis area contains mountainous terrain covered in dense vegetation with a climate that is characterized by long, wet winters and short, dry summers. More details regarding the general analysis area setting is available in Section 3.6.3.1 in Water Resources.

3.4.3.1 Fish Habitat in the Analysis Area

The analysis area contains 14 confirmed and 10 potentially fish-bearing streams, referred to throughout this analysis as fish-bearing streams (Table 3.4.2; see Figure 3.4.1). Although other streams in the analysis area may be fish bearing, they were not analyzed in this DEIS because they would not be affected by the action alternatives. The fish-bearing streams in the analysis area range from Rosgen stream channel type A to C (CBP 2015b; Idaho Department of Environmental Quality [IDEQ] 2016a). Type A stream channels typically have steep gradients (greater than a 4 percent slope), channel containment, and low sinuosity. Type B stream channels are characterized by gradients ranging from 2 to 4 percent, some channel containment, and some meander. Type C stream channels have gradients less than 2 percent and lack channel containment, generating sinuosity (Rosgen 1994). Characteristics of streams intersected by the action alternatives were observed during 2014 field visits to the analysis area, and details collected are available in the project record (CBP 2015b; Glaza et al. 2014). Fish observed during 2014 and 2016 sampling (Forest Service 2016c; Glaza et al. 2014) augmented prior fish observations (Forest Service 2014b; Gerhardt 1981; IDEQ 2016a; IDFG 2016c; Paragamian et al. 2008) in the analysis area, and are included in Table 3.4.2.

Past activities that have affected fish habitat within the analysis area include grazing, fires, timber harvest, mining, and road building. All these activities have had the potential to increase erosion and sedimentation in streams, reduce large, woody debris needed for habitat complexity, and reduce shading (leading to increased stream temperature). The IDEQ integrated report (IDEQ 2014) identifies all of the fish-bearing streams within the analysis area as 303(d) listed for temperature because they are not fully supporting cold-water aquatic life and spawning salmonids. Temperatures at these sites range from 46°F to 59°F, with the cold-water aquatic life daily average standard set at 66°F (IDEQ 2016b). Blue Joe Creek and Bog Creek are additionally impaired due to heavy metals (cadmium, lead, and zinc) from historic mining activities upstream (IDEQ 2014). Table 3.6.1 provides additional details in Section 3.6.3.2 in Water Resources. The analysis area streams have not been identified as impaired due to sedimentation and turbidity.

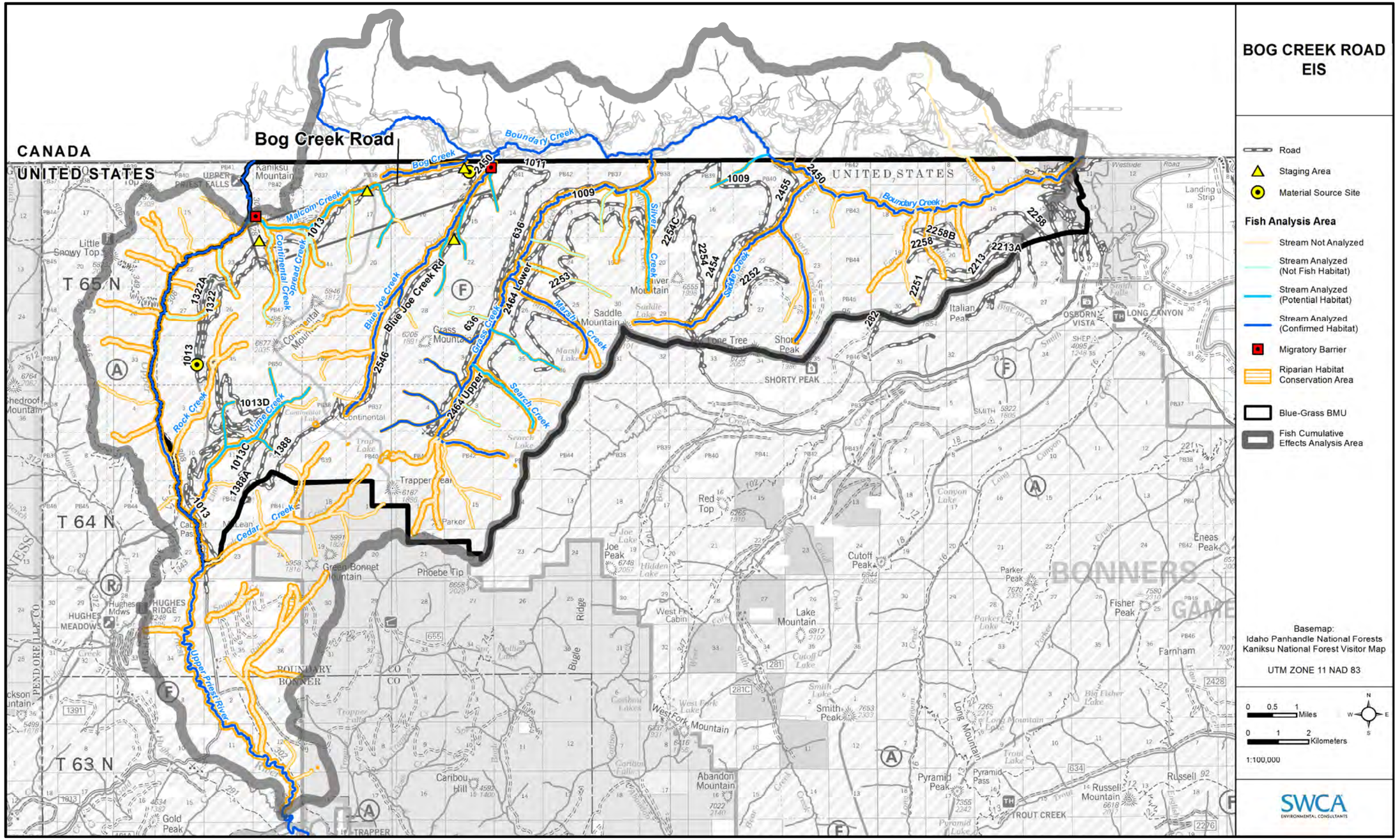

Figure 3.4.1. Fish analysis area.

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Table 3.4.2. Summary of Fish Habitat and Species Thought to Occur in the Analysis Area (see also Bull Trout in Section 3.2)

Stream Name	Confirmed Fish Bearing	Potentially Fish Bearing	Miles within the Analysis Area	Fish Species Known to Occur			Rosgen Stream Channel Type
				Westslope Cutthroat Trout	Interior Redband Trout (*Oncorhynchus mykiss gairdneri*)	Eastern Brook Trout (*Salvelinus fontinalis*)	
Upper Priest River	x		17.1	x			A & B
Lime Creek	x		4.0	x			A & B
Two unnamed tributaries to Lime Creek		x (2)	2.4				A & B
Malcom Creek		x	4.7				B
Bog Creek	x		2.0	x	x	x	Unknown
Blue Joe Creek	x		6.7	x (upstream of falls)	x (downstream of falls)		C
Four unnamed tributaries East of Blue Joe Creek	x (1)	x (3)	4.4	x (1)			Unknown
Four unnamed tributaries West of Grass Creek	x (4)		4.8		x (2)	x (4)	Unknown
Grass Creek	x		10.4	x	x	x	A & B
One unnamed tributary East of Grass Creek		x	1.7				Unknown
Marsh Creek	x		2.4		x		Unknown
Search Creek		x	1.9				Unknown
Silver Creek		x	2.2				Unknown
Shorty Creek	x		2.6		x		Unknown
Saddle Creek	x		5.4		x		Unknown
Boundary Creek	x		21.4	x		x	B
One unnamed tributary West of Boundary Creek		x	1.4				Unknown
Total	**14**	**10**	**95.5**	**7**	**8**	**7**	

Sources: Forest Service (2014b, 2016c); Gerhardt (1981); Glaza et al. (2014); IDEQ (2016a); IDFG (2016c); Paragamian et al. (2008); Rosgen (1994).

Note: Streams analyzed for potential impacts to bull trout and bull trout DCH are included in Tables 3.2.5 and 3.2.15 in Section 3.2, Threatened, Endangered, and Proposed Species.

The presence of roads is correlated with changes in the hydrologic and geomorphic processes that shape aquatic systems and riparian habitat (Gucinski et al. 2001). These changes include severing connections between streams and adjacent floodplain networks, converting subsurface to surface flow by intercepting groundwater flow paths, and diverting flow to streams, which can increase runoff, the likelihood of flash floods, and erosion (Forman 2004; Gucinski et al. 2001).

Aquatic insect larvae population numbers and diversity are negatively correlated with increased road density (McGurk and Fong 1995). Larvae are an important food source for the fish species discussed below.

Effects on fish and their habitat can occur in both the immediate vicinity and downstream of road-stream crossings. The downstream extent of potential impacts is based on a conservative estimate of how increased water yield and potential sedimentation diminish over distance. Based on research, impacts from increased water yield can be measurable downstream to the confluence with the next higher-order water body (Grant et al. 2008; Hubbart et al. 2007). Also, as indicated by the Foltz et al. (2008) study of culvert removals in streams similar to those in the analysis area, increases in sediment and turbidity caused by in-stream work and surface disturbance decrease with distance downstream, and become undetectable by approximately 3,000 feet downstream of in-stream disturbance actions. Within the fish analysis area, the culverts along the action alternatives roads would require cleaning or removal and replacement to avoid future blockage or eventual failure and blowout.

RHCAs, established in INFISH (Forest Service 1995b), are 200- to 600-foot-wide portions of watersheds where riparian-dependent resources receive primary emphasis and management activities are subject to specific guidelines. The RHCAs in the analysis area are shown in Figure 3.4.1. RHCAs contribute large, woody debris to streams, creating habitat complexity, and they reduce stream temperatures by providing shade.

3.4.3.2 Fish Species in the Analysis Area

Westslope Cutthroat Trout (Sensitive Species)

Westslope cutthroat trout (Figure 3.4.2), a subspecies of the cutthroat trout (*Oncorhynchus clarkii*), have been documented in seven of the fish-bearing streams in the analysis area and could occur in the streams identified as potentially fish bearing (see Table 3.4.2 and Figure 3.4.1). These trout are a Forest Service Region 1 Sensitive Species (Forest Service 2011b). This species is also a State species of special concern in Idaho (S3) (NatureServe 2016). Westslope cutthroat trout are recreationally sought after by rod-and-reel fishermen.

Westslope cutthroat trout live in small mountain streams and rivers, such as those within the analysis area. They require well-oxygenated water; clean, well-sorted gravels with minimal fine sediments for successful spawning; temperatures less than 70°F; and a complexity of in-stream habitat structure such as large, woody debris and overhanging banks for cover (NatureServe 2016). In Idaho, westslope cutthroat trout are most abundant in stream “reaches with 6 to 14% gradient and occur in gradients up to 27%” (Fausch 1989, cited in McIntyre and Rieman 1995:6). Westslope cutthroat trout spawn in small tributary streams on clean gravel substrate, where mean water depth is

17 to 20 centimeters (cm) and mean water velocity is 0.3 to 0.4 meter per second, and they tend to spawn in natal streams (McIntyre and Rieman 1995).

Figure 3.4.2. Westslope cutthroat trout. Credit: U.S. Geological Survey/U.S. Department of the Interior; photograph by Jonny Armstrong.

Fluvial populations live and grow in rivers and spawn in tributaries. Resident populations complete their entire life history in tributaries. Both of these life-history forms may occur in a single basin (McIntyre and Rieman 1995), as could be the case within the analysis area (see Figure 3.4.1).

Adults prefer large pools and slow-velocity areas, as well as stream reaches with numerous pools. Areas with some form of cover generally have the highest adult fish densities. Juveniles of migratory populations may spend 1 to 4 years in their natal streams, and then move to a main river, where they remain until they spawn (McIntyre and Rieman 1995; Spahr et al. 1991). Many fry disperse downstream after emergence (McIntyre and Rieman 1995). Juveniles tend to overwinter in interstitial spaces in the substrate. Larger individuals congregate in pools in the winter (NatureServe 2016). Diets are primarily aquatic invertebrates, although larger fish, at times, will habitually or mainly feed on other fish (McIntyre and Rieman 1995).

This subspecies was petitioned for listing under the ESA, although listing was determined to be “not warranted,” by the USFWS (2003b). According to the Forest Plan FEIS, “[IDFG] and Forest Service data indicate an improving trend in populations and the long-term outlook for many of these populations is positive” (Forest Service 2013a:182).

Interior Redband Trout (Sensitive Species)

Interior redband trout (*Oncorhynchus mykiss gairdneri*) are a Forest Service Region 1 Sensitive Species (Forest Service 2011b). This species is also a State species of special concern in Idaho (S3) (NatureServe 2016). Within the analysis area, trout documented in Bog Creek, Blue Joe Creek, Grass Creek (including its tributaries), Marsh Creek, Saddle Creek, and Shorty Creek are thought to be interior redband trout, and this species could occur in the streams identified as potentially fish-bearing (see Table 3.4.2 and Figure 3.4.1). Although not to the same extent as westslope cutthroat trout and eastern brook trout, these fish are recreationally sought after by rod-and-reel fishermen. Interior redband trout, a subspecies of rainbow trout (*Oncorhynchus mykiss*), are a native fish species, but rainbow trout of coastal descent are not native to the analysis area or northern Idaho, and would have arrived in Bog Creek through historical stocking. No stocking records were obtained for this study, and it is unknown whether the rainbow trout observed in the main stem of Bog Creek during sampling in 1974 were the native interior redband or the non-native rainbow trout of coastal descent (Forest Service 2014b). Based on genetic results from nearby streams, it is reasonable to assume that Bog Creek's main stem contains interior redband trout, and not the introduced non-native rainbow trout (Paragamian et al. 2008).

Similar to westslope cutthroat trout, interior redband trout prefer cool streams with temperatures less than 70°F; however, unlike the westslope, they can survive daily cyclic temperatures up to 80°F for a short period of time (Wydoski and Whitney 2003).

Historically, this species was widely distributed throughout the Columbia River Basin (Lee et al. 1997:1203). Current populations in the analysis area range from strong to depressed (Lee et al. 1997:1209). Hybridization and competition are its main threats (Forest Service 2013a:185).

Eastern Brook Trout

Eastern brook trout (*Salvelinus fontinalis*) are an exotic species in the analysis area and are recreationally sought after by rod-and-reel fishermen. This species prefers clear, cool, well-oxygenated streams and can be highly migratory. They consume other fish, as well as invertebrates (NatureServe 2016). In the analysis area, eastern brook trout have been documented in Bog Creek, Grass Creek (including its tributaries), and Boundary Creek (see Table 3.4.2).

3.4.4 Management Framework

The Forest Plan establishes the following key desired conditions, standards, and guidelines (Forest Service 2015a) that are relevant to the management of fish habitat and species (Table 3.4.3). The reader is referred to the Forest Plan (available in the project record) for additional guidance. Because watershed management activities affect fish habitat and fish, the reader is also referred to Table 3.6.5 for additional applicable management guidance.

Table 3.4.3. Forest Plan Desired Conditions, Standards, and Guidelines Applicable to Fish

Management Area (MA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**[Forestwide (FW)]-DC-[Riparian (RIP)]-03.** Water quality provides stable and productive riparian and aquatic ecosystems. Streams are free of chemical contaminants and do not contain excess nutrients. Sedimentation rates are within natural geologic and landscape conditions, supporting salmonid spawning and rearing and cold-water biota requirements.
All MAs	**FW-DC-[Aquatic Habitat (AQH)]-01.** Water bodies, riparian vegetation, and adjacent uplands provide habitats that support self-sustaining native and desirable non-native aquatic communities, which include fish, amphibians, invertebrates, plants, and other aquatic-associated species. Aquatic habitats are diverse, with channel, lacustrine, and wetland characteristics and water quality reflective of the climate, geology, and natural vegetation of the area. Water quality supports native amphibians and diverse invertebrate communities. Streams, lakes, and rivers provide habitats that contribute toward recovery of threatened and endangered fish species and address the habitat needs of all native aquatic species.
All MAs	**FW-GDL-[Aquatic Species (AQS)]-01.** Management activities that may disturb native salmonids, or have the potential to directly deliver sediment to their habitats, should be limited to times outside of spawning and incubation seasons for those species.
All MAs	**FW-DC-AQS-01.** Over the long term, habitat contributes to the support of well-distributed self-sustaining populations of native and desired non-native aquatic species (fish, amphibians, invertebrates, plants, and other aquatic-associated species). In the short term, stronghold populations of native fish, especially bull trout, westslope cutthroat trout, and interior redband trout, continue to thrive and expand into neighboring unoccupied habitats, and depressed populations increase in numbers. Available habitat supports genetic integrity and life history strategies of native fish and amphibian populations. Macroinvertebrate communities have densities, species richness, and evenness comparable to communities found in reference conditions.
All MAs	**FW-DC-AQS-02.** Non-native fish species (e.g., brook trout, rainbow trout, and brown trout) are not expanding into tributary streams on NFS lands. Impacts of non-native fish species on native salmonids, such as hybridization or displacement, are minimized to the extent possible. Aquatic ecosystems are free of undesirable invasive species such as zebra mussels, New Zealand mud snails, quagga mussels, bullfrogs, and Eurasian milfoil.
All MAs	**FW-DC-AQS-03.** Cooperation and coordination with State and Federal agencies, tribes, and other groups leads to an upward trend of native species and desired non-native aquatic species; and contributes to State, Federal, and tribal population goals for native and desirable non-native fishes.
All MAs	**FW-OBJ-AQS-01.** Over the life of the Plan, improve watershed condition in 5 percent of "Moderate" or "High" rated subwatersheds that contain populations of sensitive or threatened and endangered species. Improvements in condition ratings may also be accounted for in the trend described in FW-OBJ-WTR-01. The fish analysis area contains subwatersheds with both "Moderate" and "High" condition ratings.
All MAs	**FW-GDL-AQS-02.** When conducting management activities, equipment (e.g., boots, waders, boats, surveying equipment, machinery) used in water should be treated by acceptable methods, such as freezing, drying, or chemical treatments in order to prevent the introduction of aquatic invasive species and aquatic borne diseases.
MA 1b	**MA1b-DC-[Water (WTR)]-01.** Water bodies and riparian areas provide quality habitat for fish, amphibians, and other aquatic-associated species.
MA 5	**MA5-DC-WTR-01.** Water bodies and riparian areas provide quality habitat for fish, amphibians, and other aquatic-associated species.

Other regulations, laws, and policies governing fish habitat management for the Bog Creek Road DEIS are provided in Table 3.4.4. The reader is also referred to Tables 3.6.6 and 3.2.7 for additional applicable regulatory guidance, such as the ESA.

Table 3.4.4. Other Regulations, Laws, and Policies Governing Fish Habitat and Fish

Relevant Regulations, Laws, and Policies	Summary
NFMA	The 2012 Forest Service planning rule provisions "are focused on providing the ecological conditions necessary to support the diversity and persistence of native plant and animal species" (Forest Service 2012c:21216). "This approach meets the requirements of NFMA" (Forest Service 2012c:21176).
INFISH	INFISH was prepared in July 1995 to provide interim direction to protect habitat and populations of resident native fish in Idaho (Forest Service 1995b). Under the authority of 36 CFR 219.10(f), the decision amended regional guidelines for the Forest Service's Intermountain, Northern, and Pacific Northwest Regions and Forest Plans in the 22 affected forests, including the IPNF. The Forest Plan includes the 1995 INFISH ROD. The ROD gives an interim direction to "maintain options for inland native fish by reducing risk of loss of populations and reducing potential negative impacts to aquatic habitat" (Forest Service 1995b). The riparian management objectives of INFISH aim to "achieve a high level of habitat diversity and complexity through a combination of habitat features, to meet the life history requirements of the fish community inhabiting the watershed" (Forest Service 1995b). Standards and guidelines in INFISH relating to road management may be relevant to this project because of proposed road improvements. INFISH states, "For each existing or planned road, meet Riparian Management Objectives and avoid adverse effect to inland native fish by: . . . avoiding sediment delivery to streams from the road surface . . . avoiding disruption of natural hydrologic flow paths . . . and avoiding side-casting of soils or snow." INFISH also led to the establishment of RHCAs, which are buffers along riparian corridors, wetlands, and intermittent streams within which activities are subject to restrictions. In the analysis area, RHCAs are 200- to 600-foot wide portions of watersheds where riparian-dependent resources receive primary emphasis and management activities are subject to specific guidelines.
CWA	Under authority of the CWA, the U.S. Environmental Protection Agency and the States must develop plans and objectives that will not further harm, but will eventually restore, streams that do not meet beneficial uses of the State. In Idaho, these beneficial uses include fully supporting cold-water aquatic life and spawning salmonids. The Forest Service has developed design features as outlined in the *National Best Management Practices [BMPs] for Water Quality Management on National Forest System Lands* (Forest Service 2012a), to meet the intent of the water quality standards of the State of Idaho.
EO 12962 Recreational Fishing (as amended by EO 13474)	States objectives "to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by: (h) evaluating the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order."
Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974	Established a periodic reporting requirement and broadened the coverage to all renewable resources on U.S. forests and rangelands. The RPA Assessment includes analyses of forests, rangelands, wildlife and fish, biodiversity, water, outdoor recreation, wilderness, urban forests, and the effects of climate change on these resources.
FSM and FSH direction	FSMs and FSHs within the 2600 file code designation contain direction for wildlife, fish, and sensitive plant habitat management.

3.4.5 Environmental Consequences

3.4.5.1 Methodology

The following sections describe the issue indicators (Table 3.4.5) and approaches that were used to evaluate potential effects on fish habitat and species and specify the criteria that were used to determine effects.

Issue Indicators

Table 3.4.5 lists the issues identified for this resource and the indicators used to assess impacts to this resource in this DEIS. See also Section 3.1, Introduction, for a full

description of the project actions causing these impacts. The analysis below includes evaluation of direct, indirect, and cumulative effects on fish habitat and species.

Table 3.4.5. Issues and Indicators Used to Assess Impacts to Fish Habitat and Species

Issue	Analysis Measure
Potential impact to downstream fish habitat	Referring to Section 3.6.5 in Water Resources: • Qualitative change in sediment delivery affecting fish habitat • Qualitative discussion of potential effects from proposed activities occurring in stream buffer areas (RHCAs)
Potential impact to fish populations	• Qualitative change in up- and downstream passage at road-stream crossings affecting fish population connectivity • Qualitative discussion of the potential for decreased survival/recruitment of fish populations

The water resources section of this DEIS (Section 3.6.5) includes an assessment of 1) whether sediment delivery would occur in analysis area streams (affecting water quality); and 2) how hydrologic connectivity would change under the action alternatives (affecting water quantity). Tiering to the water resources analysis, this fish section evaluates 1) the potential for sediment delivery to affect fish habitat; and 2) the change in up- and downstream passage at road–stream crossings affecting fish population connectivity. The fish section analysis also includes a qualitative evaluation of whether activities proposed within RHCAs might affect fish habitat complexity (large woody debris contribution) and in-stream temperature (from reduced shading). Finally, there is a qualitative discussion of whether project actions would occur at a large enough scale or duration to potentially decrease the survival or recruitment of fish populations.

3.4.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

The analysis below includes evaluation of direct and indirect effects on fish habitat and species. The following analysis is based on the incorporation of several key design features (see Appendix B) designed to avoid or minimize effects on fish habitat from the repair and motorized closure construction actions. These include the following:

- Implementation of Forest Plan standards and guidelines for Watershed, Soils, Riparian, Aquatic Habitat, and Aquatic Species (Forest Service 2015a).
- Design features such as erosion control, spill prevention planning, and the commitment to not store hazardous materials or petroleum products within RHCAs.
- De-watering and diversion design features specifying that water quality, downstream beneficial uses (discussed further in the water resources section, Section 3.6), and aquatic organisms be protected during in-stream work.

Alternative 1 – No Action

Fish Habitat

Sediment Delivery

Road building for historic timber harvest in the analysis area included culvert installation along Bog Creek Road and the roads proposed for motorized closure under the action alternatives (the Proposed Action, Alternative 3, and Alternative 4). Without removal or

replacement, these culverts could potentially fail or blow out. There is the potential that culvert failure or blowout could occur in fish-bearing streams, which would catastrophically release sediment downstream (Furniss et al. 1998). The period of time and distance downstream over which sediment from such a release would be measurable, however, is difficult to estimate because it is dependent on stream type, flow regime, and the road–stream crossing fill quantity. This impact would be short term until the stream channel stabilized and the banks revegetated (estimated at 5 to 10 years), but could affect, at least, up to 6.6 miles of fish-bearing streams in Lime Creek and its tributaries, Malcom Creek, Bog Creek, and Grass Creek and its tributaries. These are the fish-bearing streams within approximately 3,000 feet downstream of the culverts proposed for removal or replacement under the Proposed Action, Alternative 3, and Alternative 4. Foltz et al. (2008) observed that during culvert removal, sediment was measurable up to approximately 3,000 feet downstream and that 95 percent of the sediment was released within the first 24 hours following in-stream work. With the possibility of culvert failure or blowout likely to release a larger sediment slug than culvert removal, additional downstream fish habitat could be affected and for a longer time period. Sedimentation can reduce habitat complexity and pool depth, spawning success, and insect larvae preyed upon by fish.

Activities in the RHCAs

Under the No-Action Alternative, vegetation would not be removed from RHCAs, so benefits provided by RHCAs would not change, such as RHCA contributions of large, woody debris to streams and providing shade to reduce in-stream temperature.

Fish Species

This analysis assumes that the culverts on fish-bearing streams in the analysis area currently provide up- and downstream passage, but that without removal or long-term replacement, the culverts could potentially become blocked, inhibiting this up- and downstream fish population connectivity until culvert failure or blowout occurred.

Depending on the fish-bearing stream affected (see Table 3.4.2), westslope cutthroat trout, interior redband trout, or eastern brook trout could by affected under the No-Action Alternative by: 1) the potential temporary sedimentation of fish habitat from culvert failure and blowout, and 2) the potential for culvert blockage (without removal or replacement) to inhibit up- and downstream fish population connectivity. The potential sedimentation could reduce spawning success and prey availability for a season, but long-term population persistence is unlikely to be affected because high-flow events would flush the sediment farther downstream and further dilute it. However, culvert blockage has been shown to isolate upstream populations and inhibit genetic inflow (Wofford et al. 2005).

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in fish habitat or species impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Fish Habitat

There are fish-bearing streams in the analysis area that would not be affected by the Proposed Action because repair and motorized closure actions would occur outside their RHCAs or would be far enough upstream that downstream impacts would not be measurable (see Figures 2.2.2 and 3.4.1). These unaffected streams (see Table 3.4.2), including the Upper Priest River and Boundary Creek, are not further discussed in this analysis.

Sediment Delivery

Under the Proposed Action, 11 road crossings on fish-bearing streams would be removed or replaced, and one new culvert would be installed on an unnamed tributary to Bog Creek, 500 feet upstream of its confluence with fish-bearing Bog Creek (Table 3.4.6). This could lead to temporary sedimentation from in-stream work measurable up to approximately 3,000 feet downstream in eight of the fish-bearing streams in the analysis area (Foltz et al. 2008). Up to 4.7 miles of fish-bearing streams (4.9 percent of the available fish-bearing streams in the analysis area) could be impacted, but research indicates with the use of design features during culvert removal, such as straw bales, the effect would be short lived, with 95 percent of sediment released within 24 hours (Foltz et al. 2008). Forest Service monitoring of culvert replacement on the Bitterroot National Forest indicated that, at the farthest, downstream sedimentation was detectable to approximately 800 feet downstream and that turbidity (from sediment released upstream) was within Idaho State water quality standards within 1.5 hours after in-stream work (Forest Service 2013c). The observation was also made that eliminating dewatering and re-watering could reduce the measurable turbidity (Forest Service 2013c). Following revegetation (estimated at 5 to 10 years) of the sites where removal or replacement of road-stream crossings occurred, sedimentation from surface disturbance would not occur because riparian areas would be reestablished. Also, the long-term potential for culvert failure or blowout at the removed or replaced crossings would be low because the culverts would be hydraulically designed in accordance with Forest Service standards.

Table 3.4.6. Fish Habitat and Species Affected by the Proposed Action and Alternative 4

Fish-Bearing Stream Name	Number of Road Crossings Over Fish Streams	Length of Fish Streams in Which Sediment Could be Temporarily Measurable (miles)	Fish Species Present*
Lime Creek	3	0.9	Westslope cutthroat trout (WCT)
Two unnamed tributaries to Lime Creek	4	1.3	WCT
Malcom Creek	1	0.5	Unknown at affected area; unlikely to be present
Bog Creek	0 (the crossing is located on an unnamed tributary to Bog Creek)	0.5	WCT, interior redband trout (RBT), eastern brook trout (EBT)
Grass Creek	1	0.5	WCT, RBT, EBT
Search Creek	1	0.5	Unknown at affected area; unlikely to be present

Table 3.4.6. Fish Habitat and Species Affected by the Proposed Action and Alternative 4 (Continued)

Fish-Bearing Stream Name	Number of Road Crossings Over Fish Streams	Length of Fish Streams in Which Sediment Could be Temporarily Measurable (miles)	Fish Species Present
Marsh Creek	1	0.5	RBT
Total	**11**	**4.7**	

* "Unknown at affected area; unlikely to be present" indicates that fish have not been observed during previous sampling efforts. The steepness of the streams at these crossing locations and lack of available suitable habitat observed during field surveys (see Section 3.4.3.1 and Table 3.4.2) also make fish occupancy unlikely.

Activities in the RHCAs

Under the Proposed Action, up to 9.0 acres of vegetation removal would occur in the RHCAs during the removal and replacement of road–stream crossings (see Table 3.6.8) along the Bog Creek Road and the roads proposed for motorized closure. This would reduce the long-term, large, woody debris contribution from the road crossing location, and shading at these locations would be lost until revegetation occurred, estimated at 5 to 10 years. Because this impact would be isolated to the road crossing locations, the overall fish-bearing stream temperatures would be unlikely to change. This vegetation removal from the RHCAs represents less than 1 percent of the total RHCAs in the analysis area (9,195 acres).

Also, the easternmost 1,150 feet of Bog Creek Road repair would occur within the Blue Joe Creek RHCA. However, at this location, the road is currently drivable, and it would only be necessary to remove fallen trees from the existing road corridor. Additional tree removal within the Blue Joe Creek RHCA is not planned.

Fish Species

Under the Proposed Action, a dewatering and diversion plan would be developed prior to the removal or replacement of the 11 road–stream crossings (see Appendix B). This plan would include isolation of the in-stream work area. The potential exists for individual injury or mortality during the in-stream work. Depending on whether the in-stream work is for culvert replacement or removal, temporary sediment pulses could be measurable up to approximately 800 to 3,000 feet downstream, affecting fish present within these areas for up to 2 to 24 hours following the completion of in-stream work (Foltz et al. 2008; Forest Service 2013c). As past monitoring has documented (Forest Service 2013c), individuals could move to available downstream habitats during this time period. Table 3.4.6 identifies the species of fish that could potentially be affected by these impacts.

The duration of in-stream work would be short (estimated at several days per crossing), and on fish-bearing streams would not occur during spawning periods, approximately March through July (see Appendix B) (Lee et al. 1997; NatureServe 2016). Over the long term, the improved up- and downstream passage (from removed or replaced crossings) on these fish-bearing streams would benefit fish populations. These factors, along with implementation of other design features, would therefore not cause a sufficient loss of individuals to affect the viability of these fish populations. No impacts to fish would occur from other construction actions because the proposed actions would be located in upland areas and would not occur in, or be hydrologically connected to, fish-bearing streams.

Alternative 3 – Modified Proposed Action

The effects from repair and motorized road closure actions under Alternative 3 would be the same as those described under the Proposed Action, with the following specific differences.

Fish Habitat

Sediment Delivery

Under Alternative 3, 12 road crossings on fish-bearing streams would be removed or replaced, and one new culvert would be installed upstream of Bog Creek, which is fish bearing (Table 3.4.7). This alternative would affect five more fish-bearing streams than the Proposed Action. This could lead to temporary sedimentation from in-stream work measurable up to approximately 3,000 feet downstream in 13 of the fish-bearing streams in the analysis area (Foltz et al. 2008). Up to 5.6 miles of fish-bearing streams (5.8 percent of the available fish-bearing streams in the analysis area) could be impacted, 0.9 percentage points more than under the Proposed Action.

Table 3.4.7. Fish Habitat and Species Affected by Alternative 3

Fish-Bearing Stream Name	Number of Road Crossings Over Fish Streams	Length of Fish Streams in Which Sediment Could be Temporarily Measurable (miles)	Fish Species Present*
Lime Creek	1	0.5	Westslope cutthroat trout (WCT)
Two unnamed tributaries to Lime Creek	2	0.7	WCT
Malcom Creek	1	0.5	Unknown at affected area; unlikely to be present
Bog Creek	0 (the crossing is located on an unnamed tributary to Bog Creek)	0.5	WCT, interior redband trout (RBT), eastern brook trout (EBT)
Four unnamed tributaries west of Grass Creek	4	1.4	RBT, EBT
Grass Creek	1	0.5	WCT, RBT, EBT
Search Creek	1	0.5	Unknown at affected area; unlikely to be present
One unnamed tributary east of Grass Creek	1	0.5	Unknown at affected area; unlikely to be present
Marsh Creek	1	0.5	RBT
Total	**12**	**5.6**	

* "Unknown at affected area; unlikely to be present" indicates that fish have not been observed during previous sampling efforts. The steepness of the streams at these crossing locations and lack of available suitable habitat observed during field surveys (see Section 3.4.3.1 and Table 3.4.2) also make fish occupancy unlikely.

Activities in the RHCAs

Under Alternative 3, up to 9.6 acres of vegetation removal would occur in the RHCAs during the removal and replacement of road–stream crossings (see Table 3.6.9) along Bog Creek Road and the roads proposed for motorized closure. This is 0.6 acre more than under the Proposed Action, and is less than 1 percent of the total RHCAs in the analysis area.

Fish Species

Alternative 3 would remove or replace 12 road crossings in fish-bearing streams, instead of 11 under the Proposed Action. During the work activities, this would be one more site where in-stream work could lead to 1) individual injury or mortality and 2) downstream sedimentation. Table 3.4.7 identifies the species of fish that could potentially be affected by these impacts. Overall, up- and downstream passage would be improved at one more site than under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

All Bog Creek Road repair and motorized road closure effects under Alternative 4 would be identical to those described under the Proposed Action.

3.4.5.3 Effects from Long-Term Maintenance and Use Actions

The analysis below includes evaluation of direct and indirect effects on fish habitat and species. The reader is referred to Section 3.6.5.3 in Water Resources for a more detailed discussion of the qualitative water quality and quantity results. The following analysis is based on the incorporation of several key design features (see Appendix B) designed to avoid or minimize effects on fish habitat (and water resources) from long-term maintenance and use actions. These include the following:

- Herbicide applications would follow the guidelines and design features of existing weed management plans (Forest Service 1995c, 1997). These plans are limited in their use of newer herbicides, with fewer environmental effects and more flexibility in the treatments near water.
- Maintenance of erosion control structures (water bars, etc.) during long-term maintenance and use.
- Design features, such as the commitment to not store hazardous materials or petroleum products within RHCAs.

Alternative 1 – No Action

Fish Habitat

Sediment Delivery

Under the No-Action Alternative, maintenance and use of Bog Creek Road would not occur as proposed in the Proposed Action, Alternative 3, and Alternative 4 (the action alternatives). Also, an unidentified set of roads in the Blue-Grass BMU would be proposed for motorized closure to meet the Access Amendment standards. However, is it unknown which roads would be closed to meet the Access Amendment standards, and a timeline for this has not yet been determined. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative. Similar to the No-Action Alternative, discussed under Effects from Short-Term Road Repair and Motorized Closure Actions, without maintenance and repair, the culverts could potentially fail or blow out along Bog Creek Road and the roads proposed for motorized closure under the action alternatives. Although there would be no long-term change to sedimentation from the existing condition, the potential for catastrophic sediment releases from culvert blowout or failure would remain.

Activities in the RHCAs

The continued vegetation growth at road–stream crossings along Bog Creek Road and roads proposed for motorized closure would contribute shade and large woody debris near streams and aid in reducing in-stream water temperature.

A long-term beneficial impact from IPNF weed management (Forest Service 1995c, 1997) implementation under the No Action would be the reduced density and distribution of weeds in the RHCAs.

Fish Species

Without long-term maintenance, the road–stream crossings along Bog Creek Road and roads proposed for motorized closure would likely become blocked and inhibit up- and downstream passage until culvert failure or blowout occurred. If fish are present in Malcom Creek and Bog Creek in the vicinity of Bog Creek Road, then their populations would not have the benefit of improved long-term up- and downstream passage under the No-Action Alternative because no culvert improvements would occur.

Alternative 2 – Proposed Action

Fish Habitat

Sediment Delivery

Long-term maintenance actions along the administrative open roads that could affect five fish-bearing streams (Table 3.4.8) include grubbing and trimming of vegetation, cleaning of culverts, and periodic grading. At the most frequent, these actions would likely occur once per year. As shown in Table 3.4.8, it is assumed that these actions, especially culvert cleaning and grading, could contribute measurable sediment up to approximately 3,000 feet downstream in 2.3 miles of fish-bearing streams (Foltz et al. 2008).

Activities in the RHCAs

A long-term beneficial impact from IPNF weed management (Forest Service 1995c, 1997) implementation under maintenance and use actions would be the reduced density and distribution of weeds in the RHCAs.

Fish Species

If fish are present in Malcom Creek, Bog Creek, Blue Joe Creek or its tributaries (see Table 3.4.8) in the vicinity of the bridge and four culverts, which would be regularly inspected and maintained, then their populations would have improved long-term up- and downstream passage under the Proposed Action.

Alternative 3 – Modified Proposed Action

The impacts to fish habitat and species from long-term maintenance and use would be the same under Alternative 3 as those described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

With the following exceptions, the impacts to fish habitat and species from long-term maintenance and use would be the same under Alternative 4 as those described under the Proposed Action. The increase in motorized use and public recreational use under Alternative 4 (see Table 3.1.3) could result in a greater potential for degradation of fish

habitat than under the other alternatives. This could occur as a result of increased sedimentation of waterways from a greater number of vehicles traversing the roadway, or introduction of pollutants into fish habitat from fuel or other material spills. The incorporation of design features (see Appendix B) such as installing erosion control structures would reduce the potential impacts from sediment movement along roadways. However, due to the increased motorized use under Alternative 4, the reduction would be less than under the other alternatives.

Fish Habitat

Sediment Delivery

Long-term maintenance actions along the open west to east access roads that could affect 10 fish-bearing streams in the analysis area (twice as many as the Proposed Action and Alternative 3; see Table 3.4.8) include grubbing and trimming of vegetation, cleaning of culverts, and periodic grading. At the most frequent, these actions would likely occur once per year. As shown in Table 3.4.8, it is assumed that these actions, especially culvert cleaning and grading, could contribute measurable sediment up to approximately 3,000 feet downstream in 4.9 miles of fish-bearing streams (Foltz et al. 2008).

Table 3.4.8. Fish Streams Affected by Long-Term Administrative Open and Open Access Under the Alternatives

Fish-Bearing Stream Name	Proposed Action and Alternative 3 Number of Road–Stream Crossings (culverts)	Proposed Action and Alternative 3 Length of Fish-Bearing Streams within 3,000 Feet Downstream of Culvert Cleaning (miles)	Alternative 4 Number of Road–Stream Crossings (culverts)	Alternative 4 Length of Fish-Bearing Streams within 3,000 Feet Downstream of Culvert Cleaning (miles)	Fish Species Present*
Malcom Creek	1	0.5	1	0.5	Unknown at affected area; unlikely to be present
Unnamed tributary to Bog Creek	1 (Bog Creek is 500 feet downstream of this crossing)	0.4	1 (Bog Creek is 500 feet downstream of this crossing)	0.4	Unknown Bog Creek has: WCT, RBT, EBT
Blue Joe Creek	1 (bridge)	0.5	1 (bridge)	0.5	WCT
Unnamed tributaries to Blue Joe Creek	2	0.9	4	1.9	WCT known in 1 tributary; fish presence unknown in other tributaries
Grass Creek	0	NA	1	0.5	WCT, RBT, EBT
Silver Creek	0	NA	1	0.5	Unknown at affected area; unlikely to be present

Table 3.4.8. Fish Streams Affected by Long-Term Administrative Open and Open Access Under the Alternatives (Continued)

Fish-Bearing Stream Name	Proposed Action and Alternative 3 Number of Road–Stream Crossings (culverts)	Proposed Action and Alternative 3 Length of Fish-Bearing Streams within 3,000 Feet Downstream of Culvert Cleaning (miles)	Alternative 4 Number of Road–Stream Crossings (culverts)	Alternative 4 Length of Fish-Bearing Streams within 3,000 Feet Downstream of Culvert Cleaning (miles)	Fish Species Present*
Unnamed tributary to Boundary Creek	0	NA	1	0.5	Unknown at affected area; unlikely to be present
Total	**5**	**2.3**	**10**	**4.9**	

* "Unknown at affected area; unlikely to be present" indicates that fish have not been observed during previous sampling efforts. The steepness of the streams at these crossing locations and lack of available suitable habitat observed during field surveys (see Section 3.4.3.1 and Table 3.4.2) also make fish occupancy unlikely.

Fish Species

If fish are present in the vicinity of the bridge and nine culverts (see Table 3.4.8), which would be regularly inspected and maintained, then their populations would have improved long-term up- and downstream passage under Alternative 4.

3.4.5.4 Cumulative Effects

For this project, the fish cumulative effects analysis area is the same as the surface water analysis area (see Figure 3.4.1 and Section 3.6.2 in Water Resources). Effects from past and present actions on fish habitat and species are addressed in Section 3.4.3 and in the analysis of the No-Action Alternative in Section 3.4.5. The fish cumulative analysis area has been affected by past and ongoing activities, including historic timber harvest, historic mining and mine reclamation, grazing, recreation, and wildfire. There is an extensive east–west-trending road system that is open to motorized use just north of the Canadian border. Timber harvest, recreation, hunting, and motorized use (including over-the-snow motorized access) are occurring on these Canadian roads within the analysis area and would continue to occur. These activities would not be limited by Forest Service management guidelines.

Reasonably foreseeable future actions are listed in Appendix D. A long-term beneficial impact from future IPNF weed management (Forest Service 1995c, 1997) implementation within the fish cumulative analysis area would be the reduced density and distribution of weeds in the RHCAs. The only reasonably foreseeable future ground-disturbing activities in the fish cumulative analysis area that would contribute to cumulative effects consist of timber harvest. Timber harvest and its associated road networks have historically had the potential to increase sedimentation to fish-bearing streams (Reid and Dunne 1984). No further timber harvest on NFS lands in the fish cumulative analysis area is planned in the reasonably foreseeable future. There are privately owned timber harvest lands (owned by Hancock) in the northeast corner of the fish cumulative analysis area that were harvested in 2014, and it is possible that up to 550 acres of these lands could be harvested over the next 10 years. However, timber harvest from private land must comply with the Idaho Forest Practices Act, which includes BMPs to limit or reduce impacts to water quality and fish habitat. The 2016 Interagency Forest Practices Water Quality Audit showed that

Federal and private timber lands had the highest compliance rate with the Idaho Forest Practices Act (IDEQ 2016c).

Appendix B of the Forest Plan summarizes retained existing decisions (Forest Service 2015a). Through implementation of RHCAs and INFISH guidelines (Forest Service 2015a:137–150) and the Access Amendment standards (Forest Service 2015a:151–155), management objectives in the fish cumulative analysis area include avoidance or minimization of activities in the RHCAs, watershed restoration (including road decommissioning), reduced total and open motorized route density, and providing core area habitat (areas with low levels of human presence and no motorized use) for grizzly bears (Forest Service 2015a). As stated in Section 3.4.3.1, all of the fish-bearing streams in the fish cumulative analysis area are 303(d) listed for temperature because they are not fully supporting cold-water aquatic life and spawning salmonid beneficial uses.

The proposed reasonably foreseeable future actions that overlap the fish cumulative analysis area include continuation of activities such as cattle grazing in the Grass Creek allotment, CBP activities, recreational use of both motorized and non-motorized roads/trails, and hunting. If erosion is occurring near fish-bearing streams from these activities, then they have the potential to contribute sediment into fish-bearing streams. Sedimentation can reduce habitat complexity and pool depth, spawning success, and insect larvae preyed upon by fish. Because an increase in cattle grazing is not proposed in the fish cumulative analysis area and maintenance would occur on the roads and trails, these activities, combined with the Bog Creek Road Project, would not have incremental detrimental effects on fish habitat or species.

Climate models for the Pacific Northwest suggest that the region will continue to experience increasing year-round annual temperatures, particularly during summer months (Dalton et al. 2013). Climate models also suggest an overall decrease in summer precipitation, resulting in drier summers and lower stream flow. As one report states, “Snow-dominant watersheds are projected to shift toward mixed rain-snow conditions, resulting in earlier and reduced spring peak flow, increased winter flow, and reduced late-summer flow” (Dalton et al. 2013:xxiii). These climate shifts could increase stream temperatures and decrease dissolved oxygen levels, thereby affecting the health and the extent of suitable fish habitat, particularly species living under conditions near the upper range of their thermal tolerance (westslope cutthroat trout and interior redband trout). Maintenance of in-stream flows and stream shading can help offset stream warming and improve resilience. Because none of the action alternatives would measurably affect in-stream flows, stream shading, or large woody debris recruitment beyond current conditions under the No-Action Alternative, implementation of any of the action alternatives would not lead to greater impacts to these sensitive fish species or eastern brook trout under likely climate scenarios.

The action alternatives would temporarily impact fish-bearing streams through sediment contribution and a short-term disruption to up- and downstream passage from in-stream work, reduced shading provided by the RHCAs until revegetation occurs (estimated at 5 to 10 years), and long-term loss of large woody debris inputs at the footprint of the road-stream crossing removals and replacements. These impacts could exacerbate effects experienced by fish species under climate warming trends. However, the magnitude of the effect is anticipated to be limited, given the small project footprint size relative to the

available habitat within the fish cumulative analysis area. See also Section 3.6.5.4, the cumulative effects section in Water Resources.

3.4.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

The action alternatives (the Proposed Action, Alternative 3, and Alternative 4) would adhere to the aquatic resources requirements of the Forest Plan (Forest Service 2015a) (see Table 3.4.3), as amended by INFISH (Forest Service 1995b), and in compliance with the State of Idaho's implementation of the CWA. Vegetation clearing in the RHCAs for road repair and maintenance is consistent with the CWA and the Forest Plan, including INFISH. The loss of large woody debris input within the vicinity of the road–stream crossing removals and replacements would be a long-term minimal impact, with less than 1 percent of the RHCAs affected under the Proposed Action, Alternative 3, and Alternative 4.

The diversity and persistence of native fish species in the fish-bearing streams in the analysis area would continue to be supported, as directed by the NFMA under the 2012 Forest Service planning rule (Forest Service 2012c).

The action alternatives would be consistent with EO 12962, Recreational Fishing (as amended by EO 13474), because this DEIS evaluates the effects of those proposed activities on aquatic systems and recreational fisheries, including rod-and-reel fishing for westslope cutthroat trout, interior redband trout, and eastern brook trout.

In accordance with FSM 2670 (Forest Service 2005), these DEIS analyses serve as a BE for the westslope cutthroat trout and interior redband trout and finds for both species, for the reasons stated above, that the No-Action Alternative, the Proposed Action, Alternative 3, or Alternative 4 may impact individuals or habitat, but will not likely contribute to a trend toward Federal listing or cause a loss of viability to the population or species.

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3.5 Special Status Plants

3.5.1 Introduction

Federal regulations require that agencies take into account the effects of Federal undertakings on any plant species considered to be rare or "special status." The term special status refers to individual plants or populations of plants that are listed federally as threatened or endangered, or that are listed as sensitive species by the Forest Service regional forester.

Key issues identified during public scoping that require analysis in the DEIS consist of potential project impacts to special status plants and their habitats. The Forest Service identifies species for which population viability is a concern as "sensitive species" designated by the Regional Forester (FSM 2670.44 [Forest Service 2005]). This analysis describes the existing condition of special status plants and their associated rare plant habitat guilds within the analysis area (see Section 3.5.3, Affected Environment, for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on special status plants are subsequently described and discussed.

3.5.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The analysis area includes the Bog Creek Road, the roads proposed for motorized closure, and lands within a 660-foot buffer of those project road prisms and material source sites.
The 660-foot analysis area boundary was chosen to include special status plants and the associated rare plant habitat guilds that could be directly or indirectly affected by the proposed project. This buffer was chosen because of the Forest Plan peatland protection guideline (FW-GDL-VEG-09 in Forest Service 2015a) and assumes that indirect impacts could be measurable within 660 feet of project activities. This extent allows for assessment of potential impacts at an appropriate scale to determine local effects on populations, which may occur adjacent to the analysis area. This area is referred to as the special status plants analysis area or, more generally in this section, the analysis area, and is shown in Figure 3.5.1.

Effects on special status plants may include mortality from vegetation removal within the road prism and adjacent to Bog Creek Road and the roads proposed for motorized closure. The limit of effects on special status plant populations and native plant habitats and diversity is largely based on the expected distance of spore or seed dispersal and potential for colonization of special status plant populations. These effects are measured temporally and based on severity of effect. The temporal scale of effects for special status plants begins when ground-disturbing activities first occur for road repair and motorized closure, and continues until revegetation efforts are complete and native vegetation has become established. Temporary effects would be those that only occur during repair and motorized closure activities. Short-term effects would last up to 3 to 5 years following repair and motorized closure activities.

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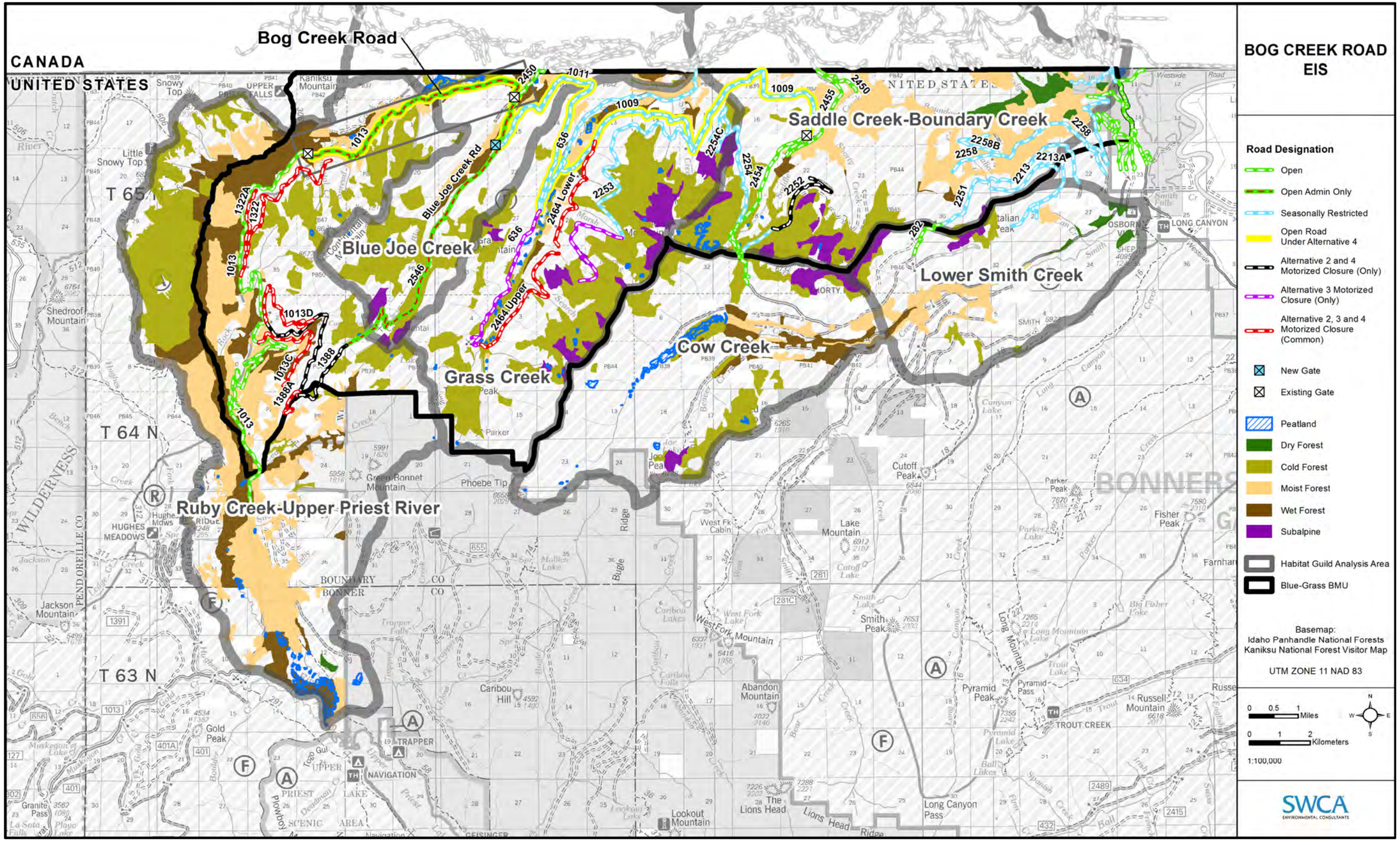

Figure 3.5.1. Special status plants analysis area.

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Depending on the site conditions, botanists assessed that natural revegetation would occur within 5 to 10 years following site disturbance. Effects that take place over a period of time longer than 5 years would be considered long-term effects, and would occur during future maintenance and use of Bog Creek Road.

3.5.3 Affected Environment

3.5.3.1 Associated Rare Plant Habitat Guilds

Special status plants or rare plants may be assigned to one or more rare plant habitat guilds. These habitat guilds are artificial groupings based on similar habitat requirements of two or more rare plant species that have been mapped in the field by the Forest Service. These associated rare plant habitat guilds provide an indication of potential presence for one or more rare plants because they are based upon the ecological site potential or habitat types, as well as elevation and forest stand characteristics, which influence habitat suitability for rare plant(s). Habitat guild assemblages that occur in the IPNF North Zone include subalpine, cold forest, wet forest, moist forest, dry forest, deciduous riparian, aquatic, and peatland. Four habitat guilds were identified along the Bog Creek Road during survey: cold forest, wet forest, fen peatland, and moist forest, including ancient cedar groves as a portion of the potentially suitable wet forest habitat. Detailed descriptions of the associated rare plant habitat guilds that exist within and adjacent to Bog Creek Road and the roads proposed for motorized closure are provided in Appendix A of the *Botany Resources and Noxious Weed Report for the Bog Creek Road Project* (CBP 2015c). Table 3.5.1 identifies the associated rare plant habitat guilds that are present within the special status plants analysis area.

Table 3.5.1. Associated Rare Plant Habitat Guilds and Examples of Special Status Plant Species in the Analysis Area

Associated Rare Plant Habitat Guilds*	Examples of Special Status Plant Species Associated with the Habitat Guilds
Cold forest	Krushea (*Streptopus streptopoides*) and ground pine (*Lycopodium dendroideum*)
Moist forest	Triangle moonwort (*Botrychium lanceolatum* var. *lanceolatum*), northwestern moonwort (*Botrychium pinnatum*), and ground pine
Wet forest	Triangle moonwort, krushea, and western goblin (*Botrychium montanum*)
Subalpine	Whitebark pine (*Pinus albicaulis*) and alpine arnica (*Arnica alpina* var. *tomentosa*)
Fen peatland	Yellow sedge (*Carex flava*), poor sedge (*Carex magellanica* ssp. *irrigua*), and spoon-leaved sundew (*Drosera intermedia*)

* Note: A complete list of special status plant species and their associated rare plant habitat guilds is located in Appendix A of the *Botany Resources and Noxious Weed Report for the Bog Creek Road Project* (CBP 2015c).

Currently, Bog Creek Road, Blue Joe Creek Road, and the roads proposed for motorized closure are seasonally restricted, administrative use roads only. Thus, where the roads are drivable, impacts currently occurring to special status plants and their associated habitat guilds could include direct impacts to individual plants by crushing injury to the plant, leading to mortality or reduced productivity, or impacts to the associated habitat caused by infrequent road maintenance activities. In addition, indirect impacts could occur through a reduction in habitat function and reduced suitability from potential environmental changes, such as the hydrology of the area, erosion or sediment delivery, and soil

compaction. However, these current impacts are likely minimal since the roads are used infrequently.

3.5.3.2 Special Status Plants and Associated Habitat Guilds

Fifty-six Forest Service sensitive species are known or suspected to occur in the Kaniksu portion (North Zone) of the IPNF, which encompasses the special status plants analysis area for Bog Creek Road and the roads proposed for motorized closure. Examples of the plants associated with these guilds are shown in Table 3.5.1.

Bog Creek Road was surveyed for special status plants in 2014. Two special status species were identified during this survey: triangle moonwort (*Botrychium lanceolatum* var. *lanceolatum*) and yellow sedge (*Carex flava*) (CBP 2015c). Although not identified during field survey, one additional Forest Service sensitive species, poor sedge (*Carex magellanica* ssp. *irrigua*), is likely to occur in the fen peatland habitat within the analysis area that could be directly or indirectly affected by the project. Also, whitebark pine (*Pinus albicaulis*), an ESA candidate species, has the potential to occur in the vicinity of the project, but it was not observed during the field survey and is not likely to occur within the area likely to incur direct and indirect effects. The roads proposed for motorized closure and Blue Joe Creek Road have not been surveyed but contain the associated rare plant habitat guilds shown in Table 3.5.1.

Triangle moonwort is a small, fleshy fern that is associated with wet forest and moist forest habitat guilds and is broadly distributed at high elevations in western North America (Ada Hayden Herbarium 2016). Triangle moonwort has been previously documented along the west fork of upper Spread Creek just upslope of Bog Creek Road in the vicinity of the analysis area (Costich-Thompson 2014). There are 100 elemental occurrences of triangle moonwort on the entire IPNF, 52 of which occur just on the North Zone of the IPNF. Of those 52 occurrences, 29 occur on the Bonners Ferry Ranger District (within the Kootenai River Basin). During the 2014 survey, a newly identified occurrence contained a population of 30 plants (CBP 2015c), entirely within the edge of the Bog Creek road prism. A second population containing three plants was also identified on the shoulder of the Bog Creek road prism.

Yellow sedge is a perennial species found in the circumboreal region of North America and is associated with peatland habitat guild (Washington State Department of Natural Resources 2016a). There are five known elemental occurrences of yellow sedge on the entire IPNF, all of which occur on the North Zone: one occurs on the Priest Lake Ranger District (in the Priest/Pend Oreille Basin), and four occur on the Bonners Ferry Ranger District (in the Kootenai Basin). One population of yellow sedge consisting of more than 50 highly vigorous individual plants was documented during the Bog Creek Road survey in 2014 (CBP 2015c), and that population occurs within small, flow-through fen peatlands adjacent to and within 150 feet of the Bog Creek road prism. However, none of the individuals are present on the Bog Creek road prism itself.

Poor sedge is also a perennial species found in northern portions of North America as well as Eurasia, where it is associated with peatland habitat guild (Washington State Department of Natural Resources 2016b). There are 24 known elemental occurrences of poor sedge on the entire IPNF, 19 of which occur on the Bonners Ferry Ranger District (Kootenai Basin).

Whitebark pine is a tree found in subalpine and timberline zones of North America and is associated with subalpine habitat guild (Fryer 2002). Whitebark pine is widespread throughout the IPNF in scattered populations, but populations have not yet been recorded in the rare plants database, and no occurrences of whitebark pine were found during botanical surveys in 2014 that were conducted along a 150-foot buffer of Bog Creek Road. This species typically occurs just below alpine zone, in conjunction with grouse whortleberry or smooth, mountain woodrush. Whitebark pine appears to be declining throughout its range, and in particular on the IPNF, primarily due to introduced white pine blister rust and an increase in mountain pine beetle populations in the area, as well as potential influences from climate (departures from average low temperatures) and changes to natural disturbance patterns.

With the exception of whitebark pine, additional information regarding these species is provided in the *Botany Resources and Noxious Weed Report for the Bog Creek Road Project* (CBP 2015c).

3.5.4 Management Framework

The following Forest Plan desired conditions, standards, and guidelines are applicable in the analysis area (Table 3.5.2).

Table 3.5.2. Desired Conditions, Standards, and Guidelines Contained within IPNF Forest Plan Related to Special Status Plants and Habitat Guild Management

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**[Forestwide (FW)]-DC-[Vegetation (VEG)]-08.** Downed wood occurs throughout the forest in various amounts, sizes, species, and stages of decay. The larger downed wood (i.e., coarse, woody debris) provides habitat for wildlife species and other organisms, as well as serving important functions for soil productivity.
All MAs	**FW-DC-VEG-09.** Habitat for plant species listed under the ESA is maintained or restored on NFS lands, thus contributing to species recovery or delisting. Ecological conditions and processes that sustain the habitats currently or potentially occupied by sensitive plant species are retained or restored. The geographic distributions of sensitive plant species in the Forest Plan area are maintained.
All MAs	**FW-DC-VEG-10.** Newly invading, non-native invasive plant species are treated and populations are contained or eradicated. The weed program on the Forest uses integrated pest management approaches, including prevention and control measures that limit introduction, intensification, and spread due to management activities. Agreements with cooperative weed management areas assist in control efforts across jurisdictional boundaries.
All MAs	**FW-STD-VEG-01.** Within old growth stands, timber harvest or other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would no longer meet the definition of old growth.
All MAs	**FW-STD-VEG-02.** Within the ancient cedar groves, timber harvest or other vegetation management activities shall not be authorized (exceptions may occur for the treatment of non-native invasive plants, activities needed to address human health and safety issues such as the removal of hazard trees adjacent to a recreation site, or in the circumstance where a natural, unplanned ignition is allowed to burn into a grove under a low intensity).
All MAs	**FW-GDL-VEG-02.** Road construction (permanent or temporary) or other developments should generally be avoided in old-growth stands unless access is needed to implement vegetation management activities for the purpose of increasing the resistance and resilience of the stands to disturbances.

Table 3.5.2. Desired Conditions, Standards, and Guidelines Contained within IPNF Forest Plan Related to Special Status Plants and Habitat Guild Management (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-GDL-VEG-07.** Evaluate proposed management activities and project areas for the presence of occupied or suitable habitat for any plant species listed under the ESA or on the regional sensitive species list. If needed, based on pre-field review, conduct field surveys and provide mitigation or protection to maintain occurrences or habitats that are important for species sustainability.
All MAs	**FW-GDL-VEG-09.** Peatlands/bogs should be buffered by at least 660 feet from management activities that may degrade this habitat.

Other regulations, laws, and policies governing special status plants and habitat guilds in the project are listed in Table 3.5.3.

Table 3.5.3. Other Regulations, Laws, and Policy Governing Special Status Plants and Habitat Guild Management

Relevant Regulations, Laws, and Policy	Summary
NFMA	"It is the policy of the Congress that all forested lands in the NFS shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth and conditions of stand designed to secure the maximum benefits of multiple use sustained yield. Plans developed shall provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet the overall multiple-use objectives, and within the multiple-use objective."
Forest and Rangeland Renewable Resources Planning Act of 1974	Provides for maintenance of land productivity and the need to protect and improve the soil and water resources.
National Best Management Practices for Water Quality Management on National Forest System Lands	Best management practices to protect water and soil quality are derived from the Forest Plan and the *National Best Management Practices for Water Quality Management on National Forest System Lands* (Forest Service 2012a) and incorporated by reference. Best management practices provide a basis for road construction that minimizes impact to the soils and water resources, and by association other related resources such as sensitive plant habitat.
Forest Service Regional Watershed, Wildlife, Fisheries and Rare Plants program	Develop wildlife and fish programs within the context of ecosystem management with goals to conserve and promote ecosystem sustainability within each region.
FSM 2670–2673	FSM 2600, Chapters 2670–2673 (Forest Service 2005), guides Forest Service management practices to ensure that rare and sensitive plants do not become threatened or endangered and ensure their continued viability in national forests (Forest Service 2005). It is Forest Service policy to analyze impacts to sensitive species to ensure management activities do not create a significant trend toward Federal listing or loss of viability.
ESA, as amended	Section 4 of the ESA provides guidance regarding candidate species. Candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other, higher priority listing activities. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are by definition species that may warrant future protection under the ESA.

Table 3.5.3. Other Regulations, Laws, and Policy Governing Special Status Plants and Habitat Guild Management (Continued)

Relevant Regulations, Laws, and Policy	Summary
FSM 2900 – Invasive Species Management	FSM 2900 (Forest Service 2011c) guides Forest Service management on responsibilities, and direction for the prevention, detection, control, and restoration of effects from aquatic and terrestrial invasive species (including vertebrates, invertebrates, plants, and pathogens).
EO 13112 (1999; Invasive Species)	Requires that a Council of Departments dealing with invasive species be created to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.
Idaho's Strategic Plan for Managing Noxious Weeds	The Strategic Plan (Idaho State Department of Agriculture 2012) recommends the statewide formation of Cooperative Weed Management Areas and application of Integrated Weed Management practices to reduce the ecological, economic, and social impacts of noxious weeds on the state's human and natural resources.
FSM 2080 – Region 1 Noxious Weed Management	FSM 2080 (Forest Service 2001a) directs the development and coordination of the Forest Service noxious weed program. Each forest and district is directed to appoint a noxious weed coordinator and develop and implement a noxious weed management program.
Priest Lake Noxious Weed Control Project Final EIS (Forest Service 1997)	The Priest Lake Noxious Weed EIS is the decision document that directs an adaptive management strategy, including mechanical, biological, and chemical control means for non-native invasive plant species (noxious weeds) on the Priest Lake Ranger District.
Bonners Ferry Ranger District Noxious Weed Management Projects Final EIS (Forest Service 1995c)	The Bonners Ferry Ranger District Noxious Weed Management Projects EIS directs the mechanical, biological, and chemical means for controlling non-native invasive plant species (noxious weeds) on the Bonners Ferry Ranger District.
Forest Service Policy	FSM Chapter 2400 contains the basis of specific Forest Service timber management practices (Forest Service 2003a). Additional forest vegetation management guidance is provided in FSM 2800 and 1900 (Forest Service 2006, 2009).

3.5.5 Environmental Consequences

3.5.5.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential effects on special status plants and habitat guilds.

Issue Indicators

The following issue indicators were used for the analysis of impacts to special status plant species and associated rare plant habitat guilds (Table 3.5.4).

Table 3.5.4. Issue Indicators for Effects on Special Status Plants

Issue Indicators
Potential changes to populations of special status plants and their associated sensitive plant habitat guilds from the existing condition (e.g., fen peatland), as a result of implementing proposed activities.
Risk of damage to associated sensitive plant habitat guilds (e.g., cold forest, peatland, etc.) or special status plant populations from slope destabilization or movement of material beyond road prism.

Analysis of special status plant species that may occur in the analysis area is based on 1) the field survey of Bog Creek Road for special status plants that was conducted in 2014

and reported in the *Botany Resources and Noxious Weed Report for the Bog Creek Road Project* (CBP 2015c), and 2) geographic information system (GIS) analysis of the associated rare plant habitat guilds, as mapped by the Forest Service (Forest Service 2016b). The analysis of impacts will include evaluating the potential for direct and indirect impacts to special status plant individuals and/or populations and whether or not the impacts would lead to Federal listing or loss of viability.

3.5.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

This section includes a description of the short-term direct and indirect effects on special status plants for each alternative.

Alternative 1 – No Action

Under the No-Action Alternative, current conditions would remain and minimal to no impacts to special status plants would occur from repair of Bog Creek road or motorized road closure actions. Until the Forest Service takes additional actions to meet the Access Amendment, there would continue to be potential impacts to some special status plants from the occasional, seasonally restricted administrative use of roads proposed for motorized closure. Specifically, with the potential for occasional administrative vehicle use, those plants that occur on the drivable road prisms, such as triangle moonwort, have a low potential to incur direct effects from crushing injury, which could lead to mortality or reduced productivity. However, because many of these roads are currently brushed in, or are used only minimally with little to no ongoing maintenance, the existing effects on special status plants caused by the roads in this area are likely minimal or negligible. The No-Action Alternative is not likely to result in effects on special status plants located off of the administratively used road prisms. Therefore, the No-Action Alternative would likely result in no expected effects on yellow sedge or poor sedge populations, which are located in peatland habitats adjacent to, but off of, the road prisms.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in special status plant impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

In general, road repair and motorized road closure actions would directly and indirectly impact special status plant species by removing vegetation and suitable habitat in the road prisms. Direct impacts could occur when proposed activities (such as brushing, blading, or other use of mechanical equipment) lead to destruction/mortality of the special status plant(s); injure the plant(s), leading to mortality or reduced productivity; and/or destroy suitable habitat within and adjacent to the roads. Direct impacts of proposed activities on the suitable habitat for special status plants could occur as a result of soil disturbance (rutting, compaction, or displacement) or changes to forest canopy cover. Indirect impacts from these activities could also potentially include a reduction in habitat function and reduced suitability from potential future changes such as the hydrology of the area,

erosion, and sediment delivery within the analysis area. Specific impacts from these activities are as follows.

The repair of Bog Creek Road and motorized closure activities could result in short-term, direct impacts to special status plant individuals/populations or associated rare plant habitat guilds located on or adjacent to the roads. Such impacts could affect species known to occur in those areas, such as triangle moonwort and yellow sedge, as well as those potentially occurring in the immediate vicinity of the roads, such as poor sedge. As discussed above, no surveys have been completed on the roads proposed for motorized closure.

No subalpine habitat guild is present within the direct or indirect impacts area; thus, no impacts to whitebark pine would be anticipated.

In addition, the Bog Creek Road improvements proposed under the Proposed Action could cause long-term, indirect impacts to special status species and their associated rare plant habitat guilds, including a reduction in habitat function and reduced suitability from potential environmental changes, such as the hydrology, erosion, sediment delivery, and soil compaction within the analysis area (including potentially affecting peatlands adjacent to road prisms). However, project design features to protect special status plants and peatlands (see Appendix B), should reduce those potential impacts to special status plants and their associated habitats. Under the Proposed Action, including design features, the proposed activities may impact special status plant individuals or populations. However, those impacts would be unlikely to result in a trend toward Federal listing or a loss in population viability for the special status plant species in the analysis area.

Alternative 3 – Modified Proposed Action

The types of direct and indirect impacts to special status plant individuals or populations under Alternative 3 would be the same as under the Proposed Action, although Alternative 3 would impact more area classified as suitable habitat for special status plants.

Bog Creek Road repair and motorized road closure activities under Alternative 3 would include direct impacts to special status plant individuals or populations, as well as potential short-term direct impacts to the habitats that support those species. Under Alternative 3, including design features (see Appendix B), the proposed activities may impact special status plant individuals or populations. However, those impacts would be unlikely to result in a trend toward Federal listing or a loss in population viability for the special status plant species in the analysis area.

Alternative 4 – Blue-Grass BMU West–East Open Access

The impacts under Alternative 4 would be the same as described under the Proposed Action.

3.5.5.3 Effects from Long-Term Maintenance and Use Actions

This section includes a description of the long-term direct and indirect effects on special status plants from long-term maintenance and use of Bog Creek Road and as-needed administrative use of Blue Joe Creek Road.

Alternative 1 – No Action

Under the No-Action Alternative, the Bog Creek Road and Blue Joe Creek Road seasonally restricted designations would continue, and motorized closures would not occur. Along the unrepaired Bog Creek Road, some special status plant individuals (in particular, triangle moonwort and yellow sedge) may persist on the Bog Creek Road and habitat adjacent to it. Additionally, in the long term, there is the potential for some special status plant species (especially moist forest species, such as triangle moonwort or northern moonwort [*B. pinnatum*]) to recolonize portions of the Bog Creek road prism. However, documented recolonization of these species generally does not occur for many years following disturbance (David Evans and Associates, Inc. 2005). Therefore, even if some individual special status plants persist or recolonize the Bog Creek Road prism, no direct effects on those individuals would occur as a result of vehicle crushing or vegetation maintenance because no long-term maintenance or use would occur.

However, with the lack of long-term maintenance and use, some indirect effects would be possible just due to the presence of Bog Creek Road (particularly for the first several decades after disturbance and before natural succession processes revegetate the road prism), including the potential for erosion and sediment delivery on and off of the road prism, as well as the potential for ongoing road influences to nearby hydrology. As an unmaintained road is unused and left to natural ecological succession processes, eventually vegetation would become reestablished on the prism, slowly reducing the erosion and sediment delivery potential of the road. Although Bog Creek Road is partially brushed in and some natural revegetation has occurred which help reduce erosion and sediment delivery overtime, without removal of culverts and drainage features, the road prism would continue to serve as a water conduit to connect natural water features. Therefore, the continued presence of the road (even in an unmaintained, unused status) could still influence the nearby, natural hydrologic systems, including adjacent fen peatlands, which provide habitat for special status plants.

As a result, the No-Action Alternative has the potential to result in indirect effects on special status plants located on and off of Bog Creek Road, including triangle moonwort, yellow sedge, or poor sedge populations.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in special status plant impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Under the Proposed Action, as needed administrative use of Bog Creek Road and Blue Joe Creek Road could result in long-term, direct impacts to any special status plants that become reestablished in the road. Direct impacts to special status plants on the road prism could occur as a result of road maintenance activities on Bog Creek Road or from vehicle use on Bog Creek Road and Blue Joe Creek Road. However, these potential impacts would be infrequent under the proposed administrative uses and directly related to the frequency and type of road use, as well as the type, intensity, and frequency of maintenance activities on Bog Creek Road. For instance, clearing brush from a road

(using a flail chopper) would not likely have direct effects on small moonworts on a road prism because they are typically shorter than a brush cutter would clear. However, by removing brush, that maintenance would have some indirect effects on those same moonworts by increasing solar penetration and intensity on those species (which prefer dappled to intense shade). Furthermore, maintenance to recontour, pull ditches, or blade the same road would likely damage or destroy all special status plants on the road prism.

Direct effects on special status plants on the road prism would also likely occur as a result of vehicle use of Bog Creek Road and Blue Joe Creek Road (via crushing injury that would lead to direct mortality of the plant[s] or injury that would lead to mortality or reduced productivity). However, direct effects caused by vehicle use would not typically result in widespread damage or destruction of plant populations; rather, such effects would typically result in scattered plant individuals' being impacted by crushing or breakage. These impacts assume the loss of individuals during the long-term maintenance and use of Bog Creek Road after road repair.

Long-term, indirect impacts to special status plant species and the associated rare plant habitat (both on the road prism and in habitats nearby and adjacent to the road prism) could include a reduction in habitat function and reduced suitability from potential environmental changes, such as the hydrology of the area, erosion, sediment delivery, and soil compaction in the analysis area. The impacts from administrative road use of Bog Creek Road and Blue Joe Creek Road and infrequent road maintenance on Bog Creek Road would be likely to result in fewer and less severe indirect impacts to special status plants than the initial road repair activities of Bog Creek Road would cause. However, erosion and sediment control measures (identified to protect peatlands/water drainages adjacent to or intersecting the road [see Appendix B]) would also need to be implemented during any soil-disturbing, road maintenance activities on Bog Creek Road in order to further reduce the risk of impacts to known special status plants (yellow sedge) and high-quality, suitable habitat for peatland-dependent species.

Alternative 3 – Modified Proposed Action

The direct and indirect impacts to special status plants and their associated habitat guilds would be the same under Alternative 3 as those described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

The impacts under Alternative 4 from as-needed administrative use of Blue Joe Creek Road would be similar to those described under the Proposed Action. However, there would be no limitation to the amount of vehicle traffic on Bog Creek Road, FSR 1011, FSR 636, and FSR 1009; therefore, the potential for direct impacts (via crushing injury that would lead to direct mortality of the plant[s] or injury that would lead to mortality or reduced productivity) to special status plants on and adjacent to the road prism is higher under Alternative 4 than under any other alternative. In addition, because Alternative 4 would allow unlimited motor vehicle traffic, and increased motor vehicle traffic causes increased pulses of localized sedimentation, Alternative 4 would have the potential to result in more localized sediment delivery adjacent to the road prisms (compared with other alternatives). This potential for long-term, localized sediment delivery could indirectly affect habitat for peatland-dependent sensitive plants, including documented occurrences of yellow sedge, as well as other undiscovered sensitive plants such as poor sedge.

3.5.5.4 Cumulative Effects

Spatial and Temporal Scales of Cumulative Effects Analysis

For analysis of proposed road work, the cumulative effects analysis area for special status plants directly or indirectly affected by the proposed activities is generally the sub-basin watersheds in which road treatments are proposed to occur, except with respect to forest-wide sustainability. The Sixth Code HUC subwatershed area represents the likely limit of effects on rare plant populations from implementation of the action alternatives. Those limits are largely based on the expected distance of spore or seed dispersal and potential for colonization of rare plant populations in areas of suitable habitat, as well as the likely extent of indirect effects on rare plant populations or habitat in the analysis area. While patterns of dispersal are not known with certainty for many plant species, in studies of rattlesnake fern (*Botrychium virginianum*), most spores fell within approximately 10 feet (3 meters) of the source plant (Peck et al. 1990). Other sensitive species' seeds that are heavier than *Botrychium* spores might be assumed to have similar if not more restricted dispersal patterns.

The period for measuring short-term cumulative effects on special status or rare plants and their associated suitable habitats is typically 10 years following completion of projects, or, in the event of selection of the No-Action Alternative, 10 years after the signed decision date. Beyond 10 years, the likelihood of events or activities affecting rare plants and suitable habitat would be difficult to predict.

The IPNF list of reasonably foreseeable future activities (see Appendix D) was reviewed to determine whether these activities would impact special status plants and associated rare plant habitat guilds within the sub-basin watersheds. Three activities were identified that would potentially impact special status plants and associated rare plant habitats: timber harvest on privately owned timber harvest lands in the northeast corner of the Blue Grass BMU, cattle grazing on the Grass Creek grazing allotment, and continued dispersed recreation.

Timber harvesting may occur within 10 years of the completion of the Bog Creek Road project on approximately 550 acres of privately owned lands in the northeastern portion of the Blue-Grass BMU. The timber harvest lands are located in the Saddle Creek–Boundary Creek, Blue Joe Creek, and Ruby Creek–Upper Priest River subwatersheds. Specific information regarding when timber harvesting would occur and the extent of disturbance that the timber harvesting would have is not known. However, it can be assumed that any timber harvesting activity would have the potential to destroy or disturb special status plants that may occur in suitable habitat on the private lands. The habitat guilds on these private lands have not been mapped. Disturbance to special status plants would occur through trampling from harvesting equipment and timber processing and the construction of temporary timber roads, as well as a result of decreased forest canopy cover (which causes increased solar penetration/intensity to understory plants). When combined with the potential impacts of the Bog Creek Road project, the timber harvesting on the privately owned lands would have the potential to cumulatively impact some special status plants known to occur in the cumulative effects analysis area, particularly triangle moonwort. Should the timber harvesting occur at the same time as the disturbance activities of the Bog Creek Road Project or before the reestablishment of special status plants on lands disturbed by the Bog Creek Road Project, the cumulative impact would

consist of the relatively small portion of the total disturbance area within the subwatersheds. However, the extent of the impact to special status plant individuals or populations, as well as type and quality of habitat potentially affected, is unknown. Because proposed activities would not be expected to have large-scale, long-term detrimental impacts to moist forest or wet forest habitats, and because several populations of triangle moonwort occur within the watershed and the IPNF as a whole, such cumulative effects would be unlikely to trend this species toward Federal listing.

The Grass-Creek grazing allotment covers approximately 6,000 acres of the Blue-Grass BMU and runs approximately 90 cow/calf pairs between July 1 and October 1, for a total of 276 head-months. The Grass-Creek grazing allotment is located in the Grass-Creek subwatershed(s) and would overlap motorized road closure activities on Upper 2464 Road under all action alternatives. The Forest Service manages grazing allotments to protect the health and functionality of allotted NFS land, including prescribing measures that protect ground cover to protect soils from surpassing erodibility thresholds. Because the detrimental impacts to potentially suitable habitat for special status plants from the motorized road closure activities on Upper 2464 Road would be short term and the Forest Service would manage the grazing allotment to protect special status plants, it is likely that temporary incidental cumulative impacts to rare plant habitats would occur from the action alternatives and the Grass Creek grazing allotment. Although the road closure activities would potentially impact individual special status plants, particularly those species that can tolerate growing conditions on or near old road prisms (such as triangle moonwort), those impacts would generally occur in a small area. For peatland-dependent species, such as yellow sedge and poor sedge, design features (see Appendix B) to prevent or reduce potential for erosion or sediment delivery to peatlands adjacent to the road activities would likely reduce the potential for long-term impacts to individuals or populations of those species. Therefore, these cumulative impacts would not likely trend these species toward Federal listing.

Continued dispersed recreation would occur throughout all subwatersheds, including motorized use of open roads and non-motorized use of seasonally restricted roads. Dispersed recreation has the potential to trample special status plants, potentially causing injury or mortality to individual special status plants, (particularly triangle moonwort, which may occur on road prisms in the area). However, dispersed recreation would not be expected to permanently impact associated rare plant habitats. When combined with the impacts to special status plants from the Bog Creek Road Project, dispersed recreation would have an ongoing, but generally small-scale, impact to special status plants within the subwatersheds and is unlikely to trend any species toward Federal listing.

3.5.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

All action alternatives associated with the Bog Creek Road Project would be in compliance with the Forest Plan and other relevant regulations, laws, and policies for special status plants. Proposed actions would not exceed regional or forest standards for the protection of special status plants and associated rare plant habitats. Implemented design features (see Appendix B) would ensure that project actions minimize soil disturbance, erosion, and downstream sedimentation from disturbed areas.

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3.6 Water Resources

3.6.1 Introduction

Potential impacts to water resources include the potential for discharge of pollutants or sediments into surface water, impacts to groundwater, or the potential of disturbance to wetlands or other waters of the U.S. Management of water resources is important because impacts could extend beyond the footprint of the project to downstream users within the watershed. Streams and their floodplains play an important role in the overall health of a stream by conveying changes to water quality and quantity downstream.

The integrity of wetlands and other waters of the U.S. are protected under the CWA. Further, EO 11990 (May 24, 1977) directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands in carrying out programs that affect land use. In addition, EO 11988 (May 24, 1977) directs Federal agencies to take action to avoid, to the extent practicable, the long- and short-term detrimental impacts associated with the occupancy and modification of floodplains.

Key issues identified during public scoping that require analysis in the EIS consist of potential for increased sedimentation to streams and potential impacts on water quality.

This analysis describes the current condition of all water resources, including surface water, groundwater, wetlands, and other waters of the U.S. that could be affected by disturbance from the action alternatives within specific analysis areas.

3.6.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on water resources must incorporate the potential for direct, indirect, and cumulative impacts.

The surface water analysis area includes the project footprint as well as any downstream drainage. Because the potential effects on surface water diminish as downstream distance increases, the analysis area is limited to the downstream confluence of the next major watercourse. For this project, the downstream drainages fall within four subwatersheds; Ruby Creek–Upper Priest River (HUC 170102150105), Blue Joe Creek (HUC 170101040602), Grass Creek (HUC 170101040601), and Saddle Creek–Boundary Creek (HUC 170101040603), as shown in Figure 3.6.1. The groundwater analysis area includes any aquifers that would be affected by changes in groundwater quantity or quality, but limited just to the area of the aquifer where any impact would affect known or existing users, or where changes in groundwater quality might migrate. The analysis area for these water resources is the same and referred to as the groundwater and surface water analysis area, as shown in Figure 3.6.2.

For wetlands and other waters of the U.S., the analysis area includes the project disturbance footprint and is further defined as the area where waters of the U.S. or wetlands intersect with the project disturbance footprint. This area is referred to as the wetlands and other waters of the U.S. (“WUS” on the map figure) analysis area and is shown in Figure 3.6.2.

The temporal scale of effects for all water resources begins once these resources have been altered. Their functions are considered lost or changed until restoration efforts are implemented, and then effects decline over time. The surface water system would improve as vegetation recovers and ground cover is established, which can take several years. The groundwater system could improve soon after recontouring. Therefore, the temporal scale of analysis for water resources begins when ground disturbance first occurs for road repair and motorized closure and continues until such time as revegetation becomes established or restoration efforts are completed. Once these resources have been altered, their functions are considered lost or changed until restoration efforts are implemented.

3.6.3 Affected Environment

3.6.3.1 Watershed Description

Located in the northern Idaho panhandle near the international border, the proposed project lies in the Okanogan Highlands physiographic province, situated east of the Cascade Range in the northern portion of the Columbia River Basin. The proposed project is linear and trends roughly northeast-southwest between the Upper Priest River to the west and the Kootenai River to the east, approximately 1,000 feet south of the Canadian border at its closest point (see Figure 3.6.1). Upper Priest River is a major river of northern Idaho that flows south into the Pend Oreille River, a tributary of the Columbia River. North of the proposed project, Bog Creek empties into Boundary Creek, which in turn flows into the Kootenai River.

In general, the westernmost portion of the proposed project drains to the Upper Priest River, and the remaining portions drain to Boundary Creek. Terrain is generally steeply sloped, with high, rocky terraces. Numerous perennial creeks form valley floors within this mountainous region, and a number of tributaries flow into these creeks from higher elevations. In areas where the proposed project crosses perennial waters it becomes a very wet, low floodplain. Waters crossing the proposed project originate from the uplands of the surrounding mountains (from both hillside seeps and springs or headwater wetlands) and are subject to seasonal flood events, particularly during spring snowmelt. Aside from existing roads, there are no buildings, structures, or signs of other development within the analysis area (CBP 2015a).

The Bog Creek Road project spans four subwatersheds; looking west to east these are Ruby Creek–Upper Priest River, Blue Joe Creek, Grass Creek, and Saddle Creek–Boundary Creek (see Figure 3.6.1). All of these subwatersheds lie west of the Continental Divide, with three extending north into Canada. In general, they feature mountainous terrain covered in dense vegetation with a climate that is characterized by long wet winters and short dry summers.

Ruby Creek–Upper Priest River subwatershed drains approximately 52 square miles from the Canadian border west to the Upper Priest River, then downstream south for approximately 16 miles to the Upper Priest Lake. The project is located in the northern portions of the subwatershed along tributaries to the Upper Priest River (Malcom, Spread, and Lime Creeks).

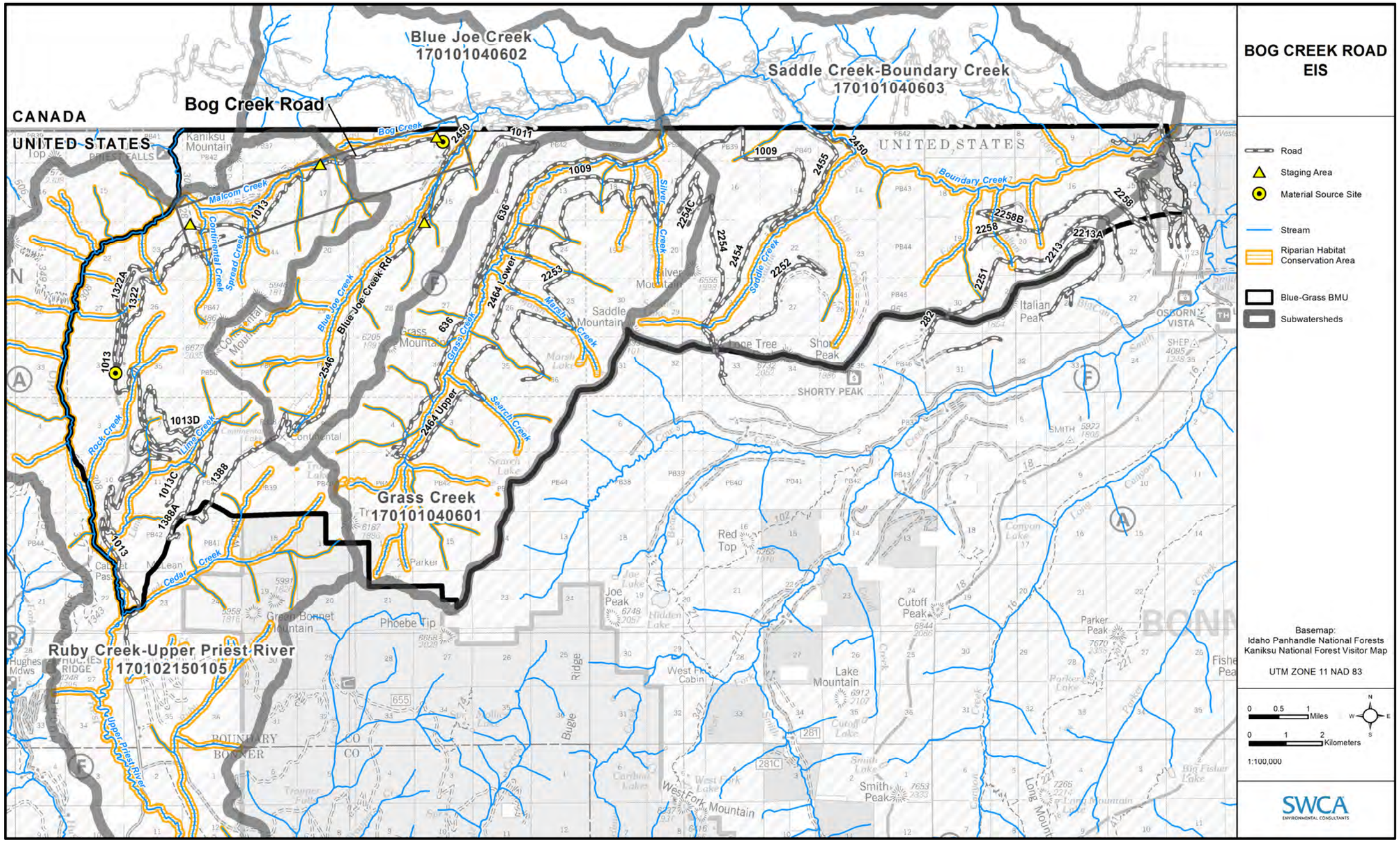

Figure 3.6.1. Subwatersheds and RHCAs within the surface water resources analysis area.

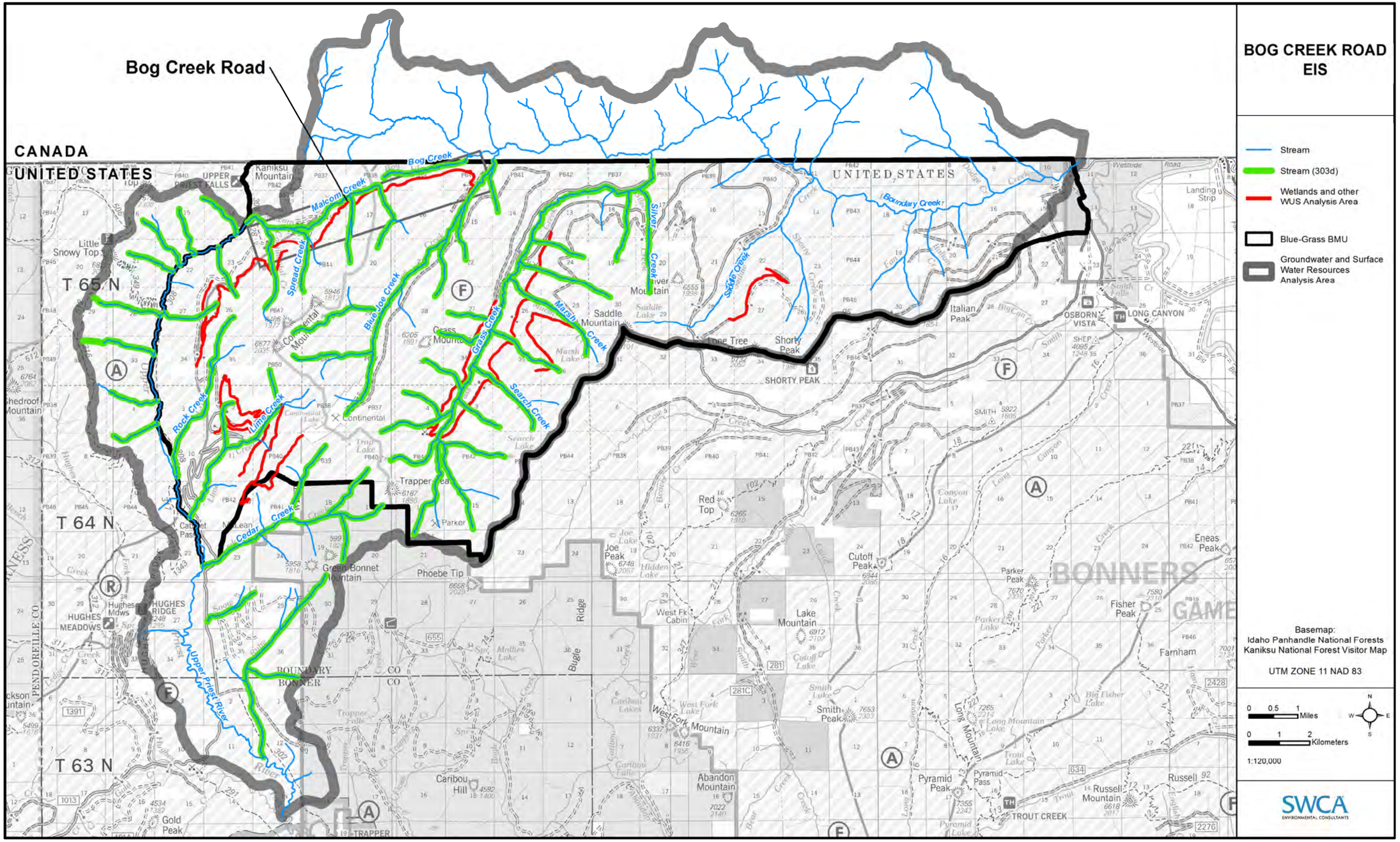

Figure 3.6.2. Water resources analysis area.

Blue Joe Creek subwatershed drains approximately 26 square miles, approximately one-half of which lies in Canada. The headwaters of Blue Joe Creek and its tributaries extend approximately 6 miles into the United States, flowing northeast to the Canadian border and then east to its confluence with Grass Creek, 3.5 miles downstream of the border. The project is located in the center of this subwatershed along Blue Joe Creek and one of its tributaries, Bog Creek.

The Grass Creek subwatershed drains approximately 27 square miles and flows north 10 miles to its confluence with Boundary Creek, just north of the Canadian border. The project spans the center of this subwatershed as it crosses Grass Creek and two of its tributaries, Search and Marsh Creeks.

Saddle Creek–Boundary Creek subwatershed drains over 41 square miles, the northern third of which lies in Canada. Boundary Creek flows east then north from its confluence with Grass Creek for approximately 10 miles before crossing the Canadian border, where it flows east again, eventually reaching the Kootenai River near Porthill, Idaho.

Annual precipitation for snow and rain in the region averages 32 to 50 inches, with 60 percent falling between November and March (Finklin 1983). Snowfall accounts for more than half of the precipitation in higher elevations, where snow cover usually persists through late March. Temperatures are relatively warmer at lower elevations of the region, where mean monthly temperatures can range from the high 20s (°F) in January to the high 60s (°F) in August.

Records from the nearest weather station in Porthill, Idaho (located about 18 miles east of the project), indicate January as being the coldest month, with average high temperature of 31.4°F and average low of 17.2°F. July is the warmest month, with average temperatures ranging 50.8°F to 82.0°F. Average annual precipitation is 19.8 inches. The wettest month, on average, is November, with 2.5 inches, and the driest month is July, with 1.0 inch of precipitation. Average annual snowfall for Porthill is 57.0 inches, with most falling in December and January (Western Regional Climate Center 2016). Boundary Dam, Washington, is the closest weather station to the west, at 19 miles from the project. Its climate is similar to Porthill's, with the exception of receiving .5 to 1.0 inch more precipitation most months of the year, for an annual average of 27.6 inches (Western Regional Climate Center 2016). The average temperature in the analysis area is likely cooler than temperatures recorded at these weather stations because of its higher elevation; the average precipitation is likely within the range observed at Porthill and Boundary Dam.

Aquifer Description

Pursuant to the 1953 Idaho Ground Water Act, as amended, the Idaho Department of Water Resources (IDWR) manages water in the State of Idaho through water allocation and distribution processes (IDWR 2016a). The Bog Creek Road Project is located in the Northern Region of IDWR's administrative area and extends across two administrative basins: #97, which encompasses the Upper Priest River, and basin #98, which encompasses the area from Blue Joe Creek east to the Idaho border (IDWR 2016a).

IDWR designates areas for regulating groundwater withdrawals from aquifers subject to insufficient supplies based on groundwater level trends. These designated areas are known as groundwater management areas (GWMAs), or critical groundwater areas (CGWAs) if a groundwater basin does not have sufficient groundwater to provide a reasonably safe

supply for irrigation or other uses (IDWR 1999). There are 8 CGWAs and 12 GWMAs across the state (IDWR 2016a), none of which underlie the Bog Creek project.

Two groundwater wells registered with the IDWR were identified within the water resources analysis area, both of which are designated as domestic-single residence wells. One well is located in the Boundary Creek watershed, with a reported groundwater level of 108 feet below ground surface (bgs). The second well is located in the Cedar Creek watershed, with a recorded groundwater level of 10 feet bgs (IDWR 2016b).

3.6.3.2 Water Quality and Quantity

Water quality refers to the physical, chemical, and biological composition of a given water body and how these components affect beneficial uses. The IDEQ requires that beneficial uses be protected for each water body in the state. Idaho Administrative Code 58.01.02 defines water quality standards in Idaho according to designated beneficial uses. Industrial water supply, wildlife habitats, and aesthetics are designated beneficial uses for all water bodies in the state. Because the streams intersecting the proposed project are perennial tributary streams to either the Upper Priest River or Boundary Creek, the streams in the analysis area are presumed to also have the aquatic life use designation (IDEQ 2014). The aquatic life use designation is the only beneficial use that has a numeric standard—turbidity— related to sediment delivery.

Water Quality

Very little water quality data exist for the analysis area. IDWR monitors statewide ambient groundwater quality; however, very few sites are monitored in the northern panhandle. Three monitoring sites located in Boundary County detected exceedances for arsenic above the maximum contaminant level; however, none of these sites was within the analysis area (IDWR 2006). No other groundwater quality data are available.

Past activities that have affected water quality within the analysis area include grazing, fires, timber harvest, mining, and road building. All these activities have had the potential to increase erosion and/or sedimentation in streams. Transported sediment has the potential to carry with it nutrients and/or heavy metals, which can be detrimental to the water quality in streams.

Most investigations for surface water have focused on watershed-scale water quality issues, as required by the State of Idaho under the CWA. As part of these investigations, waters are first categorized by whether their quality meets certain beneficial uses. If waters are degraded or impaired, the State then needs to analyze sources of degradation and prepare action plans to improve water quality.

The CWA requires that all water bodies deemed by the State (IDEQ) to not be fully supporting their beneficial uses be brought onto the 303(d) list as water quality limited. For waters identified on this list, states must develop a total maximum daily load (TMDL) for the pollutants set at a level to achieve water quality standards. According to the IDEQ (2014) Idaho Integrated Report, numerous U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) mapped streams in the analysis area are 303(d) listed for water temperature (IDEQ 2014). Blue Joe Creek and Bog Creek are also listed for cadmium, lead, and zinc; portions of Grass Creek are also listed for benthic-macroinvertebrate bioassessments (IDEQ 2014). Table 3.6.1 provides a summary of 303(d) listed streams within the analysis area; these are shown in Figure 3.6.2.

Table 3.6.1. 303(d) Listed Streams within the Water Resources Analysis Area

Stream Name	Stream Miles	Cause of Impairment	Assessment Unit ID (Name)	Beneficial Use Not Supporting	Date Listed
Tributaries of Upper Priest River (includes Malcom Creek/Spread Creek/Lime Creek/Rock Creek)	47.3	Temperature	ID17010215PN018_02 (Upper Priest River – Idaho/Canadian border to mouth)	Salmonid Spawning	12-19-2006
Blue Joe Creek (includes Bog Creek)	15.4	Cadmium, lead, temperature, zinc	ID17010104PN004_02 (Blue Joe Creek – source to Idaho/Canadian border)	Cold Water Aquatic Life, Salmonid Spawning	2-2-2010
Grass Creek	7.7	Temperature	ID17010104PN003_03 (Grass Creek – third order portion to Idaho/Canadian border)	Cold Water Aquatic Life, Salmonid Spawning	9-13-2007
Grass Creek (includes Marsh Creek, Search Creek, Silver Creek)	27.4	Benthic-Macroinvertebrate Bioassessments, Temperature	ID17010104PN003_0 (1st & 2nd order tributaries Grass Creek)	Cold Water Aquatic Life, Salmonid Spawning	9-13-2007
Boundary Creek (includes Saddle Creek, Shorty Creek, Fan Creek, Dodge Creek)	17.0	Temperature	ID17010104PN002_02 (Boundary Cr & tributaries – ID/Canada border to ID/Canada border)	Cold Water Aquatic Life, Salmonid Spawning	9-13-2007

Source: IDEQ (2014).

IDEQ has Beneficial Use Reconnaissance Program (BURP) monitoring sites in the water resources analysis area. Water temperature and flow data (in cubic feet per second [cfs]) were available from 12 monitoring sites within the analysis area and are summarized in Table 3.6.2 (IDEQ 2016d). Temperature at these sites ranges from 46°F to 59°F. Temperature measurements were also taken for select streams during 2014 and 2016 field surveys in the analysis area and stream temperatures ranged from 34°F to 54°F (Forest Service 2016c; Glaza et al. 2014). These data are included in the GIS data in the project record.

Table 3.6.2. BURP Monitoring Sites within the Water Resources Analysis Area

Stream	BURP ID	Location	Temperature (°F)	Flow (cfs)	Sample Date
Boundary Creek	1999SCDAA011	Upstream of confluence with Saddle Creek	59.0	105.6	8-2-1999
Boundary Creek	1995SCDAB043	Upstream of confluence with Saddle Creek	N/D	N/D	N/D
Boundary Creek	2001SCDAE042	Downstream of confluence with Saddle Creek	48.9	14.4	9-21-2001
Boundary Creek	2001SLEWE042	Downstream of confluence with Saddle Creek	N/D	N/D	N/D
Saddle Creek	2002SCDAA041	Middle Saddle Creek	51.1	1.0	8-26-2002
Grass Creek	2004SCDAA057	Upstream of confluence with Silver Creek	54.1	16.4	9-1-2004
Grass Creek	1998SCDAA016	Upstream of confluence with Silver Creek	58.8	15.4	7-30-1998

Table 3.6.2. BURP Monitoring Sites within the Water Resources Analysis Area (Continued)

Stream	BURP ID	Location	Temperature (°F)	Flow (cfs)	Sample Date
Grass Creek	1994SCDAA034	Downstream of Marsh Creek	N/D	N/D	N/D
Rock Creek	2002SCDAA050	Upstream of confluence with Upper Priest River	48.7	2.1	9-17-2002
Blue Joe Creek	1995SCDAA070	Upstream of Canadian border	N/D	N/D	N/D
Lime Creek	2002SCDAV001	Upstream of confluence with Upper Priest River	45.7	3.7	8-7-2002
Lime Creek	2002SCDAA036	Upstream of confluence with Upper Priest River	49.7	2.6	9-11-2002
Lime Creek	2003SCDAA018 2004SCDAA044	Upstream of confluence with Upper Priest River	52.9	3.8	7-22-2003
Lime Creek	2004SCDAA044	Upstream of confluence with Upper Priest River	52.3	2.9	8-9-2004
Cedar Creek	2002SCDAA049	Upstream of confluence with Upper Priest River	49.5	4.2	9-17-2002
Malcom Creek	2002SCDAA048	Upstream of confluence with Upper Priest River	47.7	N/D	9-16-2002
Upper Priest River	2007SCDAA030	Upstream of confluence with Rock Creek	N/D	N/D	N/D
Upper Priest River	1994SCDAA022	Between confluence with Rock Creek and Lime Creek	N/D	N/D	N/D

Source: IDEQ (2016c).
Note: N/D = No data.

Water Quantity

Surface waters crossing the analysis area consist of perennial rivers and perennial or intermittent streams that originate from the uplands of the surrounding mountains (from both hillside seeps and springs or headwater wetlands). These surface waters are subject to seasonal flood events, particularly during spring snowmelt. Some flow data have been collected at monitoring sites within the analysis area and range from 1 cfs to over 100 cfs (see Table 3.6.2). During a 2014 field survey of Forest Service roads, water features were identified along some of the roads allocated for closure as a project alternative. During this survey, 35 perennial streams and 76 springs/seeps were identified within the analysis area (Glaza et al. 2014). Table 3.6.3 provides a summary of the water features identified during the field survey.

Table 3.6.3. Summary of Water Features Identified during 2014 Road Survey

FSR	Named Stream	Perennial Crossings	Intermittent Crossings	Springs	Seeps	Culverts
636	Grass Creek	9	–	–	11	69
1013C	Lime Creek	6	–	20	1	33
1013D	Lime Creek Tributary	1	3	–	–	16
1322	Continental Creek	2	3	–	2	20
1322A		2	1	1	–	5

Table 3.6.3. Summary of Water Features Identified during 2014 Road Survey (Continued)

FSR	Named Stream	Perennial Crossings	Intermittent Crossings	Springs	Seeps	Culverts
1388	Lime Creek, Lime Creek Tributary	2	7	6	1	37
1388A		–	–	–	–	1
2253	Marsh Creek	2	–	–	15	34
2464	Grass Creek	11	3	4	15	95

Source: Glaza et al. (2014).

Past disturbance in the region consisted mainly of timber harvest, mining, and an associated network of roads (CBP 2015b). Many of the motorized roads are still in use today with approximately 114 miles of existing roads within the analysis area. Road surfaces are constructed for the most part with gravel that has been compacted and are no longer pervious. Numerous corrugated metal culverts have been installed along the roads at stream crossings allowing for connectivity of upstream and downstream waters: 310 culverts were identified during the 2014 road survey (see Table 3.6.3), and an additional 67 culverts have been identified along Bog Creek Road. As described in Chapter 2, the Bog Creek Road culvert located at the Spread Creek crossing has failed and is causing sedimentation downstream (CBP 2015b). Grazing has occurred in a grazing allotment in the Grass Creek subwatershed, and some agricultural use has occurred in the eastern portions of the Saddle Creek–Boundary Creek subwatersheds.

3.6.3.3 Wetlands and Other Waters of the U.S.

A field visit and CWA jurisdictional waters identification was performed in 2015 along the existing portion of Bog Creek Road within the analysis area (CBP 2015a). For other portions of the analysis area, existing literature (e.g., USGS NHD, National Wetlands Inventory maps, and aerial photographs) were reviewed. The NHD was used to estimate the total length of other waters of the U.S. within the analysis area. The estimated area was then calculated based on the average width of 5 feet for streams identified during the 2015 Bog Creek field visit.

In total, 0.29 acre of wetlands and other waters of the U.S. (i.e., NHD streams) was identified within the wetlands and other waters of the U.S. analysis area (see Figure 3.6.2). Table 3.6.4 shows the total acreage of these wetlands and other waters of the U.S. Figure 3.5.1 depicts wetlands (depicted as peatlands), and Figure 3.6.2 shows other waters of the U.S. identified in the analysis area; descriptions of those identified along Bog Creek Road can be found in *Wetlands and Waters of the U.S. Delineation and Jurisdictional Determination Report for the Bog Creek Road Project* (CBP 2015a).

Table 3.6.4. Wetlands and Other Waters of the U.S. in the Analysis Area

Wetlands (acres)	Other Waters of the U.S. (acres)	Number of Stream Crossings
0.07	0.22	56

Source: CBP (2015a); Forest Service (2016b).

3.6.4 Management Framework

The Forest Plan requires compliance with CWA and Forest Practices Act regulations through the implementation of design features (see Appendix B). The following Forest Plan goals, desired conditions, standards, and guidelines are applicable in the analysis area (Table 3.6.5). Because watershed resource management activities affect fish habitat and fish, the reader is also referred to Table 3.4.3 for additional applicable management guidance.

Table 3.6.5. Water Resource-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**GOAL-[Water (WTR)]-01.** Maintain or improve watershed conditions necessary to support ecological functions and beneficial uses.
All MAs	**[Forestwide (FW)]-DC-WTR-01.** Watersheds, riparian areas, and other hydrologically dependent systems, such as streams, lakes, and wetlands have characteristics, processes, and features consistent with their natural potential condition. These features and related ecosystems retain their inherent resilience by responding and adjusting to disturbances without long-term, adverse changes to their physical or biological integrity.
All MAs	**FW-DC-WTR-02.** All management activities will emphasize protection of water quality in order to meet applicable state water quality standards and fully support beneficial uses. Surface and groundwater flows support beneficial uses and meet the ecological needs of aquatic species and maintain the physical integrity of their habitats.
All MAs	**FW-DC-WTR-03.** Stream channels transport water, sediment flows recharge riparian aquifers, provide for late-season flows, coldwater flows recharge riparian aquifers, provide for late-season flows, coldwater temperatures, and sustain the function of surface and subsurface aquatic ecosystems.
All MAs	**FW-DC-WTR-05.** Water rights for consumptive and non-consumptive water uses, obtained in the name of the Forest Service, support in-stream flows that provide for channel maintenance, aquatic habitats, and riparian vegetation and beneficial uses are fully protected under special use permits, where those permits are applicable.
All MAs	**FW-OBJ-WTR-01.** Over the life of the Plan, trend 20 percent of subwatersheds that have a condition rating of “Moderate” or “High,” toward a better condition, through the removal or mitigation of risk factors that are within reasonable control of management. Subwatersheds rated “Moderate” and “High,” may have degraded habitat conditions, water quality limitations, depressed populations of native fish species, or a combination of the above, but have a relatively high potential for improvement. The surface and groundwater analysis area contains subwatersheds with both “Moderate” and “High” condition ratings.
All MAs	**FW-GDL-WTR-01.** Ground-disturbing activities in subwatersheds with Category 5 waterbodies, on Idaho’s §303(d) list of impaired waters, should not cause a decline in water quality or further impair beneficial uses. A short-term or incidental departure from state water quality standards could occur where there is no long-term threat or impairment to the beneficial uses of water and when the state concurs. Category 5 waterbodies are waters where an approved TMDL is not available.
All MAs	**FW-GDL-WTR-02.** In order to avoid future risks to watershed condition, ensure hydrologic stability when decommissioning or storing roads or trails.
All MAs	**FW-DC-[Riparian (RIP)]-02.** Riparian areas and associated stream channels provide the structure for desired stream habitat features such as pool frequency, residual pool depth, large woody debris, bank stability, lower bank angle, and width-to-depth ratios.
All MAs	**FW-DC-RIP-05.** Vegetation in RHCAs is characteristic of natural aquatic and riparian ecosystems and provides recruitment of large woody debris; vertical structure and habitat for riparian-associated animal species; thermal regulation; ground cover and bank stability to maintain natural rates of surface erosion, bank erosion, and channel migration; capture and storage of sediment; and recovery of RHCAs after landscape disturbances.

Table 3.6.5. Water Resource-Related Standards, Guidelines, and Objectives Contained within IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-GDL-RIP-01.** Soil and snow should not be side-cast into surface water during road maintenance operations.
MA 6	**MA6-DC-WTR-01.** Watershed and vegetative restoration is achieved predominantly through restoration activities but also through natural ecological processes.
MA 6	**MA6-DC-WTR-02.** Restoration activities in MA 6 are designed to: improve watershed and aquatic resource conditions, improve vegetation conditions, reduce fuels, improve wildlife habitat, or for other resource benefits.
Lower Kootenai GA	**GA-DC-WTR-[Lower Kootenai (LK)]-02.** Recovering watersheds such as Saddle Creek-Boundary Creek and Blue Joe Creek are improved and support designated beneficial uses.

Other regulations, laws, and policies governing water resources management for the Bog Creek Road Project DEIS are listed in Table 3.6.6.

Table 3.6.6. Other Regulations, Laws, and Policies Governing Water Resources Management

Relevant Regulations, Laws, and Policy	Summary
NFMA	The NFMA requires the Forest Service to ensure consideration of watershed resources in the development of land management plans.
CWA	The Federal CWA governs forest management practices and development that have the potential to affect water quality, through control of point and non-point sources. The U.S. Environmental Protection Agency is charged with administration of the Act, which has been delegated to IDEQ. Sections 208 and 319 of the Act recognize the need for control strategies for non-point source pollution. Waterbodies with impaired water quality are compiled by IDEQ in a list under Section 303(d) of the Act. Once listed, development of a TMDL occurs, which is a designation for the total amount of pollutant that a waterbody may receive from all sources without exceeding water quality standards. When water quality impairment is not related to a pollutant (e.g., habitat alteration) control strategies are listed in a Water Quality Restoration Plan (WQRP). The National Forest upholds the Federal CWA through the application and enactment of appropriate Federal and state water quality protection permits; the application of design features and monitoring for effectiveness; and by participating with the State of Idaho in design feature forestry audits, water quality data collection, and implementation of TMDLs and WQRPs. Project activities would need to be consistent with these strategies and the National BMPs for Water Quality Management on National Forest System Lands (Forest Service 2012a). With respect to specific project impacts, the proposed project would be required to comply with Sections 402 and 404 of the Act. Section 402 limits point source discharge of stormwater runoff and requires preparation of a Stormwater Pollution Prevention Plan. Section 404 limits “dredge and fill” within waters of the U.S. (including wetlands) and requires permitting by the USACE. The stream crossing culvert removals and replacements would be permitted under the USACE Nationwide Permit (NWP) 14 (Linear Transportation Projects), and providing the USACE with a preconstruction notification would not be necessary. It may be necessary, however, to coordinate with the IDEQ to obtain IDEQ’s 401 certifications for the culvert replacements and their associated fill material.
Organic Administration Act	This act states that the mission of national forests is to “….provide favorable conditions of water flow….”

Table 3.6.6. Other Regulations, Laws, and Policies Governing Water Resources Management (Continued)

Relevant Regulations, Laws, and Policy	Summary
Multiple Use–Sustained Yield Act of 1960	Congress has affirmed the application of sustainability to the broad range of resources over which the Forest Service has responsibility. The Multiple Use–Sustained Yield Act confirms the Forest Service's authority to manage national forests and grasslands "for outdoor recreation, range, timber, watershed, and wildlife and fish purposes" (16 U.S.C. 528) and does so without limiting the Forest Service's broad discretion in determining the appropriate resource emphasis or levels of use of the lands of each national forest.
EO 11988, Management of Floodplains	This EO directs Federal agencies to take action on Federal lands to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. Agencies are required to avoid the direct or indirect support of development on floodplains whenever there are reasonable alternatives and evaluate the potential effects of any proposed action on floodplains.
EO 11990, Protection of Wetlands	This EO requires Federal agencies exercising statutory authority and leadership over Federal lands to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Where practicable, direct or indirect support of new construction in wetlands must be avoided. Federal agencies are required to preserve and enhance the natural and beneficial values of wetlands.
Forest Service policy	FSMs and FSHs within the 2500 file code designation contain direction for watershed management.

3.6.5 Environmental Consequences

3.6.5.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential effects on water resources.

Issue Indicators

Table 3.6.7 below lists the issues identified for water resources and the indicators used to assess impacts.

Table 3.6.7. Impact Indicators Used to Assess Water Resources Impacts

Issue	Analysis Measure
Water quality	• Qualitative change in sediment delivery • Qualitative assessment of the potential for accidental or intentional release of contaminants to water resources • Qualitative assessment of the effects on specially designated waters (impaired or State protected) including discharge of stormwater
Water quantity	• Change in hydrologic connectivity • Number of springs that occur within the project footprint
Wetlands and other waters of the U.S.	• Acres, number, and type of disturbance in wetlands and other waters of the U.S.

Impacts to surface water resources could occur as a result of surface disturbance during repair and maintenance, such as during grading, replacement of culverts, grubbing or trimming of trees, and use of heavy equipment. Impacts to surface water and groundwater resources could occur if a spill or other contamination from the project were to occur. It is assumed that there is little risk of contamination of groundwater resources except in areas of known shallow groundwater; therefore, the analysis focuses on those areas where

shallow groundwater has been documented. The water resources analysis includes description of direct, indirect, and cumulative effects.

3.6.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

This section includes a description of the short-term direct and indirect effects on water resources for each alternative.

Alternative 1 – No Action

Water Quality

Under the No-Action Alternative, repair and maintenance activities on Bog Creek Road would not occur, and no motorized road closures would occur at this time. Without repairs, erosion would continue along portions of Bog Creek Road. Without repair and maintenance of road and culvert conditions, accelerated erosion would continue, and water quality along streams and in wetlands could potentially be compromised with the continual addition of sediment. These effects on water quality could be offset because no vegetation removal or grading would occur for repair and maintenance, and because there would be very limited motorized vehicle traffic along Bog Creek Road. With the continued use of motorized roads, the potential for erosion from road runoff contributing to water quality would continue. Without removal or replacement, the culverts could potentially fail or blow out along Bog Creek Road and the roads proposed for motorized closure, releasing sediment and potentially promoting further erosion. This impact would be short term until the stream channel stabilized and the banks revegetated. Under the No-Action Alternative, no changes in management to impaired waters would occur, and there would be no change in beneficial uses to those waters. Under the No-Action Alternative, vegetation would not be removed from RHCAs, so benefits provided by RHCAs would not change, such as RHCA large, woody debris contribution to streams and providing shade to aid in water temperature control.

Water Quantity

Under the No-Action Alternative, replacement of the culverts along Bog Creek Road would not occur. This may have an effect on water quantity within the local drainage, especially if multiple culverts remain blocked over long periods and runoff is allowed to be impounded upstream. Storm runoff would eventually find its way over the road and downstream, but a blockage of this nature could significantly change the drainage patterns downstream of Bog Creek Road.

Activities along the proposed motorized road closures would continue as they are today. The roads that would be closed are compacted gravel surfaces that generally do not allow infiltration of stormwater. However, because the size of the subwatersheds within the analysis area is large (26 to 52 square miles) relative to the area of motorized roads that would not be closed (26 miles or 0.1 square mile), impacts to water quantity would not be measurable.

Wetlands and Other Waters of the U.S.

Under the No-Action Alternative, no impacts to wetlands or other waters of the U.S. would occur. Those wetlands and other waters of the U.S. that are currently intercepted by existing roads would continue to have interrupted hydrologic connectivity.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in water resource impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Water Quality

Under the Proposed Action, repair and maintenance of 5.6 miles of the existing Bog Creek Road would be conducted, approximately 26 miles along nine existing motorized roads would be closed, and approximately 7.4 miles of Blue Joe Creek Road would change from a seasonally restricted designation to an administrative open designation (see Table 3.1.3 for a comparison of projected motorized use). Two of these components of the Proposed Action (repair of Bog Creek Road and closure of existing roads) would involve grading, cutting, or grubbing of vegetation within the roadway, along with replacement or removal of culverts. The third component (an administrative open designation along Bog Creek Road and Blue Joe Creek Road) would not require additional road maintenance or ground disturbance activities. While the change in road designation would cause an increase in motorized use, the impacts would be very small relative to the overall watershed.
A summary of disturbance anticipated during the Proposed Action activities is presented in Table 3.6.8.

Table 3.6.8. Summary of the Proposed Action Potential Impacts

Component	Disturbance area (acres)	Culverts*	Impaired Waters†	Wetlands and Other Waters of the U.S. (acres)‡	Seeps and Springs	RHCA (acres)
Bog Creek Road Repair	22.3	67 (6 replaced, 6 new)	4 (283)	0.19 (25)	–	3.7
Motorized Road Closure	62.4	221 (221)	13 (297)	0.04 (13)	54	5.3

* Parenthetical value represents number of culverts replaced or newly installed.

† Parenthetical value represents linear feet of impaired streams crossed.

‡ Parenthetical value represents number of potential waters of the U.S. streams crossed.

When soil is disturbed around streams, as it would be for the Proposed Action, there is the potential for exposed soils to erode and for sediment to enter the waterways, thus potentially impacting water quality or the beneficial uses of the stream. In addition, the process of removing or replacing a culvert would further increase the potential for sediment to enter into a stream temporarily. However, design features such as straw bales would be implemented to reduce the potential for sediment migration, and research indicates with the use of straw bales that the effect would be short term, with 95 percent of sediment released within 24 hours (Foltz et al. 2008).

Vegetation surface cover is a major factor in controlling erosion and sedimentation because it reduces the impact of raindrops falling on bare soils. Cover also reduces the speed at which water flows over the land. Design features proposed to control erosion and sedimentation include leaving riparian vegetation along water bodies whenever feasible.

In instances where vegetation removal would be required, the following design features would be implemented as appropriate:

- immediate revegetation efforts following wetland crossing or culvert installation, and
- installation of streamside erosion control structures until the banks have reestablished vegetation.

These design features would reduce the potential impacts from sediment movement into downstream waters to a level unlikely to impair beneficial uses of the stream or harm wildlife.

In total, there are 288 existing culverts along the roads for the Proposed Action. Six of the culverts along Bog Creek Road would be replaced and six new culverts would be installed, and for this analysis it is assumed that all 221 culverts associated with the motorized road closures would be removed. Potential sediment release from the replacement/removal of culverts would likely reach downstream aquatic habitats. However, research indicates that simple mitigation techniques such as placing straw bales downstream during culvert work are effective at reducing sediment loads by 97 percent (Foltz et al. 2008). In addition, research indicates sediment effects dissipate with distance and are unlikely to persist beyond more than 2,657 feet downstream (Foltz et al. 2008). The design features and BMPs would be applied to the project and would reduce the potential for sediment to reach downstream aquatic habitats. A detailed discussion of affected downstream fish-bearing habitat is provided in Section 3.4.5.2 of this DEIS (under the subheading Alternative 2 – Proposed Action, Fish Habitat); road crossings at 11 fish-bearing streams would be removed or replaced, and one new culvert would be installed upstream of Bog Creek, which is fish bearing.

Nine acres of RHCAs could potentially be disturbed during repair and motorized closure due to surface disturbance for the Proposed Action. Road repair along the Bog Creek Road component of the Proposed Action could result in some vegetation removal within the 3.7 acres of RHCAs and would therefore reduce shade, increase water temperature, and reduce large, woody debris contribution. As described in detail in Section 3.4, Fish, there are some aquatic species that are sensitive to water temperature or require cover; thus, stream shading, water temperature, and woody debris are important factors for fish and their habitat. The potential disturbed RHCAs for Bog Creek Road represents 0.04 percent of the 9,195 acres of total RHCAs in the analysis area.

The Proposed Action would cross 17 impaired waters, some of which could potentially be disturbed. All these impaired waters fall within two of the five Assessment Units listed in Table 3.6.1: Upper Priest River and Grass Creek tributaries (#ID17010215PN018_02 and #ID17010104PN003_03, respectively). They are on the 303(d) list because of temperature, and the Grass Creek tributaries are also listed for benthic-macroinvertebrate bioassessments. Temperature is most affected by stream shading. Design features to help mitigate a potential increase in water temperature include leaving riparian vegetation and overstory tree cover along water bodies as feasible to provide shade, along with preserving and replanting woody vegetation where necessary to speed the recovery. With the replanting design feature, woody vegetation is expected to recover within 5 to 10 years, depending on site-specific conditions.

Improvements to the RHCAs and impaired waters would occur along the road closure component of the Proposed Action with the application of design features such as

contouring of the road prism, planting and seeding, and mulching (see Appendix B). Contouring of the road prism would lower the velocity of stormwater runoff down slopes and reduce the potential for erosion and sedimentation. Planting and seeding would promote vegetation cover, which would provide long-term protection against erosion and sedimentation into streams. Mulching would provide short-term erosion protection until a vegetation cover is established by reducing the raindrop impact on soil surface.

Some sediment would be released for a short period during culvert replacement/removal. However, research indicates that the effect would be short term, with 95 percent of sediment released within 24 hours (Foltz et al. 2008). Additional design features would be implemented to protect impacts to RHCAs; boundaries would be flagged, ground-based equipment entry would be restricted or excluded as necessary, and the storage of fuels or other toxicants in RHCAs would be strictly prohibited.

To avoid impacts to surface or groundwater, no hazardous materials or petroleum products would be stored or used within RHCAs or around streams and springs during repair and motorized closure, minimizing potential impact from accidental spills or releases. No refueling would occur within RHCAs unless approved by the Forest Service. A Forest Service approved Spill Prevention and Hazardous Materials Containment plan would be implemented.

Water Quantity

Approximately 85 acres (0.09 percent of the analysis area) would be disturbed under the Proposed Action. No water would be impounded as a result of the repair and maintenance; stream crossings would be designed to maintain natural flow patterns through culverts that would maintain hydrologic connection by not blocking water flow. Other design features, such as leaving riparian vegetation alongside water bodies whenever feasible, would leave root structure in place, thus maintaining soil water retention properties along stream banks. Thirty-three springs and 21 seeps have been identified in the road closure component of this alternative. Though these springs and seeps are within the area that could potentially be disturbed, the ultimate goal of the road closure component would be to return the road prism to a more natural state. Depending on the site, the hydrologic regime of springs and seeps would either be maintained to promote their stability, or be rehabilitated to a state more closely resembling the springs' or seeps' condition prior to construction of the original road system.

Road closure measures proposed for the Proposed Action (e.g., ripping of the road surface, planting and seeding, mulching, and slashing disturbed areas) would increase stormwater infiltration. These proposed measures would offset temporary soil compaction impacts that would occur with the use of heavy equipment during road closure activities.

Wetlands and Other Waters of the U.S.

In accordance with the CWA and EO 11990, the Proposed Action was designed to avoid and minimize impacts to wetlands and waters of the U.S. wherever possible. During the road repair and motorized closure phase for the Proposed Action, a total of 0.23 acre of wetlands and other waters of the U.S. would be directly impacted with dredge and/or fill: 0.19 acre in the Bog Creek Road component and 0.04 acre in the road closure component.

Concurrence on the delineation of jurisdictional areas that have been identified as wetlands or other waters of the U.S. would need to be obtained from the USACE. Once

concurrence is received, and assuming the total disturbance would not exceed 0.5 acre, these impacts would be permitted under USACE Nationwide Permit (NWP) 3 (Maintenance) for impacts due to the Bog Creek Road repair component and under the USACE NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) for impacts due to the motorized road closures component. It would also be necessary to coordinate with the IDEQ to obtain IDEQ's 401 certification.

Alternative 3 – Modified Proposed Action

Water Quality

The activities proposed under Alternative 3 are the same as for the Proposed Action except that the proposed motorized road closure would occur along nine existing motorized roads for a total of approximately 25 miles (see Figure 2.2.3). A summary of disturbance anticipated during the proposed Alternative 3 activities is presented in Table 3.6.9.

Table 3.6.9. Summary of Alternative 3 Potential Impacts

Component	Disturbance area (acres)	Culverts*	Impaired Waters†	Wetlands and Other Waters of the U.S. (acres)‡	Seeps and Springs	RHCA (acres)
Bog Creek Road Repair	22.3	67 (6 replaced, 6 new)	4 (283)	0.19 (25)	–	3.7
Motorized Road Closure	59.4	266 (266)	16 (336)	0.05 (18)	70	5.9

* Parenthetical value represents number of culverts replaced or newly installed.

† Parenthetical value represents linear feet of impaired streams crossed.

‡ Parenthetical value represents number of potential waters of the U.S. streams crossed.

Total impacts under Alternative 3 would be slightly higher than those identified under the Proposed Action. In total, there are 333 existing culverts along the roads for Alternative 3. Six of the culverts along Bog Creek Road would be replaced, and six new culverts would be installed. For this analysis, it is assumed that all 266 culverts associated with the motorized road closures would be removed. Twelve of these culverts are on fish-bearing streams, which is one more than under the Proposed Action (see Section 3.4.5.2 of this DEIS under the subheading Alternative 3 – Modified Proposed Action, Fish Habitat). Up to 9.6 acres of RHCAs could potentially be disturbed, and 20 impaired waters would be crossed during road repair and motorized closure.

The impacts to water quality under Alternative 3 would be the same as discussed above under the Proposed Action, except for the acreages as described above. This is because similar activities are proposed and similar design features would be used.

Water Quantity

Total proposed surface disturbance is slightly less for Alternative 3, with approximately 82 acres (0.09 percent of the analysis area) of disturbance. Twenty-five springs and 45 seeps were identified in the road closure component of this alternative. This is eight fewer springs and 24 more seeps than identified under the Proposed Action.

The impacts to water quantity under Alternative 3 would be the same as discussed above under the Proposed Action, except for the acreages and numbers of seeps and springs as described above. This is because similar activities are proposed and similar design features would be used.

Wetlands and Other Waters of the U.S.

Under Alternative 3, a total of 0.24 acre of wetlands and other waters of the U.S. would be directly impacted with dredge and/or fill, just slightly higher than impacts under the Proposed Action. As previously discussed, assuming total impacts to wetlands and waters of the U.S. remain under 0.5 acre, an NWP 3 and NWP 27 would be obtained from USACE, and 401 certification would be obtained from IDEQ.

Alternative 4 – Blue-Grass BMU West–East Open Access

Water Quality, Water Quantity, and Wetlands and Other Waters of the U.S.

The impacts to water quality, water quantity, and wetlands and other waters of the U.S. under Alternative 4 would be the same as discussed above for the Proposed Action. This is because the proposed road repair for Bog Creek Road and the proposed closure of approximately 26 miles of motorized roads is the same under the Proposed Action and Alternative 4. Also the proposed motorized use designation changes would not result in a change in ground disturbance activities.

The east west open access roads would not require additional road maintenance or ground disturbance activities. While the change in road designation would cause an increase in motorized use, the impacts would be very small relative to the overall watershed.

3.6.5.3 Effects from Long-Term Maintenance and Use Actions

This section includes a description of the long-term direct and indirect effects on water resources for each alternative.

Alternative 1 – No Action

Water Quality

Under the No-Action Alternative, maintenance and use of Bog Creek Road would not occur, and roads proposed for motorized closure would remain open on a seasonal basis. Bog Creek Road would remain impassable and would not be used or maintained, motorized roads would not be closed, and the potential for erosion from road runoff contributing to water quality would continue. There would be no long-term change to sedimentation, the potential for temporary sediment pulses from culvert blowout or failure would exist. The continued vegetation growth would contribute shade near streams and aid in controlling water temperature.

Water Quantity

Under the No-Action Alternative, there would be no change to water quantity.

Wetlands and Other Waters of the U.S.

There would be no impacts to wetlands or other waters of the U.S. under the No-Action Alternative. Those wetlands and other waters of the U.S. that are currently intercepted by existing roads would continue to have interrupted hydrologic connectivity.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in water resource impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

After Bog Creek road repair and motorized closure activities under the Proposed Action, motorized use along Bog Creek Road and Blue Joe Creek Road would be changed from seasonally restricted to an administratively open designation (see Table 3.1.3).

Water Quality

Following revegetation, there would be no long-term maintenance and use impacts because riparian areas would be reestablished. Revegetation efforts would eventually eliminate erosion from surface disturbance, providing protection against sedimentation into streams. The revegetation would also eventually increase shading over streams. Shading would have the positive impact of lowering water temperature.

Long-term maintenance along Bog Creek Road that could affect water resources includes grubbing and trimming of vegetation, cleaning culverts, and periodic grading. Negligible sedimentation impacts could occur from road crossings during maintenance and use. Sedimentation impacts from crossings would be expected to dissipate quickly after culvert replacement/removal, and installation of properly sized culverts would minimize the risk of failure. However, grading and general road maintenance could result in some contribution of sediment at road crossings along Bog Creek Road. The incorporation of design features, such as installing erosion control structures known to be effective (see Appendix B) and seasonally restricted motorized use, would substantially reduce the potential impacts from sediment movement along roadways.

The administrative open designation along Blue Joe Creek Road would not require additional road maintenance or ground disturbance activities. While the change in road designation would cause an increase in motorized use, the impacts would be very small relative to the overall watershed.

No hazardous materials, petroleum products, or chemicals would be stored or used for maintenance and use of Bog Creek Road.

After motorized road closure activities are completed and revegetation has been established, the impacts to water quality in surrounding streams would be beneficial, considering the erosion protection and shading that would be provided. Depending on site conditions, it is assumed that reestablishment of vegetation would occur in approximately 5 to 10 years.

Water Quantity

Following revegetation, there would be no long-term maintenance and use impacts because the Proposed Action would leave the watershed hydrologically stable. Culverts along Bog Creek Road would be regularly cleaned, thus maintaining hydrologic connectivity by allowing for passage of surface water downstream. No impacts to groundwater resources would be expected.

Wetlands and Other Waters of the U.S.

Under the Proposed Action, no direct impacts to wetlands or other waters of the U.S. are assumed to occur during maintenance and use of Bog Creek Road. All activities would occur in previously disturbed areas. Implementation of design features would avoid or minimize sedimentation risk to these resources.

Alternative 3 – Modified Proposed Action

Water Quality, Water Quantity, and Wetlands and Other Waters of the U.S.

The effects on water quality, water quantity, and wetlands and other waters of the U.S. under Alternative 3 would be the same as described under the Proposed Action because similar activities are proposed and similar design features would be used.

Alternative 4 – Blue-Grass BMU West–East Open Access

Under Alternative 4, maintenance of 5.6 miles of the existing Bog Creek Road would be conducted and approximately 26 miles of motorized roads would be closed, just as under the Proposed Action. However, after road repair activities, motorized use along Bog Creek Road, Blue Joe Creek Road, and the west to east access roads (see Table 3.1.3) would be changed from seasonally restricted (low motorized use) to an open road designation (high motorized use).

Water Quality

The effects of impacts to water quality under Alternative 4 would result in an increase in motorized use along those sections of roads that have designation changes. As previously discussed, motorized road use can cause sedimentation and roadway runoff. There would be an increase from low motorized use to high motorized use (see Table 3.1.3); therefore, the potential for impacts would be the highest under this alternative. However, because the increase in motorized use would be very small relative to the overall watershed, the potential for roadway runoff and associated pollutants to enter wetlands and waters of the U.S. is small. Additionally, similar activities and design features would be used as under the Proposed Action.

The west to east open access roads would not require additional road maintenance or ground disturbance activities. While the change in road designation would cause an increase in motorized use, the impacts would be very small relative to the overall watershed.

Water Quantity

The impacts to water quantity under Alternative 4 would be the same as those described under the Proposed Action.

Wetlands and Other Waters of the U.S.

The effects on wetlands and other waters of the U.S. under Alternative 4 would be the same as described under the Proposed Action, assuming total impacts to wetlands and waters of the U.S. would remain under 0.5 acre.

3.6.5.4 Cumulative Effects

The analysis area for cumulative effects on water resources is the same as previously used for the Environmental Consequences section above.

The subwatersheds in the analysis area have been affected by past and ongoing activities, including historic timber harvest, fires, grazing, mining, motorized road use, and recreational activities. Just north of the Canadian border, there is an extensive road system within the analysis area that is open to motorized use (including over-the-snow motorized access). Other activities occurring on these Canadian roads include timber harvest, recreation, and hunting. These activities north of the border would continue to occur and would not be limited by Forest Service management guidelines. Effects from past and present actions on water quality and quantity are addressed under the Affected Environment section above and in the analysis of the No-Action Alternative.

Erosion and vegetation removal from past activities such as grazing and mining have contributed to the current status of area streams as not fully supporting their beneficial uses. Some streams in the analysis area are 303(d) listed as not meeting temperature (or benthic-macroinvertebrate bioassessments in the case of Grass Creek) standards that support aquatic life and coldwater fisheries. IDEQ determined that these streams are impaired for water temperature and are not fully supporting coldwater aquatic life and salmonid spawning (IDEQ 2014). The Forest Service, in cooperation with the State of Idaho, adheres to design features during project implementation and conducts restoration and monitoring. These agencies take these measures to avoid future significant detrimental effects on water quality and to achieve these beneficial use water quality standards.

Water quantity within the analysis area is not likely to change with the activities proposed for Bog Creek Road. These proposed project activities, when combined with reasonably foreseeable future projects, such as water use for mining or future road building, would not be likely to impact groundwater quantity or to increase or decrease the water yield across the subwatersheds.

With regard to wetlands and other waters of the U.S., as with other resources, these have been affected by historic timber harvest, road construction, and mining. The proposed Bog Creek Road project activities include road closures, which would restore hydrologic connectivity to wetlands within the analysis area.

The proposed reasonably foreseeable projects that overlap the analysis area include continuation of activities such as cattle grazing on the one allotment, CBP activities, recreational use of both motorized and non-motorized roads/trails, timber harvest on private lands, and hunting. Because there would be no increase in livestock operation and the remainder of these activities include road or trail use (and presumably road maintenance) with design features specifically to minimize impacts to water resources (e.g., erosion and sedimentation), these activities, combined with the Bog Creek Road project, would not be anticipated to have a detrimental effect on water resources.

3.6.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

Because design features would be implemented to specifically minimize impacts to water resources, the effects on shade, temperature, or sediment yield would be minimal. The action alternatives would therefore comply with the specific riparian management objectives identified by INFISH (Forest Service 1995b:RF-2d, RF-2e, and RF-2f).

The estimated effects from the proposed activities would be consistent with watershed-scale efforts to improve water quality. As indicated by the analysis, after application of design features, the expected sediment impacts from culvert replacement/removal would be short term, both spatially and temporally, and quickly return to background levels. In addition, removal of vegetation would be limited to minimize impact to water temperature.

With regard to floodplains, the project would be consistent with EO 11988. Though there are no mapped Federal Emergency Management Agency floodplains within the analysis area, impacts to the stream's floodplains would occur under the action alternatives. However, because floodplain hydrologic connectivity would still be maintained, and because the INFISH criteria and standards incorporate specific protections for these areas, development of the action alternatives would not increase or alter the risk of floods. With regard to wetlands and other waters of the U.S., the project would be in compliance with the IPNF Forest Plan, with the inclusion of INFISH standards (Forest Service 1995b, 2015a). USACE NWP guidelines and IDEQ guidelines provide permitting vehicles for both the culvert replacement/removal and the proposed road removal. Disturbance within the banks of streams would potentially require permitting under the CWA. As required by EO 11990 and the CWA, avoidance of effects and measures to minimize effects on wetlands and waters of the U.S. were considered in development of the action alternatives.

3.7 Soil Resources

3.7.1 Introduction

Productive soil can sustain biological productivity, maintain environmental quality, and promote plant and animal health. Soil-disturbing activities can interrupt that productivity and result in detrimental effects that could potentially limit plant growth.

Key issues identified during public scoping that require analysis in the DEIS include potential impacts to soils and requests for mitigation and remediation measures.

This analysis describes existing soil resources and conditions in the analysis area. Direct, indirect, and cumulative impacts to soil resources that are expected to occur in association with the proposed road repair and associated project activities are also described and discussed.

3.7.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on soil resources encompasses the project footprint, or more specifically, the area of disturbance. This spatial scale is considered an appropriate geographic extent for assessing direct and indirect impacts to soil because soil productivity is a site-specific attribute of the land that is not dependent on adjacent areas. This area is referred to as the soils analysis area or, more generally in this section, the analysis area. The analysis area for the roads proposed for motorized road closure under the Proposed Action and Alternative 4 is the 62.4 acres of soils that would be impacted. The analysis area for the roads that would be subject to motorized road closure under Alternative 3 is of the 59.4 acres of soils that would be impacted. The analysis area for the Bog Creek Road repair and maintenance activities is the 22.3 acres of soils that would be impacted. Soil impacts from Bog Creek Road repair and maintenance activities would apply to all action alternatives because the repair and maintenance activities on Bog Creek Road would be the same under all action alternatives.

The reestablishment of native vegetation in disturbed areas is a good indication of soil health. Therefore, the temporal scale of effects for soil resources begins when ground-disturbing activities first occur and continues until revegetation efforts are complete and native vegetation has become established (approximately 5 to 10 years).

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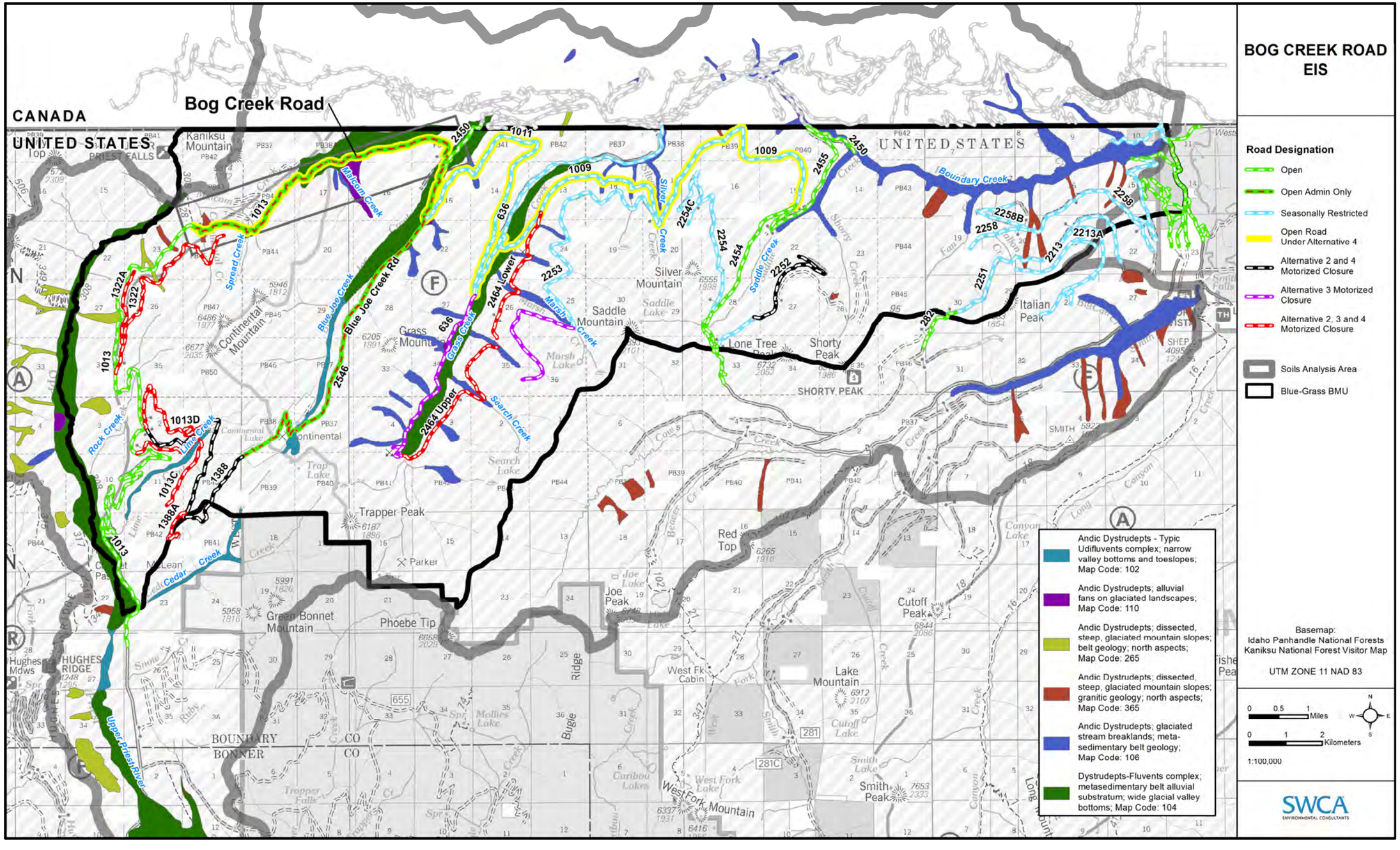

Figure 3.7.1. Mapped soil units with high hazard ratings for high mass failure potential and high sediment delivery potential.

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Table 3.7.1. Mapped Soil Unit High Hazard Potential and Descriptions

Soil Map Unit	Acres in Analysis Area	Soil Composition	Description
102	BCR: 0 Alt 2: 0.19 Alt 3: 0.19 Alt 4: 0.19	Vitric Fulvicryands, high elevation, grassy balds	This map unit consists of low- to mid-elevation, narrow valley bottoms and adjacent mountain toeslopes underlain by metasedimentary rocks. Soils formed in volcanic ash influenced loess overlying alluvium with some inclusions of till. Vegetation is mixed coniferous and subalpine forest. This map unit consists mainly of second order and higher perennial streams, a narrow riparian zone, and adjacent mountain toeslopes. Many of these streams are bedrock controlled. Stream gradients generally are 2% to 4%. The riparian zone is commonly 100 to 200 feet wide on each side of the stream. This unit occurs at elevations of 1,840 to 5,400 feet.
104	BCR: 6.04 Alt 2: 0 Alt 3: 4.59 Alt 4: 0	Dystrudepts-Fluvents complex; metasedimentary Belt alluvial substratum; wide glacial valley bottoms	This map unit contains low- to mid-elevation, wide glacial valley bottoms underlain by metasedimentary rocks. Soils formed in volcanic ash-influenced loess overlying outwash, alluvium, and till. Vegetation is mixed coniferous and subalpine forest. Elevations are 2,420 to 4,400 feet. Some of these are trough bottoms, which are the floors of U-shaped glacial valleys. These wide valleys typically contain a relatively large stream running their lengths. Topography is flat to irregularly undulating. Dominant slopes have gradients of 2% to 15%. The map unit includes second-order and higher streams and includes the stream and associated riparian zone. Stream gradients are generally 1% to 9%. The riparian zone is generally 100 to 200 feet wide on each side of the stream. The streams are flowing in thick sediments. Included are some very steep escarpments associated with adjacent alluvial benches and terraces.
106	BCR: 0 Alt 2: 2.32 Alt 3: 2.55 Alt 4: 2.32	Andic Dystrudepts; glaciated stream breaklands; metasedimentary belt geology	This map unit contains low- to mid-elevation stream breaklands. These areas are underlain by metasedimentary or granitic rocks. Soils formed in volcanic ash-influenced loess overlying glacial till, lacustrine sediments or outwash. Vegetation is mixed coniferous forest. Elevations of 2,200 to 4,400 feet and dominant slopes have gradients of 55% to 80%. All aspects are represented, and both dissected and undissected areas are included. There is 20% to 70% rock outcrop and associated talus. Riparian areas are usually very narrow, and stream gradients are generally from 8% to 20%. Those streams flowing out of the Selkirk or Cabinet Mountains and into the Kootenai River are actively downcutting to reach the level of the main valley floor and are deeply incised in thick deposits of unconsolidated material. Some of these streams have falls on them.
110	BCR: 0 Alt 2: 0 Alt 3: 0.60 Alt 4: 0	Andic Dystrudepts; alluvial fans on glaciated landscapes	This map unit consists of low- to high-elevation alluvial fans in glaciated landscapes underlain by granitic or metasedimentary rocks. Soils formed in volcanic ash-influenced loess overlying alluvium. Vegetation is mixed coniferous and subalpine forest. Elevations of 2,600 to 3,200 feet. Dominant slopes have gradients of 5% to 35%. The unit occurs adjacent to major valleys on toeslope positions. Some inclusions of colluvial deposits may occur.
265	BCR: 0 Alt 2: 0.19 Alt 3: 0.18 Alt 4: 0.19	Andic Dystrudepts; dissected, steep, glaciated mountain slopes; belt geology; north aspects	This map unit consists of moderately to deeply incised draws at low to mid-elevations on steep, moist aspects. These draws occur on glaciated mountain sideslopes underlain by hard, metasedimentary rocks. Soils formed in volcanic ash-influenced loess overlying glacial till. Vegetation is a mixed coniferous forest on north and east aspects. Elevations of 2,840 to 5,200 feet. The draws usually contain first order streams with narrow riparian zones. The draws are usually steeper than the adjacent sideslopes. In general, the lower on the slope, the deeper the draw. The draws range from 20 to 50 feet in depth, with 30 to 40 feet being most common. Slope gradients for the bottoms of the draws range from 10 to 70 feet. Slope gradients for the sides of the draws range from 40% to 110%. Dominant slopes are on north and east aspects with gradients from 55% to 90%. An occasional avalanche chute can occur.

Table 3.7.1. Mapped Soil Unit High Hazard Potential and Descriptions (Continued)

Soil Map Unit	Acres in Analysis Area	Soil Composition	Description
365	BCR: 0.49 Alt 2: 0 Alt 3: 0 Alt 4: 0	Andic Dystrudepts; dissected, steep, glaciated mountain slopes; granitic geology; north aspects	This map unit consists of moderately to deeply incised draws at low to mid-elevations on steep, moist aspects. These draws occur on glaciated mountain sideslopes underlain by granitic rocks. Soils formed in volcanic ash-influenced loess overlying glacial till. Vegetation is a mixed coniferous forest on north and east aspects. Elevations are 2,840 to 5,200 feet. The draws usually contain first order streams with narrow riparian zones. The draws are usually steeper than the adjacent sideslopes. In general, the lower on the slope, the deeper the draw. The draws range from 20 to 50 feet in depth, with 30 to 40 feet being most common. Slope gradients for the bottoms of the draws range from 10 to 70 feet. Slope gradients for the sides of the draws range from 40% to 110%. Dominant slopes are on north and east aspects with gradients from 55% to 90%. An occasional avalanche chute can occur.

Source: Forest Service (2003b).

3.7.2.1 Historic Detrimental Soil Disturbance in the Analysis Area

Due to the remote locations of Bog Creek Road and the roads proposed for motorized road closure, human activity in the analysis area is minimal. Historic detrimental soil disturbance in the analysis area is limited to the construction, use, and maintenance of the road system.

The roads in the analysis area were originally constructed to support the timber industry and to access historic mines. Timber harvesting in the area ended in the early 2000s and one mine, the Continental Mine, has not been active since the 1960s, but the private owners are granted access to the mine site via Grass Creek Road. Construction of the road system disturbed soils by removing vegetation, grading surfaces, cutting and filling slopes, and crossing drainages.

The most recent use of roads has been for seasonally restricted administrative use by Forest Service and law enforcement personnel. Continued and consistent use of the roads impacts soils by compacting soils into a denser, less impervious surface. When water crosses these compacted surfaces, it travels faster and can increase erosion and downstream sedimentation.

As discussed in Chapter 2, Bog Creek Road was originally constructed primarily as a logging road sometime between 1934 and 1956. The road was gated on both ends in the late 1980s for grizzly bear security and was maintained on a limited basis after that time. The road experienced minor failures in the mid-1990s with a large failure occurring around 2000–2001, when a large culvert at approximately MP 35 failed due to heavy surface water runoff. Other culverts in the area are also experiencing failure. In these areas, moderate to severe erosion has occurred, resulting in moderate to severe downstream sedimentation. Routine maintenance of the seasonally restricted roads that are proposed for motorized road closure has minimized perennial and intermittent stream crossing failure and subsequent erosion and downstream sedimentation.

3.7.3 Management Framework

Table 3.7.2 defines the Forest Plan's applicable desired condition, standards, and guidelines relevant to the Bog Creek Road DEIS.

Table 3.7.2. Forest Plan Desired Conditions, Standards, and Guidelines Applicable to Soils

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**[Forestwide (FW)]-DC-SOIL-01.** Soil organic matter, soil physical conditions, and down woody debris maintain soil productivity and hydrologic function. Physical, biological, and chemical properties of soil are within the natural range of variability and enhance nutrient cycling, maintain the role of carbon storage, and support soil microbial and biochemical processes. Areas with sensitive and highly erodible soils or land types with mass failure potential are not detrimentally impacted or destabilized as a result of management activities.
All MAs	**FW-DC-SOIL-02.** Soil impacts are minimized and previous activity areas that have incurred detrimental soil disturbance recover through natural processes and/or restoration treatments. Organic matter and woody debris, including tops, limbs, and fine woody debris, remain on site after vegetation treatments in sufficient quantities to maintain soil quality and to enhance soil development and fertility (refer to FW-GDL-VEG-03).
All MAs	**FW-DC-SOIL-03.** Soil organic matter and down woody debris support healthy mycorrhizal populations, protect soil from erosion due to surface runoff, and retain soil moisture. Volcanic ash-influenced soils that occur on most of the IPNF are not compacted and retain unique properties, such as low bulk density and high water-holding capacity, to support desired vegetative growth.
All MAs	**FW-GDL-SOIL-01.** Ground-based equipment should only operate on slopes less than 40%, in order to avoid detrimental soil disturbance. Where slopes within an activity area contain short pitches greater than 40%, but less than 150 feet in length, ground-based equipment may be allowed, as designated by the timber sale administrator.
All MAs	**FW-GDL-SOIL-02.** Coarse woody debris is retained following vegetation management activities per (FW-GDL-VEG-03).
All MAs	**FW-GDL-SOIL-03.** Soil impacts are minimized and previously activity areas that have incurred detrimental soil disturbance recover through natural processes and/or restoration activities. Organic matter and woody debris, including large-diameter logs, tops, limbs, and fine woody debris, remain on-site after vegetation treatments in sufficient quantities to retain moisture, maintain soil quality, and enhance soil development and fertility by periodic release of nutrients as they decompose (refer to FW-GDL-VEG-03).
All MAs	**FW-GDL-SOIL-04.** Ground-disturbing management activities on landslide-prone areas should be avoided. If activities cannot be avoided, they should be designed to maintain soil and slope stability.

3.7.3.1 Regional Soil Standards

The regional soil quality standards (R-1 Supplement 2550-2014-1) were revised in March 2014 and establish the framework for sustaining soil quality and hydrologic function while providing goods and services outlined in forest and grassland land management plans (Forest Service 2014c). Manual direction recommends maintaining 85 percent of an activity area's soil at an acceptable productivity potential with respect to detrimental impacts, including the effects of compaction, rutting, displacement, severely burned soils, surface erosion, soil mass movement, and loss of surface organic matter.

These soil quality standards apply to lands where vegetation and water resource management are the principal objectives, that is, timber sales, grazing pastures or allotments, wildlife habitat, and riparian areas. The standards do not apply to intensively developed sites such as mines, developed recreation sites, administrative sites, or rock quarries (Forest Service 1999a). Intensively developed sites, where vegetation or water resources are not the principal objectives, are excluded from the activity area. This includes forest roads as defined in 36 CFR 212.1 and lands associated with forest roads.

3.7.3.2 Other Regulations

Table 3.7.3 summarizes other regulations, laws, and policies governing soils management for the Bog Creek Road DEIS.

Table 3.7.3. Other Relevant Regulations, Laws, and Policies

Relevant Regulations, Laws, and Policies	Summary
Bankhead-Jones Act of 1937	Authorizes and directs a program of land conservation and land utilization, in order thereby to correct maladjustments in land use, and thus assist in controlling soil erosion, preserving natural resources, mitigating floods, conserving surface and subsurface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare.
Multiple Use–Sustained Yield Act of 1960	Directs the Forest Service to achieve and maintain outputs of various renewable resources in perpetuity without permanent impairment of the land's productivity.
NFMA	Charges the Secretary of Agriculture with ensuring research and continuous monitoring of each management system to safeguard the land's productivity. To comply with the NFMA, the Chief of the Forest Service has charged each Forest Service Region with developing soil quality standards for detecting soil disturbance and indicating a loss in long-term productive potential. These standards are built into the Forest Plan.
R1 FSM 2509.22, R-1/R-4 Amendment No 1, effective 05/88	Soil management directive establishes the framework for sustaining soil quality and hydrologic function while providing goods and services outlined in forest and grassland land management plans.
FSM 2500	FSMs and FSHs within the 2500 file code designation contain direction for soil and watershed management (Forest Service 2010b).

3.7.4 Environmental Consequences

As noted in the Regional Soil Standards section above, soil quality standards do not apply to intensively developed sites, such as Forest Service roads (Forest Service 1999a). For this reason, the following soil impact analysis focuses on erosion and does not analyze soil productivity, soil chemistry, or disturbance within the road prisms. Potential sedimentation impacts to water quality and fish from erosion are disclosed in Water Resources (Section 3.6) and Fish (Section 3.4).

3.7.4.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential effects on soil resources.

Issue Indicators

Table 3.7.4 below lists the issues identified for soil resources and the indicators used to assess impacts.

Of particular concern for soil resources are the potential hazards related to soil erosion by water and wind. Additional impacts to soil resources that could occur include an increase in soil compaction and/or rutting along roadways as a result of human use, and/or a resultant increase in soil erosion. Impacts to soil resources are analyzed in terms of acres impacted and percentage of disturbance and include a description of direct, indirect, and cumulative effects.

Table 3.7.4. Issues and Indicators Used to Assess Impacts to Soils

Issue	Analysis Measure
Mass failure potential	Acreage of high potential areas disturbed

Table 3.7.4. Issues and Indicators Used to Assess Impacts to Soils (Continued)

Issue	Analysis Measure
Sediment delivery potential	Acreage of high potential areas disturbed
Surface erosion potential	Acreage of high potential areas disturbed
Subsurface erosion potential	Acreage of high potential areas disturbed
Compliance with regional and forest soil quality standards	Estimate of total detrimental soil disturbance Qualitative assessment of changes to compaction, rutting, and displacement or removal of organic matter and surface cover

3.7.4.2 Effects from Short-Term Road Repair and Motorized Closure Actions

This section includes a description of the short-term direct and indirect effects on soil resources for each alternative.

Alternative 1 – No Action Alternative

No additional impacts to soils would occur as a result of the No-Action Alternative beyond those which are already occurring at Bog Creek Road and the roads proposed for motorized closure under the action alternatives. Soil erosion from damaged perennial and intermittent stream crossings along Bog Creek Road would continue, and as disclosed in Water Resources (Section 3.6), erosion would continue along portions of Bog Creek Road. Without repair and maintenance of road and culvert conditions, accelerated erosion would continue. These effects on soil erosion could be offset because no vegetation removal or grading would occur for road repair and motorized closure activities, and because there would be no motorized vehicle traffic along Bog Creek.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in soil impacts similar to those discussed for motorized road closure under the Proposed Action; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Land use conversion or detrimental impacts to soils—including increased compaction, rutting, and increased soil erosion—could occur during road repair and motorized closure construction actions under all action alternatives. Repair and construction activities that would disturb soils consist of the following:

- Grading, excavation, and vegetation removal;
- Grading of side slopes;
- Directional drilling, open cut, and/or placing streams in culverts; and
- Rerouting of drainages.

Repair activities associated with the Proposed Action would have detrimental impacts to soils within the Bog Creek Road prism. Approximately 22.3 acres of soils would be disturbed by repair activities at Bog Creek Road. Table 3.7.5 identifies the project impacts

to soils with high potential for mass failure, surface or subsurface erosion, or sediment delivery.

Table 3.7.5. Acres of High-Potential Soils Directly Impacted by Bog Creek Road Repair Activities

Mass Failure Potential (acres and percentage of analysis area)	Surface Erosion Potential (acres and percentage of analysis area)	Subsurface Erosion Potential (acres and percentage of analysis area)	Sediment Delivery Potential (acres and percentage of analysis area)
0.5 (2.2%)	0	0	6.5 (29.2%)

Road repair and maintenance activities on Bog Creek Road associated with all action alternatives would directly disturb approximately 6.5 acres of soils with high hazard ratings (high-potential soil categories contain overlap). The Forest Service would implement design features (see Appendix B) to minimize erosion and ensure soil conservation, such as implementing a site erosion control plan and a Stormwater Pollution Prevention Plan that include erosion control measures (straw bales, wattles, silt fences, and hydro-mulching). Given these measures, the Bog Creek Road repair and maintenance would not be expected to substantially increase erosion, sediment delivery, or mass failure risk within the analysis area.

Activities associated with motorized road closure that would potentially disturb soils adjacent to the roadway prism consist of the following:

- Installing water bars along the full length of affected segments.
- Removing drainage structures (culverts).
- Fully or partially recontouring the road prism, ripping the road surface, removing culverts and recontouring stream crossings, and planting and seeding, mulching, or slashing disturbed areas.
- Using a dozer, grader, hydraulic excavator, and dump truck.

Motorized road closure activities that disturb soils would have temporary, short-term, detrimental impacts to soils. However, the overall motorized road closures would have a long-term beneficial impact to soils, as described below.

The Proposed Action's motorized road closure would temporarily impact a total of 62.4 acres of soils. Figure 3.7.1 identifies the mapped soil types that would be impacted by motorized road closure activities. Table 3.7.6 identifies the impacts that motorized road closure activities for each action alternative would have on soils with high potential for mass failure, surface or subsurface erosion, or sediment delivery.

Table 3.7.6. Acres of High-Potential Soils Directly Impacted by Motorized Road Closure Activities

Alternative (total disturbance acres)	Mass Failure Potential (acres, percentage of analysis area)	Surface Erosion Potential (acres, percentage of analysis area)	Subsurface Erosion Potential (acres, percentage of analysis area)	Sediment Delivery Potential (acres, percentage of analysis area)
Proposed Action (62.4)	2.4 (3.8%)	0	0	2.6 (4.2%)
Alternative 3 (59.4)	2.7 (4.6%)	0	0	8.1 (13.7%)
Alternative 4 (62.4)	2.4 (3.8%)	0	0	2.6 (4.2%)

The Proposed Action's motorized road closure activities would directly and temporarily disturb approximately 2.6 acres of soils with high-potential hazard ratings (high-potential soil categories overlap). Compared with Alternative 3, the Proposed Action would impact fewer acres of soils with high-potential hazard ratings. The Forest Service would implement design features (see Appendix B) to minimize erosion and ensure soil conservation during motorized road closure activities. Given these measures, in conjunction with the limited extent of affected soils with high-potential hazard ratings being impacted, the motorized road closure activities would not be expected to substantially increase erosion, sediment delivery, or mass failure risk within the analysis area.

To prevent erosion at locations where roads have been cut and filled, such as along steep slopes and perennial and intermittent stream crossings, the roads would be recontoured to become relatively flush with the surrounding topography, and drainage infrastructure would be removed as described in Table 3.1.1. Over time, the roads subject to motorized road closure would revegetate, and drainages would return to flowing along natural courses unhindered by culverts and road infrastructure. The absence of motorized vehicle use along the roads subject to motorized road closure would improve revegetation of disturbed areas. Therefore, the motorized road closure activities would have a long-term beneficial impact to soils by minimizing the risk of erosion and downstream sedimentation.

Alternative 3 – Modified Proposed Action

Repair activities along Bog Creek Road under Alternative 3 would be identical to those described under the Proposed Action. Therefore, the same detrimental and beneficial impacts to soils within the Bog Creek road prism would occur.

The same motorized road closure activities that disturb soils described above for the Proposed Action would occur under Alternative 3. However, different roads would be subject to motorized road closure under Alternative 3, and motorized road closure activities would impact different soil units.

As identified in Table 3.7.6 above, Alternative 3 motorized road closure actions would temporarily impact a total of 59.4 acres of soils, 2.7 acres of which would have a high potential for mass failure and 8.1 acres of which would have a high potential for sediment delivery. Therefore, Alternative 3 would have a greater short-term impact on soil units with high hazard ratings, compared with the Proposed Action. Motorized road closure activities that disturb soils under Alternative 3 would have short-term, detrimental impacts to soils. The Forest Service would employ the same soil mitigation measures for all action alternatives (see Appendix B) to minimize erosion and ensure soil conservation during road motorized road closure activities. Given these measures, in conjunction with the limited extent of affected soils with high-potential hazard ratings being impacted, the motorized road closure activities would not be expected to substantially increase erosion, sediment delivery, or mass failure risk within the analysis area.

Similar to the Proposed Action, Alternative 3 would recontour cut and fill areas to better match adjacent topography, remove drainage infrastructure to allow drainages to flow unhindered along natural courses, discontinue motorized administrative use of the roads, and reestablish vegetation at disturbed areas. Therefore, the motorized road closure

activities would have a long-term, beneficial impact to soils by minimizing the risk of erosion and downstream sedimentation.

Alternative 4 – Blue-Grass BMU West–East Open Access

All Bog Creek Road repair and motorized road closure effects under Alternative 4 would be the same as those described under the Proposed Action.

3.7.4.3 Effects from Long-Term Maintenance and Use Actions

This section includes a description of the long-term direct and indirect effects on soil resources for each alternative.

Alternative 1 – No Action Alternative

Within the prisms of the proposed motorized road closures, seasonally restricted use by Forest Service and law enforcement personnel would continue. Also, ongoing maintenance activities, including trimming and mowing of shrubs, vegetation thinning, and spot-grading, as well as ongoing dispersed non-motorized recreation, would continue. The continued maintenance and use of Forest Service roads would have long-term impacts to soils related to erosion within the roadway prism.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative; however, it is unknown exactly which roads would be decommissioned to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

As needed administrative use of Bog Creek Road and Blue Joe Creek Road would be confined to the road prism and would not constitute an impact to soil resources.

Maintenance activities that would disturb soils consist of the following:

- Culvert cleaning
- Routine grading

Maintenance activities on Bog Creek Road would have potential long-term impacts to soils adjacent to the Bog Creek Road prism. These impacts would be both detrimental and beneficial, as described below.

Culvert cleaning would keep sediment and debris from building up inside culverts, prevent culverts from clogging, and reduce the risk of drainages overtopping the roadway. Therefore, culvert cleaning would have a long-term beneficial impact to soils by minimizing the risk of soil erosion at perennial and intermittent stream crossings along Bog Creek Road.

Routine grading would consist of regrading locations of the road surface that, over time, become too difficult to pass with a motorized vehicle. Routine grading would be limited to site-specific locations that have become impassable from natural causes such as flooding and erosion. The Forest Service would implement design features (see Appendix B) to minimize erosion and ensure soil conservation during routine grading of Bog Creek Road, such as implementing a site erosion control plan and a Stormwater Pollution Prevention

Plan that include erosion control measures (straw bales, wattles, silt fences, and hydro mulching). Given these measures, routine grading would not be expected to substantially increase erosion, sediment delivery, or mass failure risk within the analysis area.

Alternative 3 – Modified Proposed Action

Impacts from long-term maintenance and use activities on Bog Creek Road would be the same as described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

Impacts from long-term maintenance and use activities on Bog Creek Road would be the same as those described under the Proposed Action. Under Alternative 4, Bog Creek Road, FSR 1011, FSR 636, and FSR 1009 would be open to unlimited motorized use. This long-term administrative and recreational motorized use of Bog Creek Road, FSR 1011, FSR 636, and FSR 1009 would be confined to the road prisms and would not constitute an impact to soil resources. Long-term administrative open use of Blue Joe Creek Road would also be confined to the road prism and would not constitute an impact to soil resources.

3.7.4.4 Cumulative Effects

The cumulative effects spatial and temporal analysis area for soils is the Blue-Grass BMU. The list of reasonably foreseeable future actions that will occur within the BMU (see Appendix D) was reviewed to determine whether any reasonably foreseeable future actions would overlap the soils analysis area. One reasonably foreseeable future action that would overlap the soils analysis area was identified: the Grass Creek grazing allotment would overlap motorized road closure activities on Upper 2464 Road under all action alternatives. The grazing allotment covers 6,000 acres of the Blue-Grass BMU and runs approximately 90 cow/calf pairs between July 1 and October 1, for a total of 276 head months. The Forest Service manages grazing allotments to protect the health and functionality of allotted NFS land, including prescribing measures that protect ground cover to protect soils from surpassing erodibility thresholds. Because the detrimental impacts from the motorized road closure activities on Upper 2464 Road would be short term and the Forest Service would manage the allotment to protect soils, it is unlikely that a cumulative impact to soils would occur from the action alternatives and from the Grass Creek grazing allotment. Therefore, the action alternatives would not have a cumulative effect on soil resources.

3.7.4.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

All action alternatives associated with the Bog Creek Road project would be in compliance with the Forest Plan and other relevant regulations, laws, and policies. Implementation of the action alternatives would not result in an exceedance of regional or forest soil quality standards. Implemented design features would ensure that project actions minimize soil disturbance, erosion, and downstream sedimentation from disturbed areas.

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3.8 Recreation and Access

3.8.1 Introduction

Recreation as a resource is included in the Forest Plan (Forest Service 2015a), with specific Management Areas (MAs) within the IPNF each having clearly defined desired conditions, standards, and guidelines that are designed to be met through management prescriptions. The Proposed Action occurs on IPNF lands located in the Selkirk Mountains, which is a highly popular area for both motorized and non-motorized public recreational use.

Key issues identified during public scoping that require analysis in the DEIS include potential limits to hunting access and other recreation opportunities and concerns regarding illegal access. Other existing recreation opportunities within the analysis area (defined below) include dispersed uses such as hiking, backpacking, mountain biking, horseback riding, and cross-country skiing, as well as developed uses such as off-highway vehicle (OHV) use, driving for pleasure, and snowmobiling.

The Selkirk Mountains' sense of "place" centers on both traditional use (i.e., hunting, gathering, ranching) and recreational use (i.e., outdoor recreation and OHV use). The area provides highly varied recreation opportunities during all seasons and is valued by the public as an important area for dispersed recreation and solitude. As specified in the Forest Plan, recreation opportunities in the Selkirk Mountains emphasize dispersed recreation.

This analysis describes the existing condition of recreation resources within the analysis area (see Section 3.8.3, Affected Environment, for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on these resources are subsequently described and discussed.

3.8.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential effects on recreation encompasses the Blue-Grass BMU of the SRZ. The BMU contains locations, routes, and trails desirable to recreational users. The Blue-Grass BMU represents a reasonable area in which a recreational user may be able to see, hear, or detect the activities that are included in the Proposed Action, both during road repair and motorized closure activities (e.g., vehicles, ATVs, and equipment used for grading and vegetation clearing) and during maintenance and use activities (e.g., vehicles or ATVs). Because of the topography and thick vegetation within and adjacent to the analysis area, detection of sights or noise of the proposed project from outside the Blue-Grass BMU from any direction would not be likely.

The temporal scale of effects is 15 years. Potential direct and indirect effects on recreation resources are described in terms of long-term (15 years or more) and short-term effects (less than 15 years). This time period is used because 15 years represents a reasonable time frame in which the current Forest Plan and Travel Management Plan recreation management prescriptions would remain in place. Beyond 15 years, the IPNF would likely require new, updated Forest Plans and/or Travel Management Plans.

3.8.3 Affected Environment

Recreation opportunities on the IPNF are divided into five broad geographic areas. The Blue-Grass BMU is located within the Lower Kootenai River and Priest Geographic Areas (GAs), as defined in the Forest Plan, with the majority of the Blue-Grass BMU occurring within the Lower Kootenai River GA.

The Selkirk Mountains are the primary recreation destination within the Blue-Grass BMU, and offer a variety of motorized or non-motorized recreation opportunities for local residents and visitors throughout the year. Maintaining or improving these opportunities is important to the recreating public, IPNF, and CBP.

This analysis describes the existing recreation activity within the boundary of the Blue-Grass BMU and serves as the baseline to assess the potential direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 in the Environmental Consequences section (see Section 3.8.5) below.

3.8.3.1 Recreation Setting

Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) is the Forest Service system for classifying and managing recreation opportunities; it represents a framework for understanding the relationships and interactions the public may experience with a particular area of public land (Forest Service 1979). The ROS setting framework was developed by the Forest Service and is illustrated in Table 3.8.1. The ROS (ranging from primitive to urban) is based on the variation that exists in the physical, social, and administrative attributes of any landscape. The physical setting describes variations in components such as remoteness, naturalness, and facilities. The social setting reflects the variations in components such as group size, number and types of contacts, encounters between individuals or groups, and the evidence of use by others. The administrative setting can reflect variations in the kind and extent of components such as visitor services, management controls, user fees, and mechanized use.

The Blue-Grass BMU contains the following ROS classifications: primitive, semi-primitive non-motorized, roaded-modified (including roaded-modified non-motorized), and rural (Figure 3.8.1). Table 3.8.1 describes the general ROS classifications present within the Blue-Grass BMU.

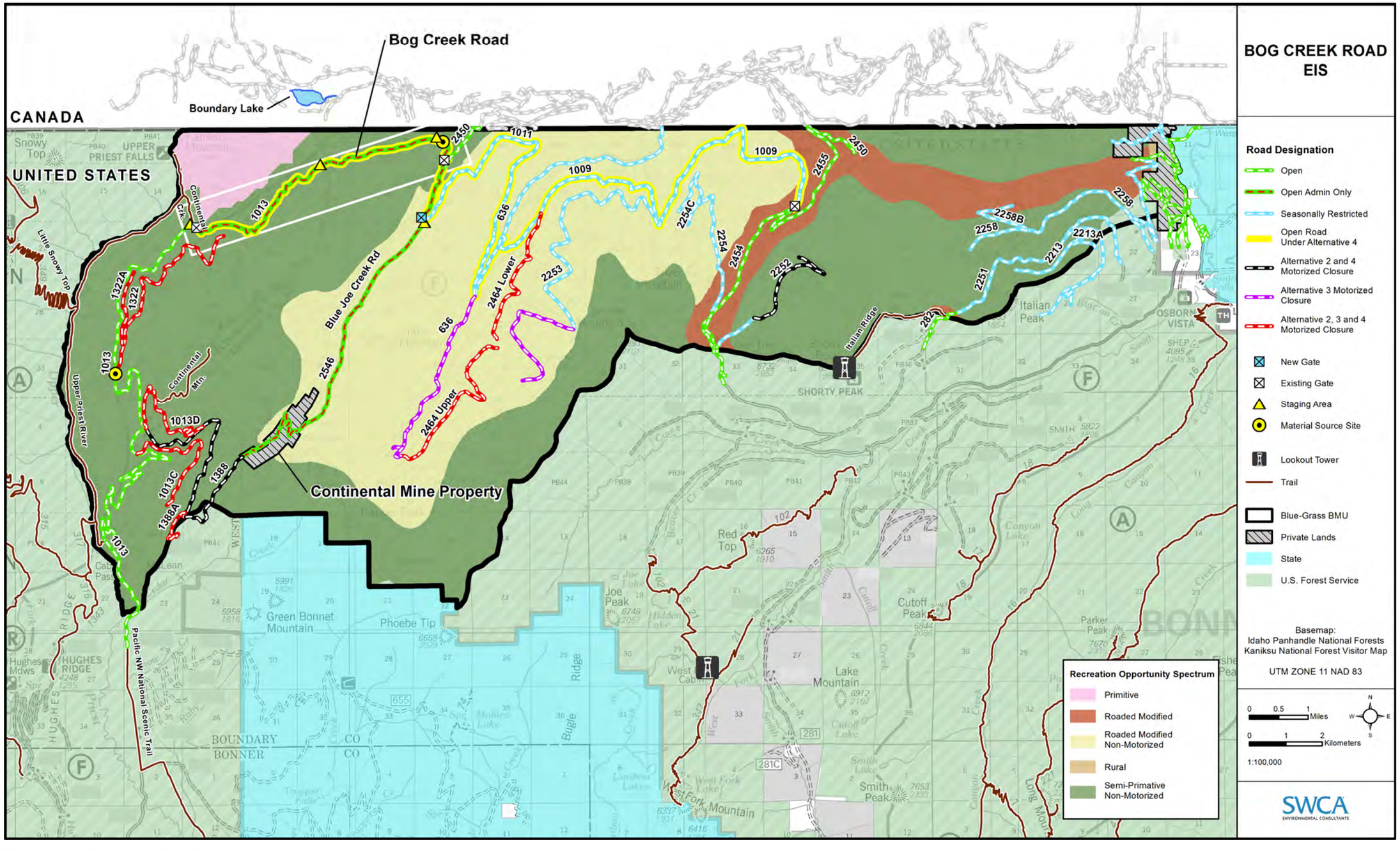

Figure 3.8.1. Blue-Grass BMU ROS classification areas and trail network.

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Table 3.8.1. Characterization of ROS Settings Present within the Blue-Grass BMU

Primitive	Semi-primitive Non-motorized	Roaded Modified	Rural
Physical – Resources and Facilities: Character of the Natural Landscape			
a. Remoteness			
>3 miles from any road	>0.5 mile from any kind of road, but not as far as 3 miles, and no road is in sight.	On or near improved country roads, but at least 0.5 mile from all highways.	On or near primary highways, but still within a rural area.
b. Naturalness			
Undisturbed natural landscape	Naturally appearing landscape having modifications not readily noticeable.	Landscape partially modified by roads, utility lines, etc., but none overpower natural landscape features.	Natural landscape substantially modified by agriculture or industrial development.
c. Facilities			
None	Some primitive trails made of natural materials such as log bridges and carved wooden signs.	Improved, yet modest, rustic facilities such as campgrounds, restrooms, trails, and interpretive signs.	Modern facilities such as campgrounds, group shelters, boat launches, and occasional exhibits.
Social – Visitor Use and Users: Character of Recreation and Tourism Use			
d. Group Size			
≤3 people per group	4 to 6 people per group	13 to 25 people per group	26 to 50 people per group
e. Contacts (with other users/user groups)			
<3 encounters per day at campsites and <6 encounters per day on travel routes	3 to 6 encounters per day off travel routes (e.g., campsites) and 7 to 15 encounters per day on travel routes.	15 to 29 encounters per day off travel routes (e.g., campgrounds) and 30 or more encounters per day en route.	People seem to be everywhere, but human contact is intermittent.
f. Evidence of Use			
Only footprints may be observed	Footprints plus slight vegetation trampling at campsites and travel routes. Only infrequent litter.	Well-worn soils and vegetation, but often gravel surfaced for erosion control. Litter may be frequent.	Paved routes protect soils and vegetation, but noise, litter, and facility impacts are pervasive.
Administrative – Administrative and Service Setting: How Public Land Managers, County Commissioners and Municipal Governments, and Local Businesses Care for the Area and Serve Visitors and Local Residents			
g. Visitor Services			
None is available on-site	Basic maps, but area personnel seldom available to provide on-site assistance.	Information materials describe recreation areas and activities. Area personnel are periodically available.	Everything described to the left in this row, and descriptions of experiences and benefits available. Area personnel do on-site education.
h. Management Controls			
No visitor controls apparent. No use limits. Enforcement presence may be very rare.	Signs at key access points on basic user ethics. May have backcountry use restrictions. Enforcement presence rare.	Rules clearly posted with some seasonal or day-of-week restrictions. Periodic enforcement presence.	Regulations prominent. Total use limited by permit, reservation, etc. Routine enforcement presence.
i. Mechanized Use			
None whatsoever	Mountain bikes and perhaps other mechanized use, but all uses are non-motorized.	Two-wheel-drive vehicles predominate, but also four-wheel-drive and non-motorized, mechanized use.	Ordinary highway auto and truck traffic is characteristic.

National Visitor Use Monitoring

The National Visitor Use Monitoring (NVUM) program provides reliable information about recreation visitors to NFS lands at the national, regional, and Forest level. Though there is not a Blue-Grass BMU specific NVUM data set, there are NVUM data for the IPNF (Forest Service 2016d).

Most of the visitation on the IPNF originates from the local area; about 49 percent of visits come from people who live within 25 miles, while another 10 percent live 25 to 50 miles away. About one-half of the visits to the IPNF last less than 4 hours. The median length of the visits to overnight sites is about 44 hours, indicating 2 nights' stay. The average Wilderness visit lasts about 20 hours, although one-half of those visits are shorter than 5 hours. A little less than 19 percent of visits come from people who visit 50 or more times per year. About one-half of visits are made by people who visit at most 10 times per year.

The most frequently reported primary activity is hiking/walking (19 percent), followed by hunting (14 percent), and relaxing/hanging out (10 percent). Over 50 percent of visitors report participating in hiking/walking (Forest Service 2016d).

In summary, recreation visits to the IPNF appear to be mostly local residents who use the area in high frequency but for relatively short visits. This pattern is typical of a local resident who enjoys riding his or her OHV on the routes or trails relatively close to home.

3.8.3.2 Recreation Activities in Analysis Area

The Blue-Grass BMU offers a full range of year-round recreational opportunities. Generally, recreation opportunities and experiences in the BMU tend toward activities that accommodate self-reliance and solitude, such as dispersed, backcountry, non-developed, semi-primitive recreation experiences like backpacking, horseback riding, and hiking, yet developed activities such as vehicle exploration, OHV use, and car camping are common as well.

Traditional recreational uses include hiking, hunting, fishing, gathering, biking, water-based camping, and boating. Outdoor recreation is the fastest growing use within the IPNF and it is expected to increase in the future. Since the 1980s, both motorized and non-motorized recreational use of the roads, trails, and general forest areas has increased. Foot, horse, and mountain bike travel have increased, and to a lesser degree, cross-country and backcountry skiing.

Current Route Network

The current route network of the Blue-Grass BMU is composed of legacy roads used in the past for timber harvest or mining access. As use of the area transitioned from these uses to a more recreation and resource protection–based management, the roads are now primarily used for recreation. However, timber harvest and mining are still dependent on these routes.

Roads in the analysis area are currently classified as either open roads or seasonally restricted roads. Figure 2.2.1 identifies the Forest Service roads and their classifications in the analysis area, and Table 3.8.2 identifies the total miles of each road classification in the analysis area.

Table 3.8.2. Current Road Classification and Miles in the Blue-Grass BMU

Road Classification	Miles
Open	33.8
Seasonally restricted	96.7
Total	**130.5**

Roads in the open classification are available for hiking, mountain biking, horseback, and public motorized access. There are no seasonal restrictions on open roads; however, open roads are often snow covered from early to mid-fall through spring and not accessible by motorized vehicles. Common recreational use of open roads is to access trails in the Blue-Grass BMU (Upper Priest River and Continental Creek Trails), to have a general remote OHV exploring experience, and for car camping. Open road FSR 282 is used to access the Shorty Peak Lookout Tower. Open road FSR 2455 could be used to access Boundary Lake in Canada; however, motorized and non-motorized access to Canada via this road is illegal. FSR 2450 is technically "open;" however, because it is only accessible via seasonally restricted roads and roads from Canada, no legal public motorized access occurs on the road. Traditional non-motorized use of the roads such as hiking, horseback riding, and mountain bike travel have increased on all IPNF Forest Service roads, and to a lesser degree, cross-country and backcountry skiing, as well. Snowmobile access to roads is discussed in the Winter Recreation section below.

Seasonally restricted roads restrict the use of public motorized access between April 1 and November 15 in order to comply with the Blue-Grass BMU motorized standards. Between these dates, recreation use of seasonally restricted roads is limited to hiking, non-motorized mountain biking, and horseback riding. Between November 16 and March 31, motorized recreational use of seasonally restricted roads is allowed, but the roads are typically inaccessible to non-snowmobile motorized travel because of snow cover. Bog Creek Road, Blue Joe Creek Road, and the roads that are proposed for motorized closure under the Proposed Action, Alternative 3, and Alternative 4 are currently classified as seasonally restricted roads. Therefore, current recreational use of these roads, as analyzed in this DEIS, consists of hiking, non-motorized mountain biking, horseback, and other non-motorized use. Snowmobile access is permitted on one seasonally restricted road and is described in the Winter Recreation section below.

Trails and Designated Recreation Sites

Four trails traverse the Blue-Grass BMU: Italian Ridge Trail, Continental Creek Trail, Upper Priest River Trail, and Continental Mountain Trail (see Figure 3.8.1).

The longest trail within the Blue-Grass BMU is the Upper Priest River Trail (Trail #308), which is used by hikers to reach the Continental Creek Trail and the Upper Priest River Falls. The IPNF identifies the Upper Priest Trail as an easy backpacking and day-hiking trail with heavy usage. The trail follows along the Upper Priest River and offers excellent views of old-growth cedar and lush river-bottom vegetation.

The Continental Creek Trail (Trail #28) is also a popular non-motorized trail for accessing Upper Priest Falls. The trailhead for the Continental Creek Trail is located on the west end of the Bog Creek Road area. The IPNF identifies the Continental Creek Trail as a difficult day-hiking trail with heavy usage. The trail travels through an old-growth cedar stand to

the river with dense thickets of huckleberries, thimbleberries, devils club, and ferns along the way. A camping spot is located on the trail near the Upper Priest Falls.

The non-motorized Upper Priest River and Continental Creek Trails are currently being monitored for consideration as "high-use" trails. "High-use" trails are those trails that receive an average of more than 20 parties per week. Currently, the Upper Priest River and Continental Creek Trails have up to 16 parties per week during the busy summer season.

The non-motorized Italian Ridge Trail (Trail #95) is a moderately difficult trail that provides summer access to the Shorty Peak Lookout Tower from FSR 282 (open road classification). Multiple parties per week use the trail to access the lookout tower from June through September. The Continental Mountain Trail begins at FSR 1013D, a seasonally restricted road that is proposed for closure under all action alternatives. Continental Trail is used to access the summit of Continental Mountain. The Continental Mountain Trail is not actively maintained and receives very little use.

Table 3.8.3 shows the length of the trails and the beginning and end locations of the trails within the Blue-Grass BMU.

Table 3.8.3. Trails within the Blue-Grass BMU

Trail Name	Trail Number	Length (miles)	Beginning Location	End Location
Italian Ridge	95	2.5	FSR 282	Shorty Peak Lookout
Continental Creek	28	0.6	FSR 1013	Trail 308
Upper Priest River	308	7.5	FSR 1013	Upper Priest Falls
Continental Mountain	361	1.7	FSR 1013D	Continental Mountain
Little Snowy Top	349	0.03	Trail 308	Trail 512

No designated recreation sites (e.g., developed campgrounds, interpretive sites) occur within the Blue-Grass BMU. However, the Shorty Peak Lookout Tower can be accessed by the Italian Ridge Trail from FSR 282 in the Blue-Grass BMU. The 75-square-foot lookout tower is located on top of Shorty Peak and offers views of the Selkirk and Purcell Mountain ranges of northern Idaho, Montana, and British Columbia. The tower can be rented for a fee. Access to Boundary Lake in Canada from within the Blue-Grass BMU via FSRs 2450 and 2455 is illegal.

The Pacific Northwest National Scenic Trail was designated in 2009. Though located outside the Blue-Grass BMU (see Figure 3.8.1), the Pacific Northwest National Scenic Trail is a popular recreation destination in northern Idaho and ends at FSR 1013, approximately 0.5 mile south of the Blue-Grass BMU. The National Park Service, which manages the Pacific Northwest National Scenic Trail, is currently conducting corridor planning for the Pacific Northwest National Scenic Trail; thus, there is not yet enough information available at the time of this analysis to include the Pacific Northwest National Scenic Trail. Further, none of the routes included in the Proposed Action, Alternative 3, or Alternative 4 provide exclusive access to the Pacific Northwest National Scenic Trail; therefore, the Pacific Northwest National Scenic Trail is not considered further in this DEIS.

Winter Recreation

Activities such as snowmobiling, cross-country skiing, and snowshoeing are primary winter uses in the Blue-Grass BMU. These activities allow visitors to view scenery and wildlife and take photographs in various areas along the routes open to public motorized use in the winter. Other popular uses include camping, hiking, and ice fishing. Weather conditions may also warrant the ability to access an area during the winter, as the ability for visitors to experience the Blue-Grass BMU by snowmobile is determined, in part, by the amount of snowpack on routes open to motorized use.

Some winter visitors use snowmobiles to access the interior of the Blue-Grass BMU, but as shown in Figure 3.8.2, motorized access in the winter is limited. Much of the BMU is closed to snowmobiling except on designated trails; an eastern portion of the BMU is open to unregulated snowmobiling. The BMU includes approximately 21 miles of designated snowmobile routes on FSRs 1013, 1388, 2454, and 2455 and the Italian Ridge Trail (see Figure 3.8.2).

For some, motorized winter access is an integral component of their experience. Others perceive negative impacts from winter motorized use, even if they use snowmobiles themselves to access parts of the NFS lands. Public input from NVUM and past planning efforts have shown that expectations for a winter visitor experience in the IPNF (and therefore the Blue-Grass BMU) vary between visitors. At issue is the nature of visitor enjoyment and its relationship to the management and conservation of the Blue-Grass BMU resources and values.

Hunting

Hunting and trapping are permitted in certain areas of the Blue-Grass BMU; the BMU is within game management unit 1 (IDFG 2016d). Hunting opportunities are widespread, including deer, elk, mountain lion, bear, moose, goat, quail, chukar, dove, gray partridge, forest-grouse, pheasant, turkey, rabbit, goose, duck, coot, and snipe (IDFG 2016d). British Columbia and the states of Montana, Idaho, and Washington continue to allow hunting for black bears, as well as other wildlife species, on both sides of the border within and around the Blue-Grass BMU. Idaho prohibits baiting and hunting bear with hounds in the Blue-Grass BMU. Hunting of grizzly bears in British Columbia is no longer permitted in the areas north of the Blue-Grass BMU. The hunting season for most big game is August through October.

Trapping is also widespread and has been occurring throughout the Blue-Grass BMU since the early to mid-1800s. It includes fur-bearing wildlife such as beaver, badger, bobcat, fox, marten, mink, muskrat, and otter. Trapping season can vary by species, but for most species consists of either year-round opportunity or November to March.

There are three permitted outfitter and guide hunting operations in the area. Hunting and trapping in the Blue-Grass BMU (as well as the surrounding areas in both the United States and Canada) is considered an exceptional recreation opportunity because of the abundant high-quality habitat for these species in combination with the large area of available NFS lands.

3.8.3.3 Private Land Access

Private property within the Blue-Grass BMU and in the vicinity of the Bog Creek Road includes the Continental Mine property. Historically, the property was access via FSR

2450, which enters the BMU from the north through Canada, and Blue Joe Creek Road. In approximately 2009, CBP closed this border crossing, and the Continental Mine property owners were no longer to access their property via this route. Since that time, the property owners have accessed their property via the west–east access roads (FSRs 1011, 636, and 1009) and Blue Joe Creek Road.

The Alaska National Interest Lands Conservation Act of 1980 (ANILCA), Sec. 1323(a) granted non-Federal landowners, whose ownership lies within the boundaries of the NFS, the statutory right of access over public lands when such Federal lands are needed to provide for the reasonable use and enjoyment of non-Federal lands. A landowner's statutory right of access is limited to that which is adequate to secure the owner the reasonable use and enjoyment of the subject non-Federal land. The Forest Service, as the responsible land management agency, has the discretion to determine the location, design, type, and extent of access that will be granted across Federal land, consistent with the provisions of the Alaska National Interest Lands Conservation Act (36 CFR 251, Subpart D).

Forest Service decisions to grant access must be made in compliance with NEPA. Access authorizations must be conditioned to ensure that the use and occupancy of Federal lands for access purposes is exercised in a manner that complies with all applicable laws and regulations, including the National Historic Preservation Act (NHPA) of 1966 and the ESA. The agency should consider existing state and local laws, zoning restrictions, historic access/use, resource impacts, proposed road improvements to the subject road (e.g., install culverts, implement other BMPs), along with typical uses of similarly situated parcels of non-Federal land, in proximity to the land for which access is being requested.

3.8.4 Management Framework

Guidance for recreation managers on the IPNF is provided through the Forest Plan, which designates NFS lands according to MAs and identifies specific goals, objectives, and standards related to a variety of recreation opportunities and settings (Forest Service 2015a). MA allocations are specific to areas across the IPNF that have similar management needs and desired conditions. Each MA has a certain emphasis that directs management activities on that piece of land. The Bog Creek Project analysis area is located within or adjacent to four IPNF MAs: Backcountry, Eligible Wild and Scenic Rivers, General Forest, and Recommended Wilderness (Figure 3.8.3). The Bog Creek Road is located in the Lower Kootenai and Priest Lake GAs. GAs outline desired conditions that are specific to a locale and reflect community values and local conditions within that area. The GA desired conditions are not designed to substitute for or repeat forest-wide desired conditions. Rather, they refine forest-wide management to better respond to local conditions and situations that may occur within a specific GA.

Table 3.8.4 identifies the goals, objectives, and standards for access and recreation that are applicable in the analysis area.

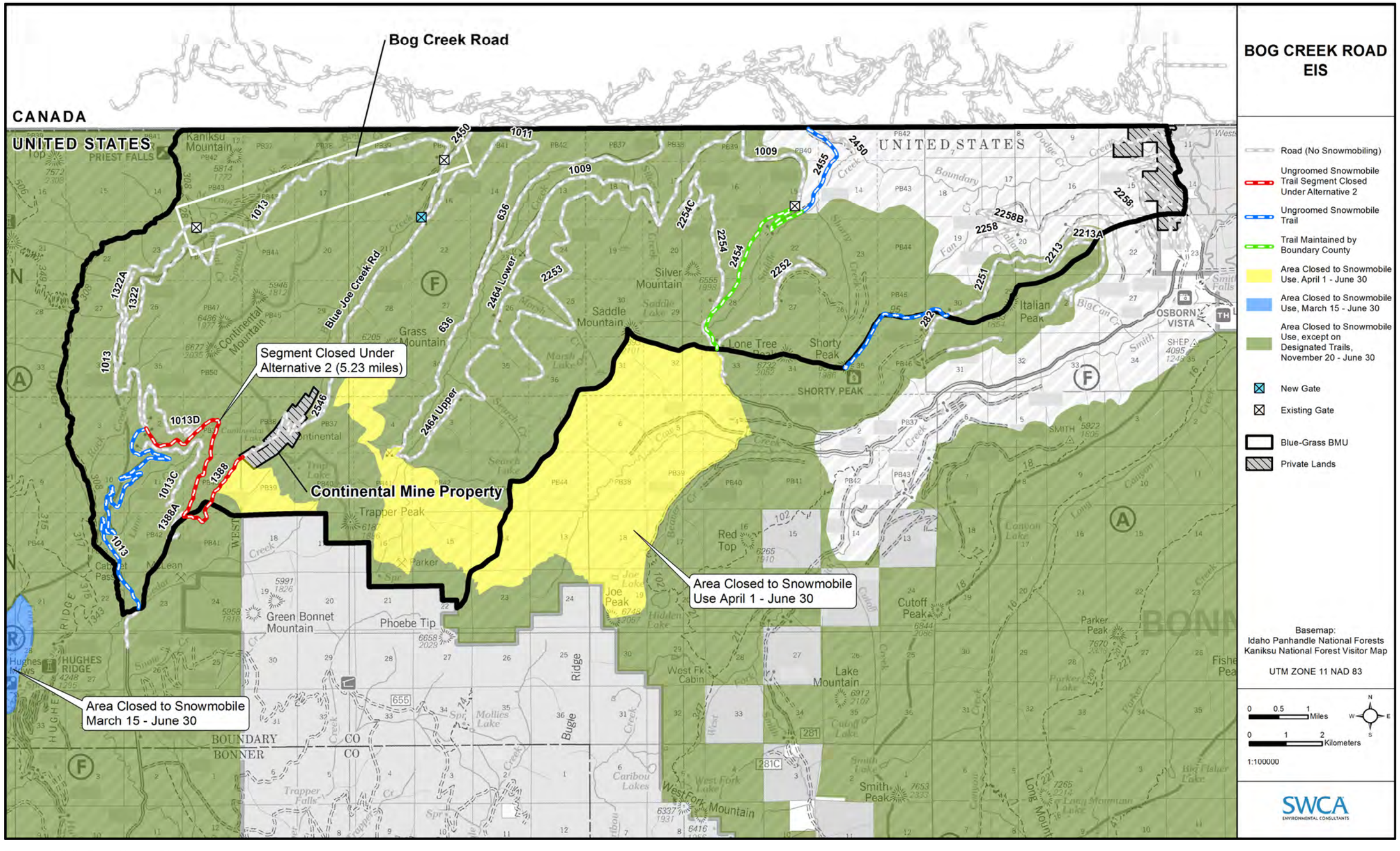

Figure 3.8.2. Blue-Grass BMU snowmobile access.

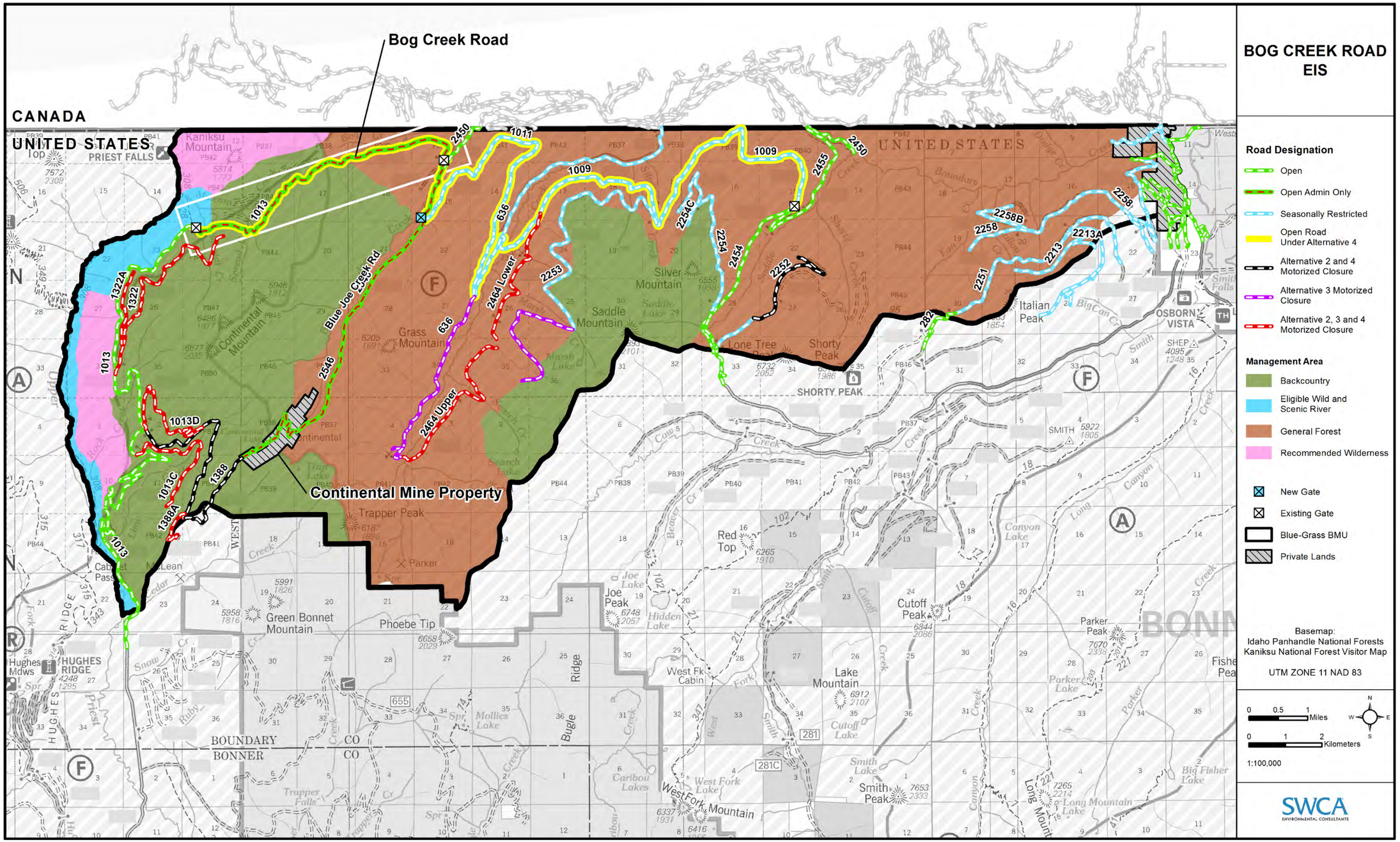

Figure 3.8.3. Blue-Grass BMU IPNF Forest Plan Management Areas.

Table 3.8.4. Recreation-Related Standards, Guidelines, and Objectives Contained within the IPNF Forest Plan

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**GOAL-[Access and Recreation (AR)]-01.** Manage large areas on the Forest that accommodate opportunities for solitude and self-reliance. Provide traditional recreational opportunities, such as hunting, fishing, gathering products, and hiking. Water-based activities are provided at easily accessed destinations and accommodate concentrations of day use as well as overnight camping opportunities. Maintain a road and trail system that provides access to the IPNF.
All MAs	**[Forestwide (FW)]-DC-AR-01.** Quality, well-maintained recreation facilities exist at key locations to accommodate concentrations of use, enhance the visitor's experience, and protect the natural resources of the area. Day use access is available for relaxation, viewing scenery and wildlife, and for water and snow-based play. Recreation rental cabins and lookouts provide safe, comfortable, overnight facilities that allow visitors to experience and learn about the rich history of the area. Dispersed camping opportunities are available for a wide variety of users while considering resource concerns, activity conflicts, or over-use. Food and garbage storage do not contribute to conflicts between recreation users and wildlife.
All MAs	**FW-DC-AR-02.** The scenic resources of the IPNF complement the recreation settings and experiences while reflecting healthy and sustainable ecosystem conditions.
All MAs	**FW-DC-AR-03.** Opportunities for outdoor recreation, such as hunting, fishing, wildlife viewing, berry picking, firewood gathering, and bird watching are available for a wide variety of users. Interpretation and education opportunities enrich the visitors experience and promote a land ethic that preserves the cultural and natural resources of the Forest for future generations.
All MAs	**FW-DC-AR-04.** Provide year-round outdoor recreation opportunities and experiences in a range of settings as described by the ROS.
All MAs	**FW-DC-AR-05.** A variety of motorized and non-motorized winter and summer recreation opportunities are available. Well-designed and maintained trailheads exist and offer adequate parking and turnaround areas. Trails are designed and maintained for the given users (saddle stock, snowmobiles, OHV users, hikers, mountain bikers, etc.).
All MAs	**FW-DC-AR-06.** Solitude and non-motorized experiences are available in remote settings. Non-motorized areas are of sufficient size and configuration to minimize disturbance from other uses. Non-motorized use is also available in more developed areas, but provides less opportunity for solitude and challenge than in the more remote settings. A well-maintained non-motorized trail network accesses locations of interest for a variety of users.
All MAs	**FW-DC-AR-07.** A transportation system is in place that provides safe and efficient public and administrative access to the Forest for recreation, special uses, forest resource management, and fire management activities. It is efficiently maintained, environmentally compatible, and responsive to public needs and desires. The transportation system and its use have minimal impacts on resources, including threatened and endangered species, sensitive species, heritage and cultural sites, watersheds, and aquatic species. Newly constructed or reconstructed roads do not encroach into streams and riparian areas in ways that impact channel function, geometry, or sediment delivery. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. Unauthorized roads and trails are no longer created.
All MAs	**FW-DC-AR-08.** Motor vehicle use designations are complete, accurate signing is in place, and motorized vehicle use maps are available. User conflicts are reduced. Loop opportunities are a part of both the road and trail systems. Community involvement is promoted and user awareness programs (educational and informational) enhance the recreational experience. Partnerships are developed with various interest and user groups to participate in evaluation, planning, and maintenance programs for both roads and trails. Easements are obtained to help provide access to NFS lands.
All MAs	**FW-DC-AR-09.** The transportation system is connected to State, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (e.g., buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).

Table 3.8.4. Recreation-Related Standards, Guidelines, and Objectives Contained within the IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-DC-AR-10.** The area's rich mining and logging history is a focus of the forest's interpretive and conservation education programs. Significant historic sites, structures, and corridors such as the Pulaski Tunnel Trail, Route of the Hiawatha, and Snyder Guard Station serve as key recreation destinations that highlight their historic value, engage visitors, and instill an appreciation for the area's heritage.
All MAs	**FW-DC-AR-11.** Access to the national forests is provided to Tribal members for effective exercise of Treaty reserved hunting, fishing, and gathering rights, as well as cultural and religious practices.
All MAs	**FW-STD-AR-01.** When existing recreation residences are replaced or reconstructed, the following requirements apply: • The maximum size limit is 1,200 square feet on the main floor as measured by the exterior dimensions. This includes enclosed/screened-in porches, but excludes decks; • The maximum height of any recreation residence shall not exceed 24 feet; • A minimum of a 6/12 roof pitch shall be required; • Basements shall not be permitted; • Shed roofs shall not be permitted; and • Any new garage or storage building shall not exceed 20 feet by 24 feet exterior dimensions, with a 9-foot wall (floor to point of contact with roof).
All MAs	**FW-GDL-AR-01.** Management activities should be consistent with the mapped Scenic Integrity Objective; see Forest Plan (Forest Service 2015a). The Scenic Integrity Objective is High to Very High for scenic travel routes, including the Pacific Northwest National Scenic Trail, designated Scenic Byways, and National Recreation Trails.
MA1b	**MA1b-DC-AR-01.** These areas provide non-motorized and non-mechanized opportunities for exploration, solitude, risk, challenge, and primitive recreation. Opportunities for solitude are moderate to high on existing trails, with few human encounters expected.
MA1b	**MA1b-DC-AR-02.** Summer and winter recreation opportunities and experiences are consistent with the ROS classification of semi-primitive non-motorized.
MA1b	**MA1b-DC-AR-03.** Opportunities for solitude are high when traveling cross-country, with almost no human encounters expected.
MA1b	**MA1b-DC-AR-04.** Campsites may be visible at popular destinations and at major trail junctions. These sites accommodate moderate use.
MA1b	**MA1b-DC-AR-05.** Directional and regulatory signs are primarily found at trailheads outside this MA, but some signs may be present within these areas.
MA1b	**MA1b-DC-AR-06.** Preservation of historic properties may occur, although buildings and other structures are rare.
MA1b	**MA1b-STD-AR-01.** If within an Idaho Roadless Area, road construction and reconstruction shall follow direction contained in 36 CFR 294.23, Road Construction and Reconstruction in Idaho Roadless Areas.
MA1b	**MA1b-STD-AR-02.** Motor vehicle use is not allowed.
MA1b	**MA1b-STD-AR-03.** Mechanized use is not allowed (e.g., mountain bikes and other wheeled equipment).
MA1b	**MA1b-STD-AR-04.** In areas not within Idaho Roadless Areas road construction is not allowed.
MA1b	**MA1b-STD-AR-05.** In areas not within Idaho Roadless Areas reconstruction of roads is not allowed.
MA1b	**MA1b-GDL-AR-01.** Only non-motorized equipment and handheld motorized equipment is allowed for management activities.
MA1b	**MA1b-GDL-AR-02.** Management activities should be consistent with the Scenic Integrity Objective of Very High.
MA2b	**MA2b-DC-AR-01. Wild/Recreational.** Eligible wild and recreational rivers and their adjacent areas retain their free-flowing status and preliminary classification, and their outstandingly remarkable values are conserved or enhanced.

Table 3.8.4. Recreation-Related Standards, Guidelines, and Objectives Contained within the IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
MA2b	**MA2b-DC-AR-02. Wild.** Eligible wild river segments provide non-motorized opportunities for exploration, solitude, risk, challenge, and primitive recreation.
MA2b	**MA2b-DC-AR-03. Wild.** Opportunities for solitude are moderate to high with few human encounters in eligible wild river segments.
MA2b	**MA2b-DC-AR-04. Wild.** Summer and winter recreation opportunities and experiences are consistent with the ROS classification of semi-primitive non-motorized in eligible wild river segments. Motor vehicle use does not occur.
MA2b	**MA2b-DC-AR-05. Wild.** Preservation of historic properties may occur, although buildings and other structures are rare in eligible wild river segments.
MA2b	**MA2b-DC-AR-06. Recreational.** Eligible recreational river segments provide a wide variety of motorized and non-motorized recreation opportunities. Development within river corridors is designed for recreational use by the forest visitor, while protecting the environment and river-related resources. These areas provide opportunities for motor vehicle use on designated roads and trails and over-snow vehicle use.
MA2b	**MA2b-DC-AR-07. Recreational.** Summer and winter recreation opportunities and experiences are consistent with the ROS classification ranging from semi-primitive motorized to roaded natural in eligible recreational river segments.
MA2b	**MA2b-DC-AR-08. Recreational.** Preservation of historic properties may occur in eligible recreational river segments.
MA2b	**MA2b-GDL-AR-01. Wild.** Additional routes and areas should not be designated for motor vehicle use in eligible wild river segments.
MA2b	**MA2b-GDL-AR-02. Wild/Recreational.** Mechanized use (e.g., mountain bike and other wheeled equipment) is allowed.
MA2b	**MA2b-GDL-AR-03. Wild.** Road construction should not occur in eligible wild river segments.
MA2b	**MA2b-GDL-AR-04. Wild/Recreational.** Reconstruction of roads is allowed.
MA2b	**MA2b-GDL-AR-05. Wild.** Management activities should be consistent with the Scenic Integrity Objective of Very High in eligible wild river segments.
MA2b	**MA2b-GDL-AR-06. Recreational.** Motor vehicle use is allowed in eligible recreational river segments.
MA2b	**MA2b-GDL-AR-07. Recreational.** Road construction is allowed in eligible recreational river segments.
MA2b	**MA2b-GDL-AR-08. Recreational.** Management activities should be consistent with the Scenic Integrity Objective of Moderate to High for eligible recreational river segments.
MA 5	**MA5-DC-AR-01.** These areas provide more remote and undeveloped recreation experiences largely through the management of the various trail systems (i.e., motorized and non-motorized).
MA 5	**MA5-DC-AR-02.** Summer and winter recreation opportunities and experiences are consistent with the ROS classifications of semi primitive motorized and non-motorized.
MA 5	**MA5-DC-AR-03.** Construction of new facilities is rare.
MA 5	**MA5-DC-AR-04.** Preservation of historical properties may occur, although buildings and other structures are rare.
MA 5	**MA5-STD-AR-01.** If within an Idaho Roadless Area, road construction and reconstruction shall follow direction contained in 36 CFR 294.23, Road Construction and Reconstruction in Idaho Roadless Areas.
MA 5	**MA5-STD-AR-02.** If within an inventoried roadless area outside of Idaho, road construction and reconstruction shall follow direction found in the 2001 Roadless Rule (36 CFR 294.12).
MA 5	**MA5-GDL-AR-01.** Motor vehicle use is allowed.
MA 5	**MA5-GDL-AR-02.** Mechanized use is allowed (e.g., mountain bikes and other wheeled equipment).

Table 3.8.4. Recreation-Related Standards, Guidelines, and Objectives Contained within the IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
MA 5	**MA5-GDL-AR-03.** In areas not within an inventoried roadless area, road construction and reconstruction is allowed to maintain or restore resources.
MA 5	**MA5-GDL-AR-04.** Management activities should be consistent with the Scenic Integrity Objective of Moderate to High.
MA 6	**MA6-DC-AR-01.** A range of recreational opportunities (e.g., motorized and non-motorized) are provided within this MA while route conditions are maintained or improved.
MA 6	**MA6-DC-AR-02.** Summer and winter recreation opportunities and experiences are consistent with the ROS classification of semi-primitive non-motorized to roaded natural.
MA 6	**MA6-DC-AR-03.** Existing recreation facilities are managed to accommodate public use and provide safe recreation experiences.
MA 6	**MA6-GDL-AR-01.** Motor vehicle use is allowed.
MA 6	**MA6-GDL-AR-02.** Mechanized use is allowed (e.g., mountain bikes and other wheeled equipment).
MA 6	**MA6-GDL-AR-03.** Road construction is allowed.
MA 6	**MA6-GDL-AR-04.** Reconstruction of roads is allowed.
MA 6	**MA6-GDL-AR-05.** Management activities should be consistent with the Scenic Integrity Objective of Low to High.
Lower Kootenai GA	**GA-DC-AR-[Lower Kootenai (LK)]-01.** The Bonners Ferry Ranger District emphasizes dispersed recreation opportunities, and smaller, less developed, day-use and overnight sites throughout the district.
Lower Kootenai GA	**GA-DC-AR-LK-02.** Secluded acres of backcountry with moderate to easy access provide motorized and non-motorized recreation opportunities.
Lower Kootenai GA	**GA-DC-AR-LK-03.** Rental facilities, including several lookouts and Snyder Guard Station, are maintained and improved as budgets allow.
Lower Kootenai GA	**GA-DC-AR-LK-04.** Summer trails across the district offer both motorized and non-motorized opportunities. Summer trail access to the Selkirk Crest is maintained through a number of trailheads along the east side of the Selkirk Mountains.
Lower Kootenai GA	**GA-DC-AR-LK-05.** A viable winter trail system is available predominantly for motorized users that provide access to a range of winter trail experiences and appropriate off-trail opportunities across the district while protecting wildlife and their habitat.
Lower Kootenai GA	**GA-DC-AR-LK-06.** The district continues to maintain strong partnerships with a wide array of groups assisting with recreation facility and trail maintenance and operations.
Priest Lake GA	**GA-DC-AR-[Priest Lake (PR)]-01.** Summer trails provide a range of motorized and non-motorized opportunities. Cooperation between the local communities of Priest River and Priest Lake, the Idaho Department of Lands, and the Forest Service provide an integrated approach to recreation management. The winter motorized trail system provides opportunities for loop trail rides on groomed routes and access to a wide array of off-trail areas while meeting wildlife management objectives.

Other regulations, laws, and policies governing recreation management are shown in Table 3.8.5.

Table 3.8.5. Other Regulations, Laws, and Policies Governing Recreation Management

Relevant Regulations, Laws, and Policies	Summary
Multiple Use–Sustained Yield Act of June 12, 1960	This act provides direction to the NFS lands to provide access and recreation opportunities. The act states, “The policy of Congress is that national forests are established and administered for outdoor recreation.”

Table 3.8.5. Other Regulations, Laws, and Policies Governing Recreation Management (Continued)

Relevant Regulations, Laws, and Policies	Summary
Term Permit Act of March 4, 1915	This act provides direction to the NFS lands to authorize occupancy for a wide variety of uses through permits not exceeding 30 years.
National Forest Roads and Trails Act of October 13, 1964	This act declares that an adequate system of roads and trails be constructed and maintained to meet the increasing demand for recreation and other uses. This act authorizes road and trail systems for the national forests.

3.8.5 Environmental Consequences

3.8.5.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential direct, indirect, and cumulative effects on recreation resources and specify the criteria that were used to determine the effects. As presented in Section 3.8.2, the temporal scale for environmental effects on recreation resources are described in terms of short-term (less than 15 years) and long-term (15 years or more) effects.

Issue Indicators

Table 3.8.6 details the issue indicators to analyze potential impacts to recreation resources.

Table 3.8.6. Issue Indicators for Recreation Resources

Issues	Analysis Measures
Motorized access to the national forest (public and administrative)	Changes in total miles of the existing route system available for recreational public use (i.e., miles of specific designations [limited, open, or closed]). Miles of routes closed to motorized recreational use per ROS classification. Changes in access to private land in the Blue-Grass BMU.
Disturbance to recreation resources	Changes in access to designated recreation sites and trails. Changes to the recreation setting and opportunities (e.g., snow sports, hunting, fishing, cycling, vehicle exploring, sightseeing, and trapping).

Analysis for recreation resources is based upon existing IPNF recreation data and management as prescribed in the 2015 Forest Plan, Forest Service recreation specialists input, and other agency/public scoping input. Quantitative impact analysis will consist of a GIS analysis of the acres of disturbance and miles of route closures that occur within a given ROS classification. The effects of the route closures (i.e., changes to public access) will be qualitatively described according to the recreation experiences that occur currently along the routes to be closed.

3.8.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

This section includes a description of the short-term direct and indirect effects on recreation resources for each alternative.

Alternative 1 – No Action

No road repair or motorized closure activities would occur under the No-Action Alternative; no impacts to recreational public uses currently occurring in the Blue-Grass

BMU would occur. All activities currently occurring, as described above, on the road and trail network within the BMU would continue.

Under the No-Action Alternative, there would be no change to the management of the existing route system. Thus, access to designated recreation sites, seasonal restrictions, and overall mileage of routes available to public motorized use would not change. Approximately 34 miles of routes would continue to be classified as "open," and approximately 97 miles of routes would continue to be seasonally restricted for public motorized use.

Current recreational motorized and non-motorized public use (e.g., via OHVs, hiking, horseback riding, cycling, snowmobiling) on the existing route network would continue, as well as and maintenance and use activities by Forest Service and law enforcement agencies. Hunting and trapping opportunities would continue. Bog Creek Road would continue to be unrepaired and generally inaccessible for recreation activities such as hiking and mountain biking.

The ROS within the Blue-Grass BMU would continue to be managed at current settings, and the routes therein would not change under the No-Action Alternative.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in recreation impacts similar to those discussed for motorized closure under the Proposed Action; however, it is unknown exactly which roads would be closed to motorized use to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Private Land Access

Access to private property under this alternative would require a special use authorization for approximately 20.55 miles of FSRs 1009, 636, 1011, and 2546, beginning at the intersection of FSRs 2454 and 1009. This authorization would be conditioned to meet the limitations of the alternative (i.e., negotiate the number of administrative motorized trips, seasonal restrictions, etc.). Pursuant to 36 CFR 251.57 and 36 CFR 251.58, this authorization would be subject to cost recovery regulations and annual land use fees.

Alternative 2 – Proposed Action

Road repair activities would occur under the Proposed Action on Bog Creek Road and motorized closure activities would occur on the 26.5 miles of seasonally restricted roads proposed for motorized closure. Construction staging areas for the Bog Creek Road repair and maintenance activities would be located at the west and east ends of the Bog Creek Road area.

Work activities associated with motorized road closure include full or partial recontouring of the road prism, ripping the road surface, removing culverts and recontouring stream crossings, and planting and seeding, mulching, or slashing disturbed areas.

Construction equipment that would be used for both Bog Creek Road repair and motorized road closure activities includes a dozer, grader, hydraulic excavator, and dump truck. In addition, several pickup trucks or SUVs would transport construction personnel to and from the area.

Changes in Total Miles of the Existing Route System Available for Recreational Public Use

Under the Proposed Action, 5.6 miles of Bog Creek Road and 7.4 miles of Blue Joe Creek Road would be designated administrative open (as-needed administrative motorized access) and closed to all public motorized travel. The roads would be maintained for administrative use and would be open and accessible for non-motorized recreational use. An existing gate, located at the east end of Bog Creek Road, would be closed and locked year-round, and no public motorized use would be allowed to occur. The repair of Bog Creek Road would allow for increased non-motorized uses of hiking, biking, and horseback riding.

Under the Proposed Action, 26.5 miles of seasonally restricted Forest Service roads would be closed to all motorized and non-motorized recreational use (Table 3.8.7). The closed roads would not be maintained for non-motorized recreational activities that include hiking, biking, horseback riding, etc. Non-motorized users would still be able to access the closed roads; however, motorized road closure activities (e.g., installing gates or barricades, ripping the road surface, removing culverts and recontouring stream crossings, planting and seeding, mulching, slashing disturbed areas) and the resultant vegetation reestablishment within the road would make non-motorized access increasingly difficult.

Table 3.8.7. Road Classification and Miles in the Blue-Grass BMU for the Proposed Action (Alternative 2)

Road Classification	Miles
Open	33.8
Seasonally Restricted	57.2
Administrative Open	13.0
Closed	26.5
Total Miles	**130.5**

Miles of Routes Closed to Motorized Recreational Use per ROS Classification

Under the Proposed Action, 26.5 miles of currently seasonally restricted Forest Service roads would be closed to motorized recreational use (see Figure 3.8.1). Table 3.8.8 identifies the miles of roads proposed for motorized closure per the ROS classification of each road in the Proposed Action.

Table 3.8.8. Proposed Action (Alternative 2) Motorized Closure Road Miles and ROS Classification

FSR	Miles	ROS Classification
1013D	2.8	Semi-primitive non-motorized
1013C	2.7	Semi-primitive non-motorized
1322	4.2	Semi-primitive non-motorized
1322A	1.4	Semi-primitive non-motorized

Table 3.8.8. Proposed Action (Alternative 2) Motorized Closure Road Miles and ROS Classification (Continued)

FSR	Miles	ROS Classification
1388	5.7	Semi-primitive non-motorized
1388A	0.8	Semi-primitive non-motorized
2252	2.5	Semi-primitive non-motorized
2464 (Lower)	3.5	Roaded modified non-motorized
2464 (Upper)	2.9	Roaded modified non-motorized

Of the 26.5 miles of roads that would be closed, 6.4 miles would be in the roaded modified non-motorized ROS classification and 20.1 miles would be in the semi-primitive non-motorized ROS classification.

Repair and maintenance (e.g., regrading, culvert installation) of the 5.6-mile segment of Bog Creek Road would detrimentally impact dispersed, non-motorized recreation opportunities in a 22.3-acre area that is designated semi-primitive non-motorized ROS (Table 3.8.9).

Table 3.8.9. Acres of Surface Disturbance per ROS, Proposed Action (Alternative 2)

Action	Semi-primitive Non-motorized	Roaded-Modified
Bog Creek improvements	22.3 acres	0 acres
Motorized closure routes	15.0 acres	47.4 acres
Total acres of surface disturbance: 84.7 acres		

There would be detrimental impacts to dispersed and non-motorized recreation opportunities resulting from some motorized closure activities that require on-the-ground work in site-specific areas where resource conditions (e.g., erosion hazards) require repair. Installation of water bars and recontouring activities may require the use of equipment. As shown above in Table 3.8.9, these activities could take place on up to 15.0 acres of semi-primitive non-motorized ROS. Activities on up to 47.4 acres of roaded-modified ROS would detrimentally impact dispersed and non-motorized recreation.

After road repair activities, the Bog Creek Road would not be open to the public for motorized travel year-round. The road is currently not accessible to public motorized use because of its deteriorated condition. Therefore, there is no difference between public motorized access under the No-Action Alternative and the Proposed Action.

Under the Proposed Action, public motorized use of 7.4 miles of Blue Joe Creek Road would be restricted year-round. This represents no change from the No-Action Alternative; therefore, there would be no impact.

Changes in Access to Designated Recreation Sites and Trails

Access to the trailhead for Continental Creek Trail at Bog Creek Road (see Figure 3.8.1) may be temporarily detrimentally impacted by the west side construction equipment staging area during the road repair phase. The trailhead would remain open during road repair, but the presence and operation of construction equipment in the vicinity of the

trailhead may diminish the recreation experience of trail users starting or ending their non-motorized use at the trailhead.

The Proposed Action would also close FSR 1013D, which currently provides limited access to the Continental Mountain Trail between November 16 and March 31 (see Figure 3.8.1). Road access to the trailhead is difficult because of increasing vegetation growth within the roadbed. Because of the current vegetation overgrowth and the road's seasonally restricted motorized designation, the road provides limited access to the Continental Mountain Trail. The Continental Mountain Trail is also not actively maintained and receives very little use. Based upon these factors, the direct detrimental impact of motorized road closure to the trailhead would affect a small subset of recreation users. Trail users would continue to be able to access the trail after FSR 1013D is closed.

No impacts to access for the Italian Ridge Trail, Upper Priest River Trail, Little Snowy Top Trail, the Pacific Northwest National Scenic Trail, and the Shorty Peak Lookout Tower would occur as a result of changes to access.

The Proposed Action would close FSR 1388, a designated snowmobile route (see Figure 3.8.2). The removal of 5.2 miles of designated snowmobile trail from the approximately 21 total miles of available snowmobile trails within the Blue-Grass BMU would result in the reduction of 25.2 percent of miles of designated snowmobile trails. Therefore, the Proposed Action would have a detrimental impact by eliminating designated snowmobile routes in the Blue-Grass BMU.

Changes to the Recreation Setting and Opportunities

Bog Creek Road

The presence and operation of work equipment on Bog Creek Road would diminish the recreation experience of dispersed, non-motorized recreational use of Bog Creek Road, such as hiking, biking, and horseback riding. The impact would be short term and localized, as the repair work would progress linearly along the route. The exact location of the staging areas are not known, but it is likely that recreation experience at the beginning of the Continental Trail and on the terminus of the open-road segment of Bog Creek Road would be temporarily diminished by repair work equipment that would be located and operating in the vicinity of the trailhead. Therefore, repair activities on Bog Creek Road would have a temporary, detrimental impact to the recreation setting and opportunities in the vicinity of Bog Creek Road.

The current deteriorated condition of Bog Creek Road makes non-motorized recreation activities such as hiking, mountain biking, and horseback riding difficult or impossible. By clearing vegetation from the roadway, repairing and regrading washed-out segments, and installing drainage structures, the repaired Bog Creek Road would provide an improved 5.6-mile, long-term, east–west access around Continental Mountain between the Upper Priest Falls trailhead and the open FSR 2450. After Bog Creek Road repair is complete, there would be a beneficial impact to non-motorized recreation because the repaired road would better facilitate these non-motorized recreation activities. However, administrative use of Bog Creek Road would have short-term, localized effects on non-motorized user settings (e.g., noise, presence of vehicles); the exact frequency and duration for the administrative use of Bog Creek Road is unknown.

Blue Joe Creek Road

Blue Joe Creek Road is currently open to seasonally restricted motorized access and (just like Bog Creek Road) under the Proposed Action, it would have open administrative motorized use. This would change the motorized use level from low to moderate (see Table 3.1.3). This change in motorized use level could diminish the recreation experience of dispersed, non-motorized recreational use on Blue Joe Creek Road. Users such as hikers, hunters, and trappers who seek out non-motorized settings and value solitude and uninterrupted pursuit of these activities would experience a higher level of motorized use on this road than under the No-Action Alternative.

Motorized Closure

Construction activities associated with motorized road closure would temporarily diminish the recreation setting and opportunities in the vicinity of the roads. As described in Section 3.8.3, Affected Environment, visitors to the Blue-Grass BMU are recreation users who seek opportunities for solitude in areas where they would be less likely to see other humans and human activities. Access to hunting or trapping grounds, as well as dispersed recreation, would be temporarily detrimentally affected as construction noises, visual disturbances, and/or the presence of other humans could detract from these recreation opportunities and activities.

After construction activities on the closed roads have ceased, the closing of 26.5 miles of seasonally restricted roads to all motorized access would have a mix of beneficial and detrimental short-term impacts to recreation settings and opportunities.

Closing the motorized roads would reduce recreation user conflict between motorized and non-motorized recreation users. Dispersed, non-motorized recreation users such as hikers, hunters, and trappers who value solitude and uninterrupted pursuit of these activities would experience a beneficial impact from the elimination of all motorized use on the closed roads. These beneficial impacts would be limited because current motorized use of these roads is infrequent.

Other recreation users who rely on the cleared, continuous, relatively flat surfaces of the roads, such as biking and horseback riding, would have detrimental impacts from the elimination of roads that, when maintained, facilitate these recreation uses. Culvert and drainage crossings would be removed and surfaces would be regraded to better match surrounding topography and drainage patterns as part of the motorized road closure activities, which would further limit these uses. Over time, the reestablishment of vegetation on the closed roads would render biking and horseback riding too difficult.

Motorized road closure would prohibit snowmobile recreation activities from occurring on FSR 1388, thereby eliminating approximately 25 percent of available designated snowmobile routes in the Blue-Grass BMU. As stated in Section 3.8.3, Affected Environment, visitor opinions about snowmobiling are mixed. For visitors who value snowmobiling, the elimination of the designated snowmobile route presents a direct, detrimental impact. Snowmobile opportunities would decrease under the Proposed Action by 5.2 miles. As a result, snowmobilers would be expected to relocate their snowmobile activities to those designated routes that are still open, which may result in intensified recreational use, potential overcrowding, and/or traffic at certain times on the open routes. In other words, snowmobilers may encounter more and more snowmobilers on designated routes, resulting in higher and more intense use. The result is that in addition to losing

opportunities (mileage) for motorized recreation, the quality of the recreational experience may be detrimentally affected.

For visitors who value non-motorized experiences in the Blue-Grass BMU, the elimination of the designated snowmobile route would be a beneficial impact due to the resolution of user conflict between motorized and non-motorized recreation use in favor of non-motorized use. This impact would be minimal, considering the relatively small area that FSR 1388 traverses in the Blue-Grass BMU and the large amount of other areas (e.g., the areas of the Blue-Grass BMU that are currently designated as semi-primitive non-motorized) that are open to experience non-motorized recreation winter activities.

Private Land Access

Access to private property under this alternative would require a special use authorization for approximately 10.9 miles of FSRs 1013 and 2546, beginning at the gate near Continental Creek. This authorization would be conditioned to meet the limitations of the alternative. The holder would not be required to negotiate the number of administrative motorized trips under this alternative. Pursuant to 36 CFR 251.57 and 36 CFR 251.58, this authorization would be subject to cost recovery regulations and annual land use fees.

Alternative 3 – Modified Proposed Action

Road repair and motorized closure activities that would occur under Alternative 3 would be located on Bog Creek Road and the 24.7 miles of seasonally restricted roads proposed for motorized closure. Bog Creek Road repair activities and change in motorized use designation, the construction activities associated with motorized closure, and construction equipment that would be used for all of these activities would be the same as described under the Proposed Action.

Changes in Total Miles of the Existing Route System Available for Recreational Public Use

Under Alternative 3, 24.7 miles of seasonally restricted Forest Service roads would be closed to all motorized and non-motorized recreational use (Table 3.8.10). The closed roads would not be maintained for non-motorized recreational activities that include hiking, biking, horseback riding, etc. Non-motorized users would still be able to access the closed roads; however, motorized road closure activities and the resultant vegetation reestablishment within the road would make non-motorized access increasingly difficult.

As described under the Proposed Action, 5.6 miles of Bog Creek Road would be closed to all public motorized use. Because Bog Creek Road would continue to be used and maintained for administrative motorized use, non-motorized recreational users would still be able to access Bog Creek Road.

Table 3.8.10. Road Classification and Miles in the Blue-Grass BMU for Alternative 3

Road Classification	Miles
Open	33.8
Seasonally Restricted	59.0
Administrative Open	13.0
Closed	24.7
Total Miles	**130.5**

Miles of Routes Closed to Motorized Recreational Use under ROS Classification

Under Alternative 3, 24.7 miles of currently seasonally restricted Forest Service roads would be closed to all motorized use (see Figure 3.8.1). Table 3.8.11 identifies the miles of motorized closure roads under the ROS classification of each road in Alternative 3.

Table 3.8.11. Alternative 3 Motorized Road Closure Miles and ROS Classification

FSR	Miles	ROS Classification
1013C	2.7	Semi-primitive non-motorized
1013D	2.8	Semi-primitive non-motorized
1322	4.2	Semi-primitive non-motorized
1322A	1.4	Semi-primitive non-motorized
1388A	0.8	Semi-primitive non-motorized
2253	2.7	Roaded modified non-motorized
636	3.7	Roaded modified non-motorized
2464 (Lower)	3.5	Roaded modified non-motorized
2464 (upper)	2.9	Roaded modified non-motorized

Of the 24.7 miles of roads that would be closed, 12.8 miles would be in the roaded modified non-motorized ROS classification and 11.9 miles would be in the semi-primitive non-motorized ROS classification.

The impact from motorized closure activities may occur on 29 acres of semi-primitive non-motorized ROS. The up to 31 acres of motorized closure activities on roaded-modified roads would have minimal impacts to dispersed and non-motorized recreation (Table 3.8.12).

Table 3.8.12. Acres of Surface Disturbance per ROS, Alternative 3

Action	Semi-Primitive Non-Motorized	Roaded-Modified
Bog Creek improvements (same as the Proposed Action)	22.3 acres	0 acres
Motorized road closure	29.0 acres	31.0 acres
Total acres of surface disturbance: 82.3 acres		

The general impacts described for motorized road closure would be the same as presented under the Proposed Action. Repair activities associated with Bog Creek Road and impacts to public motorized use of Blue Joe Creek Road would be the same as described under the Proposed Action.

Changes in Access to Designated Recreation Sites and Trails

In general, the impacts to designated recreation sites and trails would be the same as presented under the Proposed Action. However, under Alternative 3, the designated snowmobile routes (FSR 1388) would not be closed to motorized access (see Figure 3.8.2). The 5.2 miles of designated snowmobile route would remain a part of the

approximately 21 total miles of available designated snowmobile routes in the Blue-Grass BMU. Therefore, compared with the Proposed Action, Alternative 3 would not have a detrimental impact to designated snowmobile access.

Changes to the Recreation Setting and Opportunities

Bog Creek Road

Impacts to recreation setting and opportunities for Bog Creek Road under Alternative 3 would be the same as described under the Proposed Action.

Blue Joe Creek Road

Impacts to recreation setting and opportunities for Blue Joe Creek Road would be the same as described under the Proposed Action.

Motorized Closure

With the exception of designated snowmobile trails described below, impacts to recreation setting and opportunities from closing roads under Alternative 3 would be the same as described under the Proposed Action.

Under Alternative 3, FSR 1388 would not be closed and would remain open for snowmobile use (see Figure 3.8.2). Compared with the Proposed Action, under Alternative 3, there would not be a 25 percent reduction in designated snowmobile trails on the Blue-Grass BMU. Because the current snowmobile designation would remain, there would not be a detrimental impact to snowmobilers, and there would not be a beneficial impact to non-motorized recreation users who value solitude and an uninterrupted visitor experience.

Private Land Access

Access to private property under this alternative would be the same as described under the Proposed Action. Access to private property under this alternative would require a special use authorization for approximately 10.9 miles of FSRs 1013 and 2546, beginning at the gate near Continental Creek. This authorization would be conditioned to meet the limitations of the alternative. The holder would not be required to negotiate the number of trips under this alternative. Pursuant to 36 CFR 251.57 and 36 CFR 251.58, this authorization would be subject to cost recovery regulations and annual land use fees.

Alternative 4 – Blue-Grass BMU West–East Open Access

After Bog Creek Road repair is complete, the primary differences between the Proposed Action and Alternative 4 would be changes to the miles of routes available for public motorized use and changes to the recreation setting and opportunities in the Blue-Grass BMU.

Changes in Total Miles of the Existing Route System Available for Recreational Public Use

Under Alternative 4, the classification of 5.6 miles of Bog Creek Road and 17.4 miles of the west to east access roads (portions of FSRs 2546, 1011, 636, and 1009) would change from *seasonally restricted* to *open* to motorized and non-motorized use year-round (Table 3.8.13; see Figure 3.8.1).

Under Alternative 4, 1.0 mile of Blue Joe Creek Road would change designation from seasonally restricted to open to public motorized use, and 6.4 miles would change to administrative open. A locked gate at the intersection of the Blue Joe Creek Road (FSR 2546) and FSR 1011 would only allow open administrative access on FSR 2546 beyond that publicly open 1.0 mile.

Table 3.8.13. Road Classification and Miles in the Blue-Grass BMU for Alternative 4

Road Classification	Miles*
Open	57.0
Seasonally Restricted	40.6
Administrative Open	6.40
Closed	26.5
Total Miles	**130.5**

*Totals may not add up due to rounding.

Miles of Routes Closed to Motorized Recreational Use under ROS Classification

Under Alternative 4, the miles of route closed to recreational use under each ROS classification is the same as presented under the Proposed Action.

Changes in Access to Designated Recreation Sites and Trails

Under Alternative 4, changes in access to designated recreation sites and trails would be the same as presented under the Proposed Action.

Changes to the Recreation Setting and Opportunities

After the Bog Creek Road repair is complete, the primary differences between the Proposed Action and Alternative 4 would be changes to the recreation setting and opportunities and changes to the miles of routes available for public motorized use in the Blue-Grass BMU.

Under Alternative 4, the classification of 5.6 miles of Bog Creek Road and 17.4 miles of the west to east access approach roads to Bog Creek Road (portions of FSRs 2546, 1011, 636, and 1009) would change from seasonally restricted to open to motorized use year-round (see Table 3.8.13).

This change in road classification would have a beneficial impact on motorized recreational use in the Blue-Grass BMU by opening up an additional 17.4 miles of road for public year-round motorized use (e.g., ATVs, OHVs, and utility-terrain vehicles). Opening the 5.6-mile segment of Bog Creek Road to year-round motorized use would make access to the Continental Creek Trail at Bog Creek Road (see Figure 3.8.1) more convenient to a wider range of users. Designating 17.4 miles of the west to east access approach access roads (portions of FSRs 2546, 1011, 636, and 1009) open to public motorized use would greatly improve public motorized access to the interior of the Blue-Grass BMU (see Figure 3.8.1) beyond current conditions since they are currently designated seasonally restricted. Opening 17.4 miles of portions of FSRs 2546, 1011, 636, and 1009 to public motorized use would create new opportunities for motorized use, such as crossing the entire BMU from the east or west; or combining the 17.4 miles of routes

into a loop route/routes with other existing, open-to-public-motorized-use routes. Where access to certain portions of the BMU's western areas require western access, and where access to certain portions of the BMU's eastern areas require eastern access, under Alternative 4, since there would be public motorized use connectivity year-round, access to all routes designated as open to public motorized use in the BMU (including the interior) could be achieved from both west and east of the BMU. This would be a long-term, beneficial impact to public motorized use settings and opportunities. Both public and administrative motorized use of Bog Creek Road and the open-to-public-motorized-use west to east access roads is anticipated to be high. Public motorized use of the roads would be limited to ATVs, utility-terrain vehicles, and high-clearance vehicles (i.e., OHVs) and could be passable by standard passenger vehicles, depending upon the road conditions. The roads would be repaired and maintained in accordance with Forest Service road maintenance level 2 standards.

Year-round motorized use of Bog Creek Road and 17.4 miles of portions of FSRs 2546, 1011, 636, and 1009 would have a detrimental impact on non-motorized recreational use for visitors who value non-motorized experiences, such as biking, horseback riding, and hiking. Alternative 4 would conflict with the current ROS setting for semi-primitive non-motorized areas, which encompasses the 5.6-mile section of Bog Creek Road as well as portions of FSRs 2546, 1011, 636, and 1009. This conflict may result in changes to the current semi-primitive non-motorized attributes along the 5.6-mile section of Bog Creek Road, such as decreased naturalness (e.g., noise from motorized use) and increased evidence of use (e.g., motorized tire tracks in the dirt/mud). Changes to the current ROS semi-primitive non-motorized prescriptions within the Blue-Grass BMU (as prescribed in the IPNF Forest Plan) would likely be required by IPNF to address the potential conflict that would arise if Alternative 4 were implemented. Year-round motorized use of Bog Creek Road under Alternative 4 would increase the potential for recreation user conflict between motorized and non-motorized recreation users.

Under Alternative 4, a 6.4-mile section of Blue Joe Creek Road would change designation from seasonally restricted (limited motorized trips) to administrative open (as-needed administrative trips). There would be no motorized public access along this road, and a new, closed and locked gate would be placed at the junction with FSR 1011 to prevent access from the open Bog Creek Road and west to east access roads; the gate would be locked year-round. The impacts to public motorized use and non-motorized use of Blue Joe Creek Road under Alternative 4 are the same as described under the Proposed Action and Alternative 3.

Private Land Access

Access to private property under this alternative would require a special use authorization for approximately 5.5 miles of FSR 2546, beginning at the intersection with FSR 1011. This authorization would be conditioned to meet the limitations of the alternative. The holder would not be required to negotiate the number of trips under this alternative. Pursuant to 36 CFR 251.57 and 36 CFR 251.58, this authorization would be subject to cost recovery regulations and annual land use fees.

3.8.5.3 Effects from Long-Term Maintenance and Use Actions

This section includes a description of the long-term direct and indirect effects on recreation resources for each alternative.

Alternative 1 – No Action

No road repair activities or motorized closure activities would occur under the No-Action Alternative; therefore, long-term maintenance and use of the existing road network would continue to occur. All recreational activities currently occurring, as described above, on the road and trail network within the BMU would continue. The Bog Creek Road would continue to be unrepaired and generally inaccessible for recreation activities such as hiking and mountain biking.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative. Future motorized road closure could result in recreation impacts similar to those discussed for motorized closure under the Proposed Action; however, it is unknown exactly which roads would be closed to motorized use to meet the Access Amendment standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Long-term recreational use of Bog Creek Road and Blue Joe Creek Road would be the same as described in Section 3.8.5.2.

After the Bog Creek Road is repaired the road would be maintained in accordance with Forest Service road maintenance level 2. Routine maintenance of the road such as vegetation clearing, spot regrading, and culvert cleanout would occur only when necessary for the continued safe operation of the road. Maintenance activities would also continue to occur on Blue Joe Creek in accordance with the Forest Service level 2 standards. Maintenance activities on these roads would have temporary, detrimental impacts to non-motorized recreation users; however, due to the anticipated infrequency of the maintenance activities, detrimental impacts to non-motorized recreation users would be minimal. Long-term, beneficial impacts to non-motorized recreation users would also be anticipated from routine road maintenance by maintaining improved road conditions that are conducive to non-motorized activities like hiking, biking, and horseback riding.

The 26.5 miles of seasonally restricted roads that would be closed to all motorized traffic would be placed into “long-term storage.” Maintenance and use on the closed roads would no longer occur, and the disturbed areas would eventually revegetate and return to a more natural setting. Therefore, no impacts from operation and maintenance activities would occur on motorized closed roads under the Proposed Action.

Alternative 3 – Modified Proposed Action

Long-term recreational use and maintenance impacts for Alternative 3 would be the same as described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

Long-term recreational use and maintenance impacts for Alternative 3 would be the same as described under the Proposed Action. More roads in the BMU would be open to the public for motorized travel. However, additional road maintenance beyond the current

maintenance level 2 would not occur; therefore, additional impacts from long-term maintenance are not anticipated.

3.8.5.4 Cumulative Effects

The spatial scale for analysis of potential cumulative effects on recreation encompasses both the Lower Kootenai GA and the Priest Lake GA, as identified in the 2015 IPNF Forest Plan, and extends north into Canada to Boundary Lake, British Columbia. The GAs and Boundary Lake, British Columbia, represent a reasonable GA where other projects of similar scope may affect the same recreational users who may use the 5.6-mile Bog Creek Road and the up to 26.5 miles of other Forest Service roads proposed to be closed.

Past recreation activities that have occurred in the Blue-Grass BMU are described above in Section 3.8.3, Affected Environment, and in Appendix D.

Miles of Routes Closed to Motorized Recreational Use under ROS Classification

Under the No-Action Alternative, currently unidentified other viable road closure options could decrease motorized access in the analysis area; however, the specifics are unknown at this time. Implementation of the Proposed Action or Alternative 3 would decrease motorized access in the analysis area by approximately 26 or 25 miles, respectively. Under Alternative 4, motorized access in the analysis area would decrease by approximately 21 miles, but motorized access to the interior of the Blue-Grass BMU from the west and east, including access to the Continental Creek Trail, would be available year-round. Changes in the overall mileage of routes available for motorized use would beneficially improve the quality of those recreation experiences that are dispersed in nature, such as backpacking, horseback riding, and hiking.

The reduction in overall mileages of routes available for motorized use would reduce the quality of those recreation experiences that are developed in nature, such as hunting, driving for pleasure, OHV use, and snowmobiling.

Beyond the previously discussed unidentified future road closure options needed to meet the Access Amendment requirements under the No-Action Alternative, there are no other known or planned route closures or route designations activities known by IPNF that would increase or decrease the overall miles of routes closed to motorized recreational use per ROS classification.

Changes in Access to Designated Recreation Sites and Trails / Changes to the Recreation Setting and Opportunities

Visitors to the Lower Kootenai GA, Priest Lake GA, and extending north into Canada to Boundary Lake, British Columbia, often enjoy a variety of experiences and include other destinations in their plans for visiting the area (e.g., Pacific Northwest National Scenic Trail, Upper Priest Falls, or the Shorty Peak Lookout Tower). These experiences have provided long-term, beneficial impacts to visitors and would continue to provide beneficial impacts if continued into the future.

Under all action alternatives, some portions of routes would no longer be available for motorized use (including snowmobiling). Thus, because access would be changed by becoming increasingly limited for motorized use and motorized access would be eliminated, there would be a long-term, detrimental, cumulative impact if other motorized

routes were to become limited or closed. In contrast, under Alternative 4, the ability for public motorized access would change by becoming less limited for motorized use, resulting in a long-term, beneficial cumulative impact if other motorized routes were to become open.

Travel management planning, including the Kaniksu Over-The-Snow Travel Management Plan, would address future snowmobile access in the BMU. No specific proposed action is available for the plan at this time.

While it is possible that reduction of overall routes open to motorized use could alter (increase or decrease) visitation (in both summer and winter) to the other routes open for motorized use in the cumulative effects analysis area, ongoing visitation growth trends and Forest Service travel management planning suggest that there is sufficient supply of routes open to motorized use in the cumulative effects analysis area to support current and future needs. It is anticipated that recreational use would likely continue increasing over time as the populations of surrounding communities grow.

3.8.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

All action alternatives would be compliant with the Forest Plan because they were developed to conform to the Access Amendment, which is specified and provided for in the Forest Plan. The action alternatives would also comply with relevant regulations, laws, and policy by continuing to provide recreation opportunities. The No-Action Alternative would not comply with the Forest Plan because the requirements of the Access Amendment would not be met. The Forest Service would continue to examine future road closures options to meet Access Amendment requirements within the Blue-Grass BMU under the No-Action Alternative.

3.9 Heritage Resources

3.9.1 Introduction

Heritage resources are the physical manifestations of the activities of past or present cultures, including archaeological sites, historic buildings and structures, trails, and other places of traditional cultural or religious importance. Heritage resources are unique, finite, and nonrenewable and most often are human made.

The proposed project has the potential to impact heritage resources both directly and indirectly. Direct impacts include disturbance to or loss of resources within the road right-of-way (ROW); indirect impacts include auditory or visual alterations to setting and disturbance to sites outside the road ROW.

Key issues identified during public scoping that require analysis in the DEIS consist of requests that the DEIS describe the process and outcome of government-to-government consultation between the agencies and tribes and requests to recognize the importance of the area to the Kootenai Tribe. Please see the Tribes section in Chapter 5, Coordination and Consultation.

This analysis describes the existing condition of heritage resources within the analysis area (see Section 3.9.5, Environmental Consequences, for additional details). The direct, indirect, and cumulative effects of the No-Action Alternative, the Proposed Action, Alternative 3, and Alternative 4 on these resources are subsequently described and discussed.

3.9.2 Spatial and Temporal Scales of Analysis

The spatial and temporal scales of analysis define context (as defined at 40 CFR 1508.27(a)) for the affected environment and effects sections that follow. The spatial scale for analysis of potential direct impacts to heritage resources for the proposed project encompasses a 5.6-mile section of the existing Bog Creek Road with a 66-foot buffer on either side of the road but up to 100 feet where each of six culverts would be replaced, two borrow pit locations, and staging areas. This direct impact analysis area corresponds to the area of potential effects (APE) under Section 106 of the NHPA as determined by the Forest Service and CBP for the Bog Creek Road improvements portion of the proposed project. The 66-foot buffer was then used to define the area of analysis for direct effects for the motorized road closures as well.

The spatial scale for analysis of potential indirect impacts to heritage resources for the proposed project is a 0.25-mile buffer on either side of the road. The 0.25-mile buffer was chosen as a reasonable distance that individuals may walk if they leave the road, due to the presence of thick vegetation and steep topography. Together, the direct and indirect analysis areas are referred to as the heritage analysis area or, more generally in this section, the analysis area. The analysis area for heritage resources is shown in Figure 3.9.1.

The temporal scale of effects ranges from short-term impacts during repair and maintenance activities to long term for as long as the roads are available for use.

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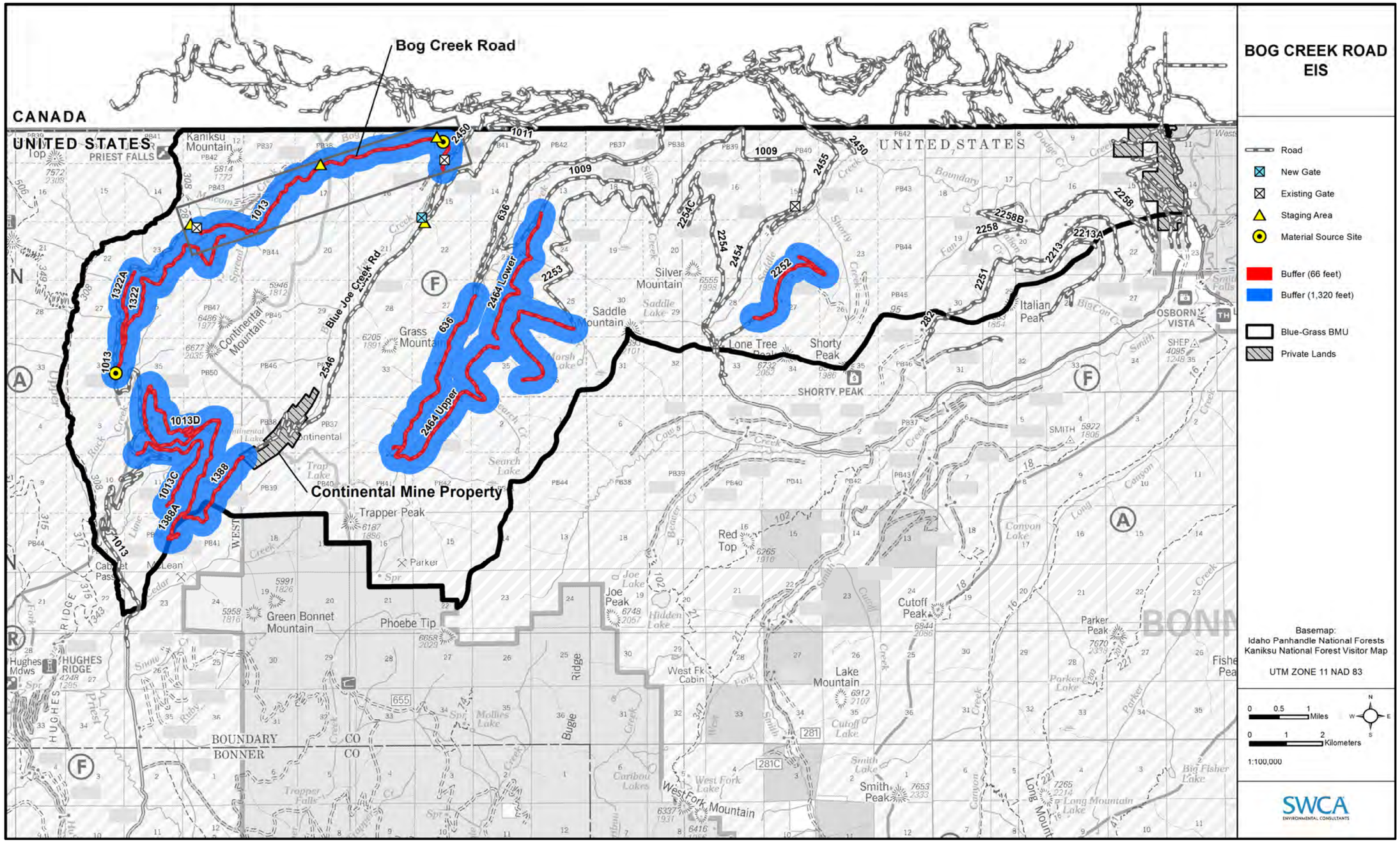

Figure 3.9.1. Heritage resources analysis area.

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3.9.3 Affected Environment

As defined by the Forest Service in FSM 2300, *Recreation, Wilderness, and Related Resource Management*, Chapter 2360 – Heritage Program Management (Forest Service 2008b:21), heritage or cultural resources are

> objects or definite locations of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, places, or objects and traditional cultural properties. . . . Cultural resources include the entire spectrum of resources for which the Heritage Program is responsible from artifacts to cultural landscapes without regard to eligibility for listing on the National Register of Historic Places.

Under Section 106 of the NHPA and its implementing regulations (36 CFR 800.16), a historic property is defined as

> any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

The proposed project is located within two major watersheds: Priest River to the west and the Kootenai River to the east (CBP 2015d). The Priest River–Priest Lake area is the traditional use area of the Kalispel Tribe, while the Kootenai River valley and surrounding mountains below Kootenai Falls in Montana are the traditional use area of the group called the Lower Kootenai. Both groups practiced a seasonal round subsistence pattern, moving to temporary camps to fish, hunt, or gather resources from spring through fall. Although Native American archaeological sites have yet to be documented in the analysis area, there were animal and plant resources in the area that may have been used by these groups (Hudson et al. 1981).

Beginning in the nineteenth century, animal resources also drew the North West Company, a British fur trading enterprise, to the area. Many of the routes used by traders and fur trappers were established trails used by the Kalispel and Kootenai people. When gold strikes were made in the Wild Horse Country of British Columbia in the 1860s, miners and travelers followed these routes north from Lake Pend Oreille, crossing the Kootenai River at Bonners Ferry and proceeding north into Canada. For the most part, travelers, traders, missionaries, and miners bypassed the analysis area for more direct and easier north–south and east–west travel routes (Hudson et al. 1981).

Survey and mapping of the U.S.–Canada border along the 49th Parallel provided the earliest historical documentation of the proposed project vicinity. In the late spring and summer of 1860, the U.S. survey crew followed a trail west along Boundary Creek to Grass Creek, then southwest and upstream to Continental Mountain, turning northwest across the upper reaches of Blue Joe Creek, and then west into the Priest River watershed along a ridge system south of Malcom Creek.

The proposed project vicinity is perhaps best known for the development and operation of the Continental Mine, which was discovered in 1890 by Alfred Klockmann (Klockmann

1940:13). Klockmann took the mine to patent in 1901, and in 1903 a rough road was completed from the Kootenai River valley to the mine. Access was greatly improved in 1913 when a new road (Boundary Creek Road) was built (Sandberg and Tymrak 1998).

Sometime between 1931 and 1940, Boundary Creek Road, or FSR 2450 as it is now called, was traded by Klockmann to the Forest Service. After World War II, the road was widened and improved to accommodate changes in logging technology, particularly larger haul trucks (Sandberg and Tymrak 1998). In addition to improving existing roads, new roads were built within the IPNF for the rapidly expanding timber industry, including Bog Creek Road (Briggs 2018). Although the Continental Mine continued to operate after the war, production was sporadic, and activity in the proposed project vicinity was primarily associated with logging, fire management, and recreation.

A cultural resources pedestrian survey was conducted of 5.6 miles of the existing Bog Creek Road with a 66-foot buffer on either side of the road and 100-foot buffer where each of the six culverts would be replaced, as well as the entire borrow pit on the north side of Bog Creek Road (CBP 2015d). The survey resulted in the recordation of two heritage resources. One has been previously determined eligible for the National Register of Historic Places (NRHP) by the Forest Service; however, the portion of the resource within the proposed Bog Creek Road area has been altered and does not contribute to the resource's overall eligibility. The second resource has been determined not eligible for the NRHP by the Forest Service. The Idaho SHPO has concurred with these findings.

A cultural resources pedestrian survey was conducted for the proposed road closures. There are no previously recorded heritage resources along the roads proposed for closure, and no resources were recorded during the survey.

Within the 0.25-mile analysis area for indirect impacts for the proposed Bog Creek Road improvements, one heritage resource has been recorded, in addition to the two linear resources discussed above. That resource is presently unevaluated for its eligibility for listing in the NRHP. No NRHP-eligible heritage resources are currently known to be within 0.25 mile of the roads proposed for closure.

3.9.4 Management Framework

The regulations, laws, and policies governing heritage resource management in the project include the following, listed in Tables 3.9.1 and 3.9.2.

Table 3.9.1. Heritage-Related Standards, Guidelines, and Objectives within the IPNF Forest Plan

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**[Forestwide (FW)]-DC-[Cultural Resources (CR)]-01.** Cultural resources will be inventoried, evaluated for their eligibility to be listed in the NRHP, and managed according to their allocation category, including preservation, enhancement-public use, or scientific investigation. NRHP-ineligible cultural resources may be released from active management. Until evaluated, cultural resources will be treated as NRHP eligible. Historically and archaeologically important cultural resources and traditional cultural properties may be nominated for the NRHP.

Table 3.9.1. Heritage-Related Standards, Guidelines, and Objectives within the IPNF Forest Plan (Continued)

Management or Geographic Area (MA or GA)	Desired Condition (DC), Standard (STD), Goal (GOAL), Guideline (GDL), or Objective (OBJ)
All MAs	**FW-DC-CR-02.** Cultural resources will be safeguarded from vandalism, looting, and environmental damage through monitoring, condition assessment, protection, and law enforcement measures. Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of the prehistory and history of the IPNF.
All MAs	**FW-GDL-CR-01.** Cultural resource protection provisions for NRHP-listed or NRHP-eligible properties should be included in applicable contracts, agreements, and special use permits.
All MAs	**FW-GDL-CR-02.** Historic human remains should be left undisturbed unless there is an urgent reason (e.g., human health and safety, natural event, etc.) for their disturbance.

Table 3.9.2. Other Regulations, Laws, and Policies Governing Cultural Resources Management in the APE

Relevant Regulations, Laws, and Policies	Summary
NHPA	Sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the NRHP. Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on cultural resources and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings (36 CFR 800).
Programmatic Agreement Among [CBP], the Historic Preservation Officers of the States of Idaho, Michigan, Minnesota, Montana, New Hampshire, New York, North Dakota, Pennsylvania, Wisconsin, Vermont, and Washington; U.S. General Services Administration; U.S. Department of Agriculture; U.S. Department of the Interior; Blackfeet Nation; Cayuga Nation; Chehalis Tribe; Chippewa-Cree Tribe of the Rocky Boy's Reservation; Confederated Salish and Kootenai Tribes of the Flathead Reservation; Jamestown S'Klallam Tribe; Lac du Flambeau Band of Lake Superior Chippewa Indians; Little Traverse Bay Bands of Odawa Indians; Muckleshoot Indian Tribe; Skokomish Indian Tribe; Spokane Tribe of Indians; Squaxin Island Tribe; Stockbridge-Munsee Community Band of Mohican Indians; Turtle Mountain Band of Chippewa; Tuscarora Nation; and the Advisory Council on Historic Preservation Regarding CBP Undertakings in States Located Along the Northern Border of the United States	Provides procedures for the compliance with Section 106 of the NHPA for the CBP and the SHPOs of states along the U.S.–Canada border. Outlines procedures for the CBP to follow in consultation with the appropriate SHPO and Native American tribes and outlines stipulations for specific project types. Includes undertakings that are exempt from Section 106 review under the agreement.
Programmatic Agreement Among the United States Department of Agriculture, Forest Service, Northern Region, the Advisory Council on Historic Preservation and, the Idaho State Historic Preservation Officer Regarding Cultural Resources Management on Region 1 National Forests in the State of Idaho	Provides procedures for the compliance with Sections 106 and 110 of NHPA by the Forest Service. Outlines the procedures for the evaluation of heritage resources through consultation with the SHPO, as well as consultation with Native American tribes to ascertain whether they attach any cultural or religious significance to those resources.
Forest Service policy	Federal regulations (36 CFR 800, 36 CFR 63) and FSM 2300, *Recreation, Wilderness, and Related Resource Management, Chapter 2360 – Heritage Program Management* (Forest Service 2008b), contain the basis for specific Forest Service heritage resource management practices. All of these laws, regulations, and direction guide the Forest Service in identifying, evaluating, and protecting cultural resources on NFS lands.

3.9.5 Environmental Consequences

3.9.5.1 Methodology

The following sections describe the issue indicators and approaches that were used to evaluate potential effects on heritage resources and specify the criteria that were used to determine the significance of effects.

This analysis assumes that, if applicable, any known historic properties will be avoided or mitigated through project design to achieve a finding of no adverse effect. Although heritage resources surveys are designed to locate all resources within the APE, such resources may go undetected for a variety of reasons. Should any previously unknown historic properties (i.e., archaeological sites, historic buildings and structures, trails, and other places of traditional cultural or religious importance listed in or eligible to be listed in the NRHP) be discovered during project implementation, activities within the immediate vicinity would be halted at once. In accordance with Forest Service policy, the Forest Service would be contacted within 24 hours regarding the discovery. The discovery would be then be evaluated by Forest Service archaeologist, who would determine the appropriate actions to be taken. Project activities within the immediate vicinity of the find can only proceed after all issues regarding the discovery have been resolved by the Forest Service archaeologist.

Issue Indicators

Table 3.9.3 details the issue indicators to analyze impacts to heritage resources.

Impacts to heritage resources are discussed in terms of potential disturbance to known sites that are listed in, are eligible for listing in, or may be eligible for listing in the NRHP (historic properties), as well as disturbance to or loss of resources significant to Native American groups.

Table 3.9.3. Issue Indicators for Heritage Resources

Issue	Analysis Measure
Disturbance to, partial loss of, or loss of historic properties	Historic properties directly and indirectly impacted, resulting in a change in the characteristics that make them eligible for the NRHP.
Alterations to setting	Auditory and visual impacts during construction and post-construction.
Disturbance to, partial loss of, or loss of, or loss of access to resources significant to Native American groups	Types of resources, if available, that may be impacted.

Section 106 of the NHPA Consultation

Under Section 106 of the NHPA and its implementing regulations (36 CFR 800), Federal agencies must consult with the appropriate SHPO, the appropriate tribes, and other interested parties on the effects of the proposed undertaking on historic properties (36 CFR 800.3). In consultation with the SHPO, tribes, and other interested parties, the Federal agency shall identify any historic properties within the APE for the undertaking and determine whether the proposed undertaking would have an adverse effect on those historic properties.

Consultation with the SHPO was initiated regarding the proposed project. Survey of the analysis area was covered in two reports: one for the Bog Creek Road Project and one for the Blue-Grass Bear Management Unit Roads Project. In a letter dated June 29, 2016, the SHPO concurred on a finding of no adverse effect for the Bog Creek Road Project, as no NRHP-eligible historic properties would be adversely affected. No historic properties were identified during the survey for the Blue-Grass Bear Management Unit Roads Project. The Forest Service sent the report to SHPO on August 24, 2016. No reply was received, and because it was a no-findings survey, SHPO concurrence is assumed.

3.9.5.2 Effects from Short-Term Road Repair and Motorized Closure Actions

This section includes a description of the short-term direct and indirect effects on heritage resources for each alternative.

Alternative 1 – No Action

Under the No-Action Alternative, no road repair would be conducted on Bog Creek Road, and no other Forest Service roads would be closed to all motorized use. Therefore, no impacts to heritage resources would be anticipated.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative; however, it is unknown exactly which roads would be closed to motorized use to meet the standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Under the Proposed Action, repair would be conducted on 5.6 miles of Bog Creek Road, including the replacement of six culverts to replace degraded existing culvert structures and installation of six new culverts. Two materials pits and staging areas would be needed for the repair and maintenance. In addition, approximately 7.4 miles of Blue Joe Creek Road would change designation from seasonally restricted to administratively open and 26 miles of currently seasonally restricted Forest Service roads would be closed to all motorized use. No improvements would be made to Blue Joe Creek Road.

The previous survey of Bog Creek Road resulted in the recordation of two heritage resources. Of those two, one has been altered within the Bog Creek Road area, and that portion does not contribute to the resource's overall eligibility. The second resource has been determined not eligible for the NRHP by the Forest Service. Therefore, the Forest Service and CBP find that there would be no direct or indirect impacts on heritage resources resulting from the proposed project.

Alternative 3 – Modified Proposed Action

Under Alternative 3, repair would be conducted on 5.6 miles of Bog Creek Road, approximately 7.4 miles of Blue Joe Creek Road would change designation from seasonally restricted to administratively open, and 25 miles of currently seasonally restricted Forest Service roads would be closed to all motorized use. No improvements would be made to Blue Joe Creek Road.

The previous survey of Bog Creek Road resulted in the recordation of two heritage resources. Of those two, one has been altered within the Bog Creek Road area, and that

portion does not contribute to the resource's overall eligibility. The second resource has been determined not eligible for the NRHP by the Forest Service. There are no known NRHP-eligible heritage resources on the 25 miles of roads that would be closed to the public for motorized use. Therefore, the Forest Service and CBP find that there would be no direct or indirect effects on heritage resources resulting from the proposed project.

Alternative 4 – Blue-Grass BMU West–East Open Access

Under Alternative 4, like Alternative 2 repairs would be made to Bog Creek Road. Approximately 7.4 miles of Blue Joe Creek Road would change designation from seasonally restricted to administratively open, and 26 miles of currently seasonally restricted Forest Service roads would be closed to all motorized use. However, Bog Creek Road and portions of FSRs 2546, 1011, 636, and 1009 would be designated as open rather than seasonally restricted. No improvements would be made to Blue Joe Creek Road or FSRs 1011, 636, and 1009.

Impacts under Alternative 4 would be the same as those described under the Proposed Action.

3.9.5.3 Effects from Long-Term Maintenance and Use Actions

This section includes a description of the long-term direct and indirect effects on heritage resources for each alternative. The analysis assumes no potential effects during long-term maintenance and use as long as design features are implemented and long-term activities stay within previously surveyed areas.

Alternative 1 – No Action

Under the No-Action Alternative, Bog Creek Road would not be repaired for motorized vehicle use, and no long-term maintenance or use activities would occur. No direct or indirect impacts would be anticipated to heritage resources. In addition, no changes would occur to the Forest Service road system. Because no known NRHP-eligible heritage resources are present, no direct or indirect impacts would be anticipated.

As discussed in Chapter 2, the Forest Service would continue to work toward meeting the Access Amendment standards under the No-Action Alternative; however, it is unknown exactly which roads would be closed to motorized use to meet the standards. Therefore, future motorized closure actions are not analyzed as part of the No-Action Alternative.

Alternative 2 – Proposed Action

Under the Proposed Action, Bog Creek Road would be used for motorized vehicles and would be maintained to allow for continued use. However, because the two documented heritage resources in the analysis area are either not eligible for the NRHP or are non-contributing to the resource's overall eligibility, no direct or indirect impacts are anticipated. In addition, no long-term maintenance and use would occur under this alternative on the 26 miles of roads that would be closed to the public for motorized use, and no known NRHP-eligible heritage resources are present within the analysis areas for the proposed motorized road closures. Therefore, no direct or indirect impacts would be anticipated for the road closures.

Alternative 3 – Modified Proposed Action

Impacts under Alternative 3 would be the same as those described under the Proposed Action.

Alternative 4 – Blue-Grass BMU West–East Open Access

Impacts under Alternative 4 would be the same as those described under the Proposed Action.

3.9.5.4 Cumulative Effects

Because the Forest Service is actively managing access within the Blue-Grass BMU, the cumulative effects analysis area encompasses the entire management unit. Heritage resources are finite and non-renewable, and the analysis of cumulative effects must be undertaken within a landscape to understand how the loss of or disturbance to resources over a larger area would impact future access to those resources. Past and present use of the Blue-Grass BMU includes logging, grazing, and mining. The Continental Mine was in operation from the early 1900s until 1960s and used several roads in the Blue-Grass BMU. Current and reasonably foreseeable future uses include patrol by the CBP and recreational activities such as hiking, hunting, fishing, gathering, biking, camping, boating, and snowmobiling. These activities may have a minimal impact on heritage resources. In addition, any detrimental effects from future actions by the Forest Service would be mitigated through Forest Service compliance with Federal laws and regulations regarding cultural resources and historic properties and would not contribute to cumulative effects.

No impacts to heritage resources would be anticipated under the No-Action Alternative, the Proposed Action, Alternative 3, or Alternative 4; therefore, none of the proposed alternatives would contribute to cumulative effects on heritage resources.

3.9.5.5 Compliance with Forest Plan and Other Relevant Regulations, Laws, and Policy

The proposed project is in compliance with the Forest Plan and other relevant regulations, laws, and policies listed in Section 3.9.4, Management Framework. The Forest Service has conducted heritage resources surveys of the analysis area to identify any historic properties that may be eligible for the NRHP. Because no NRHP-eligible historic properties or heritage resources are found within the analysis areas for direct and indirect impacts, no impacts and/or detrimental effects would be anticipated. Therefore, there is no need for the resolution of adverse effects (such as those defined under Section 106 of the NHPA) or detrimental impacts (such as those defined under NEPA). Any discovery found during repair and maintenance activities or during motorized road closure activities would be subject to Forest Service discovery procedures discussed above.

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CHAPTER 4
REQUIRED DISCLOSURES

4.1 Short-Term Uses and Long-Term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). All alternatives would come under the mandate of the Multiple Use and Sustained Yield Act of 1960. This act requires the Forest Service to manage NFS lands for multiple uses, including timber, recreation, fish, wildlife, and watershed, ensuring that these resources are available for future generations. An evaluation of the relationship between the local short-term uses of the human environment and the maintenance and enhancement of long-term productivity discloses the trade-offs between short-term adverse impacts to these NFS resources and long-term benefits of the proposed project. For example, there may be short-term impacts to these resources (e.g., the removal of vegetation) that would not affect these resources in the long term (i.e., vegetation can be reestablished if the land productivity is not impaired).

The Blue-Grass BMU provides core area habitat for grizzly bear within the SRZ, and Bog Creek Road has been identified by CBP as an important road for the agency to perform its statutory mission to protect the northern border of the United States. The BMU is a relatively small portion of the IPNF. Over the long term, improvement of Bog Creek Road, paired with the proposed motorized road closures, would achieve Access Amendment standards, improving the wildlife resource while simultaneously facilitating CBP's mission. The long-term productivity of the area would still be protected, as summarized by resource below. The short- and long-term impacts associated with the proposed Bog Creek Road repair and maintenance and motorized road closures are documented in the Environmental Consequences section for each resource in Chapter 3. Most of the impacts are minimized through the design features developed for each alternative, as described in Appendix B.

4.1.1 Wildlife and Fish, including Threatened, Endangered, and Proposed Species

Under the Proposed Action, Alternative 3, or Alternative 4, there would be short- and long-term effects on wildlife and fish habitat during project activities from vegetation removal, terrain disturbance, and culvert installation, as well as from increased noise and human activity. Any individual displacement would be temporary or short term, and short-term project actions would not adversely affect wildlife and fish (including T&E species) populations over time. Habitat loss or alteration would be negligible relative to the amount of habitat in the larger landscape, and the land could regenerate vegetation in the future in the areas where motorized road closure would occur, and over the long-term on the Bog Creek Road, if maintenance and use of that road is discontinued.

All alternatives would result in no net increase in the total amount of roads in the BMU over time. With their proposed motorized use (see Table 3.1.3), all of the action alternatives could adversely affect grizzly bear (ESA threatened) and Selkirk Mountain woodland caribou (ESA endangered suitable habitat and movement. Under the Proposed Action and Alternative 3, there could be long-term disturbance or displacement of

wildlife from open administrative use of Bog Creek Road and Blue Joe Creek Road. These roads would have moderate motorized use, compared with their current very low and low motorized use. However, with the administrative open motorized use available on the west side of the BMU, motorized use on the seasonally restricted roads in the central portion of the BMU would remain low. Under Alternative 4, long-term unlimited motorized public access (outside of the snowmobile closure season) on the west to east access roads (including Bog Creek Road and 1.0 mile of Blue Joe Creek Road) could result in high motorized use through the center of the BMU, along with the moderate motorized use along 7.4 miles of administratively open Blue Joe Creek Road. Alternative 4 would most adversely affect grizzly bear and Selkirk Mountain woodland caribou. The long-term benefits of culvert additions and replacements and motorized road closure would reduce aquatic habitat fragmentation and the amount of sediment reaching streams, over time improving habitat conditions for wildlife and fish species, compared with the No-Action Alternative. With high motorized use on the west to east access roads under Alternative 4, the potential for aquatic habitat degradation from vehicles and recreationists would be the highest of all the action alternatives.

4.1.2 Water Quality

Under the Proposed Action, Alternative 3, or Alternative 4, the Bog Creek Road repair and maintenance and proposed motorized road closures could introduce a small amount of sediment into streams, alter wetland function, and remove streamside vegetation. When design features are considered (see Appendix B), these effects would not alter watershed hydrology through changes in water quantity or quality in a manner that could impair long-term beneficial uses. Culvert replacements and additions and motorized road closure would reduce the amount of sediment reaching streams, providing a long-term water quality benefit, compared with the No-Action Alternative. With high motorized use on the west to east access roads under Alternative 4, the potential for water quality impacts from roads and vehicles would be the highest of all the action alternatives.

4.2 Unavoidable Adverse Effects

Implementation of any of the alternatives would inevitably result in some adverse environmental effects. The severity of the effects from the action alternatives would be minimized by adhering to the design features of the alternatives (see Appendix B for more information). When management activities occur, however, some effects cannot be avoided. Unavoidable adverse effects are summarized in Table 4.2.1 below. See the individual resource discussions in Chapter 3 for more detailed analyses.

4.3 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time, such as the short-term loss of vegetation in forested areas that are kept clear for a road. Table 4.3.1 summarizes irreversible or irretrievable effects for each analyzed resource. The reader is referred to Chapter 3 for a detailed discussion of effects associated with the proposed Bog Creek Road Project.

Table 4.2.1. Unavoidable Adverse Effects for Analyzed Resources

Issue	Unavoidable Adverse Effects
Threatened, Endangered, and Proposed (T&E) Species	All T&E wildlife species may temporarily experience increased stress and lose access to the resources and habitat available in the areas where road repair and motorized closure actions would occur. This impact would be a short-term effect for up to three 4-month-long seasons (July 16 to November 15) for road repair and up to three 5-month long seasons (June 16 to November 15) for motorized closure. During long-term maintenance and use of the roads proposed for motorized use under any of the action alternatives (see Table 3.1.3), T&E wildlife species could be occasionally displaced by human noise and activity. The adverse effects of long-term use on T&E wildlife species would be greater under Alternative 4 than any other alternative, as described below. Grizzly bear: During the up to three seasons of road repair and motorized closure activities, there could be reduced grizzly bear movement through the Blue-Grass BMU due to bear road-avoidance behavior. Over the long term, the Bog Creek Road could act as a semipermeable movement barrier. Because of its current undrivable condition, this area has been functioning as core habitat. Following repair, this area would no longer function as core habitat. Less than 1% of grizzly bear habitat would be permanently removed for the Bog Creek Road repair and maintenance (22.3 acres, 11.7 of which are denning habitat). Increased public access along the repaired Bog Creek Road could lead to the increased potential for mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears, the impacts of which would be greatest under Alternative 4. In the long term under Alternative 4, unlimited motorized public access on the west to east access roads, as well as the administrative open motorized use of Blue Joe Creek Road, would adversely impact the grizzly bear population connectivity in the SRZ because of grizzly bears' documented avoidance of roads, especially motorized roads. Selkirk Mountain woodland caribou: The human activity and noise during Bog Creek Road repair and maintenance and motorized closure activities would constitute a temporary adverse impact on caribou movement patterns between Little Snowy Top/Continental Mountain, which would cease after human activity has been completed. Less than 1% of the analysis area caribou habitat (21.6 acres) would be permanently removed for the Bog Creek Road repair. Increased public access along the repaired Bog Creek Road could lead to the increased potential for accidental kills by elk and deer hunters and poachers, the impacts of which would be greatest under Alternative 4. In the long term under Alternative 4, improved public access along the west to east access roads, as well as the administrative open motorized use of Blue Joe Creek Road, could disrupt or disturb caribou that may be moving from north to south within the woodland caribou Selkirk Recovery Zone, adversely impacting their population connectivity. Canada lynx: Less than 1% of the available lynx habitat in the Canada lynx analysis area (21.2 acres) would be permanently removed for the Bog Creek Road repair. Under Alternative 4, improved public access could adversely affect lynx through increased trapping of their prey species, incidental trapping (when other species are targeted), poaching, or those seeking to maliciously kill lynx. North American wolverine: Less than 1% of wolverine habitat would be permanently removed for the Bog Creek Road repair (22.3 acres, 5.8 acres of which are denning habitat). Under Alternative 4, improved public access could adversely affect wolverine through increased trapping of their prey species, incidental trapping (when other species are targeted), or poaching. Bull trout: Downstream sedimentation from in-stream work (culvert removal and replacement) on Continental Creek could temporarily affect mapped DCH on Malcom Creek. Sedimentation from culvert replacement could be measurable to 800 feet downstream (Forest Service 2013c), and 3,000 feet downstream of culvert removals (Foltz et al. 2008). These effects would be temporary, with 95% of sediment released within several hours to 24 hours of completing the culvert replacement or removal (Foltz et al. 2008; Forest Service 2013c). It is likely that bull trout are located more than 4,000 feet downstream of this in-stream work (downstream of the Malcom Creek migratory barrier).

Table 4.2.1. Unavoidable Adverse Effects for Analyzed Resources (Continued)

Issue	Unavoidable Adverse Effects
Wildlife	General wildlife: All wildlife species may temporarily experience increased stress and lose access to the resources and habitat available in the areas where road repair and motorized closure actions would occur. This impact would be a short-term effect for up to three 4-month-long seasons (July 16 to November 15) for road repair and up to three 5-month long seasons (June 16 to November 15) for motorized closure. During long-term maintenance and use of the roads proposed for motorized use under any of the action alternatives (see Table 3.1.3), wildlife species could be occasionally displaced by human noise and activity. In the long term under Alternative 4, disturbance to wildlife from human motorized use, the potential for wildlife mortality from vehicle strikes, and the potential for the spread or establishment of noxious or invasive species would be greater than under any other alternative. These adverse effects may affect individuals, but would not have population-level impacts, because similar habitat would remain available in the broader landscape and some of the habitat would be reclaimed or restored in the long term. Sensitive aquatic and terrestrial species: Implementation of the Proposed Action, Alternative 3, or Alternative 4 would result in minimal habitat loss or change in habitat conditions. In the long term, degradation of aquatic habitats, the potential for disturbance, and risk of direct mortality from unlimited public motorized access on the west to east access roads (including Bog Creek Road and 1.0 mile of Blue Joe Creek Road) and administrative use of 7.4 miles of Blue Joe Creek Road would be greater under Alternative 4 than any other alternative. The Proposed Action, Alternative 3, or Alternative 4 could adversely affect sensitive terrestrial or aquatic species or their habitats but would not likely contribute to a trend toward Federal listing or cause a loss of viability.
Threatened, Endangered, and Proposed (T&E) Species	All T&E wildlife species may temporarily experience increased stress and lose access to the resources and habitat available in the areas where road repair and motorized closure actions would occur. This impact would be a short-term effect for up to three 4-month-long seasons (July 16 to November 15) for road repair and up to three 5-month long seasons (June 16 to November 15) for motorized closure. During long-term maintenance and use of the roads proposed for motorized use under any of the action alternatives (see Table 3.1.3), T&E wildlife species could be occasionally displaced by human noise and activity. The adverse effects of long-term use on T&E wildlife species would be greater under Alternative 4 than any other alternative, as described below. Grizzly bear: During the up to three seasons of road repair and motorized closure activities, there could be reduced grizzly bear movement through the Blue-Grass BMU due to bear road-avoidance behavior. Over the long term, the Bog Creek Road could act as a semipermeable movement barrier. Because of its current undrivable condition, this area has been functioning as core habitat. Following repair, this area would no longer function as core habitat. Less than 1% of grizzly bear habitat would be permanently removed for the Bog Creek Road repair and maintenance (22.3 acres, 11.7 of which are denning habitat). Increased public access along the repaired Bog Creek Road could lead to the increased potential for mortality from recreationists, hunters, poachers, or those seeking to maliciously kill grizzly bears, the impacts of which would be greatest under Alternative 4. In the long term under Alternative 4, unlimited motorized public access on the west to east access roads, as well as the administrative open motorized use of Blue Joe Creek Road, would adversely impact the grizzly bear population connectivity in the SRZ because of grizzly bears' documented avoidance of roads, especially motorized roads.

Table 4.2.1. Unavoidable Adverse Effects for Analyzed Resources (Continued)

Issue	Unavoidable Adverse Effects
Threatened, Endangered, and Proposed (T&E) Species (Continued)	Selkirk Mountain woodland caribou: The human activity and noise during Bog Creek Road repair and maintenance and motorized closure activities would constitute a temporary adverse impact on caribou movement patterns between Little Snowy Top/Continental Mountain, which would cease after human activity has been completed. Less than 1% of the analysis area caribou habitat (21.6 acres) would be permanently removed for the Bog Creek Road repair. Increased public access along the repaired Bog Creek Road could lead to the increased potential for accidental kills by elk and deer hunters and poachers, the impacts of which would be greatest under Alternative 4. In the long term under Alternative 4, improved public access along the west to east access roads, as well as the administrative open motorized use of Blue Joe Creek Road, could disrupt or disturb caribou that may be moving from north to south within the woodland caribou Selkirk Recovery Zone, adversely impacting their population connectivity. Canada lynx: Less than 1% of the available lynx habitat in the Canada lynx analysis area (21.2 acres) would be permanently removed for the Bog Creek Road repair. Under Alternative 4, improved public access could adversely affect lynx through increased trapping of their prey species, incidental trapping (when other species are targeted), poaching, or those seeking to maliciously kill lynx. North American wolverine: Less than 1% of wolverine habitat would be permanently removed for the Bog Creek Road repair (22.3 acres, 5.8 acres of which are denning habitat). Under Alternative 4, improved public access could adversely affect wolverine through increased trapping of their prey species, incidental trapping (when other species are targeted), or poaching. Bull trout: Downstream sedimentation from in-stream work (culvert removal and replacement) on Continental Creek could temporarily affect mapped DCH on Malcom Creek. Sedimentation from culvert replacement could be measurable to 800 feet downstream (Forest Service 2013c), and 3,000 feet downstream of culvert removals (Foltz et al. 2008). These effects would be temporary, with 95% of sediment released within several hours to 24 hours of completing the culvert replacement or removal (Foltz et al. 2008; Forest Service 2013c). It is likely that bull trout are located more than 4,000 feet downstream of this in-stream work (downstream of the Malcom Creek migratory barrier).
Fish	Potential adverse impacts to water quality from the Proposed Action, Alternative 3, or Alternative 4 could result from sediment increases associated with in-stream work and vegetation removal. The potential for degradation of fish habitat from sediment increases associated with increased motorized use is greatest under Alternative 4. However, because design features and INFISH standards would be in place, significant adverse impacts to fish habitat and species are not expected.
Special Status Plants	Potential direct and indirect impacts to special status plants could occur as result of vegetation removal and loss of suitable habitat in road prisms during road repair and maintenance and motorized closure activities. During long-term maintenance and use, a reduction in habitat function and reduced suitability from potential environmental changes could adversely impact special status plant species and their associated rare plant habitat guilds. These impacts would be greatest under Alternative 4. However, implementing project design features to protect special status plants and peatlands (see Appendix B) should reduce those potential impacts.

Table 4.2.1. Unavoidable Adverse Effects for Analyzed Resources (Continued)

Issue	Unavoidable Adverse Effects
Water Resources	Road repair and maintenance and motorized road closure actions could remove streamside vegetation (9.0 to 9.6 acres) and create in-stream sedimentation that would temporarily affect wetlands and waters of the U.S. (0.23 to 0.24 acre) until revegetation occurred. Long-term maintenance of roads could result in occasional contribution of sediment at road crossings. Unlimited motorized access under Alternative 4 would have a greater potential for increased sedimentation from the roadway, compared with the Proposed Action and Alternative 3. These impacts would be relatively small, compared with the overall watershed area, and implementation of design features and the retention of RHCAs would reduce effects to an insignificant level (see Appendix B).
Soil Resources	Road repair and maintenance actions under all actions alternatives could result in short-term adverse impacts to soils in the analysis area through compaction and displacement; however, none of the actions proposed would result in exceedance of regional or Forest Plan (Forest Service 2015a) standards.
Recreation	During road repair and maintenance actions, short-term and localized adverse impacts to non-motorized recreational use of Bog Creek Road would occur as the repair work would progress linearly along the route. After road repair, administrative use of Bog Creek Road and Blue Joe Creek Road would have short-term, localized effects on non-motorized user settings (e.g., noise, presence of vehicles); the exact frequency and duration for the administrative use is unknown. Motorized closure of between 24.7 and 26.5 miles of Forest Service roads would adversely impact non-motorized recreation opportunities on these roads in the short and long-term. The Proposed Action and Alternative 4 would close motorized access to FSR 1388, which is a designated snowmobile route. Therefore, the Proposed Action and Alternative 4 would have an adverse effect on snowmobile recreation users in the Blue-Grass BMU. Under Alternative 4, an increase in year-round motorized use would have an adverse impact to visitors who value non-motorized experiences, conflict with the current ROS setting for semi-primitive motorized use on the 5.6-mile section of Bog Creek Road and portions of FSRs 2546, 1011, 636, and 1009, and increase the potential for user conflict in the BMU.
Heritage Resources	No adverse effects on heritage resources are anticipated. The Forest Service received SHPO concurrence that no adverse effects on historic properties would occur. However, there is no assurance that every heritage resource site has been located. Terrain disturbance could expose previously undiscovered historic or prehistoric sites. Sites discovered in this manner would be immediately protected from further disturbances (see Appendix B).
T&E Species	Habitat removal from road repair and maintenance and motorized closure actions would irretrievably affect some individual animals, but these effects are not considered irreversible because some of the habitat would be reclaimed or restored in the long term and because large areas of similar habitat would remain available in the broader landscape. Disturbance from increased motorized use (see Table 3.1.3) in the analysis areas would irretrievably affect some individual animals, but these effects are not considered irreversible because of the large proportion of surrounding habitat available to these individuals. Increased administrative use and public access along the west to east access roads (including Bog Creek Road and 1.0 mile of Blue Joe Creek Road) could lead to the increased potential for accidental kills by recreationists, hunters, poachers, or those seeking to maliciously kill T&E species. Direct mortality of a T&E species would be considered an irreversible commitment of resources. Impacts to T&E species would be limited in scope and minimized through the implementation of design features (see Appendix B).

Table 4.3.1. Irreversible or Irretrievable Effects for Analyzed Resources

Issue	Irreversible or Irretrievable Effects
Wildlife	Habitat removal from road repair and maintenance and motorized closure actions would irretrievably affect some individual animals, but these effects are not considered irreversible because some of the habitat would be reclaimed or restored in the long term and because large areas of similar habitat would remain available in the broader landscape. Disturbance from increased administrative use and public use would irretrievably affect some wildlife species, but these effects are not considered irreversible because impacts would be unlikely to result in a trend toward Federal listing or a loss in population viability. Impacts to sensitive species would be limited in scope and minimized through the implementation of design features (see Appendix B).
Fish	Temporary increases in sedimentation would irretrievably affect some individual fish and areas of habitat, but these effects would not be considered irreversible. Vegetation removal would irretrievably affect some areas of riparian habitat, but these effects would not be considered irreversible because vegetation is considered a renewable resource.
Special Status Plants	Terrain disturbance and vegetation removal would represent an irretrievable effect on special status plants and their associated rare habitat guilds; however, this is not considered an irreversible commitment because vegetation is a renewable resource and impacts would be unlikely to result in a trend toward Federal listing or a loss in population viability for the special status plant species. Impacts to special status plants and peatlands would be limited in scope and minimized through the implementation of design features (see Appendix B).
Water Resources	As discussed in Chapter 3, in-stream sedimentation could occur during road repair and long-term maintenance, as well as in the areas proposed for motorized closures. Sedimentation in wetlands and waters of the U.S. could affect 0.23 to 0.24 acre of these aquatic habitats. RHCAs and design features would prevent or minimize sediment input into the streams and wetlands in the water resources analysis area, and all disturbance could be revegetated over time. Effects on water resources would be irretrievable but not irreversible.
Soils	All soil disturbance associated with the short-term road repair and motorized closure actions and long-term maintenance and use would be reversible. Soil disturbance would have short-term adverse impacts to soils, but in the long term would have beneficial impacts to soils by minimizing the risk of erosion and downstream sedimentation. No permanent structures or surfaces would be placed on soils, and soil conditions at roads proposed for motorized closure would eventually return to their natural state.
Recreation	Motorized closure of between 24.7 and 26.5 miles of Forest Service roads would be an irretrievable commitment of recreation resources in the Blue-Grass BMU. The Proposed Action and Alternative 4 would close motorized access to FSR 1388, which is a designated snowmobile route. Therefore, the Proposed Action would have an irretrievable effect on snowmobile recreation users in the Blue-Grass BMU. Recreation opportunities can be created by the Forest Service in other areas of the Blue-Grass BMU; therefore, impacts to recreation would not be considered irreversible.
Heritage Resources	The determination of irreversible and/or irretrievable commitments of heritage resources is dependent on the outcome of consultation with the SHPO. Because the Forest Service received SHPO concurrence that no adverse effects on historic properties would occur, there would be no irreversible and/or irretrievable commitment of heritage resources.

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CHAPTER 5
COORDINATION AND CONSULTATION

The Forest Service and CBP have involved the public, tribes, and local, State, and Federal agencies in the Bog Creek Road Project, and they have solicited feedback from these groups to help shape the project's development. A list of preparers of the DEIS is provided in Appendix H.

Several policies and regulations guide coordination and consultation. The CEQ regulations for implementing NEPA require public involvement (40 CFR 1506.6) and emphasize agency cooperation (40 CFR 1501.6). Forest Service NEPA guidance, found in 36 CFR 220, echoes the CEQ's regulations and requires public involvement, tribal consultation, and agency consultation.

5.1 Federal, State, and Local Agencies

5.1.1 U.S. Fish and Wildlife Service

Section 7 of the ESA requires Federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of their designated critical habitat. It also requires consultation with the USFWS in making that determination.

The Agencies initiated consultation with the USFWS under Section 7(a)(2) of the ESA on April 3, 2013. The Agencies met to discuss potential ESA issues associated with the proposed project and have continued to meet periodically.

A BA is being prepared to determine whether the repair and maintenance of Bog Creek Road and motorized closure of other roads would have any effects on ESA listed species. Results from consultation with the USFWS, based upon submittal of the BA, will be provided in the FEIS.

5.1.2 State Historic Preservation Office

As part of the Section 106 process, the Forest Service and CBP have conducted consultation with the Idaho SHPO to identify potential historic properties and to assess project effects on those historic properties. The SHPO has provided concurrence on the Forest Service finding of no adverse effect on historic properties for the Bog Creek Road Project and no historic properties for the Blue-Grass Bear Management Unit Project. In addition, a Programmatic Agreement between the CBP, the appropriate SHPOs, and relevant Native American tribes was developed and signed in 2016. The Programmatic Agreement outlines procedures to be followed for specified routine activities with no potential to adversely affect historic properties in order to streamline the Section 106 process. See Section 3.9 for discussion related to heritage resources.

5.2 Tribes

EO 13175, Consultation and Coordination with Indian Tribal Governments, requires the Forest Service and CBP to establish regular and meaningful consultation and collaboration

with tribal officials. Relevant tribal consultation documents are available as part of the administrative record. Consultation with the following tribes has begun:

- Kootenai Tribe of Idaho
- Kalispel Tribe of Indians

The Forest Service and CBP met with the Kootenai Tribe of Idaho on September 8, 2016, and March 28, 2018. Tribal consultation will continue throughout the EIS process until the Forest Service and CBP have issued the ROD.

5.3 Public Involvement

Participants in the Bog Creek Road DEIS process include members of the general public and members of non-governmental organizations with specific interest in the proposed project. These individuals participate by providing information and feedback on the project, but they do not have a formal decision-making or regulatory role in the project. A description of the efforts taken to date by the Forest Service and CBP to inform the public is provided in Section 1.7.

CHAPTER 6
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CHAPTER 7
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APPENDIX A.
RELATIONSHIP OF THE BOG CREEK ROAD PROJECT ENVIRONMENTAL IMPACT STATEMENT TO THE PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR NORTHERN BORDER ACTIVITIES

U.S. Customs and Border Protection (CBP) prepared the *Programmatic Environmental Impact Statement for Northern Border Activities* (NB PEIS) (July 2012) to evaluate "a programmatic approach to enhance security resources employed to protect the border between the United States and Canada (northern border) in order to respond to existing and evolving cross-border threats over . . . five to seven years." It covered the area within 100 miles south from the U.S.–Canada border extending from the Atlantic Ocean to the Pacific Ocean, encompassing the contiguous northern tier states from Maine to Washington and around the Great Lakes. The Proposed Action includes several elements that contribute to a multilayered response and incorporated all elements of CBP continuing activities within the No-Action Alternative. Consistent with the intelligence- and technology-fueled risk-based approach in the "Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness," declaration by President Obama and Prime Minister Stephen Harper of Canada (February 2011) and the subsequent Action Plan (December 2011), as well as the Department of Homeland Security's *Northern Border Strategic Plan* (May 2012), CBP selected the *Detection, Inspection, Surveillance, And Communications Technology Expansion Alternative* as its strategic approach to enhancing northern border security and facilitating legitimate cross-border trade and travel.

Chapter 10 of the NB PEIS on "Future Planning and NEPA Compliance" describes how CBP will use the PEIS "as a foundation environmental planning tool" whenever CBP develops specific proposals "to build new structures, implement new technologies, or add new tactical security infrastructure along the northern border." The environmental analysis documents to support decision-making for specific projects proposed within the areas studied in the PEIS would either "tier off" the PEIS and its accompanying Northern Border Activities Record of Decision (NB ROD) or draw upon the general information in this area-wide programmatic analysis document. The first step in determining how to apply the PEIS to a particular project's proposed action would be to ask the question, "Is this new action encompassed by the descriptions and analyses in the PEIS?"

Chapter 4 of the PEIS covered the West of the Rockies region of the overall affected environment for the northern border. It discussed the national forests, including the Idaho Panhandle National Forests, as areas posing specific access challenges for the U.S. Border Patrol to maintain surveillance of border region while ensuring habitat protection for public-trust species (pp. 4-2, 4-67). Chapter 4 also discussed and included a map of the Selkirk Grizzly Bear Recovery Zone and the Northern Divide Grizzly Bear Project study on the size of the population in the Northern Continental Divide Ecosystem.

The NB PEIS anticipated the potential for moderate adverse impacts to biological resources (8.3.1, pp. 8-25, 26, 27; 8.3.7, p. 8-48), soils (8.4.1, pp. 8-51 to 8-53; 8.4.7, 8-59), land use (8.8.1, pp. 8-110 to 8-113; 8.8.7, p. 8-117), and recreation (8.17.1, pp. 8-251 to 8-261; 8.17.7, p. 8-266 also for motorized operations and sensor deployment) for access road construction and repair activities greater than 0.25 mile in length. It also anticipated major, cumulative, adverse effects in cases where CBP activities included establishing new roads or the long-term or permanent closure of an existing road. Road closures were not contemplated as mechanisms for advancing border security or facilitating trade and travel, but were considered as a possibility under any of them (8.18.16, p. 8-287).

The Bog Creek Road Project is specifically proposed to meet the access needs of the U.S. Border Patrol Spokane Sector in conjunction with U.S. Forest Service planning for road management within the Idaho National Panhandle Forests. The determination of the need to develop an EIS for this Proposed Action is consistent with the NB PEIS, which considered around 15 major construction/repair actions as part of the baseline of activities within the West of the Rockies that would need to be evaluated in their own NEPA documents. In developing the EIS and Record of Decision for Bog Creek Road Project, CBP will adhere to the measures listed in the NB Record of Decision within Section VI, Avoidance and Minimization of Environmental Harm, to the extent consistent with any site-specific requirements determined through the analysis of all aspects of the Proposed Action.

APPENDIX B.
DESIGN FEATURES

Introduction

The design features are all features that are incorporated into the action alternatives to reduce project impacts. The agencies developed design features to minimize or avoid detrimental effects that could occur as a result of implementing the proposed Bog Creek Road Project. The design features are based on Forest Plan direction and policy, best available science, and site-specific evaluations, and would be applied to all action alternatives during project implementation. Included in the list of design features is their estimated effectiveness based on monitoring results and scientific literature, where available.

Most of the design features below include a qualitative assessment of the estimated effectiveness that implementing the design feature would have on preventing or reducing impacts. The effectiveness rating is based on: 1) literature and research; 2) administrative studies; 3) professional experience; and 4) fact. The estimated design feature effectiveness is rated either high, moderate, or low.

High: Practice is highly effective (greater than 90 percent) and one or more of the following types of documentation are available:

a. Literature/Research – must be applicable to the area;
b. Administrative studies – local or within a similar ecosystem;
c. Professional Experience – judgement of an expert by education and/or experience;
d. Fact – obvious through reasoning (logical response).

Moderate: Documentation shows that the practice is effective less than 90 percent of the time, but at least 75 percent of the time, or

Logic indicates that this practice is highly effective, but there is little or no documentation to back it up; or

Implementation and effectiveness of this practice will be monitored and the practice will be modified, if necessary, to achieve the objective of the design feature.

Low: Effectiveness unknown or unverified, and there is little to no documentation; or

Applied logic is uncertain in this case, or the practice is estimated to be less than 75 percent effective; or

This practice is speculative and needs both effectiveness and validation monitoring.

The effectiveness estimates given here are general, given the range of conditions throughout the forest.

Features Designed to Protect Air Quality

- All wood wastes would be chipped, where possible, and used for erosion control or visual mitigation. Remaining wood wastes would be burned in accordance with current air quality requirements.

- Provisions to ensure adequate smoke dispersal during wood waste disposal would be implemented. All burning would be conducted in compliance with the Smoke Management Program of the Montana/Idaho State Airshed Group.
- Graded areas would be watered, as necessary and practical, to prevent excessive amounts of dust. In the absence of natural precipitation, watering of these areas would occur as practical.
- All equipment would be properly tuned and maintained. Idling time would be minimized to the extent practical.
- The U.S. Forest Service (Forest Service) encourages the use of low-sulfur or alternative fuels in construction vehicles.

Features Designed to Protect Fish Species and Habitat

- Incorporate Inland Native Fish Strategy (INFISH) standards and guidelines (Forest Service 1995b) that apply to activities that would occur within the Bog Creek Road project area such as:
  - Reconstructing road and drainage features that do not meet design criteria or operation and maintenance standards, or that have been shown to be less effective than designed for controlling sediment delivery, or that retard attainment of riparian management objectives, or that do not protect designated critical habitat for inland native fish from increased sedimentation.
  - Prioritizing reconstruction based on the current and potential damage to inland native fish and their designated critical habitat, the ecological value of the riparian resources affected, and the feasibility of options for road relocation out of riparian habitat conservation areas (RHCAs).
  - Closing and stabilizing or obliterating and stabilizing roads not needed for future management activities. Prioritize these actions based on the current and potential damage to listed inland native fish and their designated critical habitat, and the ecological value of the riparian resources affected.
  - Constructing new and improving existing culverts, bridges, and other stream crossings to accommodate a 100-year flood, including associated bedload and debris, where those improvements would or do pose a substantial risk to riparian conditions.
  - Providing and maintaining fish passage at all road crossings of existing and potential fish-bearing streams.
  - Applying herbicides, pesticides, and other toxicants, and other chemicals in a manner that does not retard or prevent attainment of riparian management objectives and avoids detrimental effects on inland native fish.
- If threatened or endangered fish species are located during project implementation, appropriate measures, in accordance with INFISH guidelines and pursuant to Section 7 of the Endangered Species Act, will be taken to protect the species and its habitat.
- In fish-bearing streams, no culvert replacements, culvert removals, or in-stream work would be permitted during critical spawning periods (March through July). Any in-stream work occurring after October 1 would be coordinated with the District

fisheries biologist to assess site impacts and to determine whether weather conditions would permit such activities.

Estimated Effectiveness – High: Avoiding in-stream work during the spring spawning season, starting as early as March, and the resulting embryo development period, typically as late as June or early July, would reduce disturbances to spawning adults and allow the developing fish time to emerge from the streambed gravels. Once the developing young fish have emerged from the gravels, they are less susceptible to sedimentation and their increased mobility allows them to better avoid potential in-stream disturbances associated with in-stream work.

- Management activities that may disturb native salmonids, or have the potential to directly deliver sediment to their habitats, shall be limited to times outside spawning (outside March through July) and incubation seasons for those species.
- On fish-bearing streams, the design of replaced culverts shall be done in accordance with the Forest Service's Aquatic Organism Passage program, or other design criteria that ensure fish passage at the appropriate life stages.
- All activities would be designed to protect water quality and aquatic resources through the use of best management practices (BMPs), which are the primary mechanism through which to enable the achievement of water quality standards. Forest Service Handbook 2509.22 (Forest Service 2010b), the *Soil and Water Conservation Handbook* (Forest Service 1988), and the *National BMPs for Water Quality Management on National Forest System Lands* (Forest Service 2012a) outline BMPs that meet the intent of the water quality protection elements of the Idaho Forest Practices Act. BMPs to reduce effects on aquatic resources include:
  - Oil and Hazardous Substance Spill Contingency Planning, BMP 11.07
  - Sanitary Guideline for Construction of Temporary Labor, Spike, Logging, and Fire Camps and Similar Installations, BMP 11.13
  - Re-vegetation of Surface Disturbed Areas, BMP 13.04
  - Stream Channel Protection, BMP 14.17
  - Erosion Control Structure Maintenance, BMP 14.18
  - On-site Large Woody Residue and Soil Litter Retention, BMP 14.24
  - Road and Trail Erosion Control Plan, BMP 15.03
  - Timing of Construction Activities, BMP 15.04
  - Mitigation Surface Erosion and Stabilizing Slopes, BMP 15.06
  - Control Permanent Road Drainage, BMP 15.07
  - Control of Road Construction Excavation and Sidecast Material, BMP 15.10
  - Servicing and Refueling of Equipment, BMP 15.11
  - Diversion of Flows Around Construction Sites, BMP 15.14
  - Bridge and Culvert Installation, BMP 15.16
  - Maintenance of Roads, BMP 15.21

Estimated Effectiveness – Moderate to High: Regarding BMP 13.04, revegetation can be moderately effective at reducing surface erosion after one growing season following

disturbance and can be highly effective in later years. Effectiveness has been shown to vary from 10 percent on 0.75:1 slopes to 36 percent on 1:1 slopes to 97 percent on 1:1 slopes in later years (King and Burroughs 1989).

Estimated Effectiveness – High: Regarding BMPs 11.07 and 15.11, although spill contingency plans cannot eliminate the risk of materials being spilled and escaping into waters, when followed, they can be effective at reducing detrimental effects to tolerable levels. Depending on the location and quantity of a spill, a properly implemented plan can provide for up to 100 percent containment of a spill.

Estimated Effectiveness – High: Research has shown that practices like retaining coarse woody debris (BMP 14.24) are effective means for preserving the nutrient cycle and protecting the soil from potential loss through erosion (Baker et al. 1989; Garrison and Moore 1998).

Estimated Effectiveness – Moderate to High: Regarding BMPs 13.04 and 15.06, hydrological recovery is expected within the first 10 years, with soil infiltration rates lower than natural forest rates for the first 10 years (Foltz and Maillard 2003; Luce 1997). For the long term, infiltration rates improve over time as freeze/thaw and plant roots improve soil porosity (Switalski et al. 2004).

Estimated Effectiveness – Moderate to High: Regarding BMPs 14.18, 15.03, and 15.06, depending on the erosion control method implemented, the slope, and the rate of revegetation, sediment production immediately following surface disturbance can be reduced by 40 to 60 percent through use of erosion control methods (Figure 8 in King and Burroughs 1989).

- Riparian vegetation, including overstory tree cover, will be left along water bodies as feasible to provide shade, maintain streambank stability, create in-channel structure, desirable pool quality, quality habitat for aquatic organisms, and promote filtering of overland flows.
- Design management activities to minimize impacts to water quality and other riparian values.
- Provide fish passage and natural flow patterns and channel morphology at fish-bearing stream crossing sites.
- The Forest Service would ensure that all road features, particularly stream crossings on roads or any road that is closed by a barrier (i.e., not a gate) and is intended to be kept closed for at least 5 years, are hydrologically neutral (as defined in subsequent project-level consultations with the U.S. Fish and Wildlife Service [USFWS]) and capable of passing at least a 100-year flood event with minimal erosion. Should the Forest Service decide to leave a culvert on a road blocked by a barrier, then that crossing should be capable of passing a 100-year event. Crossings that are barriers to fish passage should be removed from fish-bearing streams, unless site-specific analysis contradicts such action. Roads that are intended to be kept closed for less than 5 years should be adequately stabilized so that maintenance is not expected to be required for the duration of the closure.
- Erosion control features would be monitored annually by the Forest Service during spring runoff or after storm events to determine their effectiveness and to identify any needed changes.

Features Designed to Protect Waters of the U.S., Including Wetlands

- Clean, replace, or properly align culverts at the larger five perennial stream crossings along Bog Creek Road (i.e., those crossings mapped in the U.S. Geological Survey National Hydrography Dataset). This would reduce the risk of failure due to blockage or insufficient hydraulic capacity.
- Maintain or replace culverts, or install drivable dips, to improve drainage near all perennial water bodies (streams and wetlands) intersected by the Bog Creek Road. This would "disconnect" the drainage ditch from the water bodies and allow sediment to filter out across the forest floor. In addition, adding fill material to the road surface would better armor the driving surface.

Estimated Effectiveness – Moderate to High: Reduced sediment delivery potential from improved road drainage is well documented by research and monitoring. Installing additional drainage structures on roads disperses drainage across more area, thereby reducing the erosive energy from concentrated flows. Erosion research conducted in northern Idaho by Spinelli et al. (2008) documented reductions.

- During final submittal of construction plans and in the field, where possible, avoid and minimize wetland impacts.
- Temporarily place construction spoils in upland areas in locations that will not migrate to wetland areas.
- As much as possible, keep heavy equipment out of wetlands and stream channels during construction.
- Preserve and replant woody vegetation (e.g., *Salix* spp.) and plant additional hydrophytic woody and herbaceous vegetation, where necessary, to speed the recovery of the wetland community.
- Complete work within stream channels and wetlands when hydrologic flows are reduced (likely August through early September).
- Restore wetland crossings upon completion of construction.
- Use fabric or straw layers to protect existing vegetation from stockpiled dredged material and to mark existing contours.
- Apply BMPs for all ground-disturbing activities to avoid sediment migration from ground disturbance into wetlands.
- RHCA boundaries would be flagged where activities come close to the RHCA to exclude ground-based equipment and other activities, as much as possible.
- If necessary for the attainment of RHCA desired conditions, ground-based equipment shall only enter an RHCA at designated locations.
- Prohibit storage of fuels and other toxicants within RHCAs. Prohibit refueling within RHCAs unless there are no other alternatives. Refueling sites within an RHCA must be approved by the Forest Service and have an approved spill containment plan.
- Measures will be taken to facilitate riparian vegetation regrowth at restored riparian areas, including cattle deterrence, if necessary within the grazing allotments.

Features Designed to Protect Special Status Plants and Unique or Special Habitats

- Whitebark pine (*Pinus albicaulis*) retention guidelines would be followed.
- All documented rare plant occurrences not located within the existing road prism would be protected by a site-specific buffer of 150 feet, excluding the road prism itself.
- All proposed road maintenance activities would be conducted within the road prism (composed of the cut-slope, travelway, and fill-slope). Some associated activities involving source material may occur in designated material source sites. Therefore, direct effects on *Carex flava* populations and suitable habitat for other rare sedges would likely be avoided during activities.
- Proposed road maintenance activities should not further alter hydrologic function, regimes, existing water courses, or water tables in the long term. If drainage features or culverts need to be replaced, such activities would occur during the driest season possible (likely August through early September) in an effort to reduce potential hydrologic effects or subsequent sedimentation impacts to *Carex flava* populations and other classified peatland habitats. Microsites of highly suitable rare plant habitat often occur in conjunction with peatlands, seeps, springs, and other seasonally or perennially wet areas. These habitats would be protected from all project activities not within the existing road footprint by site-specific buffers established by a qualified botanist or hydrologist.
- Measures to protect plant population viability and habitat capability of threatened, endangered, and proposed species during noxious weed treatment would be implemented following guidelines provided in the *Priest Lake Noxious Weed Control Project Final Environmental Impact Statement* (Forest Service 1997) or the *Bonners Ferry Ranger District Noxious Weed Management Projects Final Environmental Impact Statement* (Forest Service 1995c), depending on road location and associated jurisdiction.
- Any changes to the Proposed Action that may occur during project implementation would be reviewed by a qualified botanist, and rare plant surveys would be conducted as necessary prior to project implementation. Newly documented occurrences would be evaluated, with specific protection measures implemented to protect population viability. Such measures could include the following:
  - Dropping specific protection areas from project activity;
  - Modifying activities to provide adequate buffers around documented occurrences, as determined by a qualified botanist and based on topography, the extent of contiguous suitable habitat for documented occurrences, and the type of road maintenance activity proposed;
  - Modifying methods, treatment, or systems to protect rare plants and their habitats; and/or
  - Implementing, if necessary, Federal Highway Administration specifications 107.11 and other contract clauses, as needed to protect plants, animals, cultural resources, and cave resources on National Forest System (NFS) lands.

Estimated Effectiveness – Moderate to High: The design features described above would be very effective in protecting documented occurrences of rare plants, which occur within or adjacent to the action alternatives. However, because some rare plants may not have been detected, these design features would be considered moderately effective at protecting undetected and currently undocumented occurrences of rare plants because suitable habitat for rare plants (dependent upon moist forest or wet forest habitats) is present in the vicinity of the action alternatives.

Peatlands

- Peatlands are a specific type of plant community, typically dominated by sphagnum. These special areas often provide habitat to many rare plant species and can be very sensitive to hydrologic changes and impacts. Prior to implementation of any project activities involving soil disturbance, nearby wetlands/peatlands will be assessed by botanists to determine more precise locations of peatlands, as well as reasonable avoidance areas. (Large peatlands are typically identified on the USFWS National Wetlands Inventory; however, many small, flow-through rich fens present in the Bog Creek project area need to be identified on-site, on a case-by-case basis.)
- If drainage features or culverts need to be repaired or replaced, such activities will occur during the driest season possible (likely August through early September) in an effort to reduce potential hydrologic effects or subsequent sedimentation impacts to classified peatland habitats.
- Where peatland habitat or drainage to peatlands occurs within 660 feet of the road prism or intersects the road prism, no widening of the existing road prism would occur.
- Where peatland habitat or drainage to peatlands occurs within 660 feet of the road prism or intersects the road prism, sediment control measures (such as certified weed-free straw bales, wood straw, wattles, or silt fencing) would be used to minimize sedimentation into peatlands.
- No equipment or materials (construction materials or fill materials) would be parked or staged within 150 feet of peatlands.

Ancient Cedar Stands

- Portions of ancient cedar groves occur adjacent to or in near proximity to Forest Service Road (FSR) 1013 (Upper Priest River/Bog Creek Road).
- No ancient cedar trees (defined by the *Revised Land Management Plan, Idaho Panhandle National Forests* [IPNF] [Forest Service 2015a]) would be felled as part of the Bog Creek Road Project.
- Avoid sidecasting fill material down the hill outside of the road prism.
- Do not cut into the uphill bank because that could destabilize the hillside above the cut, leading to slope failure and potential loss of ancient cedar trees.

Features Designed to Protect Soil and Water Resources

- Prior to road repair and motorized closure activities, submit a detailed site erosion control plan to the Forest Service soil scientist and hydrologist for review and approval. This plan must include the following components: silt fences, straw bales,

straw wattles, and other standard erosion control design features typically employed to contain sediment on-site. Jute netting or appropriate erosion-control matting should be used on steep fill slopes to protect soils and enhance conditions for vegetation reestablishment.

- A project-specific Stormwater Pollution Prevention Plan (SWPPP) would include additional erosion protection (such as two rows of silt fence, straw bales, and/or more permanent structures such as logs) to be provided between streams and construction areas close to stream channels. Water bars will be constructed within the newly disturbed areas to minimize downslope water movement through the site, and to direct sediment-laden water away from stream channels. As specified in the project-specific SWPPP, water bars will be lined with erosion-control fabric, sod, and/or mulch to prevent failures prior to the establishment of vegetation, as necessary.
- Where the potential exists for sediment delivery to water, erosion-control measures (such as straw bales, wattles, silt fences, and hydro-mulching) would be in place before and during ground-disturbing activities. To ensure effectiveness, erosion-control measures would remain in place and would be functional until disturbed sites (such as roads and culverts) are stabilized, typically for a minimum period of one growing season after ground-disturbing activity occurs.

Estimated Effectiveness – Moderate to High: Depending on the erosion control method implemented, the slope, and the rate of revegetation, sediment production immediately following surface disturbance can be reduced by 40 to 60 percent through use of erosion control methods (Figure 8 in King and Burroughs 1989).

- A Spill Prevention and Response Plan, which would be included in the SWPPP as part of the construction documents, would be developed. Fuel, oil, and other hazardous materials would be stored in structures placed on impermeable surfaces with impermeable berms designed to fully contain the hazardous material plus accumulated precipitation for a period at least equal to that required to mitigate a spill. Petroleum products would not be discharged into drainages or bodies of water. No fuels or construction machinery would be stored within stream or wetland buffers.

Estimated Effectiveness – High: Although spill contingency plans cannot eliminate the risk of materials being spilled and escaping into waters, when followed, they can be effective at reducing adverse effects to tolerable levels. Depending on the location and quantity of a spill, a properly implemented plan can provide for up to 100 percent containment of a spill.

- Schedule culvert installations, culvert removals, regrading, and other soil disturbances outside periods of heavy rain, spring runoff, or excessively wet soils.

Estimated Effectiveness – Moderate

- In areas where site conditions necessitate (i.e., excessively steep slopes and/or highly erosive soil types), temporary sediment detention basins would be created to detain runoff and trap sediment. Sediment basins would be created within the overall disturbance limits of the applicable project elements. Temporary sediment basins would be reclaimed following reestablishment of permanent vegetation and would likewise be revegetated.
- Prior to grading, submit an engineered design plan and drainage management plan to the Forest Service for review and approval.

- Road dust abatement treatments would follow the recommendations in the *Dust Palliative Selection and Application Guide* (Forest Service 1999b). The recommendations include no dispersal of chemically derived dust abatements (such as lignin or chloride-based) within 25 feet of surface waters, including surface-water crossings.
- Soil should not be sidecast into surface water during road maintenance operations.
- Until the IPNF Noxious Weed Treatment Project Environmental Impact Statement (EIS) is finalized (anticipated in January 2019) and other Forest Service guidance is available from that decision, herbicide application would follow existing weed management plans (Forest Service 1995c, 1997).

Features Designed to Minimize the Spread of Noxious Weeds

- Material source sites to be used for road repair and motorized closure would be free of new weed invader or potential invader species. Suitable material source sites must be either state-certified as "weed free" or be routinely treated (at least 2 consecutive years) for weed control prior to use during the ideal treatment season (typically May through July) when weeds are readily identifiable, but before they have gone to seed.
- Additionally, if using NFS borrow/gravel pits, the road leading to the pit would also be free of new weed invader or potential invader weed species, by means of routine weed treatment.
- Weed treatment of all roads proposed for treatment on NFS lands would occur prior to ground-disturbing activities where feasible. If the timing of ground-disturbing activities would not allow weed treatment to occur when it would be most effective, it would occur in the next treatment season following the disturbance.
- All contracts would require cleaning of road maintenance and off-road equipment prior to entry onto NFS lands. If operations occur in areas infested with new invaders, all equipment would also be cleaned prior to moving to new sites or those sites would be relatively free of weeds.
- In other areas of disturbance (including project disturbed cut/fill slopes), bare ground would be seeded with the most current IPNF native, moist-site, locally adapted, certified, weed-free seed mix upon activity completion. (Current species list available from north zone botanist.) Areas would also be fertilized and/or mulched if deemed necessary by the soil scientist or north zone botanist. Revegetation species used should be source-identified, site-appropriate, and genetically adapted to the project area, when feasible, to comply with Forest Service Manual (FSM) 2070 (Forest Service 2008c). When reseeding is necessary, seeding would occur during an appropriate season (spring or fall) or weather conditions (at least 2 weeks prior to forecasted cooler, wetter weather) to ensure the most effective germination/establishment.
- All straw used for mulching, erosion-control, or watershed restoration activities would be certified weed free. Preferably, local native materials or wood mulch (wood straw) would be used for mulching and erosion control.

Estimated Effectiveness – Low to High: The design features are accepted weed prevention and treatment practices developed by public land management agencies or university

cooperative extension offices and are promoted by weed management organizations across the nation (e.g., Drlik et al. 1998; Forest Service 2001b; Sheley et al. 2002). These design features include those required in FSM 2900 for activities related to roads (Forest Service 2011c). They are described in FSM 2081.2-1a (Forest Service 2001a). For new weed invaders, the estimated effectiveness of the above measures is high; the measures are expected to be very effective at preventing establishment of new invaders. According to Hobbs and Humphries (1995), early detection and treatment of infestations before explosive spread occurs can significantly reduce the social cost of weed invasions. For existing infestations that occur along road rights-of-way, estimated effectiveness is moderate; the measures are expected to be somewhat effective at reducing the spread of these in the vicinity of the action alternatives. For existing infestations that have spread off the road, estimated effectiveness is low. Effectiveness of treatments on NFS lands could be reduced if adjacent landowners do not treat their weed infestations. Existing weeds and new invaders are also spread by wildlife, wind, water, and hikers; the design features would have no effect on these sources of weed spread. Monitoring would help provide efficacy results from these design features.

Features Designed to Protect Special Status Wildlife Species

- All of the proposed road improvements and motorized road closure activities include pre- and post-weed treatment and monitoring, as defined by the *Priest Lake Noxious Weed Control Project Final Environmental Impact Statement* (Forest Service 1997) or the *Bonners Ferry Ranger District Noxious Weed Management Projects Final Environmental Impact Statement* (Forest Service 1995c).
- Activities related to Bog Creek Road repair and maintenance would occur between July 16 and November 15, and motorized road closure activities would occur between June 16 and November 15 (see Chapter 1). These activities could last as few as one season and up to three seasons.

Estimated Effectiveness – High: Spring is the most sensitive time period for grizzly bears because their fat reserves have been severely depleted and foraging to rebuild energy reserves is their primary focus (USFWS 2011a). Limiting project activities during this season greatly reduces the potential for effects on grizzly bear from disturbance or displacement from foraging habitat. Research also shows that grizzly bears benefit from closures aimed at minimizing traffic within important seasonal habitats, particularly during the spring (Mace et al. 1999).

- The IPNF's 1984 Grizzly Bear Management and Protection Plan (Appendix I of this EIS) and the 2011 Food Storage Order (see Appendix F of this EIS) would be included in the construction contract and would be adhered to by all federal employees, contractors, or subcontractors.

Estimated Effectiveness – High: Improperly stored food and garbage has been identified as a principal cause of grizzly bear mortality, and following established food and garbage storage guidelines has been shown to substantially reduce or eliminate conflicts between humans and wildlife, particularly bears (Harms 1977; USFWS 1993a; Wakkinen and Kasworm 2004).

- Road repair and motorized closure contractors and subcontractors would not be permitted to hunt, transport hunters, discharge firearms, or transport big-game animals with vehicles in any areas that are otherwise closed to motorized vehicles.

Estimated Effectiveness – High: This design feature would reduce the potential of a grizzly bear mortality to occur.

- Monitor known raptor territories and nests, including northern goshawk, to determine active raptor nests. Leave active raptor nests in place, i.e., do not remove nest trees. Avoid or minimize disturbance to known raptor nests by waiting to conduct road repair and maintenance activities until after July 15. Nestlings could still be in the nests as late as August but would be gaining independence. Also if adults were temporarily disturbed from the nest this late in the season, they would be unlikely to abandon their young. There is known goshawk nesting activity (two nest sites) near the east end of the proposed Bog Creek Road repair. Road repair would begin on the west end of the Bog Creek Road to avoid mechanical operations near this area with known nesting activity until after August 15.

Estimated Effectiveness – Moderate to High: Protection measures would allow continued nesting and successful rearing during and after project implementation (Reynolds et al. 1992). Seasonal restrictions are likely to minimize disturbance to active nests. Protection of raptor nests and seasonal restrictions have been effective in the past.

- Avoid or minimize disturbance near wolf den and rendezvous sites during the time those sites are used by wolves. A 1-mile buffer would be applied to den sites from April 1 to July 1 and rendezvous sites from July 1 to August 15. This applies to known wolverine den sites, as well. Upon review by a qualified Forest Service wildlife biologist, these distances could decrease based on topographical characteristics at each site. At the time of EIS publication, no known wolf den or rendezvous sites had been identified, nor had any wolverine den sites (Idaho Department of Fish and Game 2016b).

Estimated Effectiveness – High: The USFWS has determined that "there is little, if any, need for land-use restrictions to protect wolves in most situations, with the possible exception of temporary restrictions around active den sites on federally managed lands," and that restricting activity around sensitive sites during the denning period effectively limits potential disturbance to wolf pups (USFWS 2003c).

Under the Proposed Action and Alternative 3, but not under Alternative 4:

- Various roads within the Blue-Grass Bear Management Unit will continue to be designated as "restricted" roads (see Figures 2.2.2 and 2.2.3 in Chapter 2), meaning "road[s] on which motorized vehicle use is restricted seasonally or yearlong. The road[s] require effective physical obstruction (generally gated)[1]" (Interagency Grizzly Bear Committee 1998). The road would be "restricted" year-round.

[1] In accordance with *Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones* (Access Amendment), motorized administrative use by personnel of resource management agencies is acceptable at low-intensity levels as defined in existing cumulative effects analysis models (Forest Service 2011a). This includes contractors and permittees, in addition to agency employees.

- The Forest Service would install signs, at either end of Bog Creek Road, stating PUBLIC MOTORIZED ENTRY PROHIBITED – THIS ROAD IS UNDER SURVEILLANCE – VIOLATORS WILL BE PROSECUTED. The road would be available for non-motorized public use and would be monitored for "high use." "High use trails" are those trails receiving an average of 20 or more parties per week.
- The Forest Service, in coordination with the U.S. Department of Homeland Security, Customs and Border Protection (CBP), would install gates at either end of the 5.6-mile-long Bog Creek Road that are designed to minimize potential destruction, dismantling, or breaching and are designed low enough to prohibit sliding motorcycles underneath and high enough to prevent OHV off-loading over the gates. The gates would be monitored 24/7 with a variety of methods. If the Agencies observe gate destruction/breaching, they will review the possibility of installing a third internal gate, along Bog Creek Road, at that time. These gates would be closed to the public year-round.

Under Alternative 4:

- The Forest Service would install a sign at the intersection of Blue Joe Creek Road (FSR 2546) and FSR 1011 (see Figure 2.2.4 in Chapter 2), stating ADMINISTRATIVE USE ONLY – NO PUBLIC MOTORIZED ACCESS. Beyond this sign, Blue Joe Creek Road would be available for non-motorized public use and would be monitored for "high use." "High use trails" in grizzly bear core areas are those trails receiving an average of 20 or more parties per week.
- The Forest Service, in coordination with the CBP, would install a locked gate on Blue Joe Creek Road at the same location as the sign described above. The gate would be monitored 24/7 with a variety of methods. This gate would be closed to the public year-round.

Features Designed to Protect Recreation Uses

- Notices would be posted on trailheads informing visitors about the possibility of encountering heavy equipment and human noise and activities near the areas of road repair and motorized closure. The notices would also identify where and when these activities would be taking place.
- Similarly, outfitter and guides, historically operating within the vicinity of the action alternatives, would be notified of the planned heavy equipment and human noise and activities.

Features Designed to Protect Heritage Resources

- Although cultural resources surveys are designed to locate all archaeological sites and site components that might be eligible for the National Register of Historic Places, such sites and site components may go undetected for a variety of reasons. Should any previously unrecorded cultural resources be discovered during project implementation, activities that may be affecting that resource would be halted immediately. The resource would be evaluated by an archaeologist, and consultation would be initiated with the State Historic Preservation Office, as well as with the Advisory Council on Historic Preservation, if required, to determine appropriate actions for protecting the resource and for mitigating any adverse effects on the

resource. Project activities at that locale would not be resumed until the resource is adequately protected and until agreed-upon mitigation measures are implemented with State Historic Preservation Office approval.

- Road maintenance activities such as regrading and adding gravel or amending the roadbed with in kind material; repair to existing footprint, width, and curvature using in kind materials; number and width of lanes, shoulders, medians, curvature, grades, clearances, and side slopes; watering to control dust; application of selective chemical erosion or dust control materials; mowing or non-culturally sensitive vegetation removal that does not cause below-ground disturbance; and repair or replacement of traffic control devices such as traffic signs and signals, delineators, pavement markings, and traffic surveillance are exempt from further Section 106 review in accordance with the Northern Border Section 106 Programmatic Agreement. New grading of roads that have not previously been reviewed under Section 106 is not exempt under the Programmatic Agreement.

Estimated Effectiveness – High: Monitoring conducted on other projects on the IPNF, as well as on other national forests nationwide, verifies that the design features described above would protect documented cultural resource sites. Provisions built into the construction contract would protect both the inadvertent discovery of previously undetected cultural resource sites or human remains.

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APPENDIX C.
ECOLOGICAL CONCEPTUAL SITE MODEL

Bog Creek Ecological Conceptual Site Model

Introduction

Background

Ecological Conceptual Site Models (ECSM) can be used to identify sensitive resources, habitats, and species as well as pathways that have the potential to affect their ongoing condition, health and sustainability. Preparing an ECSM is the first step of an ecological risk assessment for proposed actions. By understanding the resources present, the habitats available or possible, and the species present, sensitive receptors can be selected, and the level of effect of risks can be assessed. The purpose of an ECSM is to gain an understanding of the resources and the pathways to sensitive receptors.

Site Summary

The U.S. Customs and Border Protection (CBP), Spokane Sector (CBP) in cooperation with the U.S. Forest Service (USFS) is proposing a project in the Continental Mountain area of the Idaho Panhandle National Forests within the Bonners Ferry and Priest Lake Ranger Districts. This area is managed by the Idaho Panhandle National Forests (IPNF). CBP is proposing to reconstruct an approximately 5.6-mile section of the existing Bog Creek Road between Forest Road (FR) 1013 and FR 2450 approximately 2-miles from the Canadian border. On April 27, 2016, CBP and IPNF jointly published a Notice of Intent (NOI) to prepare an Environmental Impact Statement identify and assess potential impacts upon the environment of Repair Bog Creek Road and to close for motorized use additional roads within the Blue-Grass BMU to comply with the IPNF Forest Management Plan and reduce road density in the Blue-Grass Bear Management Unit.

Bog Creek Road is located within IPNF within the Bonners Ferry and Priest Lake Ranger Districts in Boundary County. Boundary County is the northernmost county in the state, bordering on Canada on the north, Montana on the east and Washington on the west.

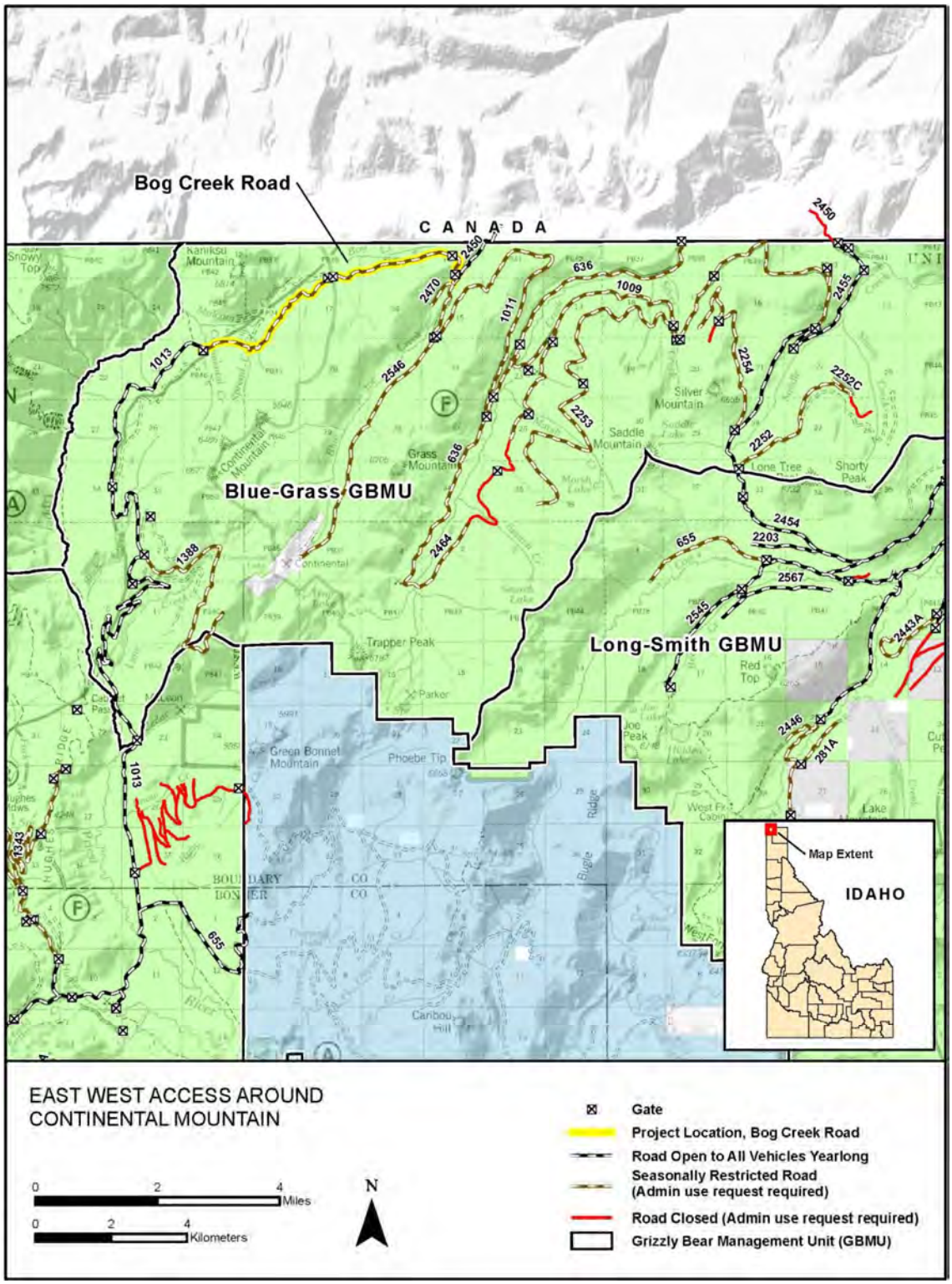

Figure 1 *Bog Creek Road Project area*[1]

[1] CBP-Spokane Sector. 2013. EAST–WEST ACCESS AROUND CONTINENTAL MOUNTAIN SCOPING REPORT. CBP 78 pp.

Environmental Summary

The area of interest for this ECSM largely consists of wilderness and contains critical habitat for the recovery of more than one protected species, notably grizzly bears. The existing road has been operationally closed due to damages. Repairing the road would increase the amount of roadway access in the area.

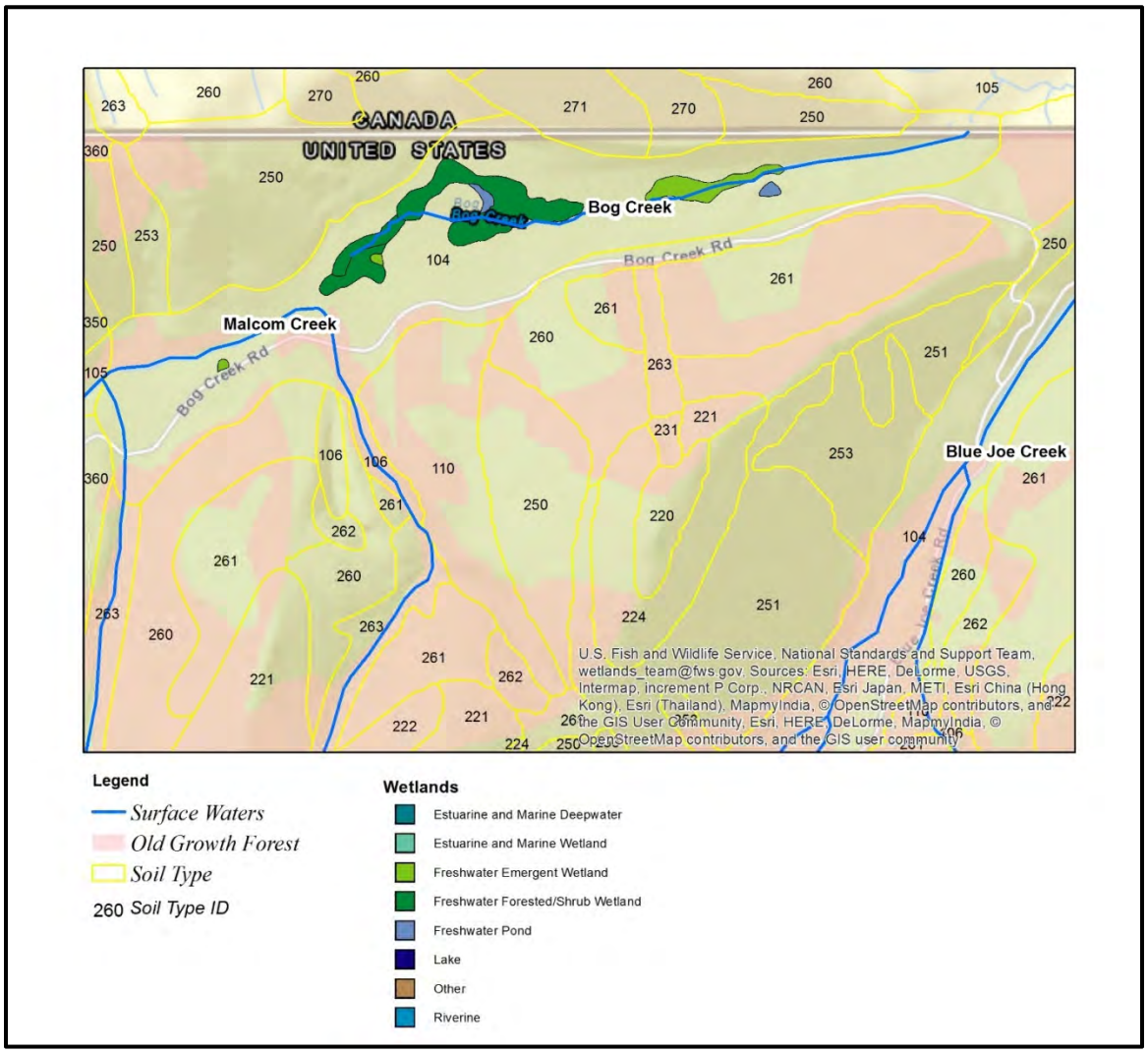

Figure 2 Bog Creek Road Area Aerial Map with Soil Types, Surface Water, Old Growth Forest and Wetlands

Geology

Steep mountains (Selkirk, Continental and Purcell) dominate the Boundary County landscape. The Bog Creek Road area is an east-west route skirting the northern slopes of Continental Mountain. The underlying geologic foundation of this area is mountainous or heavily influenced by Pleistocene glaciation which deposited alluvial fans against the

northern face of the Selkirk Mountain. Bog Creek Road traverses at least 7 different lithographic classes and crosses a fault line according to Geologic units of Idaho[2].

Topography

The Bog Creek Road area begins near Blue Joe Creek Rd and proceeds west to the junction with an unnamed road that crosses Malcom Creek. Elevation at the beginning of Bog Creek Road in the east at the juncture with Blue Joe Creek Road is approximately 4300 ft. and the road skirts a peak of approximately 5532 ft. by following the 4300 ft. contour line north, then west by southwest. The mountain to the left of the Bog Creek Road has a steep slope while less steep contours are on the right. Bog Creek runs at the bottom of the slope below the road at a level of ~4200 ft.

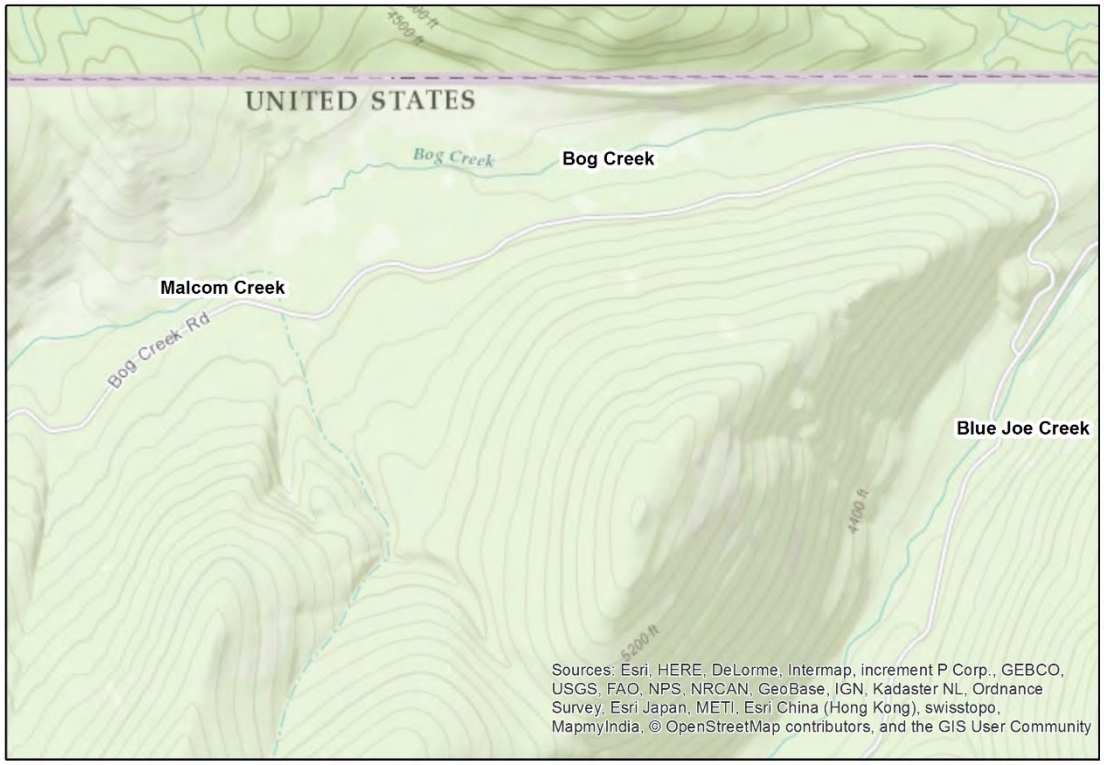

Figure 3 Bog Creek Road Area Topographic map[3]

Soils

Soils surrounding the Bog Creek Rd site are influenced by the underlying geology, and topography. A custom soil survey for the area included in the Bog Creek Road project was performed.[4] Overall soil types tend to be loamy with little to no soil development. Beginning in the east, the road generally lies within a soil type known as Andic Dystrudepts-Typic Udivitrands-Andic Haploxerepts complex (map legend 250). These soils are well drained to a depth greater than 80 inches and not frequently

[2] USGS. 2005. Idaho geologic map data. KML File download 05-09-2016. https://mrdata.usgs.gov/geology/state/state.php?state=ID

[3] USGS Map Name: Grass Mountain, ID Map MRC: 48116H7 Map Center: N48.99685° W116.86354° Datum: NAD27 Zoom: 8m/pixel

[4] USGS and F.J. Reilly. 2016. Custom Soil Survey for Bog Creek Road USGS SoilWebSurvey. 46 pp.

ponded or flooded. Directly down slope of the Bog Creek Rd the soil type is Andic Eutrudepts and Typic Xerofluvents soils (map legend 104) These soils are common in valley floors but somewhat excessively drained to a depth greater than 80 inches and not frequently ponded or flooded. There are several other soil types present in the area, however they are either removed by topography from Bog Creek Road influence (on the other side of the mountain), or are immediately adjacent but up slope of the road and unlikely to be impacted by potential spills, erosion and sedimentation. Other soil types present are given in tabular form in Appendix A.

Sensitive or at risk features

Given the steep nature of the land surrounding Bog Creek Road, water features at the toe of the slope near the road will be at risk. They are discussed further in the Hydrology and Surface Water section of this ECSM. Several fault lines exist in the area. Bog Creek Road Lithography are representative of fault lines. The Bog Creek Road segment comes close to or crosses one of those fault lines.

Hydrogeology/surface water

Shallow groundwater is unexpected in the vicinity of the Bog Creek Road. Soil mapping indicates soils that are well drained with a depth to ground water of greater than 80 inches. However steep slopes up gradient of Bog Creek Road have shown to be a source of destructive erosion due to sheet flow during storm events. Destructive erosion is part of the reason for the proposed repairs to Bog Creek Road

Boundary County currently obtains drinking water from groundwater resources for approximately 50% of its population.[5] Groundwater most likely to be associated with this site is Alluvial, that it is hydro-geologically connected to a surface stream that is present in permeable geologic material, usually small rocks and gravel.

Surface Waters

Surface water features in the Bog Creek Road area include Blue Joe Creek on the eastern terminus of the road which flows north into Canada; Bog Creek which flows north from a bog below the grade of Bog Creek Road and then flows east into Canada. Both creeks are within the Blue Joe Creek Hydrologic Unit Code (HUC-12). Malcom Creek is located at the western end of Bog Creek Road and is also in the Malcom Creek HUC-12.

Wetlands

Bog Creek contains bogs and is fringed by wetlands listed on the National Wetlands Inventory (NWI) for most of its length. Malcom Creek has only a small fringing wetland listed on the NWI within the Bog Creek Road area.

[5] Boundary County 2008. Boundary County Comprehensive Plan. Chapter 2.9 Accessed 05-10-2016 http://www2.boundarycountyid.org/planning/compplan/final_draft/02natural_resources.htm

Impaired Waters

Malcom Creek at the western end of the project area is not listed as impaired in the US EPA Waters Mapper.[6] Bog Creek is a tributary of Blue Joe Creek. Blue Joe Creek in its entirety including all of its tributaries was originally listed as impaired without testing or measurement due to the assumption that mining activities must certainly have caused pH non-attainment. However, measured pH values indicated that the waters were actually neutral, and the non-attainment for pH was removed in 2014 with the reason being "*Applicable WQS attained; original basis for listing was incorrect."*[7] Currently, both Bog Creek and Blue Joe Creek are still listed as impaired waters for thermal pollution. The presumptive reason for non-attainment being a lack of forest cover at stream side causing solar energy to heat the creeks waters.[8]

Air

Prevailing winds come from the west. The area is the recipient of frequent pacific storms. The area of Bog Creek Road is not listed as a non-attainment area for any pollutants such as Ozone (8-hr. 2008 Standard) PM2.5 (24-hr 2006 standard) or lead (2008 standard).

Ecology

The Bog Creek Road project area is located in the Continental Mountain area of the IPNF within the Bonners Ferry and Priest Lake Ranger Districts. Aerial imagery of the project area indicates mountainous terrain, heavily forested areas, and open areas below the road terrace in the alluvial area surrounding Bog Creek. No evidence of human habitation is evident. Narratives provided in the NOI indicate that Bog Creek Road itself is largely impassable due to wash outs and is in the process of being over grown by trees and shrubs. Terrain, vegetation, wildlife, and habitat types are not well described in literature such as EISs and Addenda to Forest Management Plans for the area. These documents tend to focus almost entirely on protected species for the area.

[6] USEPA 2016. My Waters Mapper. Accessed 05-09-2016. https://iaspub.epa.gov/tmdl_waters10/attains_watershed.control?p_huc=17010104&p_state=ID&p_cycle=&p_report_type=T

[7] US EPA 2016. Waterbody Quality Assessment Report. https://iaspub.epa.gov/tmdl_waters10/attains_waterbody.control?p_list_id=ID17010104PN004_02&p_cycle=2012&p_state=ID&p_report_type=T Accessed 5/10/2016.

[8] State of Idaho Department of Environmental Quality. 2014. Assessment of Water Quality in Kootenai River and Moyie River Subbasins (TMDL), 2014 Temperature Addendum, Hydrologic Unit Code 17010104—Lower Kootenai, Hydrologic Unit Code 17010105—Moyie. State of ID 226 pp.

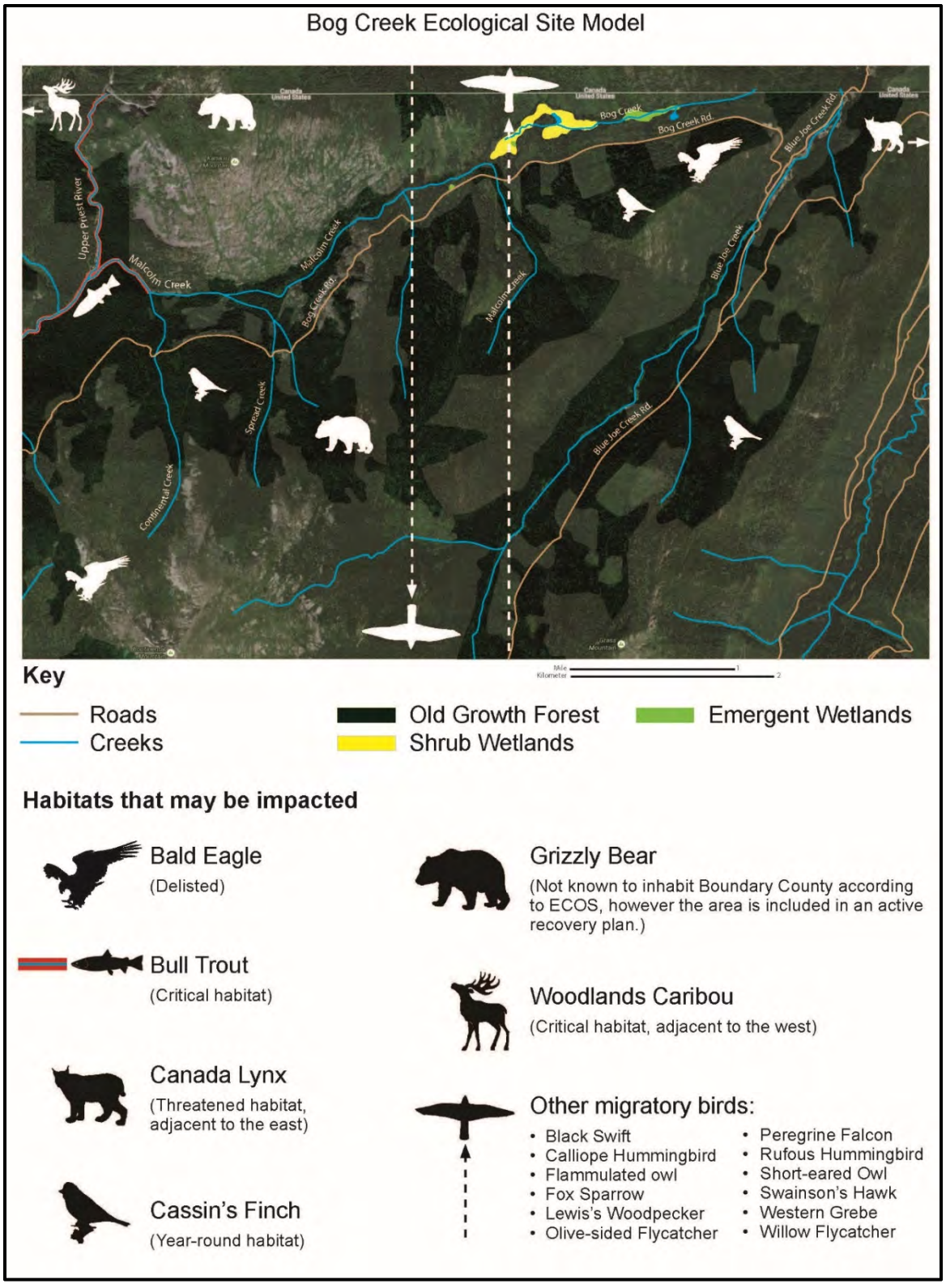

Figure 4 Bog Creek Ecological Site Model

Cover Type

Aerial imagery and analyses show the site is largely tree-covered on slopes and scrub-shrub vegetation covered in the valley below Bog Creek Road. The amount of cover is important to prevent thermal non-attainment of the impaired streams in the Blue Joe Creek watershed. Deforestation allows sunlight to warm the waters.

Vegetation

The area historically was covered with old-growth forests. Mining and logging industrial activities removed some of this old growth and recovering trees and shrubs provide much of the existing cover today. Old Growth with sections removed by logging is present for most of the length along Bog Creek Road on the up slope side (southern side) of the road. Below the road bed, logging and a boggy terrain are responsible for a lack of old-growth timber. Old growth stands are in the late stages of stand development and are distinguished by old trees and related structural attributes. These old growth stands are typically distinguished from earlier developmental stages by combinations of characteristics such as tree age, tree size, number of large old trees per acre, and stand density (expressed as basal area). Specific values for these attributes vary by local ecological type and forest type. They are considered climax ecological communities limited by the underlying physical characteristics of a site exclusive on human intervention or other factors such as seismic activity, violent storm or wildland fire.

The area is composed of at least four vegetation habitat types. Two types of habitats are present on the slope: Climax, Old-growth forest; and recovering forests after logging. The lower portions of the site have recovering associations of plant species as well as wetland plant species associated with the bogs at Bog Creek, the fringing wetlands along Bog Creek and Malcom Creek, and emergent vegetation within those creeks. Predominant species of hardwoods and shrubs in Boundary County include maple, alder, serviceberry, snowbush, ocean spray, honeysuckle, huckleberry, syringa, choke cherry, wild rose, thimbleberry, willow, elderberry, mountain ash and snowberry. There are occurrences of kinnikinnick, twin bells, Oregon grape, wild strawberry, ferns and a multitude of native grasses. Local forests are primarily conifer with a wide array of species. Predominant conifer species and the percentage of occurrences are provided in Appendix B.

Listed plant species

A search was performed for listed species and critical habitats using the Information for Planning and Conservation (IPaC) website, and a Trust Resources Report was obtained for the specific Bog Creek Road project area.[9] The single plant species identified as potentially occurring within the study area was Whitebark Pine *Pinus albicaulis.* It is a candidate species believed to be present in Boundary County. The species was listed in 2008, but no conservation plan nor critical habitat have been identified. All currently listed species are located in Appendix C.

[9] USFWS IPac & FJ Reilly. 2016. IPaC Trust Resources Report: Bog Creek Road 10 pp. https://ecos.fws.gov/ipac/project/2LSB4-2GNWJ-GI5E4-O6VA2-3KF5YA

Wildlife

Each vegetation habitat type is likely to support different fauna. The Bog Creek Road area would also likely be a transit way for many species including large charismatic mammals and migratory birds. Animal species lists and their habitats currently do not exist for this study area.

Migratory Birds

A Trust Resources Report was obtained from the IPaC website for the specific Bog Creek Road project area.[10] The report indicated only two resident species, the Bald Eagle and Cassin's Finch. However, 14 migratory bird species could potentially be affected by activities in the Bog Creek Road area. This list is located in Appendix D.

Listed Animal Species

A Trust Resources Report was obtained for the specific Bog Creek Road project area.[11] The search identified the following protected species animals as potentially occurring within the Bog Creek Rd project area.

Bull Trout (Salvelinus confluentus), a species of fish listed as Threatened. Critical Habitat has been identified for this species, but does not exist within the Bog Creek Rd project area. The presence of this fish at the site is not likely given its habitat requirements, distribution, and the nature of the waters of the project area. Bull trout's specific habitat requirements are similar to that of salmonids: cold, clean, complex and connected habitat. They require: colder water temperature than most salmonids; the cleanest stream substrates for spawning and rearing; complex habitats, including streams with riffles and deep pools, undercut banks with lots of large logs; and. river, lake and ocean habitats that connect to headwater streams for annual spawning and feeding migrations. Critical habitat has been designated for the Bull Trout. The end of critical habitat exists near the project area on the western most portion of Malcom Creek.

Grizzly bear (*Ursus arctos horribilis*) is a species of bear listed as Threatened. Critical habitat has not been identified but a robust Bear recovery plan is in place. The recovery plan has been described in numerous USFS and USFWS documents dealing with Critical Habitat designation, and with operations of motor vehicles within Bear Management Units. Populations in Idaho are considered as "Experimental Population, Non-Essential"[12] Grizzly bears are not known to occupy habitat in Boundary County according to USFWS Environmental Conservation Online System (ECOS)[13]. However, there is an active recovery plan for the area including designation of Bear Management Units (BMUs) in case the bear was to begin occupying the area. The Selkirk Recovery

[10] USFWS IPac & FJ Reilly. 2016. IPaC Trust Resources Report: Bog Creek Road 10 pp. https://ecos.fws.gov/ipac/project/2LSB4-2GNWJ-GI5E4-O6VA2-3KF5YA

[11] USFWS IPac & FJ Reilly. 2016. IPaC Trust Resources Report: Bog Creek Road 10 pp. https://ecos.fws.gov/ipac/project/2LSB4-2GNWJ-GI5E4-O6VA2-3KF5YA

[12] USFWS. 2016. ECOS Species Files. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A001

[13] USFWS 2016. http://ecos.fws.gov/tess_public/profile/countiesByState?entityId=1302&state=Idaho

Zone (SRZ) is one of six grizzly bear recovery zones identified in the Grizzly Bear Recovery Plan.[14] Details of the recovery plan for the Selkirk region are located in Appendix E. Although no critical habitat has been designated, if grizzly bears existed in Boundary County their wide-ranging habits would transit the Bog Creek Road area.

Canada Lynx *Lynx canadensis* is a species of cat listed as Threatened. It is known or believed to occur in Boundary County Idaho.[15] Critical Habitat has been designated for the lynx, but no critical habitat exists within the Bog Creek Road area.

Woodland Caribou *Rangifer tarandus caribou* is a species of the deer family listed as Endangered. It is known or believed to occur in Boundary County.[16] Critical Habitat has been designated for the Caribou but no critical habitat exists within the Bog Creek Road area.

Analysis and Impacts of the ECSM

Sensitive Receptors

Part of the purpose of an ECMS is to identify sensitive receptors that could suffer negative impacts from exposure through identified pathways of exposure. In the case of the Bog Creek Road project many components of the ecosystem have been identified in the preceding pages. Not all components discussed exist at the Bog Creek Road project area. In some cases, particularly for mobile organisms that may transit the area, it is still advisable to discuss them as potential receptors. Since erosion and sedimentation could migrate off of the Bog Creek Road area, those receptors are also identified.

Table 1 Bog Creek Road Potential Hazard Receptors

Receptor	Sensitivity	Present at Bog Creek Road	Considered further in this ECSM
Geology	Not sensitive	Yes	No
Topography	Not Sensitive	Yes	No
Soils	Potentially sensitive	Yes	No
Fault Lines	Not sensitive	Yes	No
Shallow groundwater	Potentially sensitive	Yes	Yes
Deep groundwater	Not sensitive	Yes	No
Bog Creek	Sensitive	Yes	Yes
Blue Joe Creek	Sensitive	Marginally	Yes
Malcom creek	Sensitive	Marginally	Yes

[14] US Forest Service. 2010. Biological Assessment, For Threatened, Endangered And Proposed Species On The Forest Plan Amendments For Motorized Access Management Within The Selkirk & Cabinet-Yaak Grizzly Bear Recovery Zones. USFS 227 pp.

[15] USFWS. 2016. ECOS Species Files. http://ecos.fws.gov/tess_public/profile/countiesByState?entityId=24&state=Idaho

[16] USFWS. 2016. ECOS Species Files. http://ecos.fws.gov/tess_public/profile/countiesByState?entityId=33&state=Idaho

Receptor	**Sensitivity**	**Present at Bog Creek Road**	**Considered further in this ECSM**
Wetlands at Bog Creek	Sensitive	Yes	Yes
Air	Sensitive	Yes	No
Total vegetative cover	Sensitive	Yes	Yes
Old growth cover	Very Sensitive	Yes	Yes
Disturbed vegetative cover	Not sensitive	Yes	No
Whitebark Pine *Pinus albicaulis.*	Very Sensitive	Unknown	Yes
Wildlife	Sensitive	Yes	Yes
Migratory Birds Transient species	Potentially Sensitive During breeding season	Transient	Yes
Migratory Birds Resident species	Potentially Sensitive all year	Yes	Yes
Bull Trout	Very Sensitive	No	No
Bull Trout Critical Habitat	Very sensitive	No	No
Grizzly Bear	Very sensitive	No or transient	Yes
Canada Lynx	Very sensitive	Unknown or transient	No
Canada Lynx Critical Habitat	Very Sensitive	No	No
Woodland Caribou	Very Sensitive	Unknown or transient	No
Woodland Caribou Critical Habitat	Very Sensitive	No	No

Appendix A – Soil types present near the Bog Creek Rd project area.[17]

Idaho Panhandle National Forest, Idaho-Washington-Montana (ID670)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
104	Andic Eutrudepts and Typic Xerofluvents soils, metasedimentary belt alluvial substratum, wide glacial valley bottoms	443.8	38.6%
106	Andic Eutrudepts-Andic Eutrudepts, cobbly subsoil- Andic Haploxerepts complex, glaciated stream breaklands, metasedimentary belt geology	5.6	0.5%
110	Andic Eutrudepts, alluvial fans on glaciated landscapes	53.5	4.7%
221	Andic Dystrocryepts-Typic Haplocryands-Andic Humicryepts complex, glaciated mountain slopes, belt geology	9.6	0.8%
224	Andic Dystrocryepts-Typic Haplocryands-Andic Humicryepts complex, glaciated mountain slopes, belt geology, south aspects	2.6	0.2%
231	Andic Dystrocryepts-Typic Haplocryands-Andic Humicryepts complex, shallow incised glaciated mountain slopes, belt geology	1.9	0.2%
250	Andic Dystrudepts-Typic Udivitrands-Andic Haploxerepts complex, glaciated mountain slopes, belt geology, south aspects	142.2	12.4%
251	Andic Dystrudepts-Typic Udivitrands-Andic Haploxerepts complex, moderately steep glaciated mountain slopes, belt geology, south aspects	55.8	4.9%
253	Andic Dystrudepts-Typic Udivitrands-Andic Haploxerepts complex, shallow incised glaciated mountain slopes, belt geology, south aspects	24.5	2.1%
260	Andic Eutrudepts-Typic Udivitrands complex, glaciated mountain slopes, belt geology, north aspects, 15 to 45 percent slopes	218.5	19.0%
261	Andic Eutrudepts-Typic Udivitrands complex, glaciated mountain slopes,belt geology, north aspects, 30 to 60 percent slopes	159.8	13.9%
263	Andic Eutrudepts-Typic Udivitrands complex, dissected glaciated mountain slopes, belt geology, north aspects	19.0	1.7%

[17] USGS and F.J. Reilly. 2016. Custom Soil Survey for Bog Creek Road USGS SoilWebSurvey. 46 pp.

Idaho Panhandle National Forest, Idaho-Washington-Montana (ID670)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
270	Humic Lithic Haploxerepts-Andic Haploxerepts-Rock outcrop complex, glaciated scoured ridges and upper mountain slopes, belt geology, south aspects	5.3	0.5%
271	Andic Haploxerepts-Humic Lithic Haploxerepts-Rock outcrop complex, glaciated scoured mountain slopes, belt	7.3	0.6%
Totals for Area of Interest		**1,149.4**	**100.0%**

Appendix B

Table 2 Predominant species of Conifers and their percent composition in Boundary County ID[18]

Sub-Alpine fir	37.5%
Lodgepole pine	18%
Douglas fir	16.9%
Western larch	9.5%
Western cedar	7.3%
Grand fir	6.1%
Ponderosa pine	1.5%
White pine	1.3%
White bark pine	1%

[18] Boundary County. 2002. Comprehensive Plan. http://www2.boundarycountyid.org/planning/compplan/final_draft/02natural_resources.htm

Appendix C

Table 3 Listed Animal Species for Bog Creek Rd area[19]

Group	**Name**	**Status**	**Lead Office**	**Recovery Plan**	**Recovery Plan Action Status**	**Recovery Plan Stage**
Fishes	Bull Trout (*Salvelinus confluentus*)	Threatened	Idaho Fish and Wildlife Office	Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus)	Implementation Progress	Final
Mammals	Grizzly bear (*Ursus arctos horribilis*)	Threatened	Grizzly Bear Recovery Coordinator	Revised Grizzly Bear Recovery Plan	Implementation Progress	Final Revision 1
Mammals	Canada Lynx (*Lynx canadensis*)	Threatened	Montana Ecological Services Field Office	Recovery Outline for the Contiguous United States Distinct Population Segment of Canada Lynx (Lynx canadensis)	Recovery efforts in progress, but no implementation information yet to display.	Outline
Mammals	Woodland caribou (*Rangifer tarandus caribou*)	Endangered	Idaho Fish and Wildlife Office	Recovery Plan for Selkirk Mountain Woodland Caribou	Implementation Progress	Final Revision 1

[19] USFWS IPac & FJ Reilly. 2016. IPaC Trust Resources Report: Bog Creek Road 10 pp. https://ecos.fws.gov/ipac/project/2LSB4-2GNWJ-GI5E4-O6VA2-3KF5YA

Appendix D

Table 4 Bog Creek Road Potential Migratory Bird Species[20]

Species	Season of concern
Bald Eagle *Haliaeetus leucocephalus*	Year-round
Black Swift *Cypseloides niger*	Breeding
Calliope Hummingbird *Stellula calliope*	Breeding
Cassin's Finch *Carpodacus cassinii*	Year-round
Flammulated Owl *Otus flammeolus*	Breeding
Fox Sparrow *Passerella iliaca*	Breeding
Lewis's Woodpecker *Melanerpes lewis*	Breeding
Olive-sided Flycatcher *Contopus cooperi*	Breeding
Peregrine Falcon *Falco peregrinus*	Breeding
Rufous Hummingbird S*elasphorus rufus*	Breeding
Short-eared Owl *Asio flammeus*	Breeding
Swainson's Hawk *Buteo swainsoni*	Breeding
Western Grebe *aechmophorus occidentalis*	Breeding
Willow Flycatcher *Empidonax traillii*	Breeding

[20] USFWS IPac & FJ Reilly. 2016. IPaC Trust Resources Report: Bog Creek Road 10 pp. https://ecos.fws.gov/ipac/project/2LSB4-2GNWJ-GI5E4-O6VA2-3KF5YA

Appendix E

The bear recovery plan for the Selkirk Ecosystem considers transportation to be a major issue with respect to bear population recovery and has specific administrative rules concerning trips made through that area.

> *Road use associated with conducting administrative activities:* [21]
>
> *1. In the Selkirk Ecosystem:*
>
> *A. Administrative use shall not exceed 57 vehicle round trips per active bear year per road, apportioned as follows: ≤19 round trips in spring (April 1 through June15); ≤23 round trips in summer (June 16 through September 15); and ≤15 round trips in fall (September 16 through November 15).*
>
> *B. If the number of trips exceeds 57 trips per active bear year in the Selkirk ecosystem, then that road will be considered "open" for analysis and reporting purposes. Likewise, if the number of trips exceeds the allowable ecosystem-specific seasonal (spring, summer, fall) vehicle round trips per road, then that road will be considered "open" for analysis and reporting purposes.*

[21] USFWS 2013. ENDANGERED SPECIES ACT SECTION 7 CONSULTATION BIOLOGICAL OPINION on the Revised Forest Plan for the Idaho Panhandle National Forests. 77 pp.

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APPENDIX D.
PAST, ONGOING, AND REASONABLY FORESEEABLE FUTURE ACTIVITIES

- Timber was actively harvested in this Bear Management Unit (BMU) from the 1960s through the 2000s. The 1967 Trapper Peak Burn occurred along the southern boundary of the BMU. All activities associated with the *Blue Grass Bound Environmental Assessment* (U.S. Forest Service [Forest Service] 1999c) have currently been completed, or will not be implemented.
- Timber harvest occurred in the Italian Peak area in 2004, and future silvicultural treatments for this area are likely. No further timber harvest on National Forest System (NFS) lands in the BMU is planned in the reasonably foreseeable future.
- In the northeast corner of the Blue-Grass BMU, there are privately owned timber harvest lands (owned by Hancock).
- State of Idaho lands (south of the Blue-Grass BMU) could have these activities occur on them in the reasonably foreseeable future: recreation, grazing, timber harvest, and sale of lands for private residences.
- There is one cattle grazing allotment covering 6,000 acres of the Blue-Grass BMU: the Grass Creek allotment. The grazing permittee runs approximately 90 cow/calf pairs from July 1 to October 1 (276 head months) in the BMU and requires motorized access. No increase in livestock operations within the BMU is allowed under the *Revised Land Management Plan, Idaho Panhandle National Forests* (Forest Plan) (Forest Service 2015a). The Interagency Grizzly Bear Committee Guidelines (1986) concerning grazing are used in managing this allotment.
- The Continental Mine is a private inholding located in the southwestern portion of the BMU. In the early 1900s, silver was mined from this inholding, but the mine has not been in active operation since the 1960s. Original access to the mine was via the Lime Creek Road (west side of the BMU), then from the remote U.S.–Canada border crossing. In recent years, the private owners were granted access via the Grass Creek Road. Future access would be further defined in the future under a special use permit, but is analyzed in this EIS as part of the administrative open motorized use of Bog Creek Road and Blue Joe Creek Road. For purposes of calculating core area in the Blue-Grass BMU, this private inholding is buffered by 500 meters.
- Motorized over-the-snow routes: currently motorized over-the-snow use is restricted to designated (groomed and ungroomed) routes in accordance with the 2007 Federal court order (Court Order No. CV-05-0248-RHW) to protect Selkirk Mountains woodland caribou. In the future the Idaho Panhandle National Forests (IPNF) would complete a Kaniksu Over-The-Snow Travel Management Plan that would address over-the-snow motorized use in the three north Ranger Districts (Priest Lake, Bonners Ferry, and Sandpoint) on the IPNF.
- The U.S. Department of Homeland Security, Customs and Border Protection (CBP) has been actively patrolling in the BMU for many years via numerous methods. It is assumed that CBP potentially uses all restricted routes for its ongoing surveillance activities.
- Traditional recreational uses include hiking, hunting, fishing, gathering, biking, water-based camping, and boating. Winter activities are snow dependent and focus on snowmobiling. Outdoor recreation is the fastest growing use on the IPNF and is expected to increase in the future. Since the 1980s, both motorized and non-motorized recreational use of the roads, trails, and general forest areas has increased. Foot, horse, and mountain bike travel have increased, and, to a lesser degree, cross-country

and backcountry skiing, as well. There are three permitted outfitter and guide hunting operations in the area.

- The non-motorized Upper Priest River and Falls Trails (Trails #308 and #28) are currently being monitored for consideration as "high use" trails. "High use" trails are those trails receiving an average of more than 20 parties per week. Currently, the Upper Priest River and Falls Trails (Trails #308 and #28) have up to 16 parties per week during the busy summer season. If current or future monitoring data shows that these trails are exceeding an average of 20 parties per week, they would be buffered, and the buffered area surrounding the trails would be removed from core area habitat. This would reduce core area within the Blue-Grass BMU and the adjacent Salmo-Priest and Sullivan-Hughes BMUs. With a reduction in core area, the adjacent BMUs would still be expected to meet their core area standards, but the Blue-Grass BMU may not, depending upon which segment(s) of trail incur high-use and which alternative is chosen for implementation. If this situation occurs, the Forest Service would then evaluate approaches to ensure that the 55 percent core area standard for the Blue-Grass BMU is maintained. No further evaluation related to this potential shift in core area from high-use trails is included in this DEIS.
- British Columbia and the states of Montana, Idaho, and Washington continue to allow hunting for black bears, as well as other wildlife species, on both sides of the border within and around the SRZ. Idaho prohibits baiting and hunting bear with hounds in the SRZ. Hunting of grizzly bears in British Columbia is no longer permitted in the areas north of the SRZ.
- In the Priest Lake area in or near the SRZ boundary, the IPNF currently has 119 recreation residence special use permits (SUPs) and agreements. In addition, three resorts operate in the Priest Lake area, outside the SRZ. All of these SUPs include sanitation guidelines regarding bears. There are two agreements that permit winter grooming of snowmobile trails in the SRZ. Outfitters and guides (for hunting and fishing) also operate on NFS lands under an SUP. This includes two outfitters and guides who use snowmobiles that operate within the SRZ, with one of these extending their operations into the Priest Lake Bears Outside Recovery Zone. The permitting of special uses will not be changed with implementation of the project, including the requirement for a permit-specific analysis for any renewals or modifications to existing permits or proposed new permits to ensure compliance with the Forest Plan.
- There is an extensive east–west-trending road system that is open to motorized use just north of the Canadian border, including British Columbia Highway 3 (a major east–west highway). Via these Canadian roads, timber harvest, recreation, hunting, grazing, and motorized use (including over-the-snow motorized access) are occurring and would continue to occur. These activities north of the border would not be limited by the ESA or by Forest Service management guidelines.

APPENDIX E.
ASSESSMENT OF PROJECT COMPLIANCE WITH NRLMD

This attachment evaluates project compliance with applicable Northern Rockies Lynx Management Direction (NRLMD) objectives, standards, and guidelines (U.S. Forest Service 2007, 2008a, 2015a) (Table E-1).

These NRLMD standards and guidelines do not apply to this project and are not presented in this appendix:

- vegetation management activities and projects
- livestock management
- ski area development or expansion
- recreational developments
- mineral and energy development sites
- changes to lynx analysis unit (LAU) boundaries or linkage areas

Table E-1. Assessment of Project Compliance with NRLMD

ALL MANAGEMENT PRACTICES AND ACTIVITIES: Apply to Lynx Habitat in Lynx Analysis Units (LAUs) and Linkage Areas	**Pre-project Implementation Compliance**	**Post-project Implementation Compliance**
Objective ALL O1: Habitat connectivity		
Maintain or restore lynx habitat connectivity in and between LAUs and in linkage areas.	The Upper Priest, Blue-Grass, and Saddle-Cow LAUs are currently fragmented by existing motorized and non-motorized roads and trails. However, these LAUs are located within the grizzly bear Selkirk Recovery Zone, and so the motorized roads are generally managed for low motorized use (see Table 3.1.3). There are no paved/high-volume roads in the lynx analysis area. The nearest linkage area identified by the NRLMD is located approximately 20 miles southeast of these LAUs (see Figure 3.2.3). This linkage crosses U.S. Route 95 and the Kootenay Valley. Linkage areas would not be affected by the Proposed Action, Alternative 3, or Alternative 4.	The LAUs would not become isolated post-project implementation. In fact, the motorized road closure associated with the Proposed Action, Alternative 3, and Alternative 4 would reduce some of the existing fragmentation and restore connectivity within and between LAUs. The Bog Creek Road repair spans west-east across northern portions of the Upper Priest and Blue-Grass LAUs. Road repair in this area could reduce connectivity to lynx habitat north in Canada. Under the Proposed Action and Alternative 3, the post-repair administrative open designation for Bog Creek Road (Forest Service Road [FSR] 1013) and Blue Joe Creek Road (FSR 2546) could result in moderate motorized use (see Table 3.1.3) on these roads, an increase from their current very low and low motorized use. However, motorized closure of roads to the south and west of these roads would partially mitigate for this fragmentation by providing larger connected habitat patches. Under Alternative 4 (unlimited public motorized west-east access), the open roads across the lynx analysis area could create a less permeable migratory barrier than under all other alternatives.

Table E-1. Assessment of Project Compliance with NRLMD (Continued)

ALL MANAGEMENT PRACTICES AND ACTIVITIES: Apply to Lynx Habitat in Lynx Analysis Units (LAUs) and Linkage Areas	**Pre-project Implementation Compliance**	**Post-project Implementation Compliance**
HUMAN USE PROJECTS (HU): Apply to special uses, recreation management, roads, highways, and mineral and energy development projects in lynx habitat in LAUs only (does not include grazing or vegetation management projects)		
Objectives HU O1-O6: Managing large-scale human activities		
Managing snow compacting activities, developed recreation and ski areas, mineral development, and highways.	Public winter motorized snowmobile use is currently only allowed on designated trails within the lynx analysis area as a result of the legal rulings of November 7, 2006, and February 27, 2007, relating to recovery of Selkirk Mountain woodland caribou and the potential impacts of snowmobile use within the recovery area. There are four segments of trail in the lynx analysis area that are open to snowmobiling (see Figure 3.8.2 in the Recreation section). No developed recreation and ski areas, mineral development, or highways are proposed.	One 5.3-mile segment of designated ungroomed snowmobile trail that is currently open in the Upper Priest LAU would be closed under the Proposed Action and Alternative 4, reducing snow-compacting activities under that alternative. Snow-compacting activities would remain unchanged under Alternative 3. No developed recreation and ski areas, mineral development, or highways are proposed.
Guideline HU G6: Apply to road upgrades (disturbance)		
Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance level 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.	All roads impacted by the project are unpaved and managed for low motorized use (see Table 3.1.3).	There would be no upgrade of maintenance levels under the Proposed Action, Alternative 3, or Alternative 4. The roads would remain gravel surface and have a 25-mile-per-hour speed limit. Under the Proposed Action and Alternative 3, motorized use would increase from very low (Bog Creek Road) and low (Blue Joe Creek Road) to moderate (see Table 3.1.3). Under Alternative 4, the open access designation of west to east access roads, including Bog Creek and 1.0 mile of Blue Joe Creek Road, would result in high motorized use on those roads. Improved public access could detrimentally affect lynx through increased trapping of their prey species, incidental trapping (when other species are targeted), or poaching and malicious killing.

Table E-1. Assessment of Project Compliance with NRLMD (Continued)

ALL MANAGEMENT PRACTICES AND ACTIVITIES: Apply to Lynx Habitat in Lynx Analysis Units (LAUs) and Linkage Areas	**Pre-project Implementation Compliance**	**Post-project Implementation Compliance**
HUMAN USE PROJECTS (HU): Apply to special uses, recreation management, roads, highways, and mineral and energy development projects in lynx habitat in LAUs only (does not include grazing or vegetation management projects)		
Guideline HU G7: Apply to permanent road building (connectivity)		
New permanent roads should not be built on ridgetops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.	No new permanent roads or trails are proposed. Bog Creek Road is existing.	No new permanent roads or trails are proposed. Bog Creek Road is existing.
Guideline HU G8: Apply to roadside brush removal		
Cutting brush along low-speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.	Brush cutting does not currently occur on Bog Creek Road, but does occur on some of the seasonally restricted roads within the lynx analysis area. These roads include some proposed for motorized closure and the west to east access roads.	Under the Proposed Action and Alternative 3, brush cutting along Bog Creek Road and Blue Joe Creek Road would be done to the minimum level necessary to maintain safe travel conditions. Under Alternative 4, brush cutting along the west to east access roads would also be done to the minimum level necessary to maintain safe travel conditions. Brush cutting would not occur long term on the roads proposed for motorized closure.
Guideline HU G9: Apply to temporary roads for all project types		
On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	No temporary roads are proposed.	No temporary roads are proposed.

Table E-1. Assessment of Project Compliance with NRLMD (Continued)

ALL MANAGEMENT PRACTICES AND ACTIVITIES: Apply to Lynx Habitat in Lynx Analysis Units (LAUs) and Linkage Areas	Pre-project Implementation Compliance	Post-project Implementation Compliance
HUMAN USE PROJECTS (HU): Apply to special uses, recreation management, roads, highways, and mineral and energy development projects in lynx habitat in LAUs only (does not include grazing or vegetation management projects)		
Guideline HU G11: Apply to designated snow routes or play areas		
Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU, G12. Use the same analysis boundaries for all actions subject to this guideline.	No designated over-the-snow routes or play areas are proposed. Public motorized snowmobile use is currently only allowed on designated trails within the lynx analysis area as a result of the legal rulings of November 7, 2006, and February 27, 2007, relating to recovery of Selkirk Mountain woodland caribou and the potential impacts of snowmobile use within the recovery area. There are four segments of trail in the lynx analysis area that are open to snowmobiling (see Figure 3.8.2 in the Recreation section).	No designated over-the-snow routes or play areas are proposed. One 5.3-mile segment of designated ungroomed snowmobile trail that is currently open in the Upper Priest LAU would be closed under the Proposed Action and Alternative 4, reducing snow-compacting activities under that alternative. Snow-compacting activities would remain unchanged under Alternative 3.
Guideline HU G12: Apply to winter access (non-recreation-related)		
Winter access for non-recreation special uses, and mineral and energy exploration and development, should be limited to designated routes or designated over-the-snow routes.	The court-ordered public winter snowmobile closure includes an exemption for law enforcement patrols in the area.	CBP may conduct winter patrols via snowmobile along the roads in the Canada lynx analysis area. The Proposed Action, Alternative 3, and Alternative 4 could increase snowmobile use allowing competitors, such as coyotes, to use compacted snowmobile tracks to access prey in previously inaccessible areas. CBP snowmobile use may also increase the potential for temporary lynx displacement in the winter. One 5.3-mile segment of designated ungroomed snowmobile trail that is currently open in the Upper Priest LAU would be closed under the Proposed Action and Alternative 4, reducing snow-compacting activities under that alternative.

APPENDIX F.
IPNF FOOD STORAGE ORDER

IDAHO PANHANDLE NATIONAL FORESTS

Sandpoint, Bonners Ferry, and Priest Lake Ranger Districts

Order No. F-11-002

Occupancy and Use Restrictions

Pursuant to 36 CFR 261.50(a), the following acts are prohibited in the area displayed on the attached map that covers National Forest lands on the Kaniksu National Forest north of the Clark Fork River, Lake Pend Oreille, and the Pend Oreille River. This order applies to all National Forest system lands and facilities located and/or permitted on lands described above.

1. **It is prohibited to possess or store any *food*[1] (human *food* or animal *food*, including pet *food*) or refuse EXCEPT as specified in this order from April 1 to December 1, annually (36 CFR 261.58(cc)).**
2. **It is prohibited to possess, store, or transport any bird, fish, or other animal, or parts thereof EXCEPT as specified in the order from April 1 to December 1, annually (36 CFR 261.58(s)).**

UNDER THIS ORDER IT IS REQUIRED THAT:

In Areas Mapped as Front Country:

1. Human, pet, and livestock *food* (except baled or cubed hay without additives), garbage, and all other *attractants* (cookware/utensils, personal hygiene products) shall be stored within buildings (buildings that are secure from wildlife entry), hard-sided vehicles, or within approved *bear-resistant storage containers* (coolers are NOT bear-resistant), or other *acceptably stored* methods at all times (night and day) unless being prepared for eating, being consumed (eaten/drank), being transported, or being prepared for acceptable storage. See Attachment 'A' for definitions.
2. *Attractants* (e.g. *food* leftovers, bacon grease, animal entrails) shall not be buried, discarded, or burned in an open campfire in areas defined as *Front Country* on the attached map. They shall be disposed of in *bear-resistant garbage containers*, stored in bear-resistant storage containers or other methods of acceptably storing bear *attractants* as described in Attachement A until such time as they can be packed out of the closure area or disposed of in *bear-resistant garbage containers*.

In Areas Mapped as Back Country:

1. *Attractants* (e.g. *food*, *food* leftovers, bacon grease) shall not be buried, discarded, or burned in an open campfire in areas defined as *Back Country* on the attached map. This material along with all solid waste (non-biodegradable) will be packed out of the area. See Attachment 'A' for definitions.
2. Animal and fish entrails may be left in place in areas defined as *Back Country* on the attached map but must meet the requirements of #4 under ***In Areas Mapped as either Front or Back Country*** for distance from camping and sleeping areas and National Forest system trails.

[1] All italicized words in this order are defined in *Attachment A*.

3. Dispose of human waste and gray water in a pit or hole well away from campsites. Cover with sod or topsoil.
4. *Food* shall be *acceptably stored* when not being consumed or prepared for consumption.

In Areas Mapped as either Front or Back Country:

1. Bird feeders (liquid, suet or seed) are not allowed in the area shown on the map.
2. No person shall provide *food* of any kind to any wildlife species.
3. *Camping* or *sleeping areas* shall be established at least ½ mile from a known *animal carcass* that is on the ground or where an animal has been field dressed, skinned, or gutted, or at least 100 yards from an *acceptably stored animal carcass.*
4. Any harvested *animal carcass* shall be *acceptably stored* when located 100 yards to ½ mile of a *camping* or *sleeping area* or within 200 yards of a National Forest system trail (unless the carcass is being, transported, being prepared for eating, or being prepared for acceptable storage).
5. The responsible party shall report the death and location of livestock to a Forest Service official within 24 hours of discovery. In remote areas, where it is not possible to meet the 24 hour timeframe, the report should be made within 48 hours.

Pursuant to 36 CFR 261.50(e), the following persons are exempt from this Order:

1. Persons with a permit specifically authorizing the otherwise prohibited act or omission.
2. Any Federal, State or Local Law Enforcement Officer or member of an organized rescue or fire fighting force in the performance of an official duty.

These prohibitions are in addition to the general prohibitions in 36 CFR Part 261, Subpart A and become effective immediately and will remain in effect until rescinded or revoked.

Executed in Coeur d'Alene, Idaho, this 29th day of September, 2011.

MAGGIE PITTMAN
Acting Forest Supervisor
Idaho Panhandle National Forests

Violation of these prohibitions is punishable by a fine of not more than $5,000 for an individual or $10,000 for an organization, imprisonment for not more than 6 months, or both. (16 U.S.C. 551 and 18 U.S.C. 3559 and 3571).

IDAHO PANHANDLE NATIONAL FORESTS

Sandpoint, Bonners Ferry, and Priest Lake Ranger Districts

Order No. F-11-002

Attachment A - Definitions

Acceptably stored:

- Stored in a closed vehicle (hard-sided camper, vehicle trunk, or cab or trailer cab) where the storage compartment is constructed of solid, non-pliable material that, when secured, will have no openings, hinges, lids, or coverings that would allow a bear to gain entry without breaking, bending, tearing, biting, or pulling with its claws (any windows in the vehicle must be closed); or
- Stored within a hard-sided residence, building, or storage container subject to the terms and conditions of a special-use authorization or operating plan; or
- Food and animal carcasses shall be suspended at least 10 feet clear of the ground at all points and 4 feet horizontally from any supporting tree or pole (required to be 100 yards from camping or sleeping area); or
- Stored in commercial bear-resistant container or electric fence certified through the **Interagency Grizzly Bear Committee Certified Bear-Resistant Equipment and Electric Fences for Public Lands (http://www.igbconline.org/html/container.html)**; or
- Stored by other methods approved in writing issued by the Forest Supervisor responsible for the area where the method is proposed for use. Containers or fences developed for personal use may be inspected for approval by the local District Ranger or their designated representatives(s). See "Bear-Resistant Containers – Minimum design and structural standards inspection and testing methodology 1989" and "Electric Fence System: Requirements for Meeting the NCDE Food Storage Special Order, 1999" , or most recent Forest Service publication, for description of personal use containers or fences.
- Animal carcasses are not considered acceptably stored when within 100 yards of a camping or sleeping area or within 200 yards of a National Forest System Trail.
- Animal carcasses more that ½ mile from a camping area and more than 200 yards from a National Forest System Trail may be left on the ground.

Animal carcass: The dead body or parts thereof, of any harvested mammal, bird, or fish, including the head or skull plate with antlers or horns and hide or cape of big game animals or any dead livestock that may be found in the area encompassed by this order. Packaged or prepared animal carcass products transported into the restricted area for consumption, game birds, small mammals, or fish harvested for consumption in the restricted area are considered *food*.

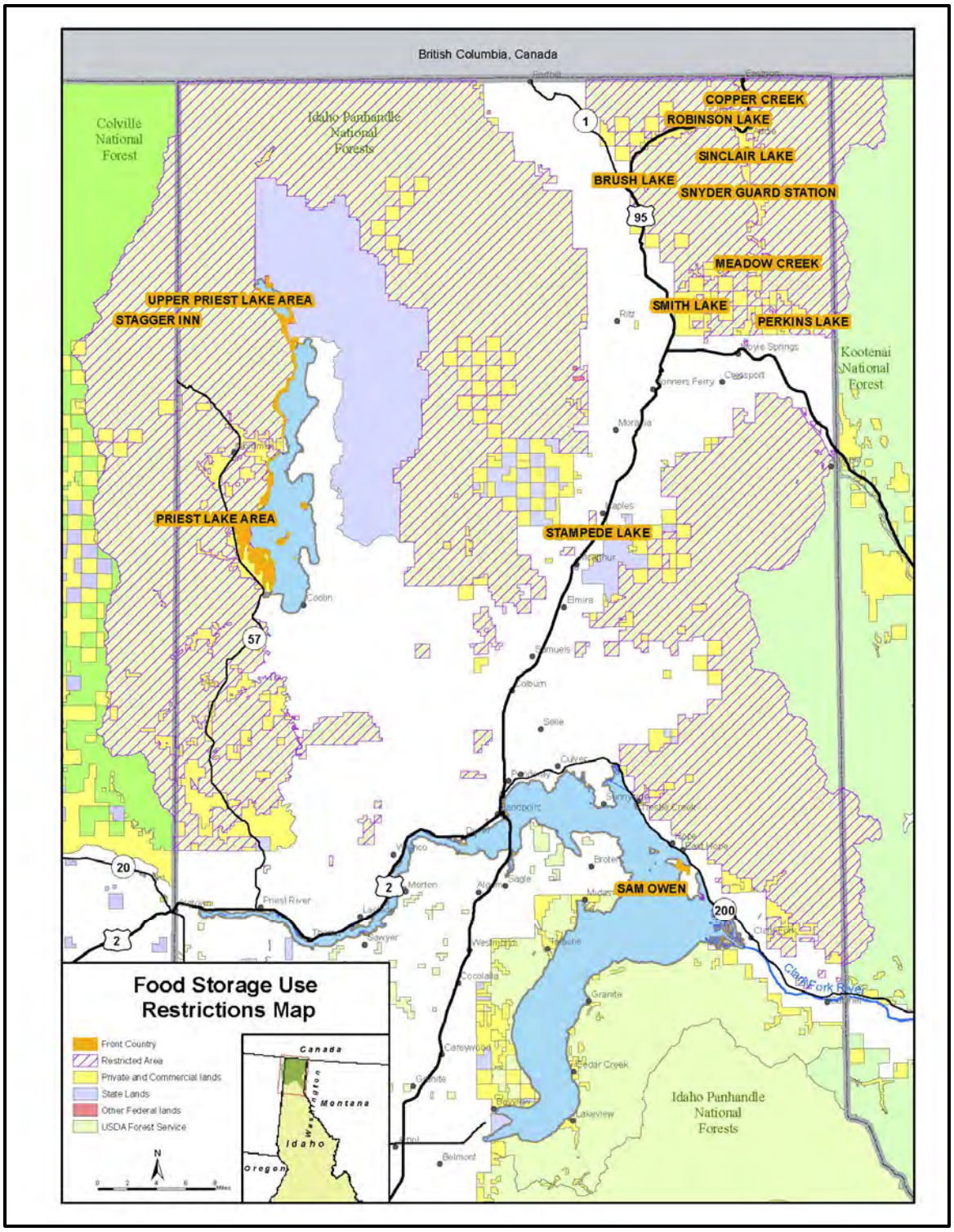
Attractant: Food (as defined below), animal carcasses (as defined above), garbage, recycling, coolers (even when empty), cookware/utensils, grills, bait (such as used in legal fishing and trapping) and other human, livestock, or pet items that emit an odor such as personal hygiene products (e.g. soap, toothpaste, lotion, bug spray). Bird feeders (liquid, suet or seed) are defined as an attractant. This definition does NOT include water, baled hay, or hay cubes without additives.

Bear-resistant storage or garbage container: A securable container constructed of a solid material capable of withstanding 200 foot-pounds of energy applied by direct impact. The container, when secured and under stress, will not have any openings greater than ¼ inch that would allow a bear to gain entry by biting or pulling with its claws. A bear-resistant container developed commercially must be approved by the USDA, Forest Service, Missoula Technology and Development Center (MTDC). For commercial operations, the MTDC has an impact testing machine available to evaluate containers for strength.

Camping/sleeping area: National Forest System Lands temporarily used for the purpose of overnight occupancy without a permanently fixed structure or lands temporarily occupied by unattended camping equipment.

Food: Any substance, which includes human food or drink (canned, solid, or liquid – even in sealed containers), livestock feed (except baled hay or cubed hay without additives) and pet food.

Front Country: This area includes the following developed recreation sites: Stagger Inn, the west side of Priest Lake and Upper Priest Lake (Priest Lake Ranger District); Copper Creek CG; Robinson Lake CG and Boat Dock; Sinclair Lake Fishing Dock; Brush Lake CG and Boat Dock; Snyder Guard Station; Meadow Creek CG; Smith Lake CG and Boat Dock; Perkins Lake; and Stampede Lake (all on the Bonners Ferry Ranger District); and all acreage that makes up the Sam Owen area on the Sandpoint Ranger District.


British Columbia, Canada
Colville National Forest
Idaho Panhandle National Forests
COPPER CREEK
ROBINSON LAKE
SINCLAIR LAKE
BRUSH LAKE
SNYDER GUARD STATION
MEADOW CREEK
SMITH LAKE
PERKINS LAKE
UPPER PRIEST LAKE AREA
STAGGER INN
PRIEST LAKE AREA
STAMPEDE LAKE
SAM OWEN
Kootenai National Forest
Idaho Panhandle National Forests
Clark Fork River
Food Storage Use Restrictions Map
Front Country
Restricted Area
Private and Commercial lands
State Lands
Other Federal lands
USDA Forest Service
Canada
Montana
Idaho
Washington
Oregon
N

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APPENDIX G.
SUMMARY SHEET FOR WOLVERINE PROGRAMMATIC ASSESSMENT

SUMMARY SHEET FOR WOLVERINE PROGRAMMATIC ASSESSMENT

Instructions

Summary sheets will be filled out by the Project Biologists and reviewed by Forest Biologists. Project Biologists will submit summary sheets to Forest Biologists on a project-by-project basis and maintain a copy as part of the project administrative record. Forest Biologists will maintain summary sheets (one project per sheet) and, as needed, these projects will be reviewed and discussed by the Level One Team to ensure the screening criteria are adequately interpreted and applied.

Administrative Unit: Idaho Panhandle National Forests

Contact: Jamie Young & Amanda Ehrenkrantz (SWCA)

Reviewed By: Brett Lyndaker

Date: 1/2/2018

Project Name and Description: Bog Creek Road Project

The Proposed Action consists of three components:

1. Road repair and maintenance of an approximately 5.6-mile section of the existing Bog Creek Road between Forest Service Road (FSR) 1013 within the Blue-Grass BMU of the SRZ of the IPNF. Bog Creek Road is currently designated as a seasonally restricted road; after road repair activities, the road would change from the current *seasonally restricted* designation (limited motorized access) to an *administrative open* designation (as-needed administrative motorized access). Under the administrative open road designation, Bog Creek Road would be open to as-needed administrative motorized access but not open to the public for motorized travel.
2. Approximately 7.4 miles of the Blue Joe Creek Road (FSR 2546), currently designated as a seasonally restricted road (limited motorized access), would change from this designation to an *administrative open* designation (as needed administrative motorized access).
3. Motorized road closure of approximately 26 miles of seasonally restricted Forest Service roads to establish grizzly bear core area habitat and meet Access Amendment standards in the Blue-Grass BMU.

Table 1 summarizes the Project's wolverine programmatic assessment.

Table G-1. Summary Sheet for Wolverine Programmatic Assessment

Project Activity Number (from Appendix A)	Alternative 2 Impacts (Acres)	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Comments
#1 timber harvest	-	-	-	N/A
#2 mechanical equipment use	-	-	-	See #4 below.

Table G-1. Summary Sheet for Wolverine Programmatic Assessment (Continued)

Project Activity Number (from Appendix A)	Alternative 2 Impacts (Acres)	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Comments
#3 existing gravel pit use	2.0	2.0	2.0	1 existing gravel pit (Latitude 48.996495, Longitude -116.839632; 1.2 acres) and 1 proposed gravel pit (Latitude 48.939355, Longitude -116.96252; estimated at 0.8 acres) would be used for road construction material.
#4 roads and road maintenance	84.7	81.6	84.7	Impacts to wolverine could occur as a result of the short-term road repair and motorized closure activities, as well as long-term maintenance and use actions (the actions are further detailed in the Bog Creek Road EIS Chapter 3.1, Introduction section). Actions analyzed consist of grading, road resurfacing, filling of potholes, removal of protruding boulders, replacement of six corrugated metal pipe culverts, installation of six new culverts, grubbing or trimming of trees or other vegetation, cut and fill where the road no longer meets width requirements, Spread Creek stream crossing rebuild, and gathering and transport of fill materials. Motorized road closure actions analyzed include installing waterbars, removing drainage structures (culverts), fully recontouring specific sections, fully or partially recontouring the road prism (consisting of ripping the road surface, removing culverts, and recontouring stream crossings), planting and seeding, mulching, and/or slashing disturbed areas. The use of heavy equipment (such as a dozer, grader, hydraulic excavator, and dump truck), and the use of several pick-up trucks and/or SUVs would be necessary to transport personnel to and from the area. Long-term maintenance and use actions analyzed consist of changes in administrative use designations for Bog Creek Road and Blue Joe Creek Road, as well as long-term vegetation maintenance, culvert cleaning, and routine grading that would occur.
#5 silvicultural activities	-	-	-	N/A
#6 range management	-	-	-	N/A
#7 recreation (and associated infrastructure) management	-	-	-	Reasonably foreseeable future activities in the cumulative analysis area would include trail maintenance, year-round dispersed recreation, and permitted special uses.
#8 forest products	-	-	-	Reasonably foreseeable future activities in the cumulative analysis area would include personal use collection of forest products (firewood, berries, mushrooms, etc.).
#9 habitat maintenance and restoration	-	-	-	All activities and acreages are already accounted for under #4 above.
#10 prescribed fire	-	-	-	N/A
#11 watershed restoration	-	-	-	All activities and acreages are already accounted for under #4 above.
#12 weed management	-	-	-	Reasonably foreseeable future activities in the cumulative analysis area would include weed management.
#13 administrative and non-recreational special uses and infrastructure	-	-	-	See #4 above. Access would continue to be available to the owners of the private Continental Mine inholding via the Bog Creek Road and Blue Joe Creek Road.

APPENDIX H.
LIST OF DOCUMENT PREPARERS

Table H-1. List of Document Preparers

Contributor	Role	Environmental Impact Statement Responsibility
U.S. Forest Service		
Jeanne Higgins	Forest Supervisor	Responsible Official
Shanda Dekome	Ecosystem Staff Officer, Forest Service Project Manager	Project Oversight, Idaho Panhandle National Forests Project Lead
Karl Dekome	Forest National Environmental Policy Act (NEPA) Coordinator	NEPA Oversight
Robert Brassfield	Forest Aquatics Program Manager	Fisheries, Water Resources, Threatened, Endangered, and Proposed Species
Lydia Allen	Region 1 Threatened Endangered Species Program Leader	Threatened, Endangered, and Proposed Species, Wildlife
Brett Lyndaker	North Zone Wildlife Biologist	Threatened, Endangered, and Proposed Species, Wildlife
Shawn Gibson	Forest Archeologist	Heritage
Beth Bigelow	North Zone Archeologist	Heritage
Chandra Neils	Soil Scientist	Soils
Jennifer Costich-Thompson	North Zone Botanist, Native Plant Material & Pollinator Coordinator	Special Status Plants
Greg Harris	Database Manager	Geographic Information System (GIS) Mapping and Data Analysis
Mary Farnsworth*	Forest Supervisor	Responsible Official
U.S. Customs and Border Protection		
Karl Calvo	Office of Facilities and Asset Management, Assistant Commissioner	Responsible Official
Paul Enriquez	Border Patrol and Air Marine Program Management Office, Environmental Branch Chief	Environmental Program Management, Project Oversight, Environmental Impact Statement (EIS) Reviewer
John Petrilla	Border Patrol and Air Marine Program Management Office, Environmental Protection Specialist	Project Manager, NEPA Support, EIS Manager
Shelly Lubin	U.S. Border Patrol (USBP) Headquarters (HQ), Assistant Chief, National Public Lands Liaison	USBP Operations, Facilitation and Collaboration, EIS Reviewer
David BeMiller	USBP Deputy Chief Patrol Agent Spokane Sector	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Adrian Cotsworth	USBP Division Chief Spokane Sector	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Rick Petrey	USBP Patrol Agent in Charge (Metaline Falls Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Timothy Woodward	USBP Supervisory Border Patrol Agent (Metaline Falls Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Matt Turner	USBP Patrol Agent in Charge (Bonners Ferry Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Coby Lane	USBP Deputy Patrol Agent in Charge (Bonners Ferry Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Christopher Oh	Energy and Environmental Management Division, Director	Environmental Program Management, Project Oversight, EIS Reviewer

Table H-1. List of Document Preparers (Continued)

Contributor	Role	Environmental Impact Statement Responsibility
U.S. Customs and Border Protection, (Continued)		
Timothy Smith	Energy and Environmental Management Division, Environmental Protection Specialist	NEPA Specialist, EIS Reviewer
Anneke Frederick	Energy and Environmental Management Division, Environmental Protection Specialist	NEPA Specialist, EIS Reviewer
Paul Martin	Energy and Environmental Management Division, Environmental Specialist (CTR)	NEPA Specialist, EIS Reviewer
Elizabeth Backman	Energy and Environmental Management Division, Environmental Specialist (CTR)	NEPA Specialist, EIS Reviewer
Christopher Shaw	Office of Chief Counsel, Senior Attorney	NEPA Compliance Review Support
Mike Ahn*	Environment and Energy Division, Director	Environmental Program Management, Project Oversight, EIS Reviewer
Don Beckham*	Energy and Environmental Management Division, Environmental Specialist (CTR)	NEPA Specialist, EIS Reviewer
Janet Piston*	Energy and Environmental Management Division, Environmental Planning and Compliance Branch Chief	Environmental Compliance and Planning Management, EIS Reviewer
Joe Zidron*	Border Patrol Facilities and Tactical Infrastructure Acting Environmental Branch Chief	NEPA Specialist, EIS Reviewer
Glenn Bixler*	USBP Director Tactical Infrastructure	USBP Operations, EIS Review Support
Rafael Cano*	USBP HQ, Assistant Chief, National Public Lands Liaison	USBP Operations, Facilitation and Collaboration, EIS Reviewer
Barry Woelfel*	USBP Patrol Agent In Charge (Metaline Falls Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
John Tucker*	USBP Supervisory Border Patrol Agent (Bonners Ferry Station)	USBP Operations, Facilitation and Collaboration, EIS Reviewer
U.S. Department of Homeland Security		
Jennifer Hass	Environmental Planning and Historic Preservation Program Manager	NEPA Program Oversight, NEPA Specialist, EIS Reviewer
Susan Hathaway	Environmental Planning and Historic Preservation	NEPA Program Oversight, NEPA Specialist, EIS Reviewer
U.S. Department of the Interior		
Brent Range	Borderlands Coordinator	Facilitation and Collaboration
Jonathan Andrew*	Borderlands Coordinator	Facilitation and Collaboration
SWCA Environmental Consultants		
Jill Grams	Project Manager, Public Involvement and Facilitation Specialist	Project Management, Public Involvement, Facilitation and Collaboration
Jamie Young	Assistant Project Manager, Biologist	Project Management, Threatened, Endangered, and Proposed Species, Fish, Wildlife

Table H-1. List of Document Preparers (Continued)

Contributor	Role	Environmental Impact Statement Responsibility
SWCA Environmental Consultants (Continued)		
Jonathan Rigg	NEPA Specialist	NEPA Writer, Special Status Plants, Soils
Amanda Childs	Senior NEPA Specialist	EIS Quality Assurance and Quality Control (QA/QC)
Charles Coyle	Senior NEPA Specialist	EIS QA/QC
Glenn Dunno	GIS Specialist	GIS Mapping and Data Analysis
Adrienne Tremblay	Archaeologist	Heritage Resources
Lorelea Hudson	Archaeologist	Cultural Resources; Section 106 Report
Amanda Ehrenkrantz	Biologist	Threatened, Endangered, and Proposed Species
Eleanor Gladding	Biologist	Special Status Plants
Meggan Dugan	Biologist	Wildlife, Threatened, Endangered, and Proposed Species
DeAnne Rietz	Hydrologist	Water Resources
Ryan Rausch	Recreation Planner	Recreation and Access
Alex Wunsch	Environmental Planner	NEPA Writer, Recreation and Access

* Legacy contributors no longer associated with the project.

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APPENDIX I.
GRIZZLY BEAR MANAGEMENT AND PROTECTION PLAN

Grizzly Bear Management and Protection Plan

IPNF employees, volunteers, contractors, and subcontractors will comply with the following requirements in the conduct of any and all trail maintenance/reconstruction activities conducted in or adjacent to BMUs. This protection plan will be made available to all personnel conducting trail maintenance/reconstruction activity and will be displayed in a conspicuous location at any contractor/subcontractors place of business and in each camp. This plan will be reviewed during a pre-work meeting with contractors; and with Forest Service employees/volunteers in conjunction with Job Hazard Analysis reviews.

1. All personnel involved in trail maintenance/reconstruction activities within grizzly bear habitat on National Forest land will be given information relating to identification of bear species and human conduct prior to the start of activities. Brochures concerning human use in grizzly country and bear identification are available at Forest Service offices. The contractor is responsible for making employees aware of the following information:
    A. The grizzly bear is classified as threatened under the Endangered Species Act.
    B. The Forest Service is mandated to conduct management activities in a manner that promotes recovery of all threatened and endangered species.
    C. The areas they are working in are within grizzly bear habitat and are essential to the recovery of the bear.
    D. Grizzly bear/human encounters are possible.
    E. Proper techniques of food handling and storage, travel, camping, and other such activities are required to reduce opportunities for conflict.
    F. Penalties for illegal killing of grizzly bears include up to $100,000 fine and one year in jail.
2. The contractor will adhere to all restrictions as outlined in current Idaho Panhandle National Forests Travel map.
3. The responsible party shall report the death and location of livestock to a Forest Service official within 24 hours of discovery.
4. The responsible party shall report any human/bear conflicts or grizzly bear observations.

Camping Provisions

1. Human, pet and livestock *food* (except baled or cube hay without additives), and garbage shall be attended or stored in a *bear-resistant manner* when not attended.

1. Burnable attractants (such as food leftovers or bacon grease) shall not be buried, discarded, or burned in an open campfire.
2. Dispose of human waste and gray water in a pit or hole, well away from campsites. Cover with sod or topsoil.
3. Sleeping areas (tents) will be located at least 50 yards away from cooking facilities. Food will not be stored, cooked, or consumed in tents used for sleeping.
4. Follow "Leave no Trace" techniques. Pack out all leftover food, refuse, and garbage.

Human Safety Provisions

1. If you observe a grizzly bear - detour or leave the area. A sow with cubs is particularly dangerous, as is a bear that has been surprised.
2. Use caution in approaching carcasses or gut piles.

Definitions

Food - Any nourishing substance, which includes human food and drinks, livestock feed, and pet food.

Bear-resistant manner - Any attractants, including food and garbage, must be stored in any combination of the following ways, if unattended:

1. Secured in a hard-sided camper, vehicle, dwelling, or storage building.
2. Suspended at least 10 feet (from the bottom of item) and 4 feet out from any upright support (e.g. tree, pole).
3. Stored in an approved bear-resistant container.