BIOLOGICAL OPINION

addressing the

EFFECTS OF THE IDAHO PANHANDLE NATIONAL FORESTS'

LAND AND RESOURCE MANAGEMENT PLAN

on the

GRIZZLY BEAR

01EIFW00-2020-F-0869

U.S. FISH AND WILDLIFE SERVICE
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Date 13 August 2020

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1. BACKGROUND

1.1 Introduction

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (Opinion) based on our review of the effects of the U.S. Forest Service (USFS) Land and Resource Management Plan (LRMP or "Forest Plan") for the Idaho Panhandle National Forests (IPNF) on the threatened grizzly bear (*Ursus arctos horribilis*). The Opinion was prepared in accordance with section 7 of the Endangered Species Act (ESA; 16 U.S.C. 1531 et seq.). The USFS request, dated November 8, 2019, for reinitiation of formal consultation on the LRMP was received by the Service on the same day.

This Opinion is based on the IPNF biological assessment (BA) for the LRMP, which was originally signed on March 31, 2020, and revised on June 19, 2020, and other sources of information cited herein. The final BA is incorporated by reference in this Opinion. A complete decision record for this consultation is on file at the Service's Idaho Fish and Wildlife Office in Spokane Valley, Washington.

This consultation represents the first tier of a tiered consultation framework, with each subsequent project that may affect the listed species and/or designated critical habitat analyzed within this programmatic biological opinion, as implemented under the 2020 LRMP, being the second tier of consultation. When applicable, some second tier consultations would reference back to this programmatic biological opinion to ensure that the effects of specific projects under consultation are commensurate with the effects anticipated in this biological opinion and incidental take statement.

1.1.1 Background and Need for Reinitiation

The Service issued the initial biological opinion addressing the 2013 Revised Forest Plan for the IPNF (USFS 2015a) on August 28, 2013. The LRMP was signed and effective on January 5, 2015. The USFS has been managing the IPNF in accordance with the LRMP since that time. As noted above, on November 8, 2019, the Service received a request from the USFS to reinitiate consultation on the LRMP following on-the-ground activities that may have triggered one or more of the reinitiation criteria at 50 CFR 402.16.

Although the USFS has not modified the LRMP, the IPNF has experienced administrative challenges that have prevented full implementation of LRMP-related grizzly bear conservation actions within the timeframes specified in the LRMP. The LRMP incorporated the USFS (2011) *Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones on the Kootenai, Idaho Panhandle, and Lolo National Forests* (hereafter referred to as the Access Amendment). The Access Amendment established standards for motorized access and grizzly bear security habitat within grizzly bear management units (BMUs) in the Selkirk and Cabinet-Yaak grizzly bear recovery zones, with the expectation

that the several National Forests subject to the Access Amendment would meet those standards by November of 2019. The IPNF has attained those standards in a subset of BMUs that it manages.

An Incidental Take Statement (ITS) accompanied the Service's 2013 biological opinion on the LRMP (01EIFW00-2013-F-0331) that addressed specific land management activities authorized under the LRMP— motorized use and winter travel— that would not be subject to future site-specific actions and section 7 consultation. That ITS, incorporated herein by reference, contains Terms and Conditions requiring the IPNF to complete a winter travel plan within five years following the start date for implementation of the LRMP or by 2020. The Terms and Conditions of the ITS require the IPNF to consider the conservation needs of the grizzly bear and other federally listed species in development of the winter travel plan. In a November 8, 2019, letter to the Service, the IPNF identified administrative challenges that are impeding its ability to develop the winter travel plan within the timeframe referenced above. The USFS requested reinitiation to determine the effects to listed species and designated critical habitat resulting from the additional time required by the IPNF to meet the Forest Plan standards for BMUs and to satisfy the Term and Condition to complete a winter travel plan.

In the BA, the IPNF also updates the environmental baseline for motorized access on the IPNF in areas identified as having recurring grizzly bear use outside of recovery zones (i.e., "Bears Outside of Recovery Zones" or BORZ). The IPNF has defined a clear process for updating the existing motorized access condition in BORZ if pre-existing (i.e., prior to 2011) roads are discovered; defined a process for acknowledging those additional areas that have begun receiving recurring use by bears over the last nine years (i.e., expansion of BORZ); and clarified exceptions to the Access Amendment's "no net increase" standard that prohibits permanent increases in linear miles of open and total roads in BORZ.

This Opinion addresses the IPNFs' request for consultation on those elements of the LRMP related to the timelines for achieving access management standards and for completion of a winter travel plan, as well as on the updated environmental baseline conditions and clarification to access management for motorized access in BORZ (also referred to as the Project). Under the Project, no other changes to implementing the LRMP or the 2011 Access Amendment are proposed; in particular, there are no proposed changes to the LRMP desired conditions or standards and guidelines. As a result, this Opinion and its accompanying ITS replaces our 2013 LRMP Opinion and ITS regarding the effects on the grizzly bear caused by implementation of the Access Amendment standards incorporated into the 2015 LRMP. All other aspects of our 2013 Opinion and ITS addressing the LRMP remain in effect. This Opinion largely retains the original text of the 2013 Opinion except for the discussion of those Plan elements (Project) referenced above.

The 2013 biological opinion on the LRMP and the 2011 biological opinion on the Access Amendment do not analyze specific actions, relying instead on a qualitative analysis of the types of land management actions authorized under the LRMP and Access Amendment that may affect listed species. Specifically, the biological opinion on the LRMP analyzes the types of actions that may occur based on the management area designations across the IPNF, including

vegetation and fuels management, recreation, grazing, mining, and roads. The biological opinion on the Access Amendment analyzes types of road actions, such as road decommissioning, access treatment (i.e., installing gates or barriers), and road-building or road re-opening once BMUs are brought into compliance with the requirements of the Access Amendment. Similarly, this Opinion will not analyze site-specific actions because such future actions undertaken by the IPNF will undergo separate consultation under section 7 of the ESA, as appropriate. Nonetheless, because the IPNF Forest Plan standards allow for motorized access in areas that are used by grizzly bear, and as described in our analysis, we are reasonably certain that some incidental take will occur. We address that impact in the following analysis and the ITS accompanying this Opinion.

The analyses presented in this Opinion rely on best available information provided in the BA (USFS 2020a, entire), LRMP (USFS 2015a), contemporary published and unpublished scientific information on the status of the grizzly bear, personal communications with grizzly bear researchers and other experts, and other sources of information cited herein. Based on the findings in this Opinion, a revised ITS superseding the previous ITS also accompanies this Opinion addressing Access Amendment standards incorporated into the 2015 LRMP and motorized over-snow access. All other aspects of our 2013 Opinion addressing the LRMP remain in effect.

1.2 Analytical Framework

In accordance with the requirements of section 7(a)(2) of the ESA and its implementing regulations, the formal consultation process culminates in the Service's issuance of an Opinion that sets forth the basis for a determination as to whether the proposed Federal action is likely to jeopardize the continued existence of listed species or to destroy or adversely modify critical habitat, as appropriate. The regulatory definition of jeopardy and a description of the formal consultation process are provided at 50 CFR 402.2 and 402.14, respectively. If the Service finds that the action is compliant with section 7(a)(2), but anticipates that it is likely to cause incidental take of listed species, then the Service must identify that take and exempt it from the prohibitions against such take under section 9 of the ESA in an ITS accompanying the Opinion.

1.2.1 Jeopardy Determination

Section 7(a)(2) of the ESA requires that Federal agencies insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species. Regulations implementing section 7 define "jeopardize the continued existence" as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). In accordance with policy and regulation, the jeopardy analysis in this Opinion relies on four components:

1. The Status of the Species, which evaluates the species' rangewide condition, the factors responsible for that condition, and its survival and recovery needs;

2. The Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species;
3. The Effects of the Action, which determines the consequences of the proposed Federal action; and
4. The Cumulative Effects, which evaluates the effects of future, non-Federal activities reasonably certain to occur in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species' current status, taken together with cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

Recovery units for the grizzly bear were established in the Service's final Grizzly Bear Recovery Plan (Recovery Plan) (USFWS 1993, p. 16). Pursuant to Service policy, when an action impairs or precludes the capacity of a recovery unit from providing both the survival and recovery function assigned to it, that action may represent jeopardy to the species. When using this type of analysis, the biological opinion describes how the action affects not only the recovery unit's capability, but also the relationship of the recovery unit to both the survival and recovery of the listed species as a whole.

The jeopardy analysis in this biological opinion considers the range-wide survival and recovery needs of the grizzly bear and the role of the recovery unit and action area in the survival and recovery of the grizzly bear as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

1.3 Consultation History

A chronology of the reinitiation of the consultation on the LRMP is presented below.

May 8, 2019	The Service received a document regarding the IPNF's plan on achieving BMU compliance with the 2011 Access Amendment.
May 10, 2019	The Montana and Idaho Fish and Wildlife Service Offices (MFWO and IFWO, respectively, or "Services," collectively) participated in a conference call with the Idaho Panhandle, Kootenai, and Lolo National Forests (IPNF, KNF, and LNF, respectively) to discuss challenges to achieving full compliance on the 2011 Access Amendment by the 2019 deadline and determine how to proceed.
October 22, 2019	The Forest Service Region 1 Office and the Services participated in a conference call to discuss the reinitiation.

October 23, 2019	The Services and IPNF and KNF (collectively, "Forests") biologists discussed reinitiation on the LRMPs.
November 8, 2019	The IFWO received a letter from the IPNF requesting reinitiation on the LRMP to address effects to grizzly bear related to motorized access within the Selkirk and Cabinet-Yaak Recovery Zones and adjacent BORZ.
December 3, 2019	The Services and Forests held a conference call to discuss the structure of the biological assessment (BA), data needs for the biological opinion, and consultation timelines.
December 17, 2019	The IFWO replied to the IPNF request for reinitiation of consultation for their LRMP.
December 20, 2019	The IFWO received a draft BA for the LRMP reinitiation.
January 17, 2020	The IFWO provided comments on the draft BA for the LRMP reinitiation to the IPNF.
January 24, 2020	The Services and the Forests discussed Service comments on the draft BA.
February 14, 2020	The Services and the Forests discussed the draft BAs.
March 20-26, 2020	The Services and Forests jointly discussed road miles in BORZ.
April 1, 2020	The IPNF received the BA on the LRMP reinitiation.
April 2, 2020	The Services provide the Forests information about grizzly bear mortality in and around the Selkirk and Cabinet-Yaak Recovery Zones.
April 6, 2020	The IFWO requested information from the IPNF regarding unauthorized motorized access.
April 8, 2020	The Services and Forests discussed the Service's April 6, 2020 information request.
April 16, 2020	The Services and the Forests discussed incidental take issues.
April 17, 2020	The Services provided Forest Service Region 1 with suggested modifications to address incidental take, using secure habitat as a surrogate to evaluate incidental take of grizzly bears in BORZ.
April 30, 2020	The IFWO accepted the BA, but requested the Forest provide additional data on secure habitat within BORZ.

May 6, 2020	The Services and the Forests discussed use of secure habitat for addressing incidental take and potential gate monitoring in BORZ.
May 7 and 28, 2020	The Services and the Forests discussed the data request and process for calculating secure habitat in BORZ, proposed updates to the monitoring plan, and road closures in BORZ.
June 18, 2020	The Services and the Forests discussed the common language for environmental baseline versus Baseline Conditions; the Future Baseline Update document prepared by the KNF; quantifying secure habitat in BORZ; and the proposed incidental take reporting format.
June 25, 2020	The IFWO received the final revised BA from the IPNF.
July 10, 2020	The IFWO received final secure habitat maps and baseline condition data for BORZ from the IPNF.
July 23 – 24, 2020	The IFWO received additional information from the IPNF regarding the environmental baseline for attractants, grazing, and unauthorized motorized activity, and for monitoring in BORZ and land exchanges.
July 29, 2020	The IFWO received additional information from the IPNF regarding motorized over-snow use in BORZ.

2. PROPOSED ACTION

The proposed action is as described in detail in Chapter I of the 2013 biological opinion on the LRMP, which is herein incorporated by reference, but also includes timeline extensions for achieving access management standards, as well as updates to the environmental baseline conditions in BORZ and clarification of access management in BORZ. The proposed action also extends the time to complete a winter travel plan, required under the ITS accompanying the Service's 2013 biological opinion on the IPNF LRMP.

2.1 Action Area

The term "action area" is defined in the regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). An action includes activities or programs "directly or indirectly causing modifications to the land, water, or air" (50 CFR 402.02).

For this Opinion, the area where land, water, or air is likely to be affected by the proposed action include the entirety of the IPNF. The IPNF consists of major portions of three National Forests: the Kaniksu, the Coeur d'Alene, and the St. Joe. In 1973, major portions of these three forests were combined to be administratively managed as one National Forest.

The IPNF is divided into five ranger districts: (1) Bonners Ferry; (2) Coeur d'Alene River; (3) Priest Lake; (4) Sandpoint; and (5) St. Joe Ranger District. Collectively, they consist of more than 2.5 million acres of public lands in the panhandle of north Idaho, with small areas extending into eastern Washington and western Montana. Of the total 2.5 million acres, about 2,351,100 acres are in Idaho, 31,200 acres in Montana, and 118,400 acres in Washington. Access into the IPNF is via Interstate 90 and U.S. Highways 95 and 2, and Idaho State Highways 200, 57, 1, 3 and 6.

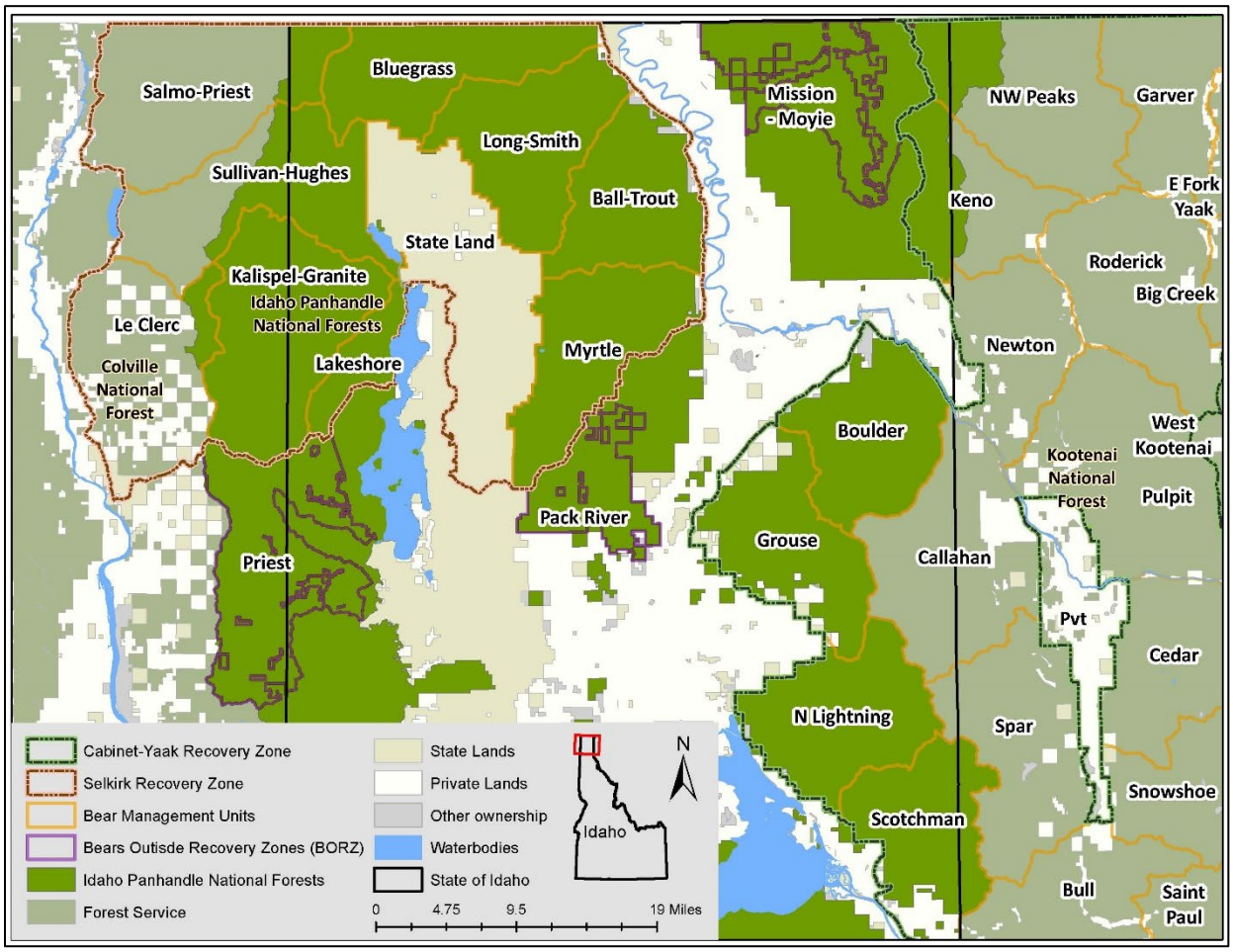

Figure 1. Map of the Selkirk and Cabinet-Yaak Recovery Zones and adjacent BORZ managed by the Idaho Panhandle National Forest (dark green).

The majority of land administered by the IPNF is located in Boundary, Bonner, Kootenai, Benewah, and Shoshone counties in Idaho and Pend Oreille County in Washington. Smaller portions of land are also found in Lincoln and Sanders counties in Montana, and Latah and Clearwater counties in Idaho. Logging, mining, and ranching have played important roles in many of these communities throughout the history of the area and continue to do so in varying degrees today.

Although the LRMP affects all National Forest lands within the boundaries of the IPNF, the proposed extensions and clarifications to the LRMP (i.e., the Project) would only be implemented, thus affect, areas within the IPNF where the grizzly bear may occur. This includes those portions of the Selkirk and Cabinet-Yaak Recovery Zone and BORZ within the IPNF (Figure 1), which are located within the Priest Lake, Sandpoint, and Bonners Ferry Ranger Districts north of Lake Pend Oreille and the Pend Oreille and Clark Fork Rivers. Grizzly bears have also been documented infrequently outside of these areas and, given the LRMP will remain in effect for the next 10 to 15 years, it is reasonable to assume that grizzly bears may continue to move outside of the Recovery Zones and BORZ and may occur in other portions of the IPNF.

2.2. Description of the Proposed Action

This section describes the proposed Federal action, including any measures that may avoid or minimize adverse effects to listed species or critical habitat, and the extent of the geographic area affected by the action. The term "action" is defined in the implementing regulations for section 7 as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas" (50 CFR 402.02).

2.2.1 LRMP Direction

The IPNF proposes to continue to implement the LRMP as described in Chapter I of the 2013 biological opinion, but with the changes and clarifications to motorized access described below (BA, USFS 2020). The LRMP provides an integrated plan for land and resource management, identifies desired conditions and objectives for resource conditions on IPNF lands, and provides standards and guidelines that serve as a framework to guide future project planning and decision-making. The LRMP also identifies the kinds of uses that are suitable for areas of the National Forest and designates special areas.

The LRMP does not identify specific actions, but provides a framework for the development of future actions to be carried out at a later time, and future actions will undergo separate consultation, as necessary, under section 7 of the ESA. This LRMP represents a *mixed programmatic action*, defined in 50 CFR 402.02 as, "a Federal action that approves action(s) that will not be subject to further section 7 consultation, and also approves a framework for the development of future action(s) that are authorized, funded, or carried out at a later time and any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further section 7 consultation."

The following is largely excerpted from section 3, "Proposed Action Description" of Chapter II of the 2013 biological opinion on the LRMP, but with additional clarifications to the Interagency Grizzly Bear Committee (IGBC) Guidelines, Inventoried Roadless Rule, and Access Amendment. Details of the current proposal to extend the timelines to meet the access management and complete winter travel planning, and updates and clarifications to the baseline condition in BORZ are discussed in a separate subsection below.

As described in Chapter I, the LRMP direction is organized by goals, desired conditions, objectives, guidelines, and standards. The LRMP Forest-wide direction describes the framework under which IPNF lands will be managed for the next 10 to 15 years. The LRMP desired conditions for wildlife and vegetation and guidelines and standards for wildlife are discussed in Chapter I in our 2013 biological opinion on the LRMP and contained in Appendix B of the 2013 Terrestrial BA (USFS 2013a), and are incorporated here by reference. Guidelines and standards are the procedures and requirements, respectively, applied to project and activity decision-making to achieve goals, desired conditions, and objectives. All project-level activities must meet the guidelines and standards. The project-level requirements that provide conservation of grizzly bears are described in Table 1. The guidelines and standards address the following grizzly bear management needs: linkage, access, general habitat, human-bear conflicts, and denning habitat.

Table 1. Guidelines and standards in the IPNF LRMP for grizzly bear conservation.

Grizzly Bear Management Need	Element[1] Code	Element Description
Linkage	FW-GDL-WL-15	Sets direction for interagency coordination and inclusion on wildlife crossing features in roadway construction and reconstruction.
Linkage	FW-GDL-WL-16	Restricts management activities within one-quarter mile of existing crossing features, and future crossing features.
Linkage	FW-GDL-WL-17	Maintains federal ownership in wildlife linkages identified through interagency coordination.
General Habitat	FW-GDL-WL-18	Applies "Interagency Grizzly Bear Guidelines" or a conservation assessment once a grizzly bear population is delisted.
Access Management / Secure Habitat	FW-STD-WL-02	Applies the Access Amendment direction in the CYE and SE.
Human-Bear Conflict	FW-STD-WL-03	Requires sanitation measures to reduce human/wildlife conflicts and mortality in all permits and operating plans.
Denning Habitat / Human-Bear Conflict	FW-STD-WL-04	Prohibits grooming of snowmobiles routes in grizzly bear core habitat in spring after April 1 each year.

[1] Elements of the plan include the Goals, objectives, desired conditions, guidelines and standards.

The standards and guidelines discussed in Appendix A in Chapter I and Table 1 above are applied Forest-wide as well as across management areas (MAs) and geographic areas (GAs). Each of the twelve management area designation has its own prescription for management and allowed uses (see Chapter I, pp. I-10 to I-12, I-35 to I-39). Table I-4 in Chapter I describes the

allocation of all National Forest Systems (NFS) lands across the MAs. The distribution of the CYE and SE recovery zones to the MAs is provided in Table 2.

Table 2. Distribution and percent of CYE and SE recovery zone acreages on the IPNF across the designated management areas under the LRMP.

Proposed Action Management Areas	Acres[1] in the SE (percent)	Acres in the CYE (percent)
1a – Wilderness	9,882 (3)	0
1b – Recommended Wilderness	55,418 (14)	24,540 (10)
1c – Wilderness Study Area	0	0
1e – Primitive Lands	18,564 (5)	0
2a – Wild & Scenic Rivers (Wild & Recreational)	0	0
2b – Eligible Wild & Scenic Rivers (Wild &	7,035 (2)	883 (<1)
3 – Special Areas	4,975 (1)	4,600 (2)
4a – Established & Proposed Research Natural	4,651 (1)	2,737 (1)
4b – Experimental Forests	0	0
5 – Backcountry	118,839 (31)	82,719 (33)
6 – General Forest	164,353 (43)	133,103 (54)
7 –Primary Recreation Areas	839 (<1)	0
Total:	384,446	248,582

[1]Where special designation MA's overlap, acre calculation based on primary MA, following the hierarchy listed in the Plan.

Geographic areas have desired conditions that are specific to a locale, such as a river basin or valley. The GA desired conditions were developed to refine Forest-wide management to better respond to local conditions and situations that may occur within a specific GA. The desired conditions in GAs for listed species will not exert additional effects on the species, rather the desired condition will help the IPNF achieve a Forest-wide desired condition, objective, standard, or guideline for the species. This is done within the GAs by identifying or prioritizing areas where these conditions should be achieved. For example, a desired condition for wildlife in the Pend Oreille GA provides low levels of disturbance for grizzly bear denning in the Scotchman Peaks and Selkirk Mountain ranges. This condition complements Forest-wide desired condition for wildlife (FW-DC-WL-04), which states that low levels of disturbance exist in all grizzly BMUs to facilitate denning activities, spring use, limit displacement, and reduce human/bear conflicts and potential bear mortality and Forest-wide guideline (FW-GDL-WL-01**)** which states that management activities on NFS lands should avoid/minimize disturbance in areas of predicted denning habitat during spring emergence (April 1 through May 1). In these examples, the GA desired conditions are identifying specific locations where the Forest-wide desired condition and guideline will be targeted.

Where the Inventoried Roadless Areas (IRAs) overlap the LRMP MA designations, the provisions of the Inventoried Roadless Rule (IRR) prevail. In 2008, the IRR (36 CFR 294 Subpart C) was finalized and designated 797,100 acres of the IPNF as IRAs. The 2008 IRR effectively modified where timber production, road construction, and mineral activities could

occur. The IRR specifically added restrictions on and allowances for activities in several of the MAs in the existing plan overlapping IRAs. Briefly, the restrictions added by the IRR include additional prohibitions on road construction, timber harvest, and mineral leasing in existing plan MA1b,c,e; additional limited allowances for roads in MA5; additional allowances for roads and timber harvest both within and outside community protection areas in MA5; conditions on road construction and timber harvest associated with mineral leasing and the applicable land management plan in MA6; and direct that MA2a,b, 3, and 4a should be managed in accordance with the applicable land management plan.

Table 3. MS1 and MS3 Population and Habitat Conditions and Management Direction (IGBC 1986).

Management Situation	Population and Habitat Conditions	Management Direction
MS1	The area contains grizzly population centers (areas key to the survival of grizzly where seasonal or year-long grizzly activity, under natural, free-ranging conditions is common) and habitat components needed for the survival and recovery of the species or a segment of its population. The probability is very great that major federal activities or programs may affect (have direct or indirect relationships to the conservation and recovery of) the grizzly.	Grizzly habitat maintenance and improvement, and grizzly-human conflict minimization will receive the highest management priority. Management decisions will favor the needs of the grizzly bear when grizzly habitat and other land use values compete. Land uses which can affect grizzlies and/or their habitat will be made compatible with grizzly needs or such uses will be disallowed or eliminated. Grizzly-human conflicts will be resolved in favor of grizzlies unless the bear involved is determined to be a nuisance. Nuisance bears may be controlled through either relocation or removal but only if such control would result in a more natural free-ranging grizzly population and reasonable measures have been taken to protect the bear and/or its habitat (including area closures and/or activity curtailments).
MS3	Grizzly presence is possible but infrequent. Developments, such as campgrounds, resorts or other high human use associated facilities, and· human presence result in conditions which make grizzly presence untenable for humans and/or grizzlies. There is a high probability that major Federal activities or programs may affect the species• conservation and recovery.	Grizzly habitat maintenance and improvement are not management considerations. Grizzly-human conflict minimization is a high priority management consideration. Grizzly bear presence and factors contributing to their presence will be actively discouraged. Any grizzly involved in a grizzly-human conflict will be controlled. Any grizzly frequenting an area will be controlled.

The LRMP incorporates the IGBC Guidelines (IGBC 1986). The IPNF applies the IGBC Guidelines (USFS 1986, entire) across the grizzly bear Management Situations (MS) (1 through 5) as delineated throughout the two recovery zones in the IPNF. All of the lands within each recovery zone have been delineated into one of two management situations: MS1 or MS3 (Table 3). As information and science related to grizzly bears evolved, the USFS began managing MS1 and MS2 essentially the same on NFS lands, according to direction for MS1. In MS1,

management focuses on grizzly bear habitat maintenance and improvement and the minimization of grizzly-human conflict, and management decisions are expected to favor the needs of the grizzly bear when grizzly habitat and other land use values compete. MS3 lands include privately owned lands, campgrounds, or other lands where grizzly bear presence and factors contributing to their presence will be actively discouraged. The IGBC Guidelines list eight elements on how to minimize grizzly bear-human conflict potential as it relates to wildlife management (USFS 1986, pp. 6-7). If the IGBC Guidelines are met, then the management direction for each management situation is met.

The LRMP includes standard FW-STD-WL-02, incorporating the 2011 Access Amendment (USFS 2011a). Design Elements of the Access Amendment direct the Idaho Panhandle, Kootenai, and Lolo National Forests to reach specific standards for wheeled motorized access and security habitat for grizzly bears within all BMUs in the Selkirk and Cabinet-Yaak Recovery Zones within eight years of the 2011 decision date, or by 2019. The Access Amendment also includes Design Elements specific to BORZ. The entirety of the Design Elements are detailed in Appendix A of this Opinion, as well in Appendix E of the BA and Appendix B of the LRMP (USFS 2015a), both referencing back to the Access Amendment.

2.2.2 LRMP Extended Timelines, Updates and Proposed Clarifications

The proposed action, as described in the BA (USFS 2020a), does NOT include any changes to the above mentioned standards and guidelines of the LRMP (see Chapter I), nor to the specific standards established for wheeled motorized access and secure habitat in BMUs (Table 4, IPNF only).

The proposed action includes:

- Extending the timeline associated with Element I-C-1 (meeting the wheeled motorized access and secure habitat standards within BMUs) of the Access Amendment, incorporated into the LRMP through Standard FW-STD-WL-02;
- Extending the timeline established by the Terms and Conditions of the ITS accompanying the 2013 biological opinion on the LRMP related to winter travel planning in grizzly bear habitat (USFWS 2013); and
- Updating the baseline condition in BORZ, and clarifying exemptions to motorized access management in BORZ, specifically the "no net increase" standard (Design Elements II-A and II-B).

Timelines

Specifically, the IPNF proposes to:

1. Take four additional years to achieve the Access Amendment established standards in the Long-Smith, Blue-Grass, and Grouse BMUs and nine additional years to achieve the Access Amendment established standards in the Boulder BMU; thus, the established

standards will be achieved by the end of 2023 in the Long-Smith, Blue-Grass, and Grouse BMUs and by the end of 2028 in the Boulder BMU; and

2. Take four additional years to complete an over-snow motorized winter travel plan; thus, the plan will be completed by the end of 2023 instead of by February 2020.

Table 4. Access Amendment established standards for wheeled motorized access (OMRD and TMRD) and secure habitat (i.e., Core habitat) for Bear Management Units (BMUs) managed entirely by the Idaho Panhandle National Forests (IPNF) or that have shared ownership with the Colville or Kootenai National Forest (CNF and KNF, respectively: USFWS 2011a).

Recovery Zone	Forest	Bear Management Unit	Percent OMRD[a]	Percent TMRD[b]	Percent Core habitat[c]	Percent Federal Land
		Research Benchmarks	≤ 33	≤ 26	≥ 55	
Selkirk	IPNF	Blue-Grass	33	26	55	96
	IPNF	Long-Smith	25	15	67	92
	IPNF	Myrtle	33	24	56	85
	IPNF	Ball-Trout	20	13	69	94
	IPNF	Lakeshore	82	56	20	86
	IPNF	Kalispell-Granite	33	26	55	96
	IPNF/CNF	Sullivan-Hughes	24	19	61	99
	IPNF/CNF	Salmo-Priest	33	26	64	99
Cabinet-Yaak	KNF/IPNF	13 (Keno)	33	26	59	99
	KNF/IPNF	14 (NW Peak)	31	26	55	99
	IPNF	18 (Boulder)	33	29	55	92
	IPNF	19 (Grouse)	59	55	37	54
	IPNF	20 (North Lightning)	35	20	61	94
	IPNF	21 (Scotchman)	34	26	62	81

[a] OMRD refers to Open Motorized Route Density greater than 1 mi/mi^2.
[b] TMRD refers to Total Motorized Route Density greater than 2 mi/mi^2.
[c] CORE refers to Core habitat, and is the sum of individual "blocks" or polygons of secure habitat within the BMU at least 500 meters from an open or total motorized route.

Updates and Clarifications

The IPNF is also updating the baseline condition in terms of motorized access in BORZ that were established in 2010; acknowledging the existence of BORZ "expansion" areas reflecting grizzly bear activity since 2010; and clarifying exceptions to the "no net increase" standards described in Design Elements II-A and II-B of the Access Amendment direction (see below).

Corrections. As described in the BA, the IPNF has improved their understanding of the motorized access condition of those BORZ that were delineated in 2010 through discoveries of pre-existing roads during project-level investigations and technological improvements in road mapping. Reporting these pre-existing miles of road as "database corrections" is part of the proposed action. In addition, the 2010 baseline condition did not include motorized trails in their

calculations of permanent linear miles of open and total roads. Motorized trails, defined as "all created or evolved access routes that do not qualify as a road" (IGBC 1998, p. 3), are considered part of the motorized access condition relative to effects to grizzly bears because effects to bears from motorized activity on trails is similar to effects from motorized use of roads. Thus, trails are considered in calculation of road density in BMUs, and should have been included in the baseline condition of BORZ at the time the Access Amendment was implemented. Although the BA (p. 48) included railroads in their total calculations of motorized routes in BORZ, railroads are not included in the linear miles of open and total routes, thus railroad miles are removed from total miles for the purposes of this Opinion. The baseline condition of motorized access in BORZ, inclusive of roads and motorized trails, will be described in terms of permanent linear miles of open and total "routes." Therefore, the proposed action updates the baseline condition of BORZ from what was reported in the Access Amendment and LRMP to reflect a more accurate and inclusive baseline of permanent open and total route miles in BORZ (Table 5). Additionally, the IPNF clarifies its intent to continue to update the baseline condition for BORZ whenever additional pre-existing routes are discovered. These updates will be included in the annual monitoring reports to the Service.

Table 5. Permanent wheeled motorized access in areas of grizzly bear recurring use, i.e. Bears Outside Recovery Zones (BORZ) post-2010 within the Proposed Action area on the IPNF, as of 2019, including all the motorized routes (roads and trails), in linear miles.

Bears Outside Recovery Zone	Grizzly Bear Recovery Zone	Total Size (Acres)	National Forest System Lands		
			Total Area (Acres)	Total Routes (Miles)	Open Routes (Miles)
Priest Lake	Selkirk	80,733	75,793	**340.0**	**337.4**
Pack River	Selkirk	33,869	28,097	48.6	46.7
Pack River II	Selkirk	2,144	2,650	14.2	11.3
Pack River Combined	Selkirk	36,013	30,747	**63.7**	**58.0**
Mission-Moyie	Cabinet-Yaak	71,545	58,472	239.9	209.9
Mission-Moyie II	Cabinet-Yaak	29,343	28,703	102.2	100.2
Mission-Moyie III	Cabinet-Yaak	6,629	3,631	25.6	25.2
Mission-Moyie Combined	Cabinet-Yaak	107,517	90,806	**367.7**	**335.3**

Expansions. Since 2010, when the Record of Decision for the Access Amendment was signed, grizzly bear range has expanded and is likely to continue to expand. The IPNF, in coordination with the Service, evaluates grizzly bear sightings and mortality data annually, and delineates additional areas as BORZ where appropriate (Allen et al. 2011). In 2016 and 2019, documented grizzly bear recurrence in areas outside of the recovery zones and existing BORZ led to the

expansion of previously delineated BORZ. The IPNF added these areas to existing BORZ, updated the baseline condition for open and total routes for these BORZ expansion areas into the current baseline condition of the respective BORZ, and reported the expansions in their annual monitoring reports to the Service (USFS 2017, USFS 2020a). Expanding the existing BORZ increased the reported permanent linear miles of open and total routes for each respective BORZ (Table 5), but did not change the existing motorized route condition of existing BORZ. This consultation addresses the update to the baseline conditions for BORZ to include the expansion areas delineated since 2010.

Under the proposed action, the IPNF will continue identifying and delineating additional BORZ areas in coordination with the Service. Future BORZ-delineated areas may be considered expansions of existing BORZ or new, separate BORZ may be identified, depending on the size and location of the new BORZ areas relative to existing BORZ. The IPNF clarified that the Design Elements of the Access Amendment relative to BORZ will be applied to all current BORZ and to future BORZ expansions, including the standard for no net increase in permanent miles of open and total routes. BORZ expansions, or new BORZ delineations in the future, will be consulted on separately, and resulting changes in the BORZ baseline will be reported in the annual access management monitoring reports to the Service.

Design Element II-B of the Access Amendment, which is incorporated into the LRMP via FW-STD-WL-02 of the LRMP, assures there will be no net increase in permanent linear miles of open and total roads in any individual BORZ above the baseline conditions, which were identified for existing BORZ in the 2011 Access Amendment and the 2015 LRMP as the existing miles of open and total roads at the time of BORZ delineation. With the inclusion of motorized trails in the baseline condition, the "no net increase standards" of Design Elements II-A and II-B hereafter applies to permanent linear miles of open and total "routes." Through the proposed action, the IPNF is also clarifying *exceptions* to the "no net increase" standard; specifically the standard does *not* apply to the following:

- Motorized use by agency personnel or others authorized by the appropriate agency personnel (i.e., there is no limit on the number of *administrative* trips on restricted roads within BORZ);
- Updated/improved motorized route data without an actual change on the ground (i.e., database corrections);
- Exchanging, acquiring, buying, or selling lands by the USFS that would modify the total linear miles of routes by subtracting miles of motorized routes in lands no longer part of the IPNF and adding the linear miles of road in parcels acquired by the IPNF;
- Motorized use for emergency situations as defined by 36 CFR § 215.2; and
- Temporary roads;[1] however, all the design elements of the 2011 Access Amendment still apply to the temporary roads.

These exceptions do not include any permanent changes to the roaded condition on the ground.

[1] Refers to Design Elements II.

The IPNF clarified their definition of a temporary road (BA, p. 8) as: "A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas" (as defined in 36 CFR § 212.1). This definition includes the re-opening of existing bermed or barriered road prisms for temporary use. Temporary roads are expected to exist on the landscape roughly 5 years, but may remain for up to 10 years. Within BORZ, temporary roads may lead to temporary increases in linear miles of total roads, with conditions defined in Design Criteria II-A-1 and II-B-1 of the Access Amendment (and thus incorporated into the LRMP). The details for specific temporary roads (i.e., location, length, use, etc.) are determined at the project level, and future project-specific consultation will analyze the effects of any proposed temporary roads in terms of their effects to grizzly bears and their habitat.

As described in the BA (p. 47) and permitted through Design Elements II-A and II-B of the Access Amendment, the "no net increase" standard also does not apply to situations where the IPNF lacks discretion to prevent road building on NFS lands due to legal or other obligations. Examples include, but are not limited to, Alaska National Interest Lands Conservation Act (ANILCA) claims, identification of Revised Statute 2477 thoroughfares (RS 2477), or other similar requirements that may result in additional miles of motorized routes beyond the control of the IPNF. The ANILCA mandates the Forest Service provide motorized access across federal lands when necessary to access private inholdings. Revised Statute 2477 thoroughfares refers to a statute enacted by Congress in 1866 that provides a right of way for the construction of highways over public lands. The IPNF realized they inadvertently omitted these road miles in their baseline condition in 2010. The baseline presented in Table 17 of the BA (p. 47) includes these roads.

Monitoring. The IPNF clarified their monitoring efforts related to motorized access and grizzly bears in both the BMUs and BORZ (BA, p. 8). Within BMUs, the IPNF will continue to implement the monitoring described in the existing LRMP: "To ensure the effective implementation of the open road density parameter, at least 30 percent of closure devices (gates and barriers) will be monitored annually within the respective ecosystems. Monitoring techniques may include visual checks as well as road counters. The current monitoring in BMUs will continue under the proposed action."

Within BORZ, monitoring occurs in the form of ad hoc and opportunistic monitoring. The IPNF performs ad hoc monitoring during project development via their Travel Analysis Process where the IPNF surveys for motorized routes within the project area as well as in areas that are within the BORZ but outside of the project area where greater motorized activity is anticipated based on local knowledge and input from IPNF personnel (D. Probasco 2020a, *in litt.*). Opportunistic monitoring occurs when IPNF or other agency personnel patrol BORZ for purposes other than project development (i.e., fire crews, law enforcement, etc.). IPNF personnel such as recreation staff, fire crews, and other resource specialists frequently visit BORZ, especially in the summer time, but the frequency of visits to any one BORZ can vary from year to year. As described in the BA (pp. 18 – 20), when previously undetected roads or motorized trails are discovered, the IPNF determines whether the road is a system road, undetermined road, or unauthorized road, and decides whether to add undetermined roads to their road system, or place a barrier to prevent

motorized use. System and undetermined roads are added to the roads database for purposes of calculating linear miles of open and total roads. Undetermined roads are coded in the database according to their on-the-ground status at the time of discovery. For instance, an undetermined road without a gate would be coded the same as an open road (IGBC code 4). All known motorized routes, whether they are system routes or non-system routes (i.e., routes not meeting the definition of a system route), are included in motorized route calculations (D. Probasco 2020, pers. comm.). Discoveries of unauthorized routes are reported separately.

If unauthorized motorized routes are discovered, the IPNF takes steps to prevent continued unauthorized use, or adds the route to their system. If the IPNF decides *not* to add the route to their system, the IPNF fixes the breach immediately if materials and contracted equipment are available, for example, by fixing a gate or replacing/reinstalling a barrier. If materials and contracted equipment are unavailable, closure devices are repaired as soon as possible, generally within the same bear year (i.e., April 15 to November 15 or November 30, for the SE and CYE, respectively) or early in the next bear year.

If the IPNF decides to add the unauthorized route to their system, the route will be included in motorized route calculations and the "no net increase" standard will apply such that an offset would need to occur if the addition of the route resulted in exceedance of a motorized access limit. Discovery of previously unknown motorized routes and incidents of unauthorized use are reported to the Service in annual monitoring reports.

In summary, the IPNF proposes to maintain the existing Desired Conditions, Standards, and Guidelines of the LRMP aimed at conservation of threatened and endangered species, and grizzly bears in particular, with extensions and clarifications as described. The LRMP provides an integrated plan for land and resource management, and IPNF LRMP direction that may assist in the management of grizzly bears is listed in Appendix C of the BA. The section 7(a)(2) analyses and findings for all listed species and critical habitats presented in the previous (2013) Opinion on the proposed LRMP action, which is herein incorporated by reference, remain in effect and are still accurate, except with respect to the grizzly bear.

In terms of effects to the grizzly bear, this Opinion addresses implementation of the LRMP, in light of extensions, updates and clarifications proposed by the USFS in its BA, including:

1. The extended timelines to meet motorized access standards in BMUs,
2. The extended timeline to complete a winter travel plan, and
3. Updating and providing clarifications to the baseline condition of BORZ.

2.3 Conservation Measures

The proposed action does not contain any specific grizzly bear conservation measures apart from the sideboards established under the LRMP standards and guidelines for development of site-specific land management activities.

2.4 Term of the Action

As described in the BA, the IPNF will continue to implement the LRMP, which guides decision-making and all resource management activities on the IPNF for 10 to 15 years (USFS 2015a, p. 1). The proposed action described in this Opinion extends the specific time commitments for achieving motorized access management standards in BMUs and completing a winter travel plan. As described in the BA, the IPNF expects to achieve full compliance in three of the four non-compliant BMUs by the end of 2023 and in the fourth non-compliant BMU by the end of 2028. In addition, the IPNF expects to complete a winter travel plan by the end of 2023. The updates to the baseline condition of BORZ and clarifications to the process for making updates and monitoring are carried forward and will remain for the life of the LRMP.

3. GRIZZLY BEAR

3.1 Status of Grizzly Bear

On July 28, 1975, the grizzly bear was listed as threatened in the coterminous United States (40 FR 31734-31736). On November 5, 1976, the Service submitted a proposal to designate critical habitat for the grizzly bear (41 FR 48757-48759), but the proposal was never finalized. Recognizing the importance of habitat to the species, the IGBC instead issued habitat management guidelines (i.e., IGBC Guidelines) within all occupied grizzly bear habitat (IGBC 1986).

A Grizzly Bear Recovery Plan was approved on January 29, 1982, and a revision was completed on September 10, 1993 (USFWS 1993, p. ii). The Recovery Plan identifies six separate recovery zones: (1) the Greater Yellowstone (GYE); (2) the Northern Continental Divide (NCDE); (3) the Cabinet-Yaak (CYE); (4) the Selkirk (SE); (5) the North Cascades (NCE); and (6) the Bitterroot (BE) (Figure 2). These grizzly bear recovery zones are sometimes referred to as grizzly bear "ecosystems" and sometimes as "recovery units." Recovery zones are divided into BMUs to assist in habitat evaluation and population monitoring. Each BMU approximates the average size of an adult female grizzly bear home range and was designed to contain a full suite of seasonal habitat components. Due to the fact that they occur within the recovery zone, grizzly bears that inhabit BMUs are considered critical to the recovery of the species.

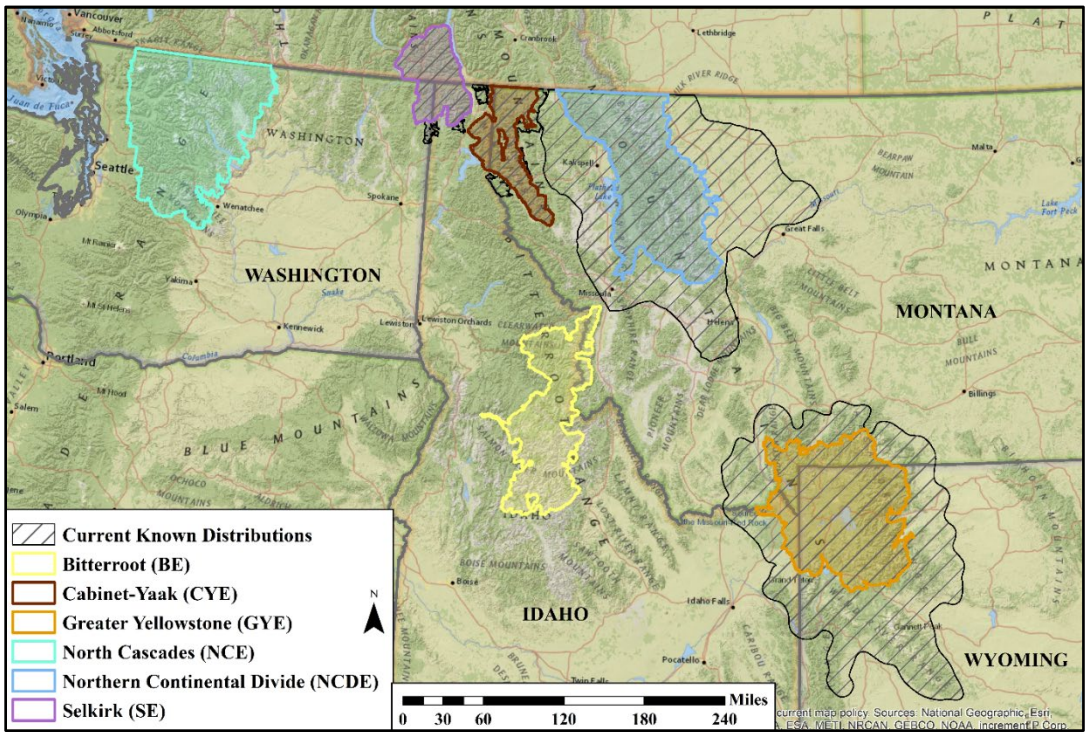

Figure 2. Grizzly bear recovery zones and estimated distributions as of 2018 for the GYE and NCDE, and as of 2017 for the CYE and SE. The NCE and BE are currently unoccupied by breeding populations, and distribution of grizzly bears within those recovery zones is currently unknown.

The Recovery Plan identifies several key indicators of grizzly bear population status that are needed for recovery: (1) sufficient reproduction to offset the existing levels of human-caused mortality; (2) a limit on total human-caused mortality for the population and females; and (3) adequate distribution of breeding animals throughout the area. A system was developed to monitor the following three key parameters as an alternative to point estimates of population size: (1) number of unduplicated females with cubs seen annually; (2) a 6-year running average of known human-caused mortalities, including the percentage of female mortalities; and (3) distribution of females with young or family groups throughout the recovery zone. Specific recovery criteria were developed for each recovery zone with these monitoring parameters in mind; however, the specific criteria differ among recovery zones.

Since the original listing of the grizzly bear, the Service has reviewed the species' status in our 1982 Recovery Plan (USFWS 1982), our 1993 revision to the Recovery Plan (USFWS 1993) and supplemental chapters in later years (USFWS 1996, 1997, 2007, 2017, 2018). The Service has also completed four 5-year status reviews (46 FR 14652, February 27, 1981; 52 FR 25523, July 7, 1987; 56 FR 56882, November 6, 1991; and September 6, 2011 (USFWS 2011b)). None of these past 5-year reviews resulted in changes to the status of the grizzly bear listing. On January 14, 2020, the Service began another 5-year status review.

For more information on the status of grizzly bears, including species description, life history, and range-wide status and distribution, refer to the 2013 biological opinion on the LRMP. Additional information can be found in the Grizzly Bear Recovery Plan (USFWS 1993), the

2011 Grizzly Bear 5-Year Review (USFWS 2011b), the grizzly bear recovery program 2018 annual report (USFWS 2019), the NCDE Grizzly Bear conservation strategy (NCDE Subcommittee 2000), Grizzly bear demographics in the NCDE (Costello et al. 2016), NCDE grizzly bear population monitoring team annual report 2019 (Costello and Roberts 2020), the Greater Yellowstone Ecosystem conservation strategy (USFWS 2016), the Yellowstone Grizzly Bear Investigations 2018 (van Manen et al. 2019), the interagency grizzly bear study team 2019 annual report summary (IGBST 2020), the Selkirk Mountains Grizzly Bear Recovery Area 2018 Research and Monitoring Progress Report (Kasworm et al. 2019a), Density, distribution, and genetic structure of grizzly bears in the Cabinet-Yaak Ecosystem (Kendall et al. 2016), and the Cabinet-Yaak Grizzly Bear Recovery Area 2018 Research and Monitoring Progress Report (Kasworm et al. 2019b). These documents (referenced here), include the best available science regarding the status and distribution of grizzly bears and are incorporated by reference.

We provide more detailed information about the status of grizzly bear in the SE and CYE, the two grizzly bear ecosystems affected by the proposed action, in section 3.2 "Environmental Baseline of the Action Area," below**.**

3.2 Environmental Baseline of the Action Area

The term "environmental baseline" is defined in the regulations implementing the ESA as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation in process. The consequences to the listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

3.2.1 Status of the Species in the Action Area

As described in the *Proposed Action* section, this Opinion addresses the effects to grizzly bear related to implementation of the IPNF's LRMP, which includes the entire IPNF. Grizzly bears occur within the Selkirk and Cabinet-Yaak Recovery Zones (SE and CYE, respectively) and recurring use areas outside of recovery zones identified as BORZ. In addition, grizzly bears have been documented infrequently outside of these areas and, given the LRMP will remain in effect for 10 to 15 years, it is reasonable to assume that some grizzly bears may be documented in other portions of the IPNF during the life of the plan.

3.2.1.1 Selkirk Grizzly Bear Population

The SE represents approximately 6 percent of the total occupied grizzly bear range remaining within the conterminous 48 states. The SE is 2,200 square miles (mi^2) in size and is located in

northern Idaho, eastern Washington, and a portion of British Columbia (B.C.), and includes portions of the Idaho Panhandle and Colville National Forests. Approximately 47 percent of the recovery zone is located in B.C. because the habitat in the U.S. portion is of insufficient size to support a minimum population size (USFWS 1993, p. 101). Land ownership in the U.S. portion is about 80 percent federal, 15 percent state, and 5 percent private. Land ownership in B.C. is approximately 65 percent crown (public) land and 35 percent private.

In 1993, the Service estimated there were between 26 and 36 grizzly bears in the entire SE (USFWS 1993, p. 104), with a subsequent estimate of approximately 46 bears and a slowly increasing population in 1999 (USFWS 1999, p. 26730). The latter was supported by Wakkinen and Kasworm findings that suggested the population had a 67 percent probability that it was increasing (2004, p. 72). By 2012, the estimated population of bears in the SE had increased to approximately 83 bears, corresponding to occupancy of 58 and 25 bears residing in B.C. and U.S. portions, respectively (Proctor et al. 2012, p. 31). This estimate is near the minimum population goal of 90 bears for the entire SE (USFWS 1993, p. 101). Research-related trapping, radio collaring, and monitoring of bears currently occurs on both sides of the international border (USFWS 1993, p. 12; Kasworm et al. 2018). Monitoring within the U.S. portion of the SE identified 51 separate individuals present in 2017 (Kasworm 2019a, p. 2). Between 1983 and 2018, the finite rate of increase for the population was 2.2 percent per year with a 73 percent probability that the population was stable to increasing, although the authors note wide confidence intervals around the trend estimate due to the small sample size (Kasworm et al. 2018, p. 25). An effort is currently underway to update the population estimate for the B.C. portion of the SE; however, results will not be available for a number of years.

The Recovery Plan estimated that a recovered population in the SE recovery zone would consist of a minimum of about 90 individual grizzly bears and grizzly bears would also live in and use areas outside the SE recovery zone. Therefore, Recovery Plan population parameters include bears observed up to 10 miles outside the recovery zone boundary (USFWS 1993, p.101).

Demographic recovery criteria were developed to address overutilization and human-caused mortality (listing factors) within each recovery zone and within a 10-mile surrounding buffer by ensuring a sufficient population size and distribution. These demographic recovery criteria include measures for population size, distribution, and sustainable mortality. Despite the estimated positive trend and apparent increase in population size, the SE has not met all of its recovery targets. The SE has the following recovery criteria (Kasworm et al. 2019, pp. 11-12):

> Recovery Target 1: Six females with cubs over a running 6-year average both inside the recovery zone and within a 10-mile area immediately surrounding the recovery zone. Progress: Monitoring indicates that target 1 ***has not*** been met with 3.5 unduplicated sightings per year over the 6-year average.
>
> Recovery Target 2: Seven of 10 BMU's occupied by females with young from a running 6-year sum of verified evidence. Progress: Target 2 ***has*** been met with seven of ten BMUs in the U.S. portion of the SE occupied. The authors also note documented occupancy in the adjacent B.C. BMU just over the U.S.-Canada border.

Recovery Target 3: The running 6-year average of known, human-caused mortality should not exceed 4 percent of the population estimate based on the most recent 3-year sum of females with cubs. No more than 30 percent shall be females. These mortality limits cannot be exceeded during any two consecutive years for recovery to be achieved. Progress: Target 3 ***has*** been met with 1.5 total bears per year that is less than the 2.4 percent limit based on 4 percent of the calculated population size. Female mortality across the 6-year average was 0.7 bears per year, which meets the target; however, the female mortality limit has not been met in previous years.

3.2.1.2 Cabinet-Yaak Grizzly Bear Population

The Cabinet-Yaak Recovery Zone encompasses 2,589 mi^2 and is located in northwest Montana and northeast Idaho. Blocks of contiguous habitat extend into British Columbia, making this an international population. The recovery zone includes portions of the Kootenai, Idaho Panhandle, and Lolo National Forests, and includes one Wilderness Area. Approximately 90 percent of the recovery area is on public land administered by the Kootenai, Lolo, and Idaho Panhandle National Forests. Two corporate landowners, the "LPP" (formerly Plum Creek Timber Company Inc. and then Weyerhaeuser) and Stimson Lumber Company, have substantial holdings in the CYE. Individual ownership exists primarily along major rivers, and there are numerous patented mining claims along the Cabinet Mountains Wilderness boundary. The Cabinet Mountains Wilderness encompasses 147 mi^2 of the higher elevations in the Cabinet Mountains.

The CYE is bisected by the Kootenai River, with grizzly bear habitat in the Cabinet Mountains to the south and in the Yaak river drainage to the north. The Cabinet Mountains comprise about 60 percent of the recovery zone. The Cabinet Mountains is topographically diverse with steep mountain ranges (up to 8,700 feet) and definable seasonal habitats. The Yaak portion has gentler topography and lower elevations (up to 7,700 feet), and seasonal habitats are not as clearly definable. Migration between these two areas is thought to be minimal (Kasworm 2013, p. 4).

The current population size is estimated at 55 to 60 individual grizzly bears in the CYE, with DNA providing evidence of 54 individual bears in the CYE in 2017, 25 in the Cabinet portion and 29 in the Yaak portion (Kasworm et al. 2019b, pp. 27, 38). While still a relatively small number, this is a vast improvement for this ecosystem. In 1993 when the Recovery Plan was written, the population in the Cabinet Mountains portion of the recovery zone was thought to be less than 15 bears. More recent genetic information has indicated that number was more likely 5 to10 bears (Kasworm et al. 2019b, p.37). By 1999, the population was estimated to have grown to approximately 30-40 bears (64 FR 26725, May 17, 1999) but, in 2006, the CYE grizzly bear population reached its highest annual rate of decline at 8.3 percent (Figure 3). Human-caused mortality accounted for much of the decline in annual survival rates and population trend. By 2009, the rate of decline had improved to 3.7 percent. Between 2006 and 2011, there were approximately 42 grizzly bears in the CYE, with 21 individuals in the Cabinet Mountains and 21 individuals in the Yaak portion of the recovery zone (Kendall et al. 2016, pp. 320). By 2014, the long-term population appeared to have stabilized with a finite annual rate of change of 1.4 percent (USFWS 2013, p. II-23, Kasworm et al. 2015, p. 35). Recent trend modeling shows the

finite rate of population change was an annual 1.2 percent for 1983 to 2018, with a 62 percent probability that the population was stable or increasing (Kasworm et al. 2019b, p. 37).

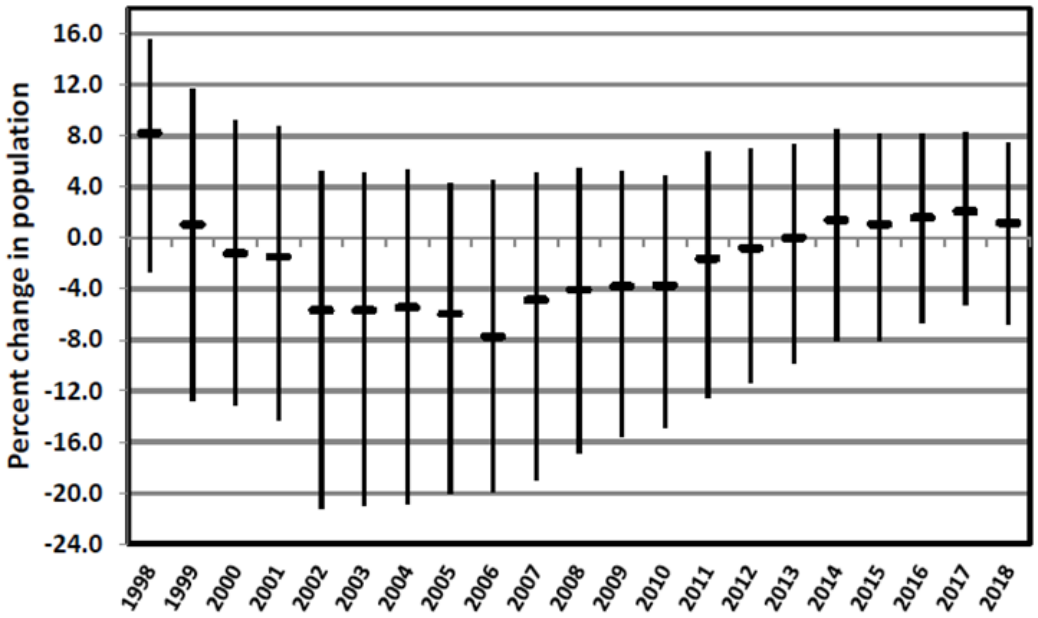

Figure 3. Estimated population rate change for grizzly bears in the Cabinet-Yaak ecosystem for the past 20 years. Horizontal bars show the point estimate, and vertical lines show the 95% confidence intervals. Source: Kasworm et al. 2019, p. 38.

The Recovery Plan estimated that a recovered population in the CYE would consist of a minimum of about 100 individual grizzly bears, recognizing that grizzly bears would also live in and use areas outside the CYE. Therefore, Recovery Plan population parameters include bears observed up to 10 miles outside the recovery zone boundary (USFWS 1993, p. 83). Demographic recovery criteria were developed and measured within each recovery zone and the 10-mile surrounding buffer to evaluate whether the recovery zone contained sufficient population size and distribution. These demographic recovery criteria include measures for population size, distribution, and sustainable mortality.

Although the grizzly bear population trend appears to be increasing, two of the three recovery targets identified in the Recovery Plan have not yet been met (USFWS 1993, pp. 81-83; Kasworm et al. 2019, pp. 15-22). Extensive details regarding the rationale for these targets and progress to date can be found in the Recovery Plan (USFWS 1993, pp. 81-83) and in the annual monitoring reports for the CYE by Kasworm et al. (2019b, pp. 15-22). The 2018 annual research and monitoring progress report (Kasworm et al. 2019b) summarizes:

> Recovery target 1: 6 females with cubs over a running 6-year average both inside the recovery zone and within a 10-mile area immediately surrounding the recovery zone. Progress: Unduplicated females with cubs averaged 2.7 per year from 2012-2017. This target ***has not*** been met.

Recovery target 2: 18 of 22 BMU's occupied by females with young from a running 6-year sum of verified evidence. Progress: 11 of 22 BMUs were occupied from 2012 through 2017. This recovery target ***has not*** been met.

Recovery target 3: The running 6-year average of known, human-caused mortality shall be less than or equal to 4 percent of the population estimate; and less than or equal to 30 percent shall be females. The current mortality limit is 1.9 bears/year and 0.6 females/year. Progress: Average human caused mortality for 2012 through 2017 was 1 bear/year and 0.2 females/year. This target ***has*** been met.

3.2.1.3 Bear Management Units

As described in the 1993 Grizzly Bear Recovery Plan, recovery zones are divided into BMUs to assist in habitat evaluation and population monitoring. Development and delineation of BMUs was guided by the IGBC, which was established to develop guidelines for grizzly bear management (see IGBC 1986). Each BMU approximates the average size of an adult female grizzly bear home range (approximately 100 mi^2) and is designed to contain the full suite of seasonal habitats to assure grizzly bears are well distributed across each recovery zone. These BMUs do not represent actual female home ranges, but provide an optimal scale for characterizing grizzly bear numbers and distribution within each recovery zone, as well as analyzing and tracking effects over time.

The U.S. portion of the Selkirk Recovery Zone comprises ten BMUs; five BMUs are managed entirely by the IPNF (Ball-Trout, Blue-Grass, Lakeshore, Long-Smith, and Myrtle), three are primarily managed by the IPNF, but are shared in part with the Colville National Forest (CNF: Salmo-Priest, Sullivan-Hughes, and Kalispell-Granite), one BMU (LeClerc) is managed entirely by the CNF, and one BMU (State Lands) is managed by the State of Idaho. Although the Colville National Forest manages the LeClerc BMU for no net increase in motorized access, the Access Amendment direction does not include the LeClerc or State Land BMUs, or the B.C. portion of the SE (USFWS 2011a, p. A-61). The B.C. portion of the SE does not contain BMUs, and instead is divided into six large Grizzly Bear Population Units (GBPUs); Pend Oreille, Erie, West Arm, Cultus, Three Sisters, and Boundary. The GBPUs in Canada are managed by the provincial government of British Columbia.

The Cabinet-Yaak comprises 22 BMUs; 4 BMUs are managed entirely by the IPNF (Grouse, Boulder, Scotchman, and North Lightning), 2 BMUs have shared ownership between the IPNF and the KNF (Keno, NW Peaks), 15 BMUs are managed wholly by the KNF (Cedar, Snowshoe, Spar, Bull, St. Paul, Wanless, Silver Butte, Vermillion, Callahan, Pulpit, Roderick, Newton, Garver, EF Yaak, and Big Creek), and 1 is managed by the Lolo National Forest (Mt. Headley). The Access Amendment includes all BMUs in the CYE.

3.2.1.4 Bears Outside of Recovery Zones

The Grizzly Bear Recovery Plan recognized that some grizzly bears wander outside of the recovery zones and some bears might even reside entirely outside of recovery zones. Despite this occurrence, the mere presence of bears outside of the recovery zone does not warrant that the recovery zone boundary be changed.[2] However, some federal activities occurring outside of recovery zones in grizzly bear recurring use areas may affect individual grizzly bears in those areas. Using credible grizzly bear sightings, an interagency team of biologists established BORZ to describe areas outside of the Selkirk and Cabinet-Yaak recovery zone that receive recurring grizzly bear use (see Allen 2011). The interagency team developed specific criteria under which BORZ boundaries may be extended, and specified that "the boundaries of these areas are not static, but may be adjusted as grizzly bear use patterns are reevaluated in future years (Allen 2011, p. 2). Each year the Service, in cooperation with the Forest Service, reviews credible grizzly bear sightings and incidents of mortality to determine whether recurring grizzly bear use in any 6th code HUC warrants delineating the 6th code HUC as a BORZ. If the criteria is met, the 6th code HUC may be amended to an existing BORZ (i.e., expansion of the existing BORZ) or new BORZ may be established consisting of a group of HUCs. Use of the 6th Code HUC was selected because the area is considered large enough (typically 10,000 to 40,000 acres) to incorporate some level of daily grizzly bear movement without being so large as to dilute the importance of the areas surrounding the location of the sighting (Allen 2011, p. 2). In some situations, the interagency team may determine a boundary other than a 6th code HUC is more appropriate, such as a major river or highway.

There are two BORZ associated with the SE, the Priest Lake and Pack River BORZ. There are five BORZ associated with the CYE (Mission-Moyie, Tobacco, Clark Fork, Cabinet Face, and West Kootenai). The Mission-Moyie BORZ was expanded in 2016 and again in 2019. The Pack River BORZ on the IPNF and the West Kootenai BORZ on the KNF were both expanded in 2019 in response to changing grizzly bear use patterns.

Unlike BMUs in the recovery zones, BORZ are not meant to represent the average size of a female home range for effects analyses, but they do represent areas where grizzly bears are known to occur. In fact, individual BORZ are highly variable in size, ranging from 53 mi^2 (Pack River) to 449 mi^2 (Tobacco). The juxtaposition on the landscape and habitat quality are also highly variable. The utility of BORZ is to provide land management agencies a mechanism to evaluate where grizzly bears occur with regularity so that potential project impacts can be determined. The role of BORZ in grizzly bear recovery has not been evaluated, but recovery criteria include data from grizzly bears within 10 miles of the recovery zone, which captures use in some portions of BORZ. In some BORZ, access management direction may be important to the extent that maintaining habitat conditions could facilitate movement between recovery zones, particularly for female grizzly bears, but documented bear use leading to BORZ delineation has primarily been by male grizzly bears (Allen 2011, p. 5; USFS 2015a, p. 15; USFS 2020a, Attachment 1). There are examples of female bears located primarily within the recovery zones

[2] The 1993 recovery plan provides specific criteria under which recovery zone boundaries may be modified (USFWS 1993, pp. 17-18).

whose life ranges marginally overlap BORZ, but only one example of a reproductive female spending a large proportion of time in between the NCDE and CYE (Kasworm et al 2019b, Appendix 4).

3.2.2 Factors Affecting Species Status in the Action Area

The most recent 5-Year Review listed the following factors affecting grizzly bears in the SE and CYE: Incomplete habitat conservation measures including institutionalized access management, inadequate regulatory mechanisms, human-caused mortality, small population size, and population fragmentation that resulted in genetic isolation (USFWS 2011b, p.103). Some of these factors have been addressed, at least in part, including major steps towards habitat conservation measures that were put into place with the Access Amendment. The following section provides further detail on these five factors affecting the status of the species in the U.S. portion of the SE and CYE within the action area.

3.2.2.1 Habitat Conservation Measures

Habitat conservation includes measures and programs to avoid or reduce habitat loss or displacement of grizzly bears from important seasonal habitats. "Displacement" is used in general terms to describe "under-use" of habitat. It does not necessarily mean that grizzly bears would totally avoid an area, or be excluded in some way from ever using an area. Such measures and programs include acquisition of important lands for grizzly bears to prevent human encroachment and development; agreements for the conservation and protection of grizzly bear habitat by precluding activities that might otherwise displace bears; and comprehensive provisions for access management and secure habitat for grizzly bears to limit human disturbance and subsequent displacement or risk of conflict.

Land Acquisitions

The SE comprises approximately 80 percent Federal, 15 percent State, and 5 percent privately owned lands in the U.S. portion of the recovery zone. In B.C, approximately 65 percent is government-owned and 35 percent is privately owned. In 2008, the Nature Conservancy Canada (NCC) purchased and established the 212 mi^2 Darkwoods Conservation Area in the B.C portion of the SE. The conservation area was expanded in 2019 and represents the single largest private land conservation area in Canada. Motorized access management in the Darkwoods has been ongoing for" several decades" (MacHutchon and Proctor 2018, pp. 9-10).

The CYE comprises 90 percent Federal, 5 percent State, and 5 percent privately owned lands. Approximately 5.6 percent of the CYE is designated Wilderness. Habitat protections are largely provided through access management on the National Forests, but there have been several land exchanges that have been beneficial to grizzly bear in the CYE. Land acquisition and exchange in the CYE has placed additional areas within this recovery zone in the public domain and may benefit the long-term conservation of the species. There have been two major land exchanges in particular that have been beneficial to grizzly bear habitat within the CYE. In 1997, the

Kootenai National Forest completed a land exchange in which 33 mi^2 of land owned by Plum Creek Timber Company were placed in public ownership. Almost all of this land was within the CYE grizzly bear recovery zone and is now under Forest Service management.

In 2005, the MFWP acquired almost 2 mi^2 in the Bull River Valley between the East and West Cabinet Mountains in the Bull BMU on the KNF. A conservation easement on an adjacent 1 mi^2 was accepted from the Avista Company. The area, now known as the Bull River Wildlife Management Area, provides linkage of public land across the river valley and will have value for a number of species including bull trout, westslope cutthroat trout, grizzly bear, lynx, and bald eagle. In 2017 and 2018, Vital Grounds and the Yukon Conservation Initiative purchased 0.07 mi^2 of habitat in the Hwy 2 linkage zone near the confluence of the Yaak and Kootenai Rivers, which divides the Yaak and Cabinet Mountains. North of the CYE, in Canada, the 11-mi^2 Gilnockie Provincial Park, established in 1995, is managed similarly to the U.S. Wilderness Areas, resulting in limited road access. In addition, the NCC and the Transboundary Grizzly Bear Project have protected 1.1 mi^2 of privately owned lands in three sites along Highways 3 and 3A.

Conservation Plans and Agreements

In 1995, the British Columbia provincial government developed a grizzly bear conservation strategy for the lands to the north of the CYE (British Columbia Ministry of Environment, Lands, and Parks 1995, entire). A major goal of the Strategy was to ensure effective, enhanced protection and management of habitat through land use planning processes, new protected areas, and the Forest Practices Code. Gilnockie Provincial Park, described above, was established in 1995 just north of the international border in the upper Yaak River drainage. The 11 mi^2 park is managed similarly to U. S. wilderness areas with little road access.

In September 2012, the MFWP secured a 28,000 acre conservation easement with Stimson Lumber Company for land in the City of Troy. These lands are the largest remaining privately owned inholding in the CYE recovery zone. The Kootenai Valleys Conservation Program protects important fish and wildlife habitat providing linkage and connectivity across Highway 2 in the CYE.

Additional conservation in the CYE will be achieved through implementation of the State of Montana's recently completed habitat conservation plan (HCP) which addresses the effects of its forest management program on grizzly bears in the CYE. As a result of the HCP, open road densities on state lands on the Montana side of the ecosystem will be maintained or improved, lands will be inactive for a period of 8 years following a commercial timber sale (to provide habitat security for grizzly bears), and all State forest management employees and its contractors will adhere to food storage and sanitation requirements.

In the SE, the LeClerc BMU is comprised of checkerboard ownership between the Colville National Forest (CNF) and Stimson Lumber Company. Stimson Lumber Company manages approximately 21,000 acres of the land within the LeClerc BMU and has entered into a Conservation Agreement with CNF and the Service to minimize adverse effects to grizzly bears

(USFWS 2001b, pp.53-54). This Agreement requires Stimson and the CNF to leave hiding cover within created openings, along open roads, and within riparian habitats. Stimson is also required to log during the winter in some areas to reduce disturbance and to report logging activities and road entries to the CNF annually. The Service's biological opinion (USFWS 2001b, pp.53-54) on that Agreement included an incidental take statement with terms and conditions providing for no net decrease in Core habitat or an increase in TMRD on affected NFS lands. Within B.C., the West Arm Provincial Park, established in 1995, the adjacent Midge Creek Wildlife Management Area, established in 1998, and other protected areas, have resulted in protected habitat across approximately 24 percent of the B.C. portion of the SE. Grizzly bear also benefit from the NCC's Frog Bear Conservation Corridor project, located at the southern end of Lake Kootenay in the Creston Valley, which provides connectivity for grizzly bears moving between the Selkirk and Purcell Mountains.

Food and Attractant Storage

Food and attractant storage orders and regulations in the Forest Plan require that food, garbage, and other attractants are stored properly so that grizzly bears cannot obtain access to them. This prevents food conditioning of bears, which usually leads to grizzly bear-human conflicts, injuries, or fatalities. In 2011, the IPNF issued a food storage order for the north zone of the forest, which covers NFS lands on the Kaniksu National Forest north of the Clark Fork River, Pend Oreille River and Lake Pend Oreille (BA, p. 18).

Access Management

Motorized access management protects secure habitat, which is important to the survival and reproductive success of grizzly bears, especially adult female grizzly bears (Mattson et al. 1987, pp.18-19; IGBC 1994, p. 1). Grizzly bear habitat security is primarily achieved by managing motorized access which—1) minimizes human interaction and reduces potential grizzly bear mortality risk; 2) minimizes displacement from important habitat; 3) minimizes habituation to humans; and 4) provides habitat where energetic requirements can be met with limited disturbance from humans (Mattson et al. 1987; McLellan and Shackleton 1988; McLellan 1989; Mace and Manley 1993; Mace et al. 1996; Wakkinen and Kasworm 1997).

On the IPNF, habitat protection through motorized access management is primarily achieved by incorporating the Access Amendment into the LRMP. The IPNF LRMP includes standard FW-STD-WL-02 that implements the Access Amendment direction. The Access Amendment direction was developed to: (1) increase the amount of grizzly bear habitat security and reduce motorized route densities to a level that supports the life history needs of a successfully reproducing female grizzly bear, and (2) provide the IPNF some management flexibility to respond to access issues related to administrative and public needs.

In 1998, an IGBC interagency task force examined motorized access management and produced recommendations to standardize definitions and methods (IGBC 1998, pp. 3-5). This report recommended three parameters to include as components of access management that were later incorporated in to the 2011 Access Amendment direction: open motorized route density

(OMRD) and total motorized route density (TMRD), and Core habitat. Access standards were established for each BMU in the SE and CYE (Tables 6 and 7, respectively) based on the IGBC recommendations and local research in the SE and CYE on the availability of Core habitat and moderate road densities in the home ranges of successfully reproducing female grizzly bears.

Table 6. Established standards for Bear Management Units in the Selkirk Recovery Zone, overlapping the Idaho Panhandle and Colville National Forests (IPNF and CNF, respectively) and State of Idaho lands. Orange shaded indicates established standards are worse than the research benchmarks.

Forest Zone	Bear Management Unit	Percent OMRD >1 mi/mi^2	Percent TMRD >2 mi/mi^2	Percent Core Area	Percent Federal Land
	Research Benchmarks	≤ 33	≤ 26	≥ 55	
IPNF	Blue-Grass	33	26	55	96
IPNF	Long-Smith	25	15	67	92
IPNF	Myrtle	33	24	56	85
IPNF	Ball-Trout	20	13	69	94
IPNF	Lakeshore	**82**	**56**	**20**	86
IPNF	Kalispell-Granite	33	26	55	96
IPNF/CNF	Sullivan-Hughes	24	19	61	99
IPNF/CNF	Salmo-Priest	33	26	64	99
CNF	LeClerc[1]	**48**	**60**	**27**	64
State of Idaho	State Lands	N/A	N/A	N/A	N/A

[1] The LeClerc BMU is not part of the Access Amendment direction, but the Colville National Forest manages the BMU for no net increases in motorized access.

In the SE and CYE, the benchmark for the proposed standards was the average levels of motorized access and secure habitat reported by Wakkinen and Kasworm (1997, p. 1) to adequately support a female grizzly bear with cubs:

- On average, 33 percent of a female grizzly bear home range had OMRD greater than 1 mile per square mile.
- On average, 26 percent of a female grizzly bear home range had TMRD greater than 2 miles per square mile.
- On average, 55 percent of a female home range was comprised of Core habitat (i.e., roadless area or areas with barriered roads).

These "research benchmarks" represent the average condition found across the home ranges of six reproductively successful adult female grizzly bears in the SE and CYE. Notably, some grizzly bears reproduced in home ranges with better conditions than the research benchmarks (i.e., lower road density and higher Core habitat) and some home ranges contained poorer conditions. Although the research benchmarks do not translate into definitive thresholds of grizzly bear tolerance, they provide a measurable threshold for determining conditions at which the reproductive capacity of female grizzly bears may be compromised. Based on the research benchmarks, the Service considers that some female grizzly bears are likely to experience

adverse effects to their feeding, breeding, and sheltering needs where BMUs contain greater than 33 percent OMRD, greater than 26 percent TMRD, or where Core habitat is available across less than 55 percent of the BMU.

Table 7. Established standards for Bear Management Units in the Cabinet-Yaak Recovery Zone, overlapping the Idaho Panhandle, Kootenai, and Lolo National Forests (IPNF, KNF, and LNF, respectively). Orange shaded indicates established standards are worse than the research benchmarks.

Forest Zone	Bear Management Unit	Percent OMRD >1 mi/mi^2	Percent TMRD >2 mi/mi^2	Percent Core Area	Percent Federal Land
	Research Benchmarks	≤ 33	≤ 26	≥ 55	
KNF	1 (Cedar)	15	15	80	99
KNF	2 (Snowshoe)	20	18	75	94
KNF	3 (Spar)	33	26	59	95
KNF	4 (Bull)	**36**	26	63	84
KNF	5 (St. Paul)	30	23	60	97
KNF	6 (Wanless)	**34**	**32**	55	85
KNF	7 (Silver Butte)	26	23	63	92
KNF	8 (Vermilion)	32	20	55	93
KNF	9 (Calahan)	33	26	55	90
KNF	10 (Pulpit)	**44**	**34**	**52**	95
KNF	11 (Roderick)	28	26	55	96
KNF	12 (Newton)	**45**	**31**	55	92
KNF	15 (Garver)	33	26	55	94
KNF	16 (EF Yaak)	33	26	55	96
KNF	17 (Big Cr.)	33	26	55	99
KNF/IPNF	13 (Keno)	33	26	59	99+
KNF/IPNF	14 (NW Peak)	31	26	55	99+
IPNF	18 (Boulder)	33	**29**	55	92
IPNF	19 (Grouse)	**59**	**55**	**37**	54
IPNF	20 (North Lightning)	**35**	20	61	94
IPNF	21 (Scotchman)	**34**	26	62	81
LNF	22 (Mt. Headley)	33	**35**	55	89

Past management actions on NFS lands related to motorized access (e.g., timber sales and associated road construction, road maintenance, and watershed improvements through sediment reduction from roads – including road decommissioning) led to the existing wheeled motorized vehicle route system on the landscape. The 2011 Access Amendment established standards for OMRD, TMRD, and Core habitat for most BMUs in the SE and CYE (USFS 2011c, entire).

The Record of Decision on the Access Amendment (USFS 2011a, pp. 9-10) describes that Open Motorized Route Density is calculated using a moving windows analysis (i.e., a spatial analysis

of road density distribution), and includes open roads, meaning roads that are open to public use for some or all of the active bear year, roads not meeting restricted or reclaimed/obliterated criteria, and open motorized trails. We use the term "route" throughout this Opinion to refer to both roads and motorized trails collectively. Open motorized routes do not include gated routes (i.e., routes with gates that are left in place throughout all or a portion of the active bear year) or barriered routes. Barriered routes refers to any route that has an obstruction across the prism meant to permanently prevent motorized access. If a motorized route is gated, but the gate is left opened for all or part of the bear year, the route is included as an open route in OMRD calculations. For more information, including pertinent definitions see IGBC 1998.

Total Motorized Route Density is also calculated using a moving windows analysis, and includes open roads, roads that receive administrative use but are closed to the public (i.e., "restricted roads"), roads not meeting reclaimed/obliterated criteria, and all motorized trails (2011a, pp. 9-10). Routes that receive administrative use but not public use include descriptors such as "restricted," "administrative," or "gated." Restricted roads are "closed" with gates, bollards, or other removable devices to prevent public motorized use, but that can be opened to allow administrative and other authorized motorized uses. Total roads do not include routes referred to as barriered, obliterated, decommissioned, reclaimed, bermed, roads placed into long-term (at least ten years) storage, or routes that include some type of preventative that permanently and effectively prevents motorized use. Total roads include all gated roads unless the gate is accompanied by a separate barrier that effectively prevents motorized access, in which case the road would be considered a "barriered" road. For more information, including pertinent definitions see IGBC 1998.

While OMRD refers to the density of roads, greater than one mile per square mile, that are open to public use for all or part of the bear year, TMRD refers to the density of open roads in addition to restricted roads, greater than two miles per square mile. Restricted roads are closed to public use, and administrative use in the BMUs is limited to 57 total trips per bear year, adjusted across the three non-denning seasons (USFWS 2011a, p. 15). The trip limits imposed on seasonally restricted roads reduce or eliminate potential displacement of grizzly bears (Wakkinen and Kasworm 1999, entire). If the number of administrative use trips per season is exceeded on a particular restricted road, that road is reported as "open" for that year to reflect the potential for grizzly bear displacement. To provide administrative flexibility, OMRD in a BMU may fluctuate from year to year, but must remain below the established standard.

Core habitat refers to areas of secure habitat where grizzly bears can meet their life history needs without human disturbances. Percent Core habitat is the sum of individual "blocks" or polygons of secure habitat that are separated spatially from other blocks of secure habitat with the BMU (USFWS 2011, p. 12). Their distribution and tenure are dependent on the existing transportation system and the history of access management activities within the BMU (e.g. road closures and decommissioning and/or changes from motorized road to non-motorized trail). Core habitat must include high quality habitat, contain the full range of seasonal habitats, and does not include any motorized travel routes or high use non-motorized trails, but may contain impassable, overgrown roads or roads that are barriered with vegetation, forest debris, or some other preventative measure that permanently and effectively prevents motorized use (i.e., not a

gate or other device designed to be opened) (USFWS 2011, p 12). The Forest Service buffers 500 meters on each side from the centerline of each motorized route, and the buffered areas are not included in Core habitat calculations. Once established, Core habitat must remain in place for a minimum of ten years. Any Core habitat losses must be offset with replacement habitat of equal or greater value prior to or concurrent with the loss. Permanent reductions in Core habitat may not be considered until all BMUs (with the exception of LeClerc and State Lands in the SE) meet the standards established by the Access Amendment. The established standards for individual BMUs were developed to provide areas of habitat free from human disturbances (i.e. secure habitat) along with moderately roaded habitat elsewhere with a goal of providing a mix of motorized and non-motorized use at levels that ensure feeding, breeding, and sheltering needs of grizzly bears, including females with cubs, are met. These established standards were determined through consultation between the Service, the involved Forests, and grizzly bear research scientists, and reflect the unique biological features and social factors found within specific BMUs.

The Access Amendment also recognized that some BMUs would be unable to meet the research benchmarks for OMRD, TMRD, and Core habitat because, in BMUs with relatively high density of privately-owned lands, achieving the research-derived benchmarks is not pragmatically possible; therefore, in these BMUs, the Forest Plan established standards were modified from the research benchmarks to what was deemed achievable. To compensate for these "degraded" BMUs, the National Forests established standards in other BMUs that exceed (i.e., provide greater protection) the research benchmarks for OMRD, TMRD, and Core habitat. As a result, although there would remain persistent deficiencies in some BMUs, the research-derived benchmarks could be met at the recovery zone scale (USFWS 2011a, pp. A-79 to A-80).

The Service's 2011 biological opinion on the Access Amendment recognized that the National Forests implementing the direction would be unable to meet the established standards for all BMUs immediately. Consequently, Access Amendment includes an incremental approach so that 33 percent of deficient BMUs would meet their standards within 3 years (2014), 66 percent of deficient BMUs would meet their standards within 5 years (2016), and 100 percent of deficient BMUs would meet their standards within 8 years (2019). The IPNF provides annual reports to the Service that describe the condition of each BMU relative to the Forest Plan standards for OMRD, TMRD, and Core habitat. As described in the BA (pp. 33-34), the IPNF is not yet fully compliant with the Access Amendment direction.

Through the biological opinion on the Access Amendment, which was brought forward into the biological opinion on the Forest Plan in 2013, the Service determined that BMUs that meet the research benchmarks (i.e., they contain moderate road densities and adequate secure habitat) provide grizzly bears sufficient levels of functional habitat to meet their life history requirements (USFWS 2011a, p. A-77). By contrast, some female grizzly bears in BMUs that do not meet the research benchmarks (i.e., BMUs with higher road densities that lack sufficient secure habitat) may suffer impairment of their ability to feed, breed, or shelter that can lead to adverse effects. In BMUs that are unable to meet the research benchmarks due to lack of Federal management authority, adverse effects to some female grizzly bears is expected remain a persistent condition. Male grizzly bears typically have larger home ranges than females, and males, subadults, and

transient bears typically are more mobile and have lower energetic demands than adult females. Therefore, adult male or subadult grizzly bears are not expected to experience adverse effects due to high road densities and lack of secure habitat in these BMUs (USFWS 2013, p. II-101). The Service is unaware of any new science that would replace the Wakkinen and Kasworm research upon which these determinations are based.

Per the Access Amendment direction, the IPNF is required to monitor a minimum of 30 percent of "closure devices" (i.e., gates and barriers) across the IPNF-managed portion of the SE and CYE each year to assure effective implementation of the OMRD parameter. The decision to monitor 30 percent of closure devices was based on past monitoring results, anticipated staff and budgets, and the understanding that at least 90 percent of gates would be monitored in a 3-year period. Monitoring efforts vary each year, but most high visibility gates or routes with repeated breaches are visited three to five times per year to ensure any illegal use is discovered (BA, p. 41). As described in the BA (Table 11, pp. 39-40), the IPNF monitored between 65 and 87 percent of closure devices in the SE and between 49 and 84 percent of closure devices in the CYE, between 2009 and 2019. Ninety-seven percent of closure devices in the SE and 86 percent of closure devices in the CYE were found to be effective in preventing motorized access, and some years reported effectiveness of monitored closure devices was 100 percent. The IPNF assumes that a closure device is effective at preventing motorized use so long as there is a closure device in place and no evidence that unauthorized use has occurred (BA, p. 39). Ineffective closures did not affect Core habitat in the SE, but temporarily decreased the effectiveness of up to 1.4 percent of Core habitat in two BMUs in the CYE.

The IPNF discloses the location of permitted motorized access and route closures to the public in their Motor Vehicle Use Map (MVUM), which are available to the public at district offices, local stores, and on the internet. Motorized travel is legally restricted to designated roads and trails identified on the MVUM, and public motorized use of any route not designated as "open" on the MVUM without Forest Service permission (typically authorized by Special Use Permit) constitutes unauthorized use.

Access management on NFS lands in the SE administered by the CNF is dictated by its 2008 MVUM. This map is the culmination of a Travel Planning process that describes permitted motorized travel on the forest. Motorized travel is legally restricted to designated roads and trails identified on the MVUM. Off-road travel is prohibited except to access a campsite with 300 feet of a designated route. There are few open roads identified on the MVUM in recovery habitat and no motorized trails or areas identified in recovery habitat. The CNF has been educating the public about using the MVUM, and enforcing the travel restrictions on the map. Use of roads in recovery habitat has declined as a result.

Motorized Access in BORZ. The Access Amendment direction incorporated into the LRMP also contains Design Elements for managing motorized access in BORZ but, as previously stated, access management standards in the BORZ are not intended to and do not specifically target grizzly bear recovery. They are intended to maintain the roaded condition in existence at the time when grizzly bears began using the BORZ regularly. The Access Amendment includes Design Elements II-A and II-B that assure no net increase in permanent linear miles of open or

total roads in any BORZ, above the baseline condition, except for situations where the National Forest lack discretion, such as ANILCA claims or identification of RS2477 thoroughfares. This "no net increase" standard offers habitat protection and moderates mortality risk by limiting the miles of road available for human intrusion. As in the recovery zones, open roads refers to roads that are open to public use during all or part of the active bear year (i.e., non-denning seasons), while total roads refers to open roads plus restricted roads. Unlike in the recovery zones, there are no trip limitations on restricted roads in BORZ.

Linear miles of open and total roads are not the same as route densities in BMUs. The baseline for linear miles of total and open roads refers to the known linear miles of open and total roads within each BORZ at the time of delineation. The BA (p. 46) clarifies that the interagency team that described the original roaded condition of BORZ recognized that the baseline may need to be updated as new mapping technology or ground-truthing led to the discovery of additional pre-existing roads. Permanent increases in linear miles of road must be offset with in-kind reductions in road miles in the same BORZ prior to or concurrently with the action that creates the increase. The Access Amendment *does* contain provisions for temporary increases in linear miles of open and total roads to meet land management needs. Although not specifically defined in the Access Amendment, the Service assumed temporary roads could remain on the landscape for up to ten years (USFWS 2011a, p. 8).

Unlike in BMUs, where thresholds of road *density* and Core habitat provide a research-derived benchmark by which to determine adverse effects to grizzly bears, there is no research to demonstrate a threshold at which *linear* miles of road adversely affects grizzly bears. During formal consultation on the Access Amendment, an effort was made to establish a correlation between linear miles of road and the road density standards in BMUs, but no correlation was found. In our biological opinion on the Access Amendment, the Service assumed that grizzly bears in BORZ were likely experiencing adverse effects as a result of the heavily roaded condition of BORZ (USFWS 2011a, p. A-72). Temporary roads, permitted under the Access Amendment may exacerbate the adverse effects that grizzly bears likely experience in BORZ and, according to the BA (p. 7), effects to grizzly bears from temporary roads in BORZ are analyzed at the project-scale. The 2013 biological opinion on the LRMP assumed that, because of the persistent adverse habitat condition of BORZ resulting from high road densities, individual grizzly bears that utilize BORZ tolerate the existing conditions and are, at least in the short term, able to the find resources they need to meet their habitat needs while avoiding human encounters that may result in mortality (USFWS 2013, p. II-57).

The Access Amendment direction in the Forest Plan does not require the IPNF to monitor closure devices in BORZ but monitoring does occur as ad hoc monitoring during project development in BORZ, or through opportunistic discoveries by fire crews, recreation staff, law enforcement patrols, or other agency personnel. According to the BA (p. 48), IPNF personnel are frequent visitors to BORZ, especially during the summer months. Ineffective closure devices are fixed immediately upon discovery if equipment and materials are available; otherwise, they are fixed as soon as possible within the same bear year or within the following bear year (BA, pp. 39, 48). Linear miles of open and total roads affected by unauthorized use in BORZ is reported in the annual report to the Service.

In 2011, the Service issued a biological opinion on the Access Amendment and determined that the direction was not likely to jeopardize the continued existence of grizzly bear. We expect that eventual achievement of the motorized access and security standards in the Access Amendment will create conditions that are conducive to supporting adult female grizzly bear reproduction within the SE and CYE and will afford some habitat protection for grizzly bears in recurring use areas, i.e., BORZ. The Service determined that the Access Amendment would contribute to recovery of the grizzly bear populations in the CYE and SE.

The Access Amendment fulfills one of the two major grizzly bear habitat management needs for federal lands in the CYE and SE (the other being sanitation and attractant management, described below). The continued implementation of the Access Amendment, which incorporates road density and secure habitat standards based on the research by Wakkinen and Kasworm (1997, pp. 6-8), is expected to reduce the potential for both displacement of grizzly bears from key habitat and human-caused mortality on IPNF lands within the recovery zones. Habitat protections are achieved by moderating the miles of motorized routes in grizzly bear habitat and providing large blocks of habitat where motorized use of roads and trails is prohibited.

3.2.2.2 Inadequate Regulatory Mechanisms

The most recent 5-Year Review, published in 2011, identified inadequate regulatory mechanisms that include a lack of food storage orders and institutionalized access management as a threat to grizzly bears. These threats have largely been addressed through the LRMP. Management of grizzly bear habitat in IPNF-administered lands is governed by the existing LRMP (USFS 2015a), which includes several standards and guidelines specific to grizzly bears, including those related to sanitation and connectivity. Per the BA (Appendix C, p. 79), IPNF guidelines are defined as "operational practices and procedures that are applied to project and activity decision making to achieve goals, desired conditions, and objectives. Guidelines can be developed for IPNF-wide application or for specific areas and may be applied to all management activities or selected activities. A project or activity must be consistent with all guidelines applicable to the type of project or activity and its location in the Plan area." Standards are defined as "a limitation or requirement that is applied to project and activity decision making to help achieve goals and objectives. Standards can be developed for Forest-wide application or for specific areas and may be applied to all management activities or selected activities. A project or activity must be consistent with Plan standards."

The Forest Plan standards and guidelines specific to grizzly bears are:

FW-STD-WL-02: The Motorized Access Management within the Selkirk and Cabinet Yaak Grizzly Bear Recovery Zone Management Direction (i.e., the Access Amendment) and Record of Decision is included in the Revised Forest Plan Appendix B, and shall be applied.

FW-STD-WL-03: Permits and operating plans (e.g., special use, grazing, and mining) shall specify sanitation measures to reduce human/wildlife conflicts and mortality by making wildlife attractants (e.g., garbage, food, livestock carcasses) inaccessible through proper storage or disposal. This includes the 1984 Grizzly Bear Management Protection Plan and

the 2011 Food Storage Order, to be included in IPNF contracts and adhered to by all federal employees, contractors or subcontractors.

FW-STD-WL-04: No grooming of snowmobile routes in grizzly core habitat would occur in the spring after April 1 of each year.

FW-GDL-WL-01: Management activities on IPNF lands should avoid/minimize disturbance in areas of predicted denning habitat during spring emergence from April 1 through May 1.

FW-GDL-WL-18: Elements contained in the most recent IGBC Guidelines, or a conservation assessment once a grizzly bear population is delisted, would be applied to all management activities.

Appendix C of the BA also includes a number of Desired Conditions that are not specific to grizzly bear but that pertain to all threatened and endangered species, or would be indirectly beneficial to grizzly bear. The proposed action will not change or modify any of the LRMP standards and guidelines.

3.2.2.3 Human-Caused Mortality

Human-caused mortality is one of the greatest challenges to grizzly bear recovery. Proctor et al. (2017a, p. ii) report that once they are two years old, most bears that occur in areas of moderate human use will eventually be killed by people. Most bears that are killed by people are killed within 500 meters of an open road (Boulanger and Stenhouse 2014, p. 9; McLellan et al. 2015, p. 756), but determining the extent of human-caused mortality can be difficult because up to 50 percent of human-caused mortalities may go unreported (McLellan 1999, p. 916; Kasworm et al. 2019b, p. 33).

Most human-caused grizzly bear mortality occurs in the fall, then the spring, and is lowest in the summer (McLellan et al. 2015, p. 756; Proctor et al. 2017, p. 31; Kasworm et al. 2019a, p. 22; Kasworm et al. 2019b, p. 31). High mortality periods overlap black bear and ungulate hunting seasons, at a time when grizzly are especially vulnerable because of limited resources. During spring and fall, bears are driven by physiologic impulses (i.e., feeding impulses that precede and follow denning). In the spring when bears emerge from dens, they move to lower elevation habitat seeking fresh green forage to put on weight lost during hibernation. Bears have an especially high nutritional demand in the fall as they put on weight in preparation for winter survival and, in low berry years bears may wander into lower elevations seeking gut piles left by hunters or agricultural resources.

Survivability of grizzly bears appears to be related to age and sex, with higher survival rates for adults over subadults and for adult females over adult males (see Mueller et al 2004, p. 45; Boulanger and Stenhouse 2014, p. 9). Adult males are more likely to be targeted by poachers, and may have a greater risk of human encounters and mortality than females because of their larger home ranges. Because of their tendency to wander greater distances and limited experience (i.e., learned avoidance behavior), subadult males may be at greater risk of human

encounters and human-caused mortality. Females with young are less likely to be killed as a result of mistaken identity; therefore, lone females may be at greater risk than reproductive females, especially if low forage production leaves them without young for longer periods of time (McLellan 2015, p. 9). McLellan (2015, p. 749) suggests that females and females with young (cubs or yearlings) tend to have a higher survival rate because they are less willing to wander away from secure areas. By contrast, Boulanger and Stenhouse (2014, p. 9) found greater survival for females without cubs compared to females with cubs or young. Subadult females tend to have higher survival rates than subadult males, but may be more vulnerable if they wander out of the security of their mother's home range during dispersal (Wielgus et al. 1994, p. 271).

Research in Canada found grizzly bear mortality was best predicted by measures of human access, such as road density, distance to roads, highways, and low elevation habitat (Nielson et al. 2004, p. 108; Proctor et al. 2017, p. 31). Similarly, in the U.S., grizzly bear survival in the GYE was best explained by models including human development and open road density, as well as secure habitat (Schwartz et al. 2010a, p. 657). Implementation of motorized access restrictions on NFS lands that has reduced mortality risk and increased the availability of secure cover has undoubtedly contributed to fewer human-caused grizzly bear mortalities over time. This section provides a brief description of human-caused mortality of grizzly bears in the SE and CYE, taken largely from Kasworm et al. 2019a, Kasworm et al 2019b, and W. Kasworm 2019, *in litt.* Mortalities reported for each recovery zone also include all mortalities within a 10-miles radius of the recovery zones, capturing large portions of some BORZ and the entirety of others.

Selkirk Recovery Zone

Maintaining or improving survival by reducing human-caused mortality has been identified as crucial for reducing extinction risk in the SE population of grizzly bears (Proctor et al 2004, p. 156). Between 1980 and 2018, there have been 83 instances of known or probable grizzly bear mortalities inside or within 10 miles, or 16 kilometers (km), of the SE.[3] Of these, 67 were human caused, and 5 were of unknown cause. Most mortalities (62.7 percent) occurred in B.C., but almost 30 percent occurred in Idaho. According to the BA (p. 56), most grizzly bear mortalities in the SE occurred on non-federal lands.

Causes of death have been variable, but some patterns are notable. In the B.C. portion of the SE, since 2000, most known and probable human-caused mortalities have been the result of people protecting their property or the result of management removals. However, in the U.S. portion of the SE, most have been the result of mistaken identity or the cause was unknown. Where the cause was declared unknown but human-caused, the bear either had a bullet wound or the bear was missing, but its cut-off radio collar was found. After reviewing the circumstances of unknown human-caused mortalities across the SE and CYE, most of the unknown human-caused mortalities occurred during spring or fall black bear hunting and most occurred within 250

[3] This number is likely an underestimate of total human-caused mortality because a large number of reported mortalities are discovered because the bear was wearing a radio-collar at the time of death (Kasworm et al. 2019a, p. 7).

meters of an open road. These circumstances suggest the cause of death may be the result of self-defense, but are more likely the result of mistaken identity or poaching/malicious kills.

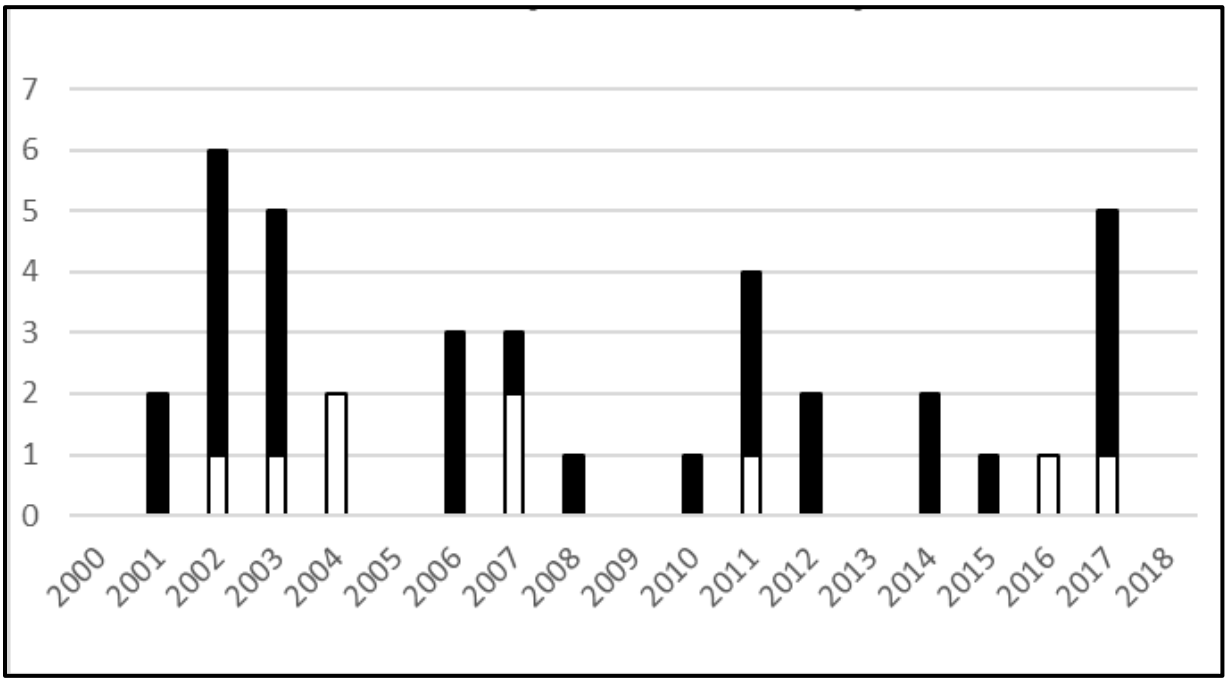

Figure 4. Annual known and probable human-caused grizzly bear mortality in the SE, including both the U.S. (hollow) and B.C. (shaded) portions of the recovery zone. There were no reported instances of human-caused or probable human-caused mortality in 2018 in the SE. (Source: W. Kasworm 2019, in litt.)

In the U.S. portion of the SE, since 2000, most mortalities have been male (1 female:7 male:1 unknown sex) (Figure 4). In the B.C. portion of the SE, during the same time period, more females have been killed than males (14 females:12 males:3 unknown sex). Grizzly bear mortality rates in the SE appear to be decreasing. Comparing the period of 2000 to 2009 and 2010 to 2018, total mortality has decreased from 6 to 3 mortalities in the U.S. portion of the SE, and from 16 to 13 in the B.C. portion of the SE. Female mortality also declined from two mortalities to zero in the U.S. portion of the SE and from 8 to 6 in the B.C. portion of the SE. There were no reported instances of human-caused or probable human-caused mortality in 2018 in the SE. Although mortalities in the Canada portion of the SE remain relatively high in comparison to the U.S. portion, recent research suggests mortalities in South Selkirk Mountains of Canada may be decreasing in response to a comprehensive conflict reduction program (Figure 4; Proctor et al. 2018a, pp. 359-360).

Cabinet-Yaak Recovery Zone

Reducing human-caused mortality has been identified as a primary recovery need for the CYE (USFWS 1993, p. 88). Between 1982 and 2018, there have been 60 instances of known or

probable grizzly bear mortalities inside or within 10 miles (16 km) of the CYE[4] (Kasworm et al. 2019b, p. 31). Of these, 44 were human caused, and 3 were of unknown cause. According to the BA (p. 56), grizzly bear mortality rates are similar between federal and non-federal lands.

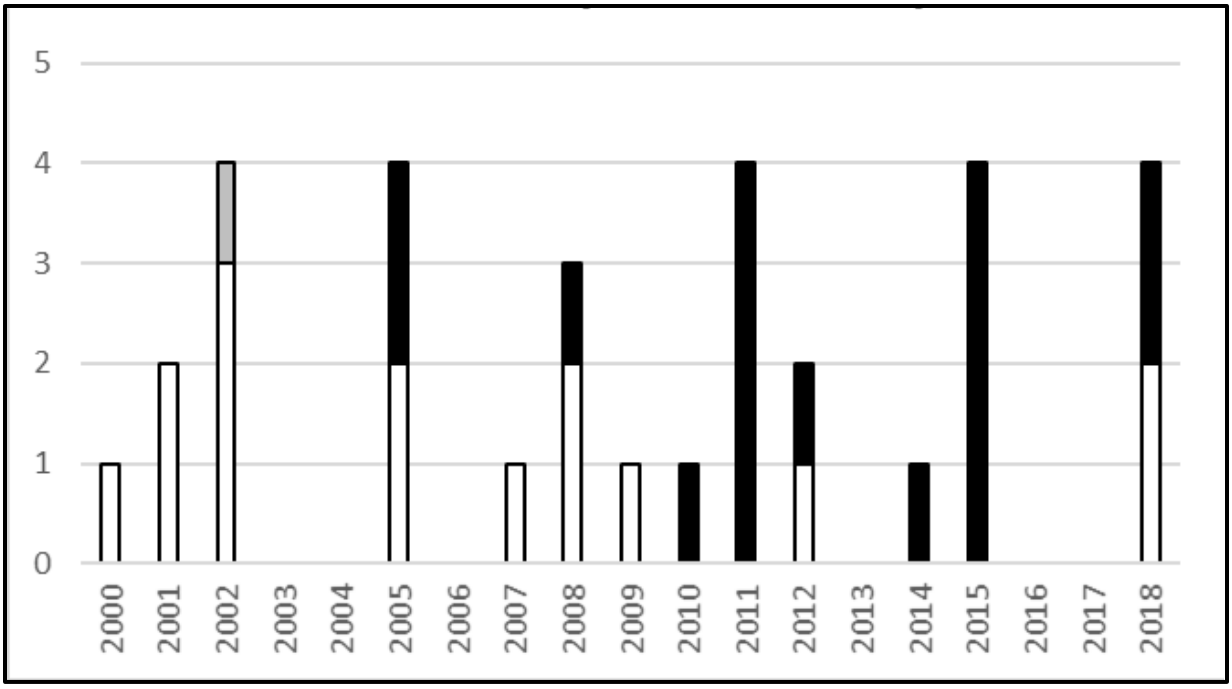

Figure 5. Annual known and probable human-caused grizzly bear mortality in the CYE, comparing male (black) to female (hollow) and including mortalities of bears of unknown sex (gray). (Source: W. Kasworm 2019, in litt.).

Of known causes of death, most were related to mistaken identity, defense of life, or were the result of poaching or malicious kills. Many cases of human-caused mortality in the CYE are of unknown human causes, where the bear had a bullet wound or a cut-off radio collar. After reviewing the circumstances of unknown human-caused mortalities across the SE and CYE, most of these occurred during spring or fall black bear hunting and most occurred within 250 meters of an open road. On NFS lands, Kasworm et al. (2019b, p. 32) report that 18 of 25 (72 percent) of known, human-caused mortalities occurred within 500 meters of an open road. These circumstances suggest the cause of death of may be the result of self-defense, but are more likely the result of mistaken identity or poaching/malicious kills.

Comparing the period of 2000 to 2009 and 2010 to 2018, total mortality rates remain the same, at 16 mortalities for each period. However, female moralities have declined from 12 individuals in the first period to three in the second period (Figure 5). This distinction is important because female grizzly bears drive current and future reproduction and, thus, are a critical factor in the population trend. As previously described, the population trend in the CYE has improved since

[4] This number is likely an underestimate of total human-caused mortality because a large number of reported mortalities are discovered because the bear was wearing a radio-collar at the time of death. Correction factor analysis of unreported mortalities in the CYE suggests up to 47 percent of mortalities go unreported (Kasworm et al. 2019b, p. 33).

2006 and is now stable to increasing at a rate of 1.2 percent annually. A conflict reduction specialist has been engaged in conflict reduction programs in the Montana portion of the CYE since 2009. Prior to 2009, the mortality trend in the CYE had been increasing, but a substantial decrease was detected after 2009. This was accompanied by an increase in the grizzly bear population in 2013 (Proctor et al, 2018a, p. 259; Kasworm et at. 2019b, p. 31). While difficult to statistically measure, effective human-bear conflict response along with education, outreach, and prevention have likely had a positive effect in preventing human-caused bear mortality (Annis and Trimbo 2019, p. 14).

3.2.2.4 Small Population Size

Small isolated populations face increased susceptibility of extinction due to mortality (human-caused and natural), lower population growth rates, and environmental processes (e.g. poor food years, climate change, and habitat loss; Soule 1987, Belovsky et al. 1994, IUCN 2003). Multiple factors can decrease extinction risk for small, fragmented populations. Increasing connectivity increases resiliency, redundancy, representation, and overall probability of persistence of remaining grizzly bear populations in the lower 48 States (Boyce 2000; Proctor et al. 2004; Soule 1987). In addition, small populations benefit from demographic rescue (i.e., the immigration of female bears) and to a lesser degree genetic rescue (i.e., immigration of male bears). Given the relatively short dispersal distances of female grizzly bears, demographic exchange is a much slower process than genetic exchange, requiring females to have sufficient habitat in linkage areas to support long-term persistence.

Both the SE and CYE are considered small populations, each containing less than 100 individuals and, although isolation from neighboring populations had been a concern in recent decades, evidence of connectivity has been documented. To date, eight immigrants to the SE has resulted in successful reproduction by two immigrant males. The genetic diversity of the SE population is slowly increasing, but successful breeding by females is not known to have occurred. Fourteen immigrants to the CYE from the South Purcells, south Selkirks, and NCDE has resulted in successful reproduction of two males and one female immigrant. Currently, small population size in the CYE is being addressed by an on-going augmentation program.

Augmentation

Proctor et al. (2004, entire) evaluated the relative importance of three management strategies—augmentation, mortality reductions, and population interchange—on grizzly bears in the small, fragmented population of grizzly bears in the CYE. They concluded adding female bears to the ecosystem (augmentation) would provide the largest boost to population growth rate over the short-term. The population would benefit most in the long-term from establishing and increasing population interchange and reducing mortality.

An augmentation was initiated in the CYE with the goal of boosting the small population, and to positively affect linkage and connectivity. From 1990 to 1994, the Montana Department of Fish, Wildlife, and Parks (MFWP) captured four female grizzly bears in the Flathead River Valley of British Columbia and released them in the Cabinet Mountains to augment the existing population

in an effort to determine if transplanted bears would remain in the target area and ultimately contribute to the population through reproduction. In 2005, the MFWP again began augmenting the grizzly bears in the Cabinet Mountains, and this program has continued to release individuals into the Cabinet Mountains.

Augmentations and reintroductions of wildlife species typically include an expectation for relatively high mortality of relocated individuals and emigration of relocated individuals from the release area. However, augmentation of grizzly bears into the Cabinet Mountains has met significant success to date. Of 20 bears released through 2018, 6 are known to have left the target area (one was recaptured and brought back and one returned a year after leaving), three were killed within 4 months of release, and one was killed 16 years after release. Despite some mortalities, successful reproduction has been documented. One animal was known to have produced at least 10 first generation offspring, 16 second generation offspring, and one third generation offspring. Another female was known to have produced three offspring and a male was also known to have produced one offspring.

3.2.2.5 Population Fragmentation and Genetic Isolation

Human activities fragmented historically contiguous populations of grizzly bears into the isolated "remnant" populations that we see today (Forman and Alexander 1996, p. 207; Proctor et al. 2012, p. 5; Servheen et al. 2001, p. 164). The genetic data analyzed by Proctor et al. (2012) reflect fragmentation occurring on the landscape in the past (i.e., last 30-60 years), but these data may not reflect current, improved levels of connectivity and recent movement of grizzly bears between areas. In other words, current grizzly bear populations may not be as isolated as the genetic data of this study suggest. Therefore, it is useful to supplement these genetic data with movement data to get a complete picture of current population connectivity.

Decades of isolation from neighboring populations have left the SE population with the lowest genetic diversity of the listed grizzly bear populations (Proctor et al. 2012, p. 12), and connectivity with grizzly bears in B.C. is considered critical to recovery in the SE (Proctor et al. 2012, pp. 31, 35). However, researchers suggests the U.S. portion of the SE is slowly being repopulated by remnant bear populations from the Selkirk Mountains north of Highway 3 in B.C. as grizzly bear habitat conditions improve. This hypothesis is supported by more than three decades of observed southward expansion into the recovery zone by radio-collared grizzly bears (Kasworm et al. 2018, Appendix pp. 29-30). As discussed above, documented bear crossings at Highway 3 in Canada north of the SE (Proctor et al. 2005, p. 2412) and male bears crossing the Kootenai Valley region between the U.S. portion of the SE and CYE, support increased demographic connectivity (Proctor et al 2012, pp. 20-21). To date, successful breeding by immigrant males has resulted in an increase in heterozygosity and number of alleles (Proctor et al. 2018a, p. 363),increasing the genetic diversity of the population. Successful breeding by immigrant females is not known to have occurred.

Potential isolation from grizzly bears in the Canada portion of the greater CYE potentially threatens grizzly bears in the U.S. portion of the ecosystem. Conditions in Canada and along the international boundary currently allow movement of grizzly bears between Canada and

the Yaak portion of the CYE, but grizzly bear habitat is being affected by highways and associated development in Canada. Grizzly bear persistence in the Yaak River region of the CYE is thought to be related more to connectivity with grizzly bear populations in the Canadian Purcell Mountains than with existing habitat quality or mortality patterns (Proctor et al. 2012, p. 27). Proctor et al. (2012, p.31) documented increasing genetic and demographic fragmentation across Canada Highway 3. If allowed to continue, this fragmentation could lead to a loss of connectivity between U.S. and Canadian grizzlies. This is an important concern for the CYE where the population is small, hence maintaining and increasing movements by females (i.e., demographic rescue) is critical to the long-term conservation of these populations.

Population linkage between the Yaak and Cabinet portions of CYE is reduced along Hwy 2 (Proctor et al. 2012, p. 12; Kendall et al. 2016, pp. 320–321). The Yaak population is larger and connected to Canadian populations to the north, making it more genetically diverse than the Cabinet population (Proctor et al. 2012, p. 12; Kendall et al. 2016, pp. 320–321). Based on DNA analysis, only 2 individuals (both males) were detected on both sides of Hwy 2 from 2012 to 2019 (Kendall et al. 2016, p. 325; Kasworm et al. 2020a, in prep.). Grizzly bears in the Cabinet Mountain region persists through successful augmentation program, described above. In total, there are 14 known instances of individual grizzly bears moving into the CYE from the North Purcells, South Selkirks, or NCDE (Kasworm et al. 2019b, p. 30). Of these, eight have been killed or removed. Reproduction has been identified in three immigrants, two males and one female, all immigrants from the NCDE. There have also been four instances of grizzly bears moving from the Selkirk Mountains into the Yaak portion of the CYE (Kasworm et al. 2019b, p. 7).

Population linkage is critical for both the SE and CYE (USFWS 1993, p. 83; USFWS 2011b, p. 88). Although neither the SE or CYE is completely isolated from other grizzly bear populations, they remain at risk in their current status because of their small population size and limited evidence of demographic rescue. One of the key practices to assure overall persistence is to assure long-term connectivity between populations (see USFWS 2011b, p. 86). The recent purchase of the Kootenai Valleys Conservation Easement Project conserves important lands in the Kootenai Valley corridor to maintain connectivity, and the previously described Frog Bear Conservation Corridor project in the B.C. portion of the SE provides connectivity for grizzly bears moving between the Selkirk and Purcell Mountains. The 2011 Access Amendment began prohibiting increases in permanent linear miles of open and total roads beyond the existing miles at the time of BORZ delineation to prevent additional impacts of road densities on grizzly bears between the CYE and SE and between the CYE and NCDE.

Current levels of genetic diversity have not translated into deleterious effects in either the SE or CYE in terms of grizzly bear morphology, physiology, ecology, or biology (USFWS 2020, in prep.). Isolation of the SE and CYE remain a concern because of the small population size, particularly for the CYE, but evidence of increasing movement by both males and females, with some limited reproduction, suggests increasing population connectivity between the SE, CYE, and other grizzly bear populations. Natural connectivity would alleviate potential future genetic concerns, reduce extinction risk due to small population size, and increase resilience to environmental and climate change impacts.

3.2.3 Factors Affecting Species Environment in the Action Area

As discussed under section 3.2.2, "Factors Affecting Species Status in the Action Area," the primary factors affecting the SE and CYE grizzly bear population include incomplete habitat protection measures including motorized access management, inadequate regulatory mechanisms, human-caused mortality, small population size, and population fragmentation that resulted in genetic isolation. This section identifies and describes key areas of IPNF management that affect the grizzly bears' environment. These factors include access management (including motorized over-snow use), habitat management (including vegetation and fire management and linkage), and other factors that include attractant and food storage, information and education programs, livestock management, mining, and recreation. General impacts of these factors will be discussed in more detail in section 3.3, "Effects of the Action" below. We also discuss other factors that may influence the species environment, such as railroads and unauthorized motorized access.

3.2.3.1 Access Management

The existing motorized access conditions were determined using the best available information. The metrics described here are assumed to be an accurate representation of the existing wheeled motorized access conditions, although the Service recognizes that mapping and calculation errors can occur. If the IPNF finds that it has made a mapping or calculation error in describing the existing condition and corrects the metrics, the Service does not expect any additional effects to grizzly bears related to those corrections because there will have been no actual changes to the roaded condition that bears are experiencing. The intent of this section is to describe the existing wheeled motorized access condition and the potential effects to grizzly bears.

Motorized Access in BMUs in the SE

Motorized access conditions have been improving in the SE since the Access Amendment was signed and implemented in 2011 (Table 8). When the Access Amendment direction was consulted on in 2011, three of eight BMUs administered by the IPNF in the SE were out of compliance (BA, pp. 34-35). Since 2011, two BMUs (Sullivan-Hughes and Kalispell-Granite) have been brought into compliance, but one BMU (Long-Smith) fell out of compliance. Since 2009, access management on IPNF-administered lands has improved Core habitat in the IPNF portion of the SE by approximately 5,529 acres, which has increased Core habitat at the recovery zone scale from 60 to 61 percent. Similarly, TMRD in the IPNF-administered portion of the SE has improved from 22 to 21 percent, but OMRD has worsened from 28 to 29 percent. Currently, the SE meets the research benchmarks for OMRD (less than or equal to 33 percent), TMRD (less than or equal to 26 percent), and Core habitat (greater than or equal to 55 percent) at the recovery zone scale.

Table 8. Progression in meeting the established standards in Selkirk Ecosystem Bear Management Units (BMUs) from 2011 to 2019, per annual monitoring (USDA Forest Service 2012-2020). Light green highlighted cells indicate that the standard was met in that year. Source: USFS 2020a, Table 8, pp. 34-35.

Selkirk BMUs	Research Benchmark	Established Standard	2011	2012	2013	2014	2015	2016	2017	2018	2019
Blue Grass											
OMRD[1] %	≤ 33	≤ 33	35	30	32	29	28	30	28	32	30
TMRD[2] %	≤ 26	≤ 26	28	28	28	28	29	29	29	29	29
Core[3] %	≥ 55	≥ 55	50	50	50	50	48	48	48	48	48
Long-Smith											
OMRD %	≤ 33	≤ 25	21	21	21	21	21	21	23	23	24
TMRD %	≤ 26	≤ 15	14	15	15	15	15	15	17	17	16
Core %	≥ 55	≥ 67	73	72	72	72	72	72	71	71	71
Kalispell-Granite											
OMRD %	≤ 33	≤ 33	36	30	30	30	35	30	30	30	33
TMRD %	≤ 26	≤ 26	27	23	23	23	24	23	23	24	24
Core %	≥ 55	≥ 55	52	55	55	55	55	55	55	55	55
Salmo-Priest											
OMRD %	≤ 33	≤ 33	30	30	31	30	30	30	29	27	27
TMRD %	≤ 26	≤ 26	24	24	24	24	23	23	23	23	23
Core %	≥ 55	≥ 64	67	67	66	67	68	68	68	68	68
Sullivian-Hughes											
OMRD %	≤ 33	≤ 24	25	24	23	23	27	24	29	23	23
TMRD %	≤ 26	≤ 19	19	19	19	19	19	19	20	18	18
Core %	≥ 55	≥ 61	63	64	64	64	62	62	60	63	63
Myrtle											
OMRD %	≤ 33	≤ 33	30	30	29	30	30	30	30	32	32
TMRD %	≤ 26	≤ 24	20	20	20	21	22	23	22	22	23
Core %	≥ 55	≥ 56	60	60	60	60	60	59	59	59	58
Ball-Trout											
OMRD %	≤ 33	≤ 20	18	18	16	16	16	16	16	16	16
TMRD %	≤ 26	≤ 13	11	11	11	11	11	11	11	11	11
Core %	≥ 55	≥ 69	72	72	72	72	72	72	72	72	72
Lakeshore											
OMRD %	≤ 33	≤ 82	81	80	80	80	80	80	80	80	80
TMRD %	≤ 26	≤ 56	50	44	44	44	44	44	44	44	44
Core %	≥ 55	≥ 20	21	22	22	22	22	22	22	22	22
Le Clerc[4]											
OMRD %	≤ 33	≤ 48	46	42	45	45	48	45	45	41	44
TMRD %	≤ 26	≤ 60	58	58	58	58	59	58	57	56	56
Core %	≥ 55	≥ 27	27	27	27	27	26	27	27	27	27

[1] OMRD refers to the percentage of a BMU containing open motorized route density greater than 1 mile per square mile. Open motorized route refer to routes open to public motorized use for all or a portion of the active (i.e., non-denning) bear year.
[2] TMRD refers to the percentage of a BMU containing total motorized route density greater than 2 miles per square mile. Total routes include all routes in the OMRD calculation plus restricted motorized routes.
[3] CORE refers to Core Habitat, or areas of secure habitat within a BMU that contain no motorized roads or high use non-motorized trails during the active bear year and are more than 0.31 miles (500 meters) from a drivable route.
[4] Le Clerc information is included, but is under the management of the Colville National Forest and was not included in the 2011 Access Amendment direction consultation.

The IPNF previously estimated that all IPNF-managed BMUs in the SE would be brought into compliance by 2019, and the Service issued a biological opinion and ITS based on the estimation. However, as described in the BA, the IPNF has faced challenges meeting the estimated time frame and attaining full compliance[5] in two of those BMUs, the Blue-Grass and Long-Smith BMUs. The IPNF has a signed decision for the Bog Creek Road Project that will bring the Blue-Grass BMU into compliance with all established standards by the end of 2023; we provided a biological opinion regarding that project in 2019 (USFWS 2019). The Long-Smith BMU fell out of compliance due to road construction on private land in 2017. Despite the increase in TMRD, the Long-Smith BMU still exceeds the research benchmarks that support successful female reproduction for all parameters; however, road densities exceed the established standard that was intended to compensate for persistent suboptimal conditions in nearby BMUs in the SE where the established standard is unable to meet the research benchmarks.

Motorized Access in BMUs in the CYE

As in the SE, motorized access conditions have been improving in the CYE since the Access Amendment was implemented in 2011 (Table 9). In 2011, all four of the BMUs administered entirely by the IPNF in the CYE were out of compliance with the Access Amendment direction, as well as eight BMUs administered by the KNF and the Mt. Headley BMU administered by the Lolo National Forest (LNF). Since then, two BMUs within the IPNF (Lightning and Scotchman) have been brought into compliance, which has added approximately 2,143 acres of Core habitat, increasing Core habitat from 52 to 53 percent at the recovery zone scale (USFS 2020a, p. 36). As a result, OMRD across the CYE has decreased (improved) from 42 to 40 percent and TMRD has decreased (improved) from 35 to 34 percent.

Table 9. Progression in meeting the established standards in Cabinet-Yaak Ecosystem Bear Management Units (BMUs) managed by the Idaho Panhandle National Forest, from 2011 to 2019, per annual monitoring (USDA Forest Service 2012-2020). Light green highlighted cells indicate that the standard was met in that year. Source: USFS 2020a, Table 8, pp. 34-35.

Cabinet-Yaak BMUs	Research Benchmark	Established Standard	2011	2012	2013	2014	2015	2016	2017	2018	2019
18-Boulder											
OMRD[1] %	≤ 33	≤ 33	34	32	31	32	34	29	31	32	32
TMRD[2] %	≤ 26	≤ 29	35	32	32	32	31	31	29	31	31
Core[3] %	≥ 55	≥ 55	49	51	51	51	52	52	52	52	52
19-Grouse											
OMRD %	≤ 33	≤ 59	60	60	59	59	60	60	61	64	64
TMRD %	≤ 26	≤ 55	59	59	59	59	58	59	59	61	61
Core %	≥ 55	≥ 37	32[1]	31	32	31	32	32	32	30	30
20-N. Lightning											
OMRD %	≤ 33	≤ 35	35	36	36	36	37	37	36	35	35
TMRD %	≤ 26	≤ 20	19	20	20	20	19	19	19	18	18

[5] Compliance refers to conditions on-the-ground. The Service recognizes that projects may not occur immediately following a signed IPNF decision, and the project may not be completed for several years. However, in relating access management conditions to effects to grizzly bears, compliance indicates that a project is complete and all established access standards have been fully achieved on the landscape.

Cabinet-Yaak BMUs	Research Benchmark	Established Standard	2011	2012	2013	2014	2015	2016	2017	2018	2019
Core %	≥ 55	≥ 61	64	63	63	63	63	63	63	64	64
21-Scotchman											
OMRD %	≤ 33	≤ 34	37	33	33	34	34	34	34	33	34
TMRD %	≤ 26	≤ 26	27	25	24	25	25	25	25	24	24
Core %	≥ 55	≥ 62	63	67	67	67	67	67	67	65	65

[1] OMRD refers to the percentage of a BMU containing open motorized route density greater than 1 mile per square mile. Open motorized route refer to routes open to public motorized use for all or a portion of the active (i.e., non-denning) bear year.
[2] TMRD refers to the percentage of a BMU containing total motorized route density greater than 2 miles per square mile. Total routes include all routes in the OMRD calculation plus restricted motorized routes.
[3] CORE refers to Core Habitat, or areas of secure habitat within a BMU that contain no motorized roads or high use non-motorized trails during the active bear year and are more than 0.31 miles (500 meters) from a drivable route.

Currently, the IPNF-administered portion of the CYE does not meet the research benchmarks for OMRD (less than or equal to 33 percent), TMRD (less than or equal to 26 percent), or Core habitat (greater than or equal to 55 percent). However, habitat conditions have improved on the KNF portion of the CYE (USFS 2020c, p. 33), increasing Core habitat by more than 7,000 acres between 2009 and 2019, which translates to an increase from 59 to 60 percent Core habitat in the KNF portion of the CYE. The corresponding OMRD across the KNF stayed the same at 30 percent while TMRD decreased (improved) from 25 to 24 percent for the same time period.

At the time of this consultation, two BMUs on the IPNF, the Grouse and Boulder BMUs, four BMUs on the KNF, St. Paul, Wanless, Bull, and Vermillion, and the Mt. Headley BMU on the LNF, remain out of compliance with one or more of the established standards. The IPNF has signed decision for the Grouse BMU Compliance Project to bring the Grouse BMUs into compliance with the established standards by the end of 2023 (USFWS 2018a), and a signed decision for the Boulder Creek Restoration Project to bring the Boulder BMU into compliance by the end of 2028 (USFWS 2018b). In addition, the IPNF is in progress on two projects that are affecting the current condition of one or more standards in the Grouse and Boulder BMUs, and one project that is temporarily affecting the current condition of OMRD in the Keno BMU, a BMU shared with the KNF. Effects to grizzly bear from the project in the Keno BMU have been addressed through prior consultation. The KNF also has signed decisions to bring two of four BMUs into compliance, but implementation has been delayed pending resolution of ongoing litigation. The KNF is in early stages of planning to bring a third BMU into compliance and one BMU is out of compliance as a result of database corrections.

Due to the fact that the IPNF has not yet brought all BMUs under its jurisdiction into compliance with the Access Amendment direction, habitat conditions in some BMUs in the IPNF portion of the SE and CYE do not meet research benchmarks for road density and secure habitat found, on average, within the home ranges of successfully-reproductive female grizzly bears.

Motorized Access in BORZ

The Grizzly Bear Recovery Plan acknowledges that grizzly bears can and do exist outside of recovery zones, and may even have home ranges that lie entirely outside of recovery zones.

Recognizing that federal actions may affect grizzly bears in these areas led to the delineation of BORZ, as described in the *Status of the Species in the Action Area* section above. The Access Amendment recognized that grizzly bears likely experience adverse effects as a result of the existing highly-roaded condition of BORZ (USFWS 2011a, p. A-72). The National Forests conserve grizzly bear habitat and moderate mortality risk on NFS lands in BORZ through prohibitions on permanent increases in linear miles of open and total roads above the baseline condition in existence at the time the BORZ was delineated, except in cases where the National Forest lacks discretion to preclude permanent roads, such as ANILCA claims or identification of RS2477 thoroughfares. The ITS accompanying the biological opinion on the Access Amendment, later incorporated into the biological opinion on the LRMP, exempted the incidental take associated with the baseline condition using the existing (i.e., 2010) linear miles of open and total road[6] as a habitat surrogate.

The reported linear miles of open and total roads in BORZ managed by the IPNF have changed since the Access Amendment was implemented. The detailed histories are described in annual monitoring reports, summarized in the BA (pp. 42-43), and are briefly described below.

Corrections

Some updates to the linear miles of open and total roads have been the result of *corrections* to the baseline. During the early BORZ mapping exercises, the Forest Service recognized that the maps would need to be revisited and updated periodically as additional, pre-existing roads were discovered through project ground-truthing or as mapping technologies improved (BA, p. 46). Since 2010, the IPNF has discovered additional, pre-existing roads in the Priest Lake and Pack River BORZ. In addition, the IPNF inadvertently omitted pre-existing motorized trails from their baseline calculations. The additional mileage from these pre-existing roads and trails (collectively "routes"), which do *not* represent any actual changes in motorized routes on the landscape, have been added to the baseline condition (BA, p. 47).

Expansions

Each year, the Service meets with the National Forests that manage the SE and CYE to review grizzly bear occurrence in areas outside of the recovery zones to determine whether recurring grizzly bear use warrants the delineation of additional BORZ areas (Allen 2011, entire), or BORZ *expansions*. Delineating new areas as BORZ may result in the new areas being added to existing BORZ or entirely new BORZ could be created. The decision to add recurring use areas to existing BORZ or create new, separate BORZ is made during the annual review. As a result of past reviews, additional areas were added to the Mission-Moyie BORZ in 2016, and to the Mission-Moyie and Pack River BORZ in 2019. Thus, the baseline miles of open and total roads within BORZ *expansions* were added to the baseline condition. For more information on the delineation process, see Allen 2011.

[6] Open and total roads are defined the same whether they occur in BORZ or BMUs.

Exceptions

In some cases, miles of open or total roads have been increased, reflecting actual changes on the ground, due to new ANILCA claims that provide motorized access to private inholding through NFS lands. These increases are permitted under Design elements II-A and II-B and have been reported in the baseline condition, and are shown in Table 10.

Table 10. Environmental baseline of permanent[1] wheeled motorized access[2] in the BORZ as of 2019. All miles are rounded to the nearest tenth of a mile. Source: Modified from BA, Table 19, p. 49 and additional information received by the IPNF on July 10, 2020 (on file).

Bears Outside Recovery Zone	Grizzly Bear Recovery Zone	Total Size, all ownership (Acres)	NFS Lands				
			Total Area (Acres)	Total Routes (Miles)	Open Routes (Miles)	Secure Habitat (Acres)	Secure Habitat (Percent)
Priest Lake	Selkirk	80,733	75,793	**340.0**	**337.4**	**11,671**	**15.4**
Pack River Combined	Selkirk	36,013	30,747	**63.7**	**58.0**	**13,546**	**37.6**
Mission-Moyie Combined	Cabinet - Yaak	107,517	90,806	**367.7**	**335.3**	**12,370**	**13.6**

[1] The Bear Year 2019 Monitoring Report (USFS 2020b, p. 17) displays the current condition, as of 2019, in each BORZ, including temporary changes to open and total routes as a result of projects that have undergone project-specific Section 7 consultation. We acknowledge these temporary conditions, but are defining the Environmental Baseline at this time based on the *permanent* condition within the BORZ, as shown in this table.
[2] Includes linear miles of permanent open and total roads and motorized trails as of 2019.

The prohibition on increases in linear miles of open or total roads applies to permanent changes, not to temporary changes, but temporary changes in linear miles of open and total roads have occurred. The IPNF has reported increases in road miles from temporary roads associated with IPNF projects that have already undergone section 7 consultation, such as the Hanna Flats project (USFS 2020a, pp. 42-43), which is expected to be completed in 2030. Temporary increases in open and total road miles in BORZ are permitted under the access Amendment under certain conditions (Appendix A, Design Elements II-A-1, II-B-1, II-B-2, and II-B-3) and are reported in the annual monitoring reports to the Service. The IPNF has also historically reported in their annual monitoring report any temporary increases in linear miles of roads associated with unauthorized motorized use that the IPNF has either addressed or plans to address within the same year or following bear year. The Service, however, does not consider illegal routes as part of the baseline condition of BORZ because they do not represent actions authorized, funded, or carried out by the IPNF.

Through the BA (p. 48), the IPNF provided an updated, 2019 baseline condition of each BORZ managed by the IPNF, reflecting the *permanent* linear miles of open and total roads that includes

corrections, expansions, and *exceptions* since 2010. The IPNF also reported miles of railroads and motorized trails in BORZ, as these were previously unreported (USFS 2020a, Table 17 p. 47), but railroads are not included in the motorized access conditions of the Access Amendment direction and have been removed for the purposes of this programmatic Opinion. The Service also requested the IPNF report the amount of secure habitat for each BORZ, as described in section 3.3.1.2 "Effects of Wheeled Motorized Access to Grizzly Bear in the Action Area " and provided in Appendix B. The 2019 baseline condition (Table 10) will be the basis for evaluating any new projects in BORZ under the LRMP. As described in the proposed action, we expect that the IPNF will continue to delineate additional expansions to BORZ in the future as grizzly bears expand their distribution.

Motorized Over-Snow Use

Winter recreation, particularly motorized over-snow recreation (i.e., motorized use by snowmobiles or other motorized winter vehicle), may reduce the amount of denning habitat available to grizzly bears or disturb grizzly bears already in their dens. Den abandonment due to snowmobiling has not been documented, but there is no seasonal end date for winter over-snow use, so over-snow recreation may continue as long as snow persists, including beyond the typical time of grizzly bear den emergence. Disturbances from motorized winter recreation shortly after den emergence may be a particular concern for females and their cubs because reproductive grizzly bears often remain near their dens longer than other cohorts. In addition, parturient females have high energetic needs and cubs have limited mobility during this time. Disturbance levels that cause female grizzly bears to leave the den site early may impair the fitness of the female and because the cubs would follow the sow, may impair the safety and fitness of the cub.

Grizzly bear den entry in the SE ranges from the first week of October to the second week in December (median entry during 1st week of November), which is one and three weeks earlier than in the Cabinet Mountains and Yaak River drainage, respectively (Kasworm et al. 2019a, p. 31; Kasworm et al. 2019b, pp. 46-47). Males generally entered their dens one week earlier than females. By December 1, 96 percent of grizzly bear in the SE had entered their dens, compared to 37 percent of grizzly bears in the Cabinet Mountains and Yaak River drainage.

Most of the data on den emergence in the SE is from female grizzly bears, and sample sizes are small, but some information is available. Den emergence in the SE ranges from the third week of March to the second week of May (Kasworm et al. 2019a, p. 32). Den emergence in the CYE is similar to the SE, but ranges from the first week of March to the third week of May with 95 percent of bears out of their dens by the second week of May (Kasworm et al. 2019b, pp. 47-48). Males tend to exit their dens earlier than females. By May 1, fourteen percent of grizzly bears in the CYE were still in their dens, and more than half of which were females with cubs-of-the-year (Kasworm et al. 2019b, p. 47). Females with cubs appear to exit dens later than other adult females.

Snowmobiling is permitted on 79 percent of the SE and 87 percent of the CYE (BA, pp. 53-54). The IPNF-managed portion of the SE include 14 miles of groomed routes overlapping approximately 118,200 acres of modeled grizzly bear denning habitat and off-route use is permitted on approximately 7,440 acres in the IPNF-managed portion of the SE. Both on- and off-route snowmobiling occurs on approximately six percent of modeled denning habitat on the IPNF-managed portion of the SE. There are 26 miles of groomed routes overlapping

approximately 74,750 acres of modeled grizzly bear denning habitat and off-route use is permitted on approximately 14,250 acres within the IPNF-managed portion of the CYE. Both on- and off-route snowmobiling occurs on approximately nineteen percent of the modeled denning habitat in the IPNF-managed portion of the CYE. Public motorized over-snow use is also facilitated by 71.3 miles of combined groomed and ungroomed routes in the Priest BORZ. Similarly, the Pack River BORZ contains 30.9 miles of combined groomed and ungroomed routes. The Mission-Moyie BORZ contains 21.4 miles of groomed routes. The extent of overlap between motorized over-snow use and grizzly bear denning habitat is uncertain because denning habitat has not been modeled in BORZ.

The LRMP includes standard FW-STD-WL-04, which precludes grooming of snowmobile routes in grizzly Core habitat in the spring after April 1 of each year. Motorized winter recreation is also limited in the SE by an existing court-ordered closure put in place in 2007 to protect southern Selkirk Mountain woodland caribou (see *Defenders of Wildlife v Martin*, 454 F.Supp.2d 1085 (E.D. Wash 2006), and 2007 WL 641439). Due to the closure, most of the SE portion of action area is closed to snowmobiling except on designated trails. The IPNF does not permit off-trail snowmobiling in these areas. The court-ordered over-snow closure will remain in-place until the IPNF completes the winter travel plan and the court removes the injunction.

3.2.3.2 Habitat Management

Habitat Quality

Grizzly bear use within the SE and CYE is supported by the availability of high quality forage and denning habitat, and use of areas outside of the recovery zones requires seasonal habitat availability to support continued use. Proctor and Kasworm (2017) developed a fine-scale models of sex- and season - specific habitat use for grizzly bears in the SE and CYE. Although the Proctor and Kasworm model seasons differ slightly from the Forest Plan identified grizzly bear seasons, the models still provides a useful tool in predicting bear use of seasonal habitat.

Seasonal habitat selection for female grizzly bears is driven by the quality of forage habitat and existing road densities. Model predictors of high grizzly bear seasonal habitat use include a greater prevalence of canopy openness (a predictor of huckleberry patches, the preferred forage for grizzly bears in the SE), higher levels of greenness (an index of green leafy productivity), and lower road density (Proctor and Kasworm 2017). According to the model, the SE and CYE contains a full suite of seasonal habitats (i.e., spring, summer, and fall forage) distributed across the recovery zones, and is available at varying quantities in BORZ. Habitat suitability varies across the recovery zones and from season to season (Appendix C).

At the time the Forest Service consulted on the Access Amendment, it was generally believed that spring habitats are not as abundant or widely distributed and available to grizzly bears as are habitats providing summer and fall foraging opportunities. For this reason, it was particularly important to ensure that spring habitats are, to the extent possible, proportionally represented within areas of Core habitat. The Proctor and Kasworm seasonal habitat model confirms this assumption, showing that spring habitat is less prevalent across BMUs and BORZ than summer or fall habitat. Spring habitats are distributed throughout the recovery zones, but they are not

well represented proportionally because they generally occur in low-lying valley areas within proximity to human developments and activities; therefore, they are often unavailable to grizzly bears. Outside of Core habitat, the Access Amendment moderates motorized traffic on restricted roads, which increases the availability of spring habitat in many areas by reducing avoidance behavior or displacement potential.

In the SE, spring habitat in BMUs range from 24 percent to 48 percent, summer habitat ranges from 18 percent to 64 percent, and fall habitat ranges from 43 percent in to 67 percent. Seasonal habitat in the B.C. portion of the recovery zone has similar quantities of high and very high quality spring and summer habitat. The U.S. portion appears to have a higher quantity of high and very high quality fall habitat likely due to the large Trapper Peak burn area providing huckleberries, the most important food source for grizzly bears in the SE, but seasonal fall habitat is not analogous to huckleberry availability.

Spring habitat in BMUs of the CYE range from 21 percent 55 percent, summer habitat ranges from 22 percent to 70 percent, and fall habitat ranges from 28 percent to 56 percent. In general, BMUs in the Yaak portion (i.e., to the north) of the recovery zone contain more high and very high quality habitat than the Cabinet portion of the recovery zone. The Yaak portion of the recovery zone also has more BMUs with grizzly bear occupancy than the Cabinet portion with seven of eight BMUs occupied in the Yaak compared to three of 13 in the Cabinet. The seasonal habitat model had little overlap with the Mount Headley BMU, so data for this BMU was omitted.

As in the recovery zones, the quantity of seasonal habitat varies between BORZ (Appendix C). The Pack River BORZ adjacent the SE contains the highest percentage of quality spring and fall habitat while the Priest River BORZ contains the highest percentage of quality summer habitat. There are lower amounts of high and very high quality seasonal habitat in BORZ adjacent the CYE, compared to BORZ adjacent the SE. The southern-most BORZ (Cabinet Face and Clark Fork on the KNF) contain less quality habitat than BORZ to the north. The amount of high and very high quality seasonal habitat in BORZ are similar to the SE and CYE. However, due to the highly roaded nature of BORZ, compared to the recovery zones where motorized access limits road density, grizzly bears may find fewer opportunities to take advantage of suitable habitat.

Vegetation Harvest and Fuels Management

Timber harvest occurs across 76 percent (291,066 acres) of NFS lands in the SE and 87 percent (217,146 acres) of NSF lands across the CYE. Acres available for timber production (timber stands with planned, scheduled entries for the purpose of generating commercial timber products) in the SE and CYE has been reduced to zero under the 2015 LRMP (USFWS 2013, pp. II-67). Timber harvest is allowable across the entirety of the combined (i.e., the original 2011 BORZ, plus all expanded areas) Mission-Moyie BORZ (29,646 acres), and on 71 percent (29,646 acres) of the 2020 combined Pack River BORZ.

Timber harvest may affect grizzly bear habitat by altering forage availability, proximity to escape cover, or temporarily shifting grizzly bears into less secure areas. Timber harvest often

includes some level of road construction or reconstruction, increases human access into grizzly bear habitat, displaces grizzly bears, at least temporarily, from key habitats, and increases the risk of human-caused mortality. Where intensive helicopter logging occurs, displacement may lead to adverse effects to their feeding, breeding, and sheltering behavior. As recently as 2015, helicopter logging accounted for less than 10 percent of timber harvest on the IPNF (USFWS 2013, p. II-70).

The Access Amendment indirectly limits the amount of grizzly bear habitat in BMUs affected by timber harvest activities during the active bear year that generate noise and other disturbance by limiting the miles of road available for these activities. Large blocks of Core habitat and other Management Area designations that limit timber harvest provide opportunities for grizzly bears to avoid timber harvest and their associated disturbance. The Access Amendment restrictions on permanent increases in linear miles of roads and the requirement to schedule harvests occurring across multiple BORZ watersheds to provide opportunities for avoiding these disturbances while meeting their life history needs also reduces potential effects to grizzly bears.

Fuels management is allowable across most of the SE and CYE, i.e., 379,895 acres of the SE and 245,845 acres of the CYE. The effects to grizzly bears from prescribed fire would be similar to that of timber harvest, causing disturbance and displacement as a result of increased human activity, temporary camps, and associated motorized access. The Access Amendment reduces the level of disturbance from these activities and provides grizzly bears opportunities for avoidance by providing blocks of Core habitat. However, large opening created by fires could cause adverse effects to grizzly bears by reducing habitat availability, but prescribed fire occurs on less than one percent of the total acreage in BMUs on the IPNF (USFWS 2013, p. II- 71). In addition, the Food Storage Order across the SE, CYE, and BORZ minimizes the risk of attracting bears to crew camps, reducing the potential for human-grizzly conflict.

Fuels reduction treatments may remove cover in the Wildlife Urban Interface (WUI); however, this type of activity generally occurs near residential areas where grizzly bear occurrence is discouraged. Removing hiding cover and foraging opportunities may reduce the risk of grizzly bear becoming attracted to human use areas or coming into conflict situations.

Linkage

Generally, habitat conditions on NFS lands within linkage zones currently contribute to connectivity and linkage within the SE and CYE population and between the recovery zones. Highways, railroads, and private land uses contribute to fragmentation and increase the risk of isolation. Augmentation in the Cabinet Mountains moderates the effects of isolation in the CYE. The 2011 access amendment began limiting new road construction in the BORZ and limiting linear miles of road to no more than the existing baseline open and total permanent roads to prevent additional impacts of road densities on grizzly bears between the CYE and NCDE and between the CYE and SE. The previously mentioned Frog Bear Conservation Corridor project at the southern end of Lake Kootenay in the Creston Valley provides connectivity for grizzly bears moving between the Selkirk and Purcell Mountains, and the Kootenai Valleys Conservation Easement Project conserves important lands in the corridor that

will contribute to maintaining or promoting connectivity between the CYE and NCDE. A positive development has been grizzly bears, including females with cubs, being documented in the Tobacco BORZ over the past several years, but movement between the SE and CYE by females remains very low.

3.2.3.3 Other Factors

Sanitation and Attractants (Food Storage Order) and Information and Education Programs

Attraction of grizzly bears to improperly stored food and garbage is identified as one of the principal causes of grizzly bear mortality, especially on private lands. Information and education, as well as food storage programs can reduce human-bear conflicts contributing to grizzly bear mortality (USFWS 2011b, p. 106). The IPNF and cooperating agencies (including Idaho Department of Fish and Game, Idaho Department of Lands) maintain and financially support a regular program of public information and education within the SE and CYE recovery zones (USFS 2013a, p. 73).

There has been a concerted effort to improve sanitation on NFS lands throughout the ecosystem, with many campgrounds retrofitted or scheduled to be retrofitted with bear resistant garbage and/or food storage containers to reduce encounters and the potential for habituation. The IPNF has installed approximately 42 bear resistant containers and 5 food storage poles since 2007 in campgrounds and dispersed sites throughout the IPNF portion of the SE and CYE (BA, p. 16).

On September 29, 2011, the IPNF implemented a mandatory food storage order (FSO) to assist in minimizing this impact. The FSO covers all of the Priest Lake and Bonners Ferry Ranger Districts and most of the Sandpoint Ranger District. According to the BA (p. 19), other National Forest that overlap the SE and CYE have had similar FSOs implemented as early as 1989. Additionally, all contracts, operating plans, and special use permits, including resort and recreation residence special use permits renewals, in-or-near the recovery zones boundaries include sanitation guidelines. Livestock grazing permits generally include special provisions for proper storage of attractants, proper disposal of carcasses, and annual monitoring of allotments to verify compliance with sanitation and attractant guidelines. Disposal of carcasses is emphasized to reduce the risk of grizzly bear conflicts. To date, there have been no grizzly bear deaths associated with food attractants on NFS lands in the SE or CYE (D. Probasco 2020, pers. comm.).

Livestock Management

Conflicts between grizzly bear and sheep are well documented, as are conflicts with cattle, only to a lesser extent. Consequences to grizzly bears from livestock depredation include grizzly bear deaths (i.e., defense of property) or management removals. There are two cattle grazing allotments covering 14,328 acres of grizzly bear habitat situated in two BMUs within the SE portion of the action area. Portions of two additional cattle grazing allotments (approximately 3,930 acres) are situated in the Priest River BORZ within the action area. There are no sheep

allotments. There are no allotments on NFS lands in the IPNF-managed portion of the CYE. Livestock grazing permits generally include special provisions for proper storage of attractants and proper disposal of carcasses, and annual monitoring of allotments verifies compliance with sanitation and attractant guidelines. Disposal of carcasses is emphasized to reduce the risk of grizzly bear conflicts. To date, there have been no grizzly bear/livestock conflicts associated with livestock use of NFS lands in the IPNF.

Mining

There are no major mining operations on the IPNF at this time, and there has been no large increase in the Minerals and Geology program since the biological opinion on the LRMP was signed. There are fewer Plans of Operations for locatable minerals at this time than were reported in the biological opinion on the LRMP; there are currently 30 approved plans of operations, and about 35 Notices of Intent submitted annually. There is one Plan of Operation in the North Lightning BMU, but it is currently not active. The majority of on-going activities are related to maintenance of existing facilities and most locatable mineral operations are less than five acres in size. There are no oil or gas leases within the IPNF.

There are approximately 434 active mineral material pits (i.e., sand, rock, or gravel quarries) within the IPNF; 62 are in BMUs and 24 at in either the Priest or Mission-Moyie BORZ. Pits are generally between less than one to five acres in size.

As described in the biological opinion on the LRMP, there are limited existing effects on grizzly bears from material mining operations on the IPNF and effects are similar to those related to roads since most sites are adjacent to access routes (L. Allen 08/21/2013 pers. comm., as cited in USFWS 2013, p. II-50).

Recreation

Motorized routes facilitate human access onto IPNF lands and contributes to the risk of human-caused mortality or habitat loss (through avoidance or displacement) to individual grizzly bears (IGBC 1998, p. 1; Mace et al. 1996, p. 1403; Proctor et al. 2017, pp. 31-38; Proctor et al. 2018b, pp. 4-7). Many visitors to the IPNF remain on or fairly close to motorized access routes according to the LRMP Draft EIS analysis for the 2015 LRMP (USFS 2011b, pp. 213, 265). Therefore, access management reduces the potential for human-caused grizzly bear mortality and habitat loss on the IPNF by moderating the miles of road in grizzly bear habitat and providing large blocks of habitat where motorized use of roads and trails is prohibited. Non-motorized recreation may disturb or displace grizzly bears from preferred habitat. In the SE and CYE high-use trails are buffered in the same manner as roads, and the buffered areas are not included in measures of secure habitat. As described in the 2013 biological opinion on the LRMP, non-motorized recreational use such as hiking on trails do not appear to result in conflicts leading to mortality of grizzly bears. Non-motorized activities such as hunting introduce the potential for intentional (self-defense, poaching or malicious kills, or defense-of-kill) or unintentional (mistaken identity) shootings. Most grizzly bear deaths in the CYE and SE that occur on the

IPNF are hunting related or occur during the hunting season (Kasworm et al. 2019a; Kasworm et al. 2019b).

Since 2015, the IPNF has partnered with Idaho Department of Fish and Game (IDFG), Idaho Conservation League, and Washington Department of Fish and Game (WDFG) to financially support and help to maintain programs for public information and education within the IPNF and in neighboring communities (BA, p. 17). Programs focus on grizzly bear identification and education, human safety and awareness in grizzly bear habitat, and proper storage of foods and other attractants. As described above, human-caused grizzly bear mortality has decreased in both the SE and CYE.

Railroads

Railroad tracks occur on NFS lands within the action area. These tracks typically are in lower elevations, parallel closely-adjacent and heavily-trafficked highways, are confined to valley bottoms and passes, and are bounded by often rugged mountains. Railroads can affect grizzly bears in terms of connectivity (Waller and Servheen 2005, p. 992) and mortality (Kasworm et al. 2019a p. 22: Pollock et al. 2019, entire). Train strikes have killed a minimum of 56 grizzly bears in the Northern Continental Divide (NCDE), Cabinet-Yaak (CYE), and Selkirk Ecosystems (Recovery Areas) of Montana and Idaho during 1980-2018 (Mattson 2019, p. 4). Railroads influence the environmental baseline conditions for grizzly bears, contributing to human-caused mortality and reduced connectivity for wildlife, but are not under the jurisdiction of the IPNF and so are not part of the proposed action.

Illegal Motorized Access

A private entity's non-compliance with the IPNF's access management is an illegal activity. While illegal use of the IPNF via motorized access in areas unauthorized for such use may occur within the action area, such illegal use is not considered a USFS action and therefore not analyzed under the effects of the action, but their influence is considered in describing the environmental baseline.

Illegal motorized access could occur anywhere on the IPNF. While illegal motorized access has the potential to affect individual grizzly bears, the location, duration, intensity, and timing of effects resulting from such illegal use is not known. The probability of long-term illegal motorized access and probability of illegal access coinciding with the presence of grizzly bears is anticipated to be low but is unknown. As such, the potential consequences to grizzly bears are uncertain. Illegal motorized access has been and is expected to be spatially disparate and temporary and is not likely to collectively cause an adverse effect because most IPNF users follow travel regulations and when illegal use is observed or when user-created roads become apparent the USFS corrects the situation as soon as they are able.

Illegal use of existing motorized routes, whether open or restricted, does not affect secure habitat (used here, refers to Core or secure habitat) because all motorized routes are already buffered and the entire area is removed from the secure habitat measure. Secure habitat could only be affected

by motorized use of barriered roads or as a result of off-road use because these areas are included when secure habitat is measured. However, effects of illegal motorized access would not result in a change in the IPNF's baseline access conditions as such use was not authorized, carried out, or funded by the USFS. In addition, illegal motorized access would most likely result in temporary effects to grizzly bears as opposed to a permanent change in motorized access conditions because the IPNF corrects the situation as soon as they are able, within the same bear year or early the following year (USFS 2020a, pp. 38-39, 48). Sometimes this is as simple as replacing a broken lock, which can be done immediately. Other times the fix may take a few days to a few weeks to replace a broken gate or device, or it may take longer to address the issue by adding boulders or taking other measures to block illegal motorized access.

The IPNF provided data regarding illegal motorized access on NFS lands within their administrative boundaries. As shown in the BA (Table 11, p. 38-41), and provided in Appendix D, the IPNF monitored the effectiveness of hundreds of closure devices on gated and barriered roads intended to restrict public motorized access in BMUs. Between 2011 and 2019, 10 of 14 BMUs (includes the two BMUs shared by the IPNF and KNF) had at least one year in which breaches were detected, and 5 of 14 BMUs had breaches over consecutive years. Unauthorized use is more prevalent in the CYE than the SE. Effectiveness monitoring showed 97 to 99 percent of monitored closure devices monitored in the SE did not show signs of breaching, compared to 84 to 98 percent of monitored closure devices in the CYE (BA, p. 40, Appendix D). Most breaches appear to represent single events (i.e., the IPNF responded to the violation and no breach was recorded the following year), but there were some instances where a breach was recorded in 2 or 3 consecutive years at the same gate. Most breaches resulted in public use of a gated or barriered road and a smaller subset were trail violations or were the result of user-created routes.

After reviewing the data in the BA and the annual monitoring reports (USFS 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020b), and following discussions with the IPNF, we assume persistent or chronic illegal motorized access (i.e., generally lasting more than three years) occurs infrequently. The BA (Table 11, p. 40) identified two BMU where breaches across more than three consecutive years resulted in long-term effects to Core habitat, Grouse and North Lightning. In Grouse BMU, the violators repeatedly circumvented IPNF attempts to prevent access and, in North Lighting BMU, repairs were delayed. The IPNF has also discussed five other areas in five different BMUs where unauthorized users repeatedly circumvented gates or barriers. In these areas, the IPNF was able to halt the illegal activity within 2 to 3 years but following a period without evidence of breaches, illegal use has returned (D. Probasco 2020a, *in litt.*). The IPNF has described the difficulty in preventing unauthorized use in areas with flatter topography, sparse vegetation, and/or in close proximity to privately owned land. Areas with a history of repeated violations are scrutinized more heavily, and the IPNF prioritizes repairs in areas believed to be more consequential to grizzly bears, e.g., areas with greater grizzly bear use (D. Probasco 2020a, *in litt*.).

Unauthorized use has been documented in the Priest Lake and Pack River BORZ of the SE, but there are no reported breaches in the Mission-Moyie BORZ. Opportunistic and ad hoc monitoring in BORZ, as opposed to a formal monitoring program, makes quantification of illegal

use in BORZ more difficult, but we assume illegal use is likely more extensive in BORZ than in BMUs because BORZ are generally more densely roaded and have more human use compared to BMUs. Many areas of BORZ are also closer to the public/private land interface, where private users may create unauthorized motorized trails from their land onto NFS lands. As in BMUs, areas with gentle topography and more open vegetation may also be more likely to incur unauthorized use, as the conditions make it easier for motor vehicle operators to drive around closures or create their own unauthorized routes. Given the lack of formal monitoring in BORZ, breaches may remain undiscovered on the landscape for a number of years, or may be discovered quickly, depending on location, intensity of use, and other factors that affect the IPNF's ability to detect them.

While effects to grizzly bears may occur as a result of illegal motorized access, it is the Service's opinion that such effects cannot be precisely determined. Information as to the length, duration, amount of use, type of use, and location, among other conditions, is and will continue to be unknown. As such, the Service and the USFS are not able to calculate the extent of effects.

Climate Change

The Service examined climate change and potential effects on grizzly bears during the most recent 5-year status review (USFWS 2011b). The most likely ways in which climate change may potentially affect grizzly bears are a reduction in snowpack levels, shifts in the denning season, shifts in the abundance and distribution of some natural food sources, and changes in fire regimes due to summer drought. The potential positive and negative effects would likely be variable and are difficult to predict. Grizzly bears are habitat generalists and opportunistic omnivores, which may make them less susceptible to changes in plant communities than some other wildlife species.

3.3 Effects of the Proposed Action

The section 7 implementing regulations define "effects of the action" as "all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR 402.02).

The following sections analyze the consequences of implementing the LRMP on grizzly bears with respect to LRMP direction as guided by LRMP goals, objectives, desired conditions, standards, and guidelines. The following analysis also considers how Plan direction is moderated by elements that consider the specific conservation needs of the grizzly bear and its habitat. The effects analysis relies on the broad categories of risk factors identified in the Environmental Baseline section above. The effects of the LRMP on the grizzly bear are discussed under the following, often overlapping categories:

1. **Access management** including roads, secure habitat, and motorized over-snow use;

2. **Habitat management** including vegetation management, fire management, and linkage;
3. **Human-caused mortality risk** to grizzly bears including attractant/food storage and information and education programs and grazing allotments; and
4. **Other Potential Effects** such as mining proposals, collection of forest products, and special uses.

For each category of effect, a general summary of what the science currently tells us about the potential impacts on grizzly bears and grizzly bear habitat is presented, followed by an analysis of the potential specific effects of the proposed action on grizzly bears and grizzly bear habitat.

The analysis of effects of access management on the grizzly bear considers the changes proposed by the IPNF in their request to the Service for reinitiation of formal consultation, as well as the effects presented in the 2013 Opinion, taken together with cumulative effects, for purposes of informing a new section 7(a)(2) determination for the grizzly bear. No other aspects of the LRMP have changed. Analysis of other factors (i.e., habitat management, human-caused mortality risk factors, and other potential effects) will rely primarily on the findings presented in the biological assessment addressing the 2013 LRMP, taking into account current environmental baseline conditions (USFS 2013a).

Except for specific actions related to motorized route densities and over-snow motorized use addressed below in the Access Management section, this biological opinion does not provide an analysis for effects of specific land management actions on the grizzly bear. Rather, the following effects analysis is a broad-scale examination of the types of projects and activities likely to be implemented under the LRMP that could potentially occur in grizzly bear habitat and result in effects on grizzly bears occurring on the IPNF.

3.3.1 Access Management

Grizzly bear habitat security is primarily described in terms of availability of secure habitat. Grizzly bear habitat security is primarily achieved by managing motorized access which — (1) minimizes human-bear interactions and reduces the potential risk of grizzly bear mortality caused by those interactions; (2) minimizes displacement of bears from important habitat where energetic requirements can be met with limited disturbance from humans; and (3) minimizes habituation of bears to humans. This section addresses the effects of motorized road use, of designating secure habitat, and allowing motorized, over-snow use on grizzly bears under the LRMP.

3.3.1.1 General Effects of Wheeled Motorized Access on Grizzly Bears

This section provides a general discussion of direct and indirect effects of wheeled, motorized access management on grizzly bears. Roads in and of themselves can reduce the amount of vegetative habitat available for grizzly bears and other wildlife, although direct habitat loss due to the road's footprint is not considered a major factor influencing grizzly bear populations (see

Proctor et al. 2018, p. 7). In general, there are two consequences of grizzly bear exposure to wheeled, motorized access: (1) increased human-caused mortality of bears; and (2) reduced bear access to suitable habitat caused by bear avoidance or displacement. Grizzly bears can also become habituated to humans due to ongoing contact with roads and human activities conducted along roads.

Road Type and Grizzly Bear Response

When discussing the effects of roads on grizzly bears, it is important to consider the type of road, its location, and the amount of traffic or types of use, all of which can affect grizzly bears' response to the road. The following descriptions of the types of roads and their effects to bears is intended to be a general overview. Exceptions and nuances exist.

Highways and high-speed roads pose two major challenges for grizzly bears—risk of direct mortality and fragmentation (of habitat or populations). At high speeds, the chances are high that a bear-vehicle collision results in mortality to the bear. Mortality risk associated with high speed roads can vary based on a number of factors such as visibility, crossing structures, and habitat near the roads. In the CYE, just 5 percent of all known mortalities of grizzly bears occurred because of vehicle collisions (Kasworm et al. 2019b). Grizzly bears typically avoid high traffic roads such as highways and interstates, regardless of their location. Highways have also been identified as a major contributing factor in habitat and population fragmentation (Proctor et al. 2012, entire). For example, in the southern Canadian Rocky Mountains, the odds of grizzly bear movement through an area was reduced by up to 44 percent by highways (Apps et al. 2013, p. 103).

Research has repeatedly shown that grizzly bears generally tend to avoid open roads, regardless of habitat availability (Kasworm and Manley 1990, p. 80) and despite traffic volume (Northup et al. 2012, p. 1164; McLellan and Shackleton 1988, p. 455-456; Wielgus et al. 2002, p. 1600; Mace et al. 1999 p. 1402). Avoidance of open roads is likely heightened by the non-motorized disturbances associated with roads open to the public (Wielgus et al. 2002, p. 1604). Where grizzly bear do occur near open roads, they often adopt nocturnal use patterns (Archibald et al. 1987, pp. 254-255; McLellan and Shackleton 1988, pp. 451-452; Northup et al. 2012, p. 1164). Avoidance behavior, vigilance for humans, or modified temporal use patterns that result in foraging in suboptimal conditions (i.e., at night or in low visibility) lessens foraging efficiency, increases intraspecific competition where resources are limited, and may reduce habitat effectiveness (Kaswom and Manley 1990, p. 84; Hood and Parker 2001, pp. 632-633).

Restricted roads are used primarily for administrative purposes and are closed to public motorized use. In some areas, restricted roads have limitations on the number of trips that can occur during the active bear year. In other areas, administrative traffic is not limited, and restricted roads may receive substantially more motorized use. On these roads, mortality risk due to vehicle collisions is still minimal, and mortality risk due to general public access may be much reduced compared to open, unrestricted roads, particularly on portions of restricted roads that are farther away from open roads. However, restricted roads still pose issues that may cause grizzly bear avoidance of the area.

Grizzly bear may not avoid restricted roads as much as open roads (Kasworm and Manley 1990, p. 83; Wielgus et al. 2002, pp. 1600-1601), although traffic levels on restricted roads can influence the degree to which grizzly bears avoid the road (Archibald et al 1987, p. 87; Kasworm and Manley 1990, p. 83). Grizzly bears in their Selkirk Mountain study area did not avoid restricted roads (Wielgus 2002, p. 1601), and Northup et al. (2012, p. 1164) found grizzly bears in his southwestern Alberta study area used habitat near restricted roads similarly to unroaded habitat. By contrast, Mace et al. (1996, p. 1402) found some grizzly bears in the Swan Mountains in Montana avoided closed roads receiving less than one vehicle per day. The degree of grizzly bear avoidance to restricted roads may depend on perceived mortality risk stemming from the amount of motorized use, degree of local hunting pressure, history of mortality risk in the area, and association with other nearby roads. Trip limits on restricted roads may be able to reduce or eliminate displacement that results from grizzly bears avoiding restricted roads (Wakkinen and Kasworm 1999, p. 2). Illegal motorized use can also occur on restricted roads if gates or barriers are illegally breached or compromised, which can create additional disturbance, and if the use is chronic at a specific site, can also lead to displacement, similar to the effects assumed for a road open to public motorized use.

Motorized trails that accommodate smaller vehicles such as all-terrain vehicles (ATVs) or dirt motorcycles, can result in disturbance or displacement of grizzly bears, similar to effects associated with open roads (Kasworm and Manley 1990, p. 81). Benn and Herrero (2002) suggested 200 meters around a motorized trail was the zone of influence for bears, versus 500 meters for roads. The IGBC Taskforce (1998, p. 4) recommended including motorized trails in calculating open and total motorized route densities and for quantifying secure habitat in BMUs. The amount of use a motorized trail receives may be less than many roads due to less overall users with access to trail-appropriate vehicles versus cars and trucks. Despite this, the Service conservatively regards motorized trails the same as a motorized road when describing potential effects to grizzly bears.

Roads that are made impassable to motorized vehicles include decommissioned or stored roads, as well as roads with barriers, obliterated roads, or even reclaimed roads. The road prism may often receive some level of re-contouring to match the surrounding hillslope near intersecting roads. These types of roads offer greater security and less disturbance than open or restricted roads and, over time, provide secure habitat to grizzly bears once bears become aware of the fact that an additional portion of the landscape has become secure. Wakkinen and Kasworm found that, compared to restricted (i.e., gated) roads, bear response to vegetated and barriered roads appeared more similar to unroaded habitat (1997, p.13). By contrast, Wielgus et al. (2002, p. 1604) found female grizzly bears selected against closed roads, but speculate that avoidance may have been triggered by the location of closed roads in proximity to open roads. Bears in a landscape with a history of lethal consequences for human-grizzly bear encounters may be more wary of closed or decommissioned roads and may continue to avoid them long after they are closed, highlighting the fact that other factors influence grizzly bear response to roads, even roads that no longer receive motorized use. The time when bears may begin to use closed areas as secure habitat will likely vary by individual. More security conscious females may continue to avoid these roads longer than other cohorts. Until the road prism becomes revegetated,

recently decommissioned/stored/barriered roads may continue to provide ease of travel for hunters or other recreationist, unless physical ripping or recontouring of the surface has occurred.

Human-caused Mortality Associated with Roads

More often grizzly bear mortality is the result of intentional (self-defense, defense-of-kill, poaching) or unintentional (mistaken identity) shootings (Mowat and Lamb 2016, p. 10), but some are injured or killed as a result of vehicle strikes (Gunther 1998, pp. 32-33). Roads facilitate human access into grizzly bear habitat, which indirectly increases the risk of human-caused mortality that affects the ability of bears to survive and reproduce (Nielson et al. 2004, p. 108; McLellan 2015, pp. 755-756; see Proctor et al. 2018b, p. 4). Roads located near human settlements can facilitate large numbers of people into grizzly bear habitat. Firearms and the attractants associated with human uses can lead to increased grizzly bear mortality (Yonge 2001, p. 56). By contrast, where activities such as carrying firearms or attractant and sanitation measures are minimized, humans and bears may maintain a certain level of coexistence. Social values and attitudes also contribute to the risk of grizzly bear mortality.

There is a strong positive association between motorized access into grizzly bear habitat and bear mortality (Nielsen et al. 2004a, pp. 108-110, Schwartz et al. 2010a, pp. 659-660, Boulanger and Stenhouse 2014, p. 9, Proctor et al. 2018c, p. 31). Studies from across west-central North America report that humans cause between 77 percent and 90 percent of grizzly bear mortalities (McLellan 1989, p. 1863, 2015, p. 755; McLellan et al. 1999, p. 915; Garshelis et al. 2005, p. 284), and most bears are killed near a road (Benn and Herrero 2002, p. 216, McLellan 2015, p. 756). In the Selkirk and Cabinet-Yaak Recovery Zones, 79 percent of known and probable grizzly bear mortalities between 1980 and 2018 were human-caused and, of those where the location relative to roads was known, 80 percent of human-caused grizzly bear mortalities occurred within 500 meters of an open road (Kasworm et al. 2019a, pp. 12-14: Kasworm et al. 2019b, pp. 16-18).

Similar patterns have been documented elsewhere. In southeastern B.C., 86 percent of radio-collared bears were killed within 120 meters of backcountry roads (McLellan 2015, p. 756) and, in Alberta 100 percent of radio-collared bears were within 100 meters of gravels roads or highways (G.B. Stenhouse, unpublished, as reported in Proctor et al. 2020, p. 20). Research in Canada found grizzly bear mortality was best predicted by measures of human access, such as road density, distance to roads, highways, and low elevation habitat (Nielson et al. 2004, p. 108; Proctor et al. 2018c, p. 31). Similarly, in the U.S., grizzly bear survival in the GYE was best explained by models including human development and open road density, as well as secure habitat (Schwartz et al. 2010a, p. 657). T hus, increased motorized access into grizzly bear habitat increases bear mortality (Nielsen et al. 2004, Schwartz et al. 2010a, Boulanger and Stenhouse 2014, Proctor et al. 2018b).

Habitat Loss Associated with Roads

In addition to the physical loss and degradation of grizzly bear habitat that occurs directly during road construction, which is not considered a major factor in grizzly bear populations (Proctor et

al. 2018b, p. 7), indirect habitat loss may also occur where bears avoid (short-term) or are displaced (long-term) from roads and their adjacent habitats. Avoidance or displacement occurs when individual bears form negative associations to roads as a response to vehicles or vehicle noise, human-related noises around roads, human scent along roads, or as a result of hunting and shooting activities from roads. Grizzly bears that form a negative association with roads learn to avoid the disturbance and annoyance generated by roads and may continue to avoid roads long after roads have been closed or are no longer used, as described above.

Displacement from habitat near roads has the potential to reduce grizzly bear habitat effectiveness, body condition, reproductive rates, and ultimately population density due to habitat loss (McLellan and Shackleton 1988, Mace et al. 1996, Hertel et al. 2016). Avoidance is a behavior that is learned and passed along from sows to their cubs, and avoidance may occur for some time after a road closes. Learned avoidance behavior could persist for more than one generation of grizzly bears before grizzly bears again utilize habitat associated with closed roads. Aune and Kasworm (1989) and McLellan (1989a) found that female cubs generally established their home range within or overlapping with their mother's home range, whereas males generally dispersed from their mother's home range. Long-term displacement of a female from a portion of her home range may result in long-term under-use of that area by female grizzly bears because cubs have limited potential to learn to use the area. In this way, learned avoidance behavior could persist for more than one generation of grizzly bears before grizzly bears again utilize habitat associated with closed roads. Thus, displacement from preferred habitats may significantly modify normal grizzly bear behavioral patterns.

In the NCDE, Mace and Manley (1993) reported use of habitat by all sex and age classes of grizzly bears was less than expected in habitats where total road densities exceeded two miles per square mile. Twenty-two percent of the South Fork Study area exceeded two miles per square mile. Adult grizzly bears used habitats less than expected when open motorized access density exceeded one mile per square mile. Further, female grizzly bears in the South Fork Study area tended to use habitat more than 0.5 mile from roads or trails greater than expected. In the SE and CYE, Wakkinen and Kasworm (1997) reported total road density greater than 2 miles per square mile and open road density greater than 1 mile per square mile were used less than expected (i.e., avoided) and unroaded areas in both categories were used more than expected (i.e., preferred). The amount of area within six female grizzly bears' home ranges with a total road density exceeding 2 miles per square mile averaged 26 percent. Home ranges averaged 33 percent open road density exceeding 1 mile per square mile, and on average, 55 percent of each home range was comprised of Core habitat (see discussion below).

The avoidance area surrounding roads is often referred to as the "zone of influence" and has been documented anywhere from 100 meters to 914 meters (McLellan and Shackleton 1988, p. 454; Kasworm and Manley 1990, p. 81; see Gaines et al. 2003, p. 16). Both Mattson et al. in Yellowstone National Park (1987, pp. 269-270) and Mace et al. in the Swan Valley of Montana (1996, p. 1402) found grizzly bears avoided an area within 500 meters of roads, which is the standard adopted by the IGBC to describe secure habitat (i.e., areas removed from human disturbances in which grizzly bears can meet their life history needs). Matteson et al. found road avoidance was greatest in spring and summer. By contrast, both Mace et al. and Roever et al

(2008, p. 1266) found greater selection for roads during the spring, noting that bears may be attracted to the higher quality roadside forage in their study area. Wielgus et al. (2002, p. 1604) found that, in dense forested areas where roadside vegetation (i.e., cover) is greater, the area of influence tended to be smaller. These studies highlight the influence of forage and cover resources on selection near roads.

When grizzly bears spend little time near roads or avoid roads altogether, they forego key resources that may be available in roadside adjacent habitats (i.e., habitat loss). Habitat loss through avoidance behavior can be substantial when roads are located in or near important seasonal habitats, such as riparian areas, snowchutes, or shrub fields (Apps et al. 2016, p. 406). In the southern Selkirk and Purcell Mountains of B.C., Proctor et al. found that forage habitat variables were the most influential predictors of female grizzly bear habitat selection (2018b, p. 32). Road density not only affected home range selection, roads limited how grizzly bears used habitat within their home range, with bears spending the least amount of time in those portions of their home range with higher road densities (Mace et al. 1996, p. 1400; Proctor et al.2018b, p. 37). Roads reduce the total amount of seasonal habitat available, forcing bears to travel further to find suitable habitat, potentially forcing them into competition with other bears. Alternatively, in areas where forage is abundant, grizzly bears may be able to meet their life history needs despite the habitat loss associated with avoidance of roads and human activity (McLellan 2015, p. 762). Despite this, research in Canada found grizzly bear densities were three times higher where road densities were less than 0.6 km/km^2 (Mowat et al. 2017, p. 6; Proctor et al. 2018c, p. 37).

Research in Canada and Yellowstone suggests road avoidance is strongest in adult grizzly bears. Male dominance patterns (adult males often exclude other cohorts from higher quality, more secure habitat) may cause females or subadults to select habitats nearer to roads to meet their foraging needs (Mattson et al. 1987, p. 263; McLellan and Shackleton 1988, pp. 455, 458), but this is not always the case. In Banff National Park, adult female grizzly bears were, on average, further from high use roads than adult males (Gibeau et al. 2002, p. 23; Mueller et al. 2004, p. 43). Females with cubs and subadult grizzly bears may use areas closer to roads to take advantage of resources in the absence of aggressive or infanticidal adult males (McLellan and Shackleton 1988, p. 458; Meuller et al. 2004, p. 44). Despite evidence of adult occurrence near open roads, investigations of age class differences appear to agree that subadult bears (or subordinate) are more likely to be found closer to roads than adult (or dominant) bears (McLellan and Shackleton 1988, p. 456; Mueller et al. 2004, pp. 41, 43; see Mattson 1990, p. 44).

Bears that utilize roadside habitats may alter their behavior patterns to avoid or reduce encounters with humans, foraging and crossing roads at night when human presence is low or absent (Archibald et al. 1987, pp. 254-255; McLellan and Shackleton 1988, pp. 451-452; Gibeau et al. 2002, p. 232; Schwartz et al. 2010b, p. 1632; Northup et al. 2012, p. 1164; Apps et al. 2013, p. 106). However, grizzly bear foraging efficiency may be reduced at night. Bears may remain closer to roads where cover habitat is available (Wielgus et al. 2002, p. 1604; Roever et al. 2010, p. 1118), but bears that remain near roads and flee in response to immediate human presence may experience reduced foraging efficiency (time spent foraging versus time spent in

vigilance or flight) and may be subject to repeated flight responses that reduce their energy budget (McLellan and Shackleton 1988, p. 459). Where lethality is reduced, grizzly bears may habituate to some access patterns, reducing flight response and decreasing avoidance response.

Not all habitat avoidance results in adverse effects to grizzly bears. Male grizzly bears typically have larger home ranges than females. Males, subadults, and transient bears are typically more mobile and have lower energetic demands than adult females. Displacement may be of particular concern for female grizzly bears during reproduction (USFWS 2011a, pp. A81-A82). Displaced females with cubs risk encounters with infanticidal adult males, and cub survival is reduced when females move further between forage patches. In addition to avoiding aggressive males, security conscious females with cubs are more likely to avoid humans and roads, foregoing high quality habitat (Gibeau et al. 2002, p. 234). Female grizzly bears have higher energetic demands compared with adult males and subadults, and avoiding roads may cause increased stress or decreased nutritional status, which may reduce reproductive fitness and lower reproductive capacity (Mattson et al. 1987, p. 270). Females that are unable to access sufficient forage resources may experience delayed maturity, have longer inter-birth intervals, and lower average litter sizes (McLellan 2015, p. 757).

Fragmentation

Research shows that secure habitat, areas free of motorized access, provides an important component for successfully reproducing female grizzly bears (Mattson et al. 1987, p. 262; Mace et al. 1996, p. 1400). In the NCDE, SE and CYE, substantive blocks of unroaded habitat were components of all adult female home ranges (Mace and Manley 1993, p. 20; Wakkinen and Kasworm 1997, p. 20-22). Roads contribute to habitat fragmentation by acting as barriers to movement (see MacHutchon and Proctor 2015, p. 5). Traffic and human activity can cause bears to avoid habitat near roads or disturb them to the extent that they are unwilling to move through an area. Loss of cover, human behavior along roads, and traffic patterns all contribute to avoidance-related habitat fragmentation. Roads also introduce mortality risk that can prevent successful movement. Roads isolate secure habitats and force grizzly bears to travel through areas of higher mortality risk to meet their life history needs (Schwartz et al. 2010a, p. 661). Where high road densities are interspersed with high quality habitat, grizzly bears may navigate high-risk roaded areas in order to access high quality habitat. Population level effects can occur depending on the type of road, proximity to population centers, and tendency for people to kill bears (Proctor et al. 2012, entire; Lamb et al. 2017, entire). Localized habitat fragmentation may be less of a concern to male grizzly bears, in terms of locating adequate resources, because of their larger home range size and reduced energy budget. Fragmentation can be problematic for female grizzly bears, especially reproductive females who tend to be more security conscious and are more likely to forego resources to avoid humans and roads.

Fragmentation can also affect dispersal patterns, reducing demographic and genetic exchange. Where grizzly bears are unwilling (through avoidance behavior) or unable (because of mortality) to move through an area, population fragmentation may occur. Factors contributing to population fragmentation include highways and their associated traffic patterns, human settlements, and human-caused mortality (Proctor et al. 2012, p. 2). Apps et al. found highways

reduced the odds of movement through an area decreased by 44 percent in his study area (2013, p. 103). Fragmentation can be a greater concern for female grizzly bears by limiting dispersal, and can have long lasting effects as a result of learned behavior that is passed from sow to cubs. Long-term avoidance of a portion of a mother's home range as a result of roads may result in long-term under-use of that area by female grizzly bears because female cubs may have limited potential to learn to utilize that area. As such, learned avoidance may persist for more than one generation, leading to a situation where bears may continue to avoid an area after roads are closed, discouraging dispersal in the direction of the roaded area. Effects to dispersal are greater for female grizzly bears than male dispersal (Proctor et al. 2005, p. 2414) because female dispersal distances are generally short (approximately 6.2 to 8.7 miles) and occur gradually over many years (see Proctor et al. 2018a, p. 363). Female grizzly bears generally establish their home range within or overlapping a portion of their mother's home range, so dispersal may be limited in areas of learned avoidance. Alternatively, young females that attempt to establish a home range outside of their mother's home range are at greater mortality risk if they are forced out of secure areas (Wielgus et al. 1994, p. 271).

Habituation

Some grizzly bears may become conditioned to humans, especially with repeated exposure to human noise, presence, and activity, and may begin to show some degree of tolerance or habituation to human activity. Habituation is more likely to occur in areas where human use patterns are predictable, less invasive, or where human presence does not result in overtly negative impacts to grizzly bears (Jope 1985, entire; Mattson 1990, entire). Areas with higher levels of human use can serve as a kind of refugia for subordinate cohorts (i.e. subadults of females with cubs) seeking to avoid interspecific competition or infanticide by adult males (Mattson 1990, p. 42; Yonge 2001, p. 56). Roadside habitat may also provide some benefit to grizzly bears as a low cost travel corridor or as a forage resources (e.g., utilization of roadside native forbs or fruit-bearing shrubs, or non-native plants such as clover or grasses) (Roever et al. 2008, p. 1258; Roever et al. 2010, p. 1118). Whether displaced to roadside habitat by dominant bears or attracted to high quality roadside forage, when bears spend more time around roads and in areas with human disturbances, they risk becoming habituated to humans. Investigations of age class differences appear to agree that subadult bears (or subordinate) are more likely to be found closer to roads than adult (or dominant) bears (McLellan and Shackleton 1988, p. 456; Mueller et al. 2004, pp. 41, 43; see Mattson 1990, p. 44).

Habituated bears are more likely to wander into areas of greater human presence, likely responding to attractants such as human food or garbage, which increases the likelihood of human-bear encounters that increase bear mortality risk. Bears that are not killed as a result of these human-bear conflicts may be removed from the area (i.e., management removal) and no longer contribute to the wild population. Subadults appear to be more vulnerable to habituation. Subadults frequently travel long distances and through unknown landscapes, increasing the likelihood of encountering roads or human developments where human foods or other attractants are available. Multiple studies have documented subadult grizzly bears in closer proximity to human use areas compared to other cohorts (Gibeau et al 2002, p. 230; Mueller et al. 2004, pp, 38-39; Boulanger and Stenhouse 2014, p. 10). Due to the fact that subadult females tend to

remain within a portion of their mother's home range and have smaller dispersal distances, subadult males are at greater mortality risk as a result of habituation than subadult females.

Road Metrics Used in Grizzly Bear Effects Analysis

Effects to grizzly bears from roads have primarily been assessed using two different metrics—road densities and the extent of secure habitat. Our analysis of effects to grizzly bears from the proposed action will assess both of these factors. A general description of each is provided here.

Road Density

The scientific literature clearly demonstrates that road densities can affect female grizzly bears, with higher road densities often leading to adverse effects to individuals, and thereby sometimes affecting the population. Female bears tend to have higher survival rates in habitats with lower road densities (Schwartz et al. 2010a, Boulanger and Stenhouse 2014, Proctor et al. 2018c). Females also select home ranges at least partially in relation to road densities, as reported by Mace et al. (1996), Wakkinen and Kasworm (1997), Lamb et al. (2017), and Proctor et al. (2018b). Road densities also influence the density of female grizzly bears (Lamb et al. 2017) and population trend (Boulanger and Stenhouse 2014).

Factors related to road density, such as habitat quality, attractants, and others, combine with road densities to affect grizzly bears, making it difficult to determine the exact influence of road density, and the exact density at which those influences occur. Not all researchers calculate road densities in exactly the same way; variation often depends on which digitized road layers were available. Some researchers included all road types in their calculations, including motorized trails receiving off-highway vehicle (OHV) use, but others excluded motorized trails or closed roads (see Proctor et al. 2020, p. 23). Despite this, research shows how road densities affect home range selection.

Mace et al. (1996, p. 1400) found that grizzly bears had home ranges containing an average of 0.6 km/km^2 (1 mi/mi^2) of roads (open and closed roads) where the surrounding landscape contained 1.1 km/km^2 (1.8 mi/mi^2) of roads. In the Selkirk and Purcell Mountains of B.C., Proctor et al. (2018b, pp. 36-37) found females selected habitat areas and survived where backcountry and resource road densities were less than 0.5 km/km^2 (0.8 mi/mi^2). They also found that there were no female home ranges in landscapes with road densities greater than 1.0 km/km^2 (1.6 mi/mi^2). Boulanger and Stenhouse (2014, pp. 14-15) found most grizzly bears in their study area in Alberta occurred where road densities (all paved and graveled secondary roads) were 1.5 km/km^2 (2.4 mi/mi^2) or less, with greater survival of reproductive females where road densities were less than 0.75 km/km^2 (1.2 mi/mi^2). Additionally, they found low female survival had negative population level effects where road densities exceeded 0.75 km/km^2 (1.2 mi/mi^2).

Research on grizzly bear survival in other study areas documents the impact of road density on female grizzly bear survival. Female grizzly bears are the reproductive engine of the population, so measure of female survival are most meaningful in describing population persistence.

Schwartz et al. (2010, p. 660) found grizzly bear survival in the GYE increased with increasing secure habitat and reducing road density outside of secure habitat. In the Kettle-Granby area of B.C., Mowat et al. (2017, p. 6) found grizzly bear density were three times higher on landscapes with open road densities less than 0.6 km/km^2 (1 mi/mi^2), which was also found the Purcell and South Selkirk Mountains of B.C. (Proctor et al. 2018c, pp. 39-40).

Access management within the NCDE, CYE, and SE has focused on providing habitat with an open road density of less than 0.6 km/km^2 (1 mi/mi^2) and total road density of less than 1.24 km/km^2 (2 mi/mi^2) within a portion of a grizzly bear analysis unit (approximating a female grizzly bear's home range) to support female grizzly bears in recovery zones. This road-density threshold, first identified by Mace et al. (1996) and used by Wakkinen and Kasworm (1997), has been roughly observed by other researchers in multiple study areas (summarized in Proctor et al. 2020) as being a density beyond which adverse effects to female grizzly bears can occur. Road densities and their effects to bears, occur on a spectrum, making it difficult to pinpoint an exact density at which we would expect adverse effects to an individual.

Road density provides a useful threshold to describe human-caused effects to grizzly bears based on existing literature, but road density alone fails to consider traffic volume, lethality (i.e., the tendency for people to kill bears), proximity to forage resources, and how road placement affects habitat patch size (Proctor et al. 2020, pp. 25-26). For instance, even in a bear management unit with overall low road density, there may be patches of high road density interspersed with patches of low road density or even unroaded areas. In these areas, measures of secure habitat may present a more accurate depiction of the spatial mix of motorized routes and the amount of secure habitat available to bears.

Secure Habitat

Secure habitat represents areas where grizzly bears can meet their life history needs without the heightened mortality risk or negative consequences of human disturbances (i.e., disturbance-related behavioral modifications, such as habitat avoidance or nighttime use patterns, or repeated flight response). Loss and degradation of secure habitat has been identified as one of the key issues related to effects of motorized access to grizzly bears and is important to the survival and reproductive success of grizzly bears. This metric more adequately represents the potential effects related to motorized access as it provides a more accurate indication of the spatial mix of motorized routes to security habitat (Figure 7 in Proctor et al. 2020, p. 26.).

Studies have shown that female grizzly bears selected for, and survived better in, areas with greater extent of secure habitat (Mace et al. 1996, p. 1400, Wakkinen and Kasworm 1997, p. 20, Gibeau et al. 2001, p. 126, Schwartz et al. 2010a, pp. 659-660). Secure habitat is defined slightly differently in grizzly bear literature and in different conservation strategies. Within the SE and CYE, secure habitat is referred to as "Core habitat" and is defined as an area greater than 500 meters from any motorized travel routes or high use trails. Female grizzly bears in the Selkirk Mountains, including the U.S. and B.C. south of Highway 3, and Yaak Mountains in Montana selected, and survived better in, home ranges with an average of 55 percent secure habitat (Wakkinen and Kasworm 1997, p. 20), and this threshold is incorporated into the Access

Amendment. The MacHutchon and Proctor 2016 grizzly bear management plan for the B.C. portion of the SE in the South Selkirk grizzly bear population unit (p. vi) describes secure habitat as blocks greater than 10 km^2 and greater than 500 meters from an open road, providing secure habitat across 60 percent of each BMU.

Road Metrics Used in this Analysis

The Service relies on local research to analyze effects to grizzly bears in the SE and CYE. Wakkinen and Kasworm (1997) reported that female grizzly bears were able to survive and reproduce in home ranges containing an average of 33 percent open motorized route densities of less than 0.6 km/km^2 (1 mi/mi^2), 26 percent total motorized route densities of less than 1.24 km/km^2 (2 mi/mi^2), and 55 percent Core habitat (all areas greater than 500 meters from any motorized route or high use non-motorized trail). Wakkinen and Kasworm (1997) completed their study in response to the 1994 IGBC direction to develop site-specific habitat security parameters in regards to motorized access for the SE and CYE using data from six local female grizzly bears. Their results were incorporated into the original Access Amendment direction in 2004.

During the consultation on the Access Amendment in 2011, Allen et al. (unpublished report, 2011) completed a review of the report to address outstanding criticisms, to assess the validity of the Wakkinen and Kasworm report as the best available science for use in determining motorized access thresholds within the SE and CYE. Nine biologists from the Service, Idaho Department of Fish and Game, Forest Service, and Washington State University reviewed the Wakkinen and Kasworm report in light of criticisms. Upon review, Allen et al. determined that the Wakkinen and Kasworm study provides the best data available for determining management recommendations relative to motorized access and secure habitat for grizzly bears (2011, pp. 24-25). In the Service's Biological Opinion on the Access Amendment, the Service concluded there is no subsequent research that would replace the continued reliance on Wakkinen and Kasworm (1997) as the scientific benchmark against which to analyze the effects of the Access Amendment direction (USFWS 2011a, p. A-58). Although the review was completed in 2011, the Service is not aware of any research that would alter the findings by Wakkinen and Kasworm (1997).

Analysis in BMUs. For the purposes of this Opinion, we continue to rely on the Wakkinen and Kasworm research as the best available science to assess the effects of motorized access and secure habitat on grizzly bears in the SE and CYE. In our analysis, we assume some female grizzly bears may experience adverse effects when greater than 33 percent of the BMU has open road densities greater than 1 mi/mi^2 (0.6 km/km^2) and/or when greater than 26 percent of the BMU has total road densities (open roads plus restricted roads) greater than 2 mi/mi^2 (1.24 km/km^2; Wakkinen and Kasworm, 1997). We do not expect all female grizzly bears will experience adverse effects, as the Wakkinen and Kasworm research found that some female grizzly bears were able to survive and reproduce in home ranges with worse conditions (i.e., higher road densities or lower amounts of secure habitat), but the research provides a useful threshold to determine when adverse effects to grizzly bear due to road-related factors are likely to occur.

Within recovery zones, where BMUs approximate the size of female home ranges, "Core habitat" is a subset of secure habitat and is defined as "areas of secure habitat within a BMU that contain no motorized roads or *high use non-motorized trails* during the active bear year and are more than 0.31 miles (500 meters) from a drivable route" (emphasis added; USFS 2011a, p. 10). The Access Amendment direction sets the parameters for establishing and managing Core habitat in all BMUs (USFWS 2011a, pp. 12-13). For example, Core habitat should include high quality habitat and, where possible, should attempt to include the full range of seasonal habitats. In addition, once established, Core habitat should remain in place for at least ten years.

The BA (pp. 18-20) provides the methodology used by the IPNF in determining Core habitat within BMUs. The IPNF uses the IGBC codes to determine whether system or undetermined roads should be included in core habitat calculations. Codes 2 (restricted roads), 4 (open roads), and 5 (open motorized trails) are included in road mile calculations, are buffered by 500 meters before calculating secure habitat, and the entire area is removed from Core habitat measures. In order to be conservative when analyzing effects to grizzly bears, all existing motorized routes are buffered, regardless of whether they are legally open to public travel, or if public travel is restricted. Codes 1 (impassable roads) and 3 (reclaimed/obliterated or barriered roads) provide secure habitat for bears and are included in Core habitat calculations, as permitted by the Access Amendment. In order to be conservative when analyzing effects to grizzly bears, all existing motorized routes are buffered and those areas omitted from secure habitat calculations, regardless of whether they are legally open to public travel, or if public travel is restricted. Because of the rapid growth of vegetation, the backlog of maintenance on existing routes, and the longer amounts of time that some restricted routes may go without any use, the estimates of secure habitat are in most cases underestimates of actual secure habitat that exists on the ground because an unknown number of routes that are physically impassable to motor vehicle use.

Although we recognize that larger, less fragmented patches of secure habitat are likely ideal for grizzly bears, even a small patch of secure habitat may afford a grizzly bear a valuable space to avoid the adverse effects of roads and to move through or find valuable habitat in the area. Although they did document greater use in the largest patch sizes, local researchers (Wakkinen and Kasworm 1997) did not identify a minimum patch size at which grizzly bears failed to use the secure habitat. They did show that the majority of telemetry points for female grizzly bears fell within larger patches of secure habitat. In the Selkirks, 94 percent of radio locations in secure habitat were in patches greater than 4 mi^2 (2,560 acres) and in the Yaak, 89 percent of locations were in patches the same size. However, because grizzly bears used polygons of all sizes, the Access Amendment direction and the LRMP for the IPNF does not include a minimum block size for inclusion in Core habitat. Therefore, using the best available information for the action area (i.e. data from Wakkinen and Kasworm 1997), we assume that within the SE and CYE, in BMUs with less than 55 percent secure habitat, regardless of patch size, some individual female grizzly bears may experience adverse effects.

Analysis in BORZ. Unlike in the Recovery Zone, where BMUs are designed to approximate the size of a female grizzly bear's home range, BORZ simply show where recurring grizzly bear use has been documented. The size of BORZ varies widely (Table 10) and can change as additional recurring use is documented, as explained in section 3.2.3.1 "Access Management." Therefore,

because BORZ are not designed to represent a female bear's home range, it is inappropriate to apply the same metrics that are used within the BMUs, as those metrics were based on female home ranges.

For analysis of standards related to motorized access in BORZ, the IPNF provided information on linear miles of roads within BORZ, which can be calculated as a linear route density in terms of miles of road within a defined area (i.e., miles of road per square miles of land); however, linear route density in this sense is not directly comparable to the moving windows analysis conducted in BMUs (see USFWS 2011, p A-71-72). Additionally, research does not provide a threshold at which linear miles of roads in a given landscape impairs the feeding, breeding, and sheltering behavior of grizzly bears. We assume that road densities are generally higher than in the recovery zones, and some individual female grizzly bears likely experience adverse effects as a result high road densities and high levels of human activity. Despite this, grizzly bears continue to use BORZ, indicating some bears have acclimated to what research would indicate are other-than-optimal road density conditions.

Under the Access Amendment, habitat protection has primarily been achieved by limiting the permanent linear miles of open and total roads to the baseline condition at the time when a BORZ is established (i.e., delineated). From the Service's current perspective, acres of secure habitat affected in the BORZ may be a better representation of the potential effects to grizzly bears related to motorized access than just linear miles of roads, as it provides a more accurate indication of the spatial mix of motorized routes on the landscape and the effects that road placement can have on the availability of secure habitat. Secure habitat has been identified as one of the key issues related to effects of motorized access on grizzly bears and is important to the survival and reproductive success of grizzly bears. Thus, we have incorporated secure habitat into this analysis.

The IPNF mapped secure habitat within BORZ (see Appendix B for details). Secure habitat includes all areas within a BORZ greater than 500 meters from any route that allows wheeled motorized access, including open public roads as well as restricted roads that are only available for administrative use. This is a basic definition that captures the essence of secure habitat being areas outside the influence of motorized vehicles. For the same reasons discussed above, no minimum patch size was used. Larger patches of secure habitat likely provide areas where grizzly bears, particularly females with cubs, can avoid the effects of motorized access. We do not know the actual importance of patches of secure habitat in BORZ, but can assume some level of importance, based on the numerous studies showing a correlation between secure habitat and grizzly bear survival and other metrics (see review in Proctor et al. 2020).

3.3.1.2 Effects of Wheeled Motorized Access to Grizzly Bear in the Action Area

Under the LRMP, wheeled motorized access is permitted on 285,948 acres (74 percent) of the SE and on 216,705 (87 percent) of the CYE. Motorized access management is primarily addressed by the Access Amendment standards incorporated into the LRMP. The Access Amendment standards reduce the adverse effects of motorized access to grizzly bears associated

with roads by limiting road-related disturbances that leads to avoidance or displacement of otherwise suitable grizzly bear habitat, and by limiting human access into grizzly bear habitat that increases the risk of human-caused mortality. The Access Amendment standards also promote the availability of secure habitat, providing grizzly bears areas without human disturbances to meet their life history needs. In addition, the LRMP also contains multiple elements that reduce the potential effects of land management activities on the grizzly bear, including the Forest-wide desired condition element FW-DC-AR-07 that trends the forest towards a transportation system that provides for safe and efficient public and administrative uses while having minimal impact on threatened and endangered species, including grizzly bear, and where unauthorized roads and trails are no longer created.

Forest-wide desired conditions FW-DC-WL-01, 02, 03, 04, and 05 and Geographic-wide desired conditions GA-DC-WL-PR-02, GA-DC-WL-LK-03, and GA-DC-WL-PO-02 emphasize the need for large remote areas with low levels of disturbance so that grizzly bears have the necessary space and habitat unhampered by human activities. Guidelines and standards that limit roads, reconstruction and motorized use also decrease the risk of human-bear interactions. These include: MA1a-STD-AR-02 and 04; MA1b-STD-AR-01, 04, and 05; MA1c- STD-AR-01, MA1e-STD-AR-0; MA3-STD-AR-01, MA5-GDL-AR-03. Forest-wide, MA, and GA desired conditions for large, remote areas with low disturbance that will contribute to habitat security for grizzly bears: FW-DC-WL-02, 04, 07, FW- DC-WL-05, FW-DC-AR-07; MA3-DC-WL-01, MA1a,b,c,e-DC-WL-01, MA5-DC-WL-01; GA-DC-WL-PR-02, GA-DC-WL-LK-01, GA-DC-WL-LK-02, GA-DC-WL-LK-03, and GA-DC-LW-PO-02. These elements of the LRMP compliment the Access Amendment and decrease the risk of human-bear interactions. Taken together, the LRMP reduces the risk of human bear interactions and provides for the security needs of grizzly bear.

Any proposed roads under the LRMP will adhere to the requirements of the Access Amendment or require an amendment to the Plan. Hence, we anticipate that the LRMP's effects of roads on bears will largely be the same as previously analyzed in our biological opinion on the Access Amendment (USFWS 2011a, pp. A-66 to A-73). Thus, the section below focuses on the effects to grizzly bear related to the timelines for achieving access management standards and for completion of a winter travel plan, as well as on the updated environmental baseline conditions and clarification to access management for motorized access in BORZ.

3.3.1.2.1 Effects to Grizzly Bear from Access Management from the Extended Timeline to Meet Access Management Standards in BMUs

The IPNF is proposing revised timelines to achieve full compliance with the Access Amendment direction within BMUs under jurisdiction. The direction establishes standards for OMRD, TMRD, and Core habitat in individual BMUs within the SE and CYE (Appendix A). Design Element I-C of the Access Amendment direction provides an implementation schedule, charging the National Forests under the direction to achieve full compliance in all BMUs by 2019. The IPNF adopted those timeframes into their 2015 LRMP (USFWS 2013). As described in their BA, the IPNF has been unable to meet the established timeframe to achieve full compliance in BMUs under their jurisdiction, specifically the Blue-Grass and Long-Smith BMUs in the SE and in the Grouse and Boulder BMUs in the CYE. The BA provides an updated timeframe for

achieving full compliance in the BMUs that have yet to meet the established standards (pp. 33-38). There will be no changes to the other Design Elements of the Access Amendment direction.

The IPNF has issued decisions for projects to bring the Blue-Grass, Grouse, and Boulder BMUs into compliance with the Access Amendment standards. Each of these projects has undergone independent section 7 consultation, and the Service returned biological opinions for each. Through those biological opinions, we determined that the proposed projects would not jeopardize the continued existence of the grizzly bear (Service reference numbers 01EIFW00-2019-F-0876 Bog Creek Road Project, 01EIFW00-2018-F-0279 Grouse BMU Compliance Project, and 01EIFW00-2018-F-1309 Boulder Creek Restoration Project). An ITS accompanied each biological opinion, two of which, the Bog Creek Road Project in the Blue-Grass BMU and the Grouse BMU Compliance Project in the Grouse BMU, exempted incidental take to grizzly bears as a result of the delay to bring these BMUs into compliance with the established standards. The Boulder Creek Restoration Project ITS exempted take of grizzly bears caused by the worsening of OMRD and Core habitat conditions related to the project, but did not identify the additional time to reach compliance with the Access Amendment direction. The IPNF does not have a signed decision for an action to bring the Long-Smith BMU into compliance, but is in the process of developing a compliance project and anticipates reaching full compliance by the end of 2023 (BA, p. 7). The IPNF is proposing to reach full compliance with the Access Amendment for all BMUs under IPNF jurisdiction in the SE and three of four BMUs under their jurisdiction in the CYE by the end of 2023, and to reach full compliance in the CYE by the end of 2028.

Extending the timelines for meeting the established standards will affect road densities (OMRD and TMRD) and secure habitat (Core habitat) within four of the 12 BMUs that are under the jurisdiction of the IPNF (two of eight BMUs managed by the IPNF in the SE, and two of four BMUs managed solely by the IPNF in the CYE), prolonging the time it will take to meet those established standards (Table 11). Presently, all four BMUs have total road densities that exceed the established standards, and the Grouse BMU exceeds OMRD. In addition, three of the four BMUs are deficient in providing Core habitat in which grizzly bear can avoid disturbances. The Access Amendment biological opinion described how high road densities can cause serious declines in expected use of preferred habitat. Significant declines in grizzly bear use of habitat areas key to the survival of the grizzly bear, especially those habitat components with high seasonal values, indicate that habitat needed for survival and recovery is less available. Ideal grizzly bear habitat provides some areas isolated from excessive levels of human impact.

The Service determined that that some female grizzly bears were likely to experience adverse effects as a result of habitat modification or degradation that causes impairment to their feeding, breeding, and sheltering behavior in those BMUs that do not meet the research benchmark. The research benchmark for OMRD is for open route densities greater than 1 mi/mi^2 to occur on 33 percent or less of a BMU. For TMRD, the benchmark is for total route density greater than 2 mi/mi^2 to occur 26 percent or less of a BMU. The research benchmark is for Core habitat to be available across 55 percent or more of a BMU. Based on this, the Service anticipates that some female grizzly bears may experience adverse effects in those BMUs that do not meet the research benchmarks until the USFS completes those projects designed to bring the above named BMUs

into compliance with the established standards of the Access Amendment. This includes the following BMUs currently not meeting the standard for OMRD (Grouse BMU), TMRD (Blue-Grass, Grouse, and Boulder BMUs), and Core habitat (Blue-Grass, Grouse, and Boulder BMUs).

Table 11. Established standards for bear management units remain out of compliance with Forest Plan standards. Shaded blocks indicate the criterion does not meet the established standard, per the Access Amendment. Source: BA, p. 34.

Recovery Zone	Bear Management Unit	Percent OMRD >1 mi/mi^2	Percent TMRD >2 mi/mi^2	Percent Core Area
	Research Benchmarks	≤ 33	≤ 26	≥ 55
Selkirk	Blue-Grass	33	26	55
Selkirk	Long-Smith	25	15	67
Selkirk	Myrtle	33	24	56
Selkirk	Ball-Trout	20	13	69
Selkirk	Lakeshore	82	56	20
Selkirk	Kalispell-Granite	33	26	55
Selkirk	Sullivan-Hughes	24	19	61
Selkirk	Salmo-Priest	33	26	64
Cabinet-Yaak	18 (Boulder)	33	29	55
Cabinet-Yaak	19 (Grouse)	59	55	37
Cabinet-Yaak	20 (North Lightning)	35	20	61
Cabinet-Yaak	21 (Scotchman)	34	26	62

We anticipate high road densities will continue to result in under-use of otherwise preferred habitat that is likely to cause adverse effects to the feeding, breeding, and sheltering behavior of some adult female grizzly bears. We do not expect that all adult females exposed to disturbances related to high road densities or displacement from Core habitat will experience adverse effects. Effects would vary depending upon the wariness of the individual bear, the size of and habitat quality within her home range, the number of other grizzly bears using the particular area, climate conditions, annual food resources, and the nature, intensity and duration of human activity during any particular year. All of these factors may affect options available to displaced adult females. We expect that the level of adverse effects and the likelihood of effects will diminish as road densities are lowered and Core habitat is increased nearer to the research benchmark levels. Although the Long-Smith BMU is out of compliance with the established standards, the current condition exceeds (i.e., is better than) research benchmarks. We do not expect grizzly bears in the Long-Smith BMU to experience adverse effects; however, so long as the BMU remains deficient in TMRD, its contribution to compensating for poorer conditions in neighboring BMUs is reduced.

Grizzly bears may also experience increased mortality risk in areas with higher road densities. Roads facilitate human intrusion into grizzly bear habitat. Any delay that prolongs meeting the Access Amendment standards increases the risk of human encounters that could result in human-caused mortality. As previously described in section 3.3.1.1 “General Effects of Wheeled

Motorized Access on Grizzly Bears," grizzly bear mortality often occurs as a result of intentional (self-defense, defense-of-kill, poaching) or unintentional (mistaken identity) shootings, and most human-caused mortality occurs during fall hunting season. There is a potential for human-caused mortality of grizzly bears in BMUs where OMRD and TMRD remain above (i.e., worse than) the research benchmarks. The proposed action will continue the period in which the IPNF is deficient in meeting Access Amendment standards, and these BMUs will continue to have higher road densities than provisioned in the LRMP, thus increasing the potential for human-caused mortality. Mortality risk will continue to decrease as the BMUs are brought into compliance with the LRMP standards.

The extended timeline for achieving the established standards may also contribute to decreased grizzly bear movement and habitat fragmentation potentially to the extent where high road density or high use roads act as barriers to movement. Habitat fragmentation may also occur if grizzly bear mortality prevents successful movement through an area, or where road density and placement isolates secure habitats to the extent that grizzly bears must travel through unsecure areas or areas of higher mortality risk to meet their resource needs. However, research suggests that forest roads contribute minimally to habitat fragmentation, and they do not present complete barriers to movement. Of the BMUs affected by the proposed action, only the Grouse BMU is deficient in OMRD. The other BMUs are deficient in TMRD. The Access Amendment direction stipulates trip limits in TMRDs that minimize or reduce local disturbance and reduce the potential for loss of connectivity. We expect there may be some reduced grizzly bear movement (causing adverse effects feeding, breeding, and sheltering of female grizzly bears) until the BMUs reach compliance, but we do not anticipate that the extension to reach compliance will result in habitat fragmentation.

Several key components of the Access Amendment are likely to reduce adverse effects to grizzly bears in the interim until all BMUs are brought into compliance. For instance, until all standards are met, the USFS can only authorize limited activities affecting grizzly bear Core habitat. The LRMP also requires that Core habitat, once established, remains on the landscape for a minimum of ten years (Design Element I-B-3) so that established Core habitat is fully available to female grizzly bears. For those BMUs where Core habitat already meets or exceeds the standards, the LRMP prohibits the IPNF from implementing proposals that would permanently reduce Core habitat until all BMUs in each recovery zone meet the established standard (Design Element I-D).

Under the proposed action, which extends the timeline for the IPNF to meet the established standards, the USFS would be unable to propose permanent reductions in Core habitat until full compliance is achieved within ecosystem of the proposed action. The USFS will also continue to monitor at least 30 percent of closure devices to assure the OMRD standards are maintained (BA, p. 10). Assuring the gates are properly functioning reduces the likelihood that a restricted road would receive unauthorized use, thereby reducing or eliminating displacement effects and maintaining the lower risk of mortality afforded by restricted roads (i.e., no public use and minimal administrative trips).

The Access Amendment standards also allows an exception for a limited, one-time entry into Core habitat for road stabilization projects through temporary and peripheral incursions into grizzly bear Core habitats (Design Element I-B-2). As described in the biological opinion on the Access Amendment (USFWS 2011a, p. A-69), use of this exception is one additional form of potential adverse effect that may occur to grizzly bears associated with Core habitat on the IPNF. "The proposed Access Amendment allows for a one-time entry into core area on such roads for the sole purpose of hydrologically stabilizing the roads. To minimize the impact of such entry, the proposed Access Amendment requires that such work be completed in one bear season or less and the road is not to be entered for at least 10 years. The duration of activity is limited and the activity is limited to the road prism. Therefore, we do not expect these activities to cause adverse effects to grizzly bears in most cases, although the potential cannot be ruled out entirely. We expect only female grizzly bears with cubs would be adversely affected, as they tend to be more sensitive to human disturbance. However, these adverse effects would be short term only. Further, as stated, not all female grizzly bears affected by the one-time entries would be adversely affected, nor would all adverse effects rise to the level of significant impairment of breeding, feeding or sheltering. To prevent the need for such entries into Core habitat in the future, the proposed Access Amendment requires that roads that are closed to provide for core grizzly bear habitat be stabilized immediately and before the underlying habitat qualifies as core."

At full implementation of established standards, the LRMP envisions that seven of the eight BMUs in the SE will meet the research benchmarks for OMRD, TMRD, and Core habitat. Only Lakeshore, an extremely small BMU with 86 percent federal ownership, will be unable to meet the research benchmarks for OMRD, TMRD, and Core habitat in the SE. In the CYE, 12 of 22 BMUs will exceed (i.e., be better than) the research benchmarks for OMRD and TMRD and 20 of 22 BMUs will exceed (i.e., be better than) the research benchmark for Core habitat. Of BMUs under IPNF management, only the Grouse BMU, which is 46 percent state or private land, will not meet the research benchmarks (for any parameter). We anticipate that grizzly bears in the Lakeshore and Grouse BMUs are likely to continue to be exposed to adverse conditions as a result of the high road densities and lack of secure habitat and that these adverse effects will be a persistent condition. Despite this, we expect the IPNF will be fully compliant with the Access Amendment direction under the 2015 LRMP by the end of 2023 in the SE and by the end of 2028 in the CYE.

In addition, the North Lightning and Scotchman BMUs, where OMRD is 35 and 34 percent, respectively, will not meet the standard for OMRD, but where we do not anticipate adverse effects to grizzly bears. As described in the biological opinion on the Access Amendment (USFWS 2011, p. A-66), both of these BMUs are located on the southern periphery of the CYE. In the Scotchman BMU, roads are located in the southern periphery of the BMU and, in the North Lightning BMU, road density is driven by two major public routes and TMRD is well below (better than) the research benchmark. In both BMUs, Core habitat is abundant, well above (better than) the research standard and adjacent large blocks of Core habitat in neighboring BMUs. Due to these unique circumstances, we expect grizzly bears have habitat options that allow them to avoid potential encounters with humans in their home range movement, thus we

do not expect grizzly bears in these BMUs to experience adverse effects as a result of the OMRD condition even while meeting the established standard.

The Service has seen a positive trend on the IPNF towards meeting the established standards in IPNF-managed SE and CYE since 2011, thus a positive trend towards improving habitat conditions for grizzly bears related to access management in BMUs. We anticipate that continued improvements in habitat conditions through access management will provide conditions that improve opportunities for grizzly bears in the SE and CYE to find the resources necessary for feeding, breeding, and sheltering. We expect the proposed action to extend the timeframe to reach full compliance with the established standards in all BMUs and will cause some female grizzly bears to be exposed to suboptimal habitat conditions and increased mortality risk as a result of high road densities and lack of suitable secure habitat.

Female grizzly bears in BMUs with high road densities are likely to avoid or be displaced from key habitats and will be exposed to increased mortality risk that results in impaired feeding, breeding, or sheltering behavior. Females that are unable to meet their foraging needs may fail to complete current reproductive cycles (through reabsorption of embryos), produce smaller litters, or they may experience higher birth intervals or increased age at primiparity (age of maturity). In addition, cub survival decreases where females with cubs have to travel further to locate forage resources. We do not expect all female grizzly bears to experience these adverse effects, as local research has shown that some female grizzly bears in the SE and CYE have been able to reproduce successfully in home ranges containing average conditions that are worse than the research benchmarks, and we do not expect bears in the Long-Smith BMU to experience adverse effects. The LRMP offers some measures to reduce, but not prevent, adverse effects by limiting entries into Core habitat, requiring Core habitat remain on the landscape for a minimum of ten years, and requiring all Core habitat losses be compensated for with in-kind replacement habitat prior to or concurrent with the loss. Despite these efforts to reduce the potential for adverse effects due to avoidance or displacement from otherwise preferred habitat, the likelihood remains.

3.3.1.2.2 Effects to Grizzly Bear Related to Additional Information Available for BORZ

The IPNF provided additional information in the BA regarding the BORZ baseline and clarified management of the standards related to meeting the Access Amendment direction. The Design Elements of the Grizzly Bear Access Amendment related to BORZ continue under the Proposed Action through continued implementation of the LMRP standard FW-STD-WL-02, particularly the standards that prevent permanent increases in linear miles of open and total roads in BORZ above the baseline miles in existence at the time the BORZ was delineated. The proposed action includes a few key points regarding BORZ standards and baseline, which warrant evaluation in terms of effects to grizzly bears:

1. Corrections to the baseline condition
2. The process for documenting BORZ expansions
3. Clarification to the “no net increase” standard

Corrections to the Baseline Condition of BORZ

The Access Amendment established the baseline condition as of 2010 for linear miles of open and total roads within the original BORZ polygons (USFWS 2011a). The baseline condition is important because it established the miles of open and total routes against which there can be no permanent increase. During the early BORZ mapping exercises, the Forest Service recognized that the maps would need to be revisited and updated periodically as additional, pre-existing roads were discovered through project ground-truthing or as mapping technologies improved (BA, p. 46). The IPNF has discovered errors in the database in terms of how roads are categorized (e.g. roads categorized as "open" actually had a gate that restricted access, or vice versa, roads that were categorized as "restricted" that did not have a closure device) or have discovered pre-existing roads that should have been, but were not, included in their roads database. As these errors have been discovered, the IPNF has corrected their database and re-calculated the miles of open and total roads for the baseline condition.

The IPNF has provided an updated baseline (Table 10) that captures corrections to the baseline condition since the Access Amendment was implemented. The 2010 baseline condition did not include motorized trails or certain pre-existing road segments (i.e., roads authorized under ANILCA claims), so the IPNF has made the appropriate corrections to include all motorized routes. Consistent with our biological opinion on the Access Amendment, the Service assumes some grizzly bears attempting to use BORZ likely experience adverse effects to their feeding, breeding, and sheltering behavior as a result of the relatively high road densities and limited secure habitat, relative to BMUs. However, the Service anticipates there will be no additional effect to grizzly bears as a result of these baseline corrections because these corrections represent improved information and do not represent any increase in miles of motorized routes beyond those already present on the landscape at the time of BORZ delineation. The IPNF will continue to apply the relevant Design Elements of the Access Amendment in BORZ in recognition of the actual known miles of linear open and total routes.

As grizzly bears continue to recover, we expect that expansion of BORZ will continue, and that any additional BORZ areas will likely have high road densities and low amounts of secure habitat, but we cannot infer site-specific conditions at this time. Given the uncertainty, the Service cannot fully assess the effects to grizzly bears within the context of this Opinion. Should the IPNF seek to expand or add a BORZ in the future, the IPNF should consult with the Service. We expect all LRMP standards for BORZ will apply to these expansion areas or new BORZ, including the standard that prohibits permanent increases in open and total route miles above the baseline condition at the time of delineation, but we will evaluate this at the time of the specific consultation. Following consultation, the IPNF will amend the BORZ baseline condition to reflect the updated BORZ baseline, as expanded, and report the updated baseline condition in the annual monitoring report.

BORZ Expansions

As described in section 3.2.3.1 *Access Management* section of this Opinion, the Forest Service, in coordination with the Grizzly Bear Recovery Office, annually reviews information on grizzly

bear occurrence outside of recovery zones to determine whether new areas should be delineated as BORZ. As a result of this process, the IPNF expanded the Mission-Moyie BORZ in 2016 and 2019, and expanded the Pack River BORZ in 2019 to include NFS lands that have received recurring grizzly bear use (USFS 2017; USFS 2020b).

Existing motorized route conditions in BORZ are generally less favorable to grizzly bears than in BMUs. Linear route densities in most BORZ areas, including the expansion areas since 2011, are relatively high. Likewise, the existing amount of secure habitat in BORZ, including the expansion areas, is relatively low (Table 10). On that basis, we reaffirm our previous assumptions that the existing motorized access conditions within the BORZ likely have adverse effects to grizzly bears attempting to use portions of these areas as a result of habitat degradation that impairs their normal feeding, breeding, and sheltering behavior (USFWS 2011, p. A-72, USFWS 2013, p. II-55 to II-56). However, we expect that a number of grizzly bears will continue to use BORZ areas despite these suboptimal conditions, including females, albeit at lower densities than grizzly bears in the recovery zones, based on the fact that grizzly bears are moving into these areas under the prevailing conditions.

Despite the fact that the LRMP does not require the IPNF to manage for grizzly bears or their habitat outside of the recovery zones, the Access Amendment includes Design Elements to protect habitat and moderate mortality risk in BORZ. The proposed action will not modify any of the Design Elements related to BORZ. Design Elements assure that no permanent increases in linear miles of open and total routes in BORZ occurs and requires any proposed increases in linear miles of open and total routes in BORZ be compensated for with in-kind reductions in linear miles of open and total routes elsewhere within the same BORZ. In addition, timber harvest activities in multiple watersheds in BORZ must be scheduled so that grizzly bears can avoid project-related disturbances, and provisions for temporary roads are included, as previously described. Applying the Access Amendment standards to BORZ expansion areas offers some habitat protection for grizzly bears by assuring the linear miles of open and total routes will remain at the same level as when bears began regularly using the area. The LRMP maintains the amount of human disturbance associated with linear miles of open and total routes, and moderates the risk of human-caused mortality to the degree in existence at the time grizzly bears began regularly using these areas.

As grizzly bears continue to recover, we expect that expansion of BORZ will continue, and that any additional BORZ areas will likely have high road densities and low amounts of secure habitat, but cannot infer site-specific conditions at this time. Given the uncertainty, the Service cannot fully assess the effects to grizzly bears within the context of this Opinion, and thus the IPNF will need to reinitiate consultation at the time new BORZ areas are delineated. We expect all LRMP standards for BORZ will apply to these expansion areas or new BORZ, including the standard that prohibits permanent increases in open and total route miles above the baseline condition at the time of delineation.

“No Net Increase” Standard

The Access Amendment standards prohibit increases in *permanent* linear miles of open and total routes on NFS lands in BORZ, except where the IPNF lacks discretion to prevent road building on IPNF lands (Design Elements II-A and II-B). This is generally referred to as the "no net increase" standard. This standard attempts to maintain the existing motorized access conditions within a BORZ to the level present when grizzly bears began using the areas on a regular basis. Although the "no net increase" standard limits linear miles of motorized routes in each BORZ, it does not necessarily limit effects to secure habitat. The example in Figure 6 below shows a simplistic example of how relocating the linear miles of routes within a BORZ could decrease the amount of secure habitat while maintaining the linear miles baseline condition.

The proposed action clarifies intended exceptions to the "no net increase" standard that may allow motorized use on routes (and affect secure habitat) without being counted as permanent linear miles against the baseline. Exceptions to the "no net increase" standard include: (1) administrative use on restricted roads; (2) baseline corrections (motorized use on routes that have existed prior to the baseline); (3) motorized use in emergency situations, as defined by 36 CFR § 215.2; (4) motorized use on routes in relation to land exchanges or acquiring, buying, or selling real estate; (5) motorized use on new or existing routes where the Forest Service lacks discretion to prevent access due to legal or other obligations; and (6) temporary roads for project or other administrative purposes.

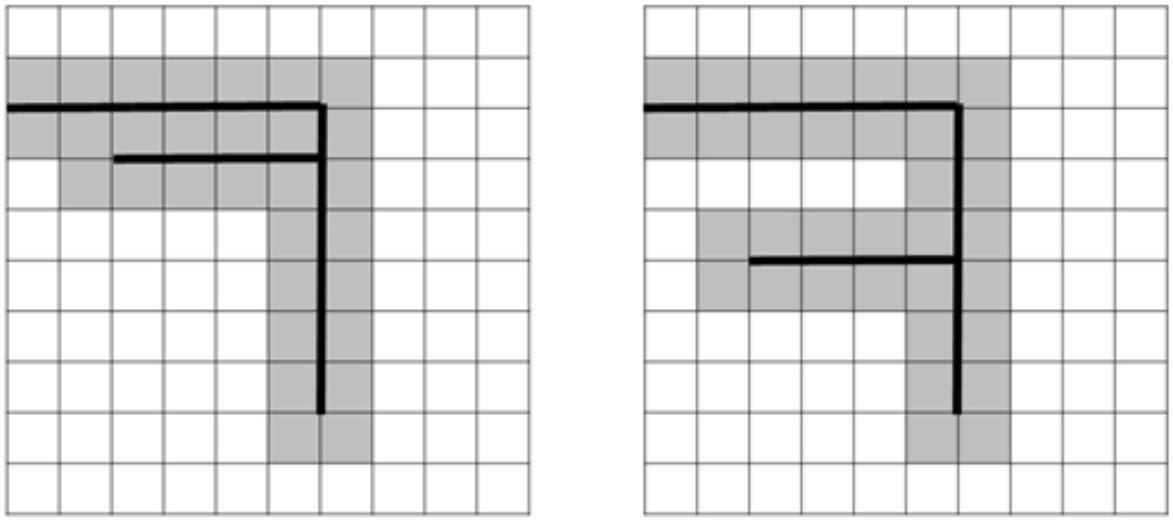

Figure 6. Simplistic example of a 5 percent decrease in secure habitat while linear road amounts stay the same. Clear squares represent secure habitat. The shaded squares represent non-secure habitat around roads (dark black lines).

Two of these exceptions would not result in any changes to the on-the-ground conditions in terms of motorized access and secure habitat. These two exceptions are administrative use of restricted roads and database corrections. Database corrections, as discussed above, provide a more accurate description of the conditions at the time the BORZ was delineated. The Access Amendment does not limit administrative use of restricted roads in BORZ (as compared with

BMUs); therefore, making this clarification will not impose additional motorized disturbance to grizzly bears from that previously assumed.

Other exceptions to the "no net increase" standard could result in changes to the motorized access in BORZ that may affect secure habitat, ultimately resulting in adverse effects to grizzly bears. Motorized access for emergency situations, as defined by 36 CFR 215.2, are inherently unpredictable due to the nature of emergency situations, and we cannot reasonably assess the full impacts to grizzly bears at this time; however, most emergency response actions result in temporary disturbances. We do not expect most emergency roads to result in permanent effects to secure habitat. Effects to grizzly bears will be determined through the emergency consultation process.

Land Exchanges. Land exchanges, acquisitions, or dispositions within BORZ generally do not result in on-the-ground changes in motorized access, but could result in the IPNF relinquishing a parcel with more secure habitat for one with less secure habitat. Land exchanges are not prohibited by the Access Amendment direction, nor are there any Design Criteria in the Access Amendment requiring the IPNF to offset net losses of secure habitat in BORZ resulting from land exchanges. The IPNF explains that land exchanges occur infrequently because they generally take a long time to realize due to lengthy planning, analysis, and scoping (D. Probasco 2020a, *in litt*.). The IPNF generally prioritizes land transactions that maintain or build more contiguous NFS lands, and generally favors acquiring lands from private timber companies as opposed to residential properties. We assume any grizzly bears utilizing acquired parcels at the time of the transaction are accustomed to the existing conditions but, depending on the nature of the transaction, long-term effects to grizzly bears may range from benign to consequential. Due to the inherent uncertainties surrounding real estate transactions, potential effects to grizzly bears are analyzed at the time of transaction through project-specific consultation (BA, p. 60). Following consultation, the IPNF will amend the baseline condition to reflect the actual linear miles of open and total routes, and report the updated baseline condition in the annual monitoring report. In all cases, the IPNF would adhere to the standards and guideline of the LRMP.

Road Building to Meet Legal Obligations. Access management decisions may result in adverse effects to grizzly bears in situations where the USFS lacks discretion to prevent road building across NFS lands, such as ANILCA claims that provide motorized access to private lands. While these roads would be allowable under the LRMP standards, and would not count towards permanent total or open route metrics, they could affect overall road densities and secure habitat. Effects to grizzly bear may be minor and insignificant, but some may be adverse, depending on road length, placement, access designation (i.e., open or restricted), etc. Since 2010, the IPNF has added a total of 3.1 miles across all three BORZ to meet legal obligations (BA, Table 17 on p. 47). Most segments have been less than 0.1 mile, and the longest was 1.6 miles. We expect the IPNF to continue issuing special use permits for access to private lands as required, which would require separate consultation with the Service. Once consultation is complete, the IPNF will provide the updated baseline condition in the following annual monitoring report. The IPNF may also permanently affect secure habitat through short route relocations that improve human safety or protect IPNF infrastructure. Route relocations generally occur from relocating routes out of risk areas, such as relocating roads out of riparian areas with a history of flooding. While

infrequent and often causing little to no increase in open or total route miles, we expect short route relocations may result in permanent loss of secure habitat.

We anticipate future road building across USFS lands due to legal or other obligations, as described in Design Element II-A and II-B, as well as road building due to short route relocations may continue to occur, but we expect they will continue to represent short linear segments that generally overlap the "zone of influence" buffer around existing roads. Based on the information of the amount of such activity since 2010, we conservatively estimate that these road types may result in up to a 2 percent net reduction in secure habitat within a BORZ. As previously discussed, there are no provisions for secure habitat in BORZ through the Access Amendment or LRMP. Habitat security is primarily achieved by limiting linear miles of open and total permanent roads to the existing baseline condition when bears started using the habitat. We assume grizzly bears in BORZ likely experience adverse effects to their feeding, breeding, and sheltering as a result of high road density and limited secure habitat. We expect a 2 percent reduction in secure habitat is likely to exacerbate existing adverse effects to female grizzly bears within BORZ, but we do not expect adverse effects to males because of their larger home ranges and reduced energy needs compared to females.

Patches of secure habitat in BORZ may be separated by areas with relatively high motorized route densities, which may impede movement within BORZ. Movement may be further impeded by permanent increases in linear miles of open and total routes. However, because most of these roads are gravel or native material, i.e., forest roads, we do not anticipate the same type of fragmentation associated with highways or high-speed roads (Apps et al. 2013, pp. 102-105; see Proctor 2020, p. 22). Bears may avoid the higher density motorized routes in terms of daily use for foraging, but thus far current movement and use patterns in BORZ, including immigration to both the SE and CYE, do not suggest that high density forested routes cause a complete barrier to movement. Because few grizzly bears occupy the area encompassing the three BORZ currently designated on the IPNF, intraspecific competition is probably not significant and grizzly bears using these three BORZ likely have options related to home range selection and use in response to road-building and human use activity in these BORZ areas. We do not expect that a loss of 2 percent secure habitat would preclude grizzly bears from using BORZ.

Temporary Roads. Forest management often includes the construction and use of temporary roads or temporary use of restricted roads for motorized access, and temporary increases in linear miles of open and total roads are permitted under specific circumstances described in Design Elements II-A-1, II-B-1, II-B-2, and II-B-3 of the Access Amendment direction. Management of temporary roads would continue as defined under the Access Amendment direction in that temporary roads will not be open to the public except under limited circumstances and will be made impassable immediately when no longer needed for their intended purpose (USFS 2015a, p. 155). The IPNF predicts temporary roads will generally remain on the landscape for five years, but may remain for up to ten years (BA, p. 8). Under the proposed action, the IPNF clarifies that temporary roads would not be bound by the "no net increase" standard.

The IPNF is unable to estimate the exact amount and location of secure habitat that may be affected by temporary roads during the life of the LRMP. We expect that not all future

temporary roads would affect secure habitat, given that many temporary roads are constructed in areas with existing motorized routes. However, depending on the location, some temporary roads could affect secure habitat, and thus temporarily reduce its effectiveness to support grizzly bears. Temporary roads that exist for a few years may result in short-term disturbance to grizzly bears that may be insignificant if secure habitat is not affected. By contrast, temporary roads that exist for more than a few years that affect secure habitat may result in bear displacement from suitable habitat that could result in adverse effects to grizzly bears. This is particularly true for any female bears, particularly if roads remain on the landscape for up to ten years because avoidance behavior is likely to be passed from sow to cubs. Design element II-C helps reduce effects by stating "Timber harvest activities that will occur within multiple watersheds shall be scheduled such that disturbance of grizzly bears resulting from road use is minimized. The appropriate scale for scheduling harvest activities will be determined pursuant to project level consultation" and public use of temporary roads is extremely limited in space and time via Design Elements II-A and II-B, which reduces the risk of grizzly bear mortality associated with roads and motorized use. We anticipate some future adverse effects to grizzly bear from temporary roads could occur under the LRMP that is likely to exacerbate existing adverse baseline habitat conditions but, given the uncertainties, future proposals for temporary changes to secure habitat would be subject to project-specific consultation.

Other Roads. Through management decisions (e.g. road re-routes, timber harvest) the IPNF may permanently alter the juxtaposition of roads within BORZ while still maintaining the linear miles of open and total roads, which could result in permanent reductions in the existing amount of secure habitat, as exemplified in Figure 6 above. We anticipate the range of effects to grizzly bears caused by local road changes to vary, depending on multiple factors. The loss of smaller patches of secure habitat may have minimal adverse effects, depending on the location and condition of the habitat. However, if those small patches provide connectivity to other areas of secure habitat, the permanent loss of the secure habitat could lead to increased fragmentation. The loss and/or fragmentation of larger patches of secure habitat may result in displacement of grizzly bears from otherwise suitable habitat. The habitat quality within a patch of secure habitat, configuration on the landscape, and the connectivity of secure habitat to other habitats would all influence the extent to which grizzly bears would be adversely affected by the permanent loss of secure habitat.

We anticipate some grizzly bears would continue to use some portions of BORZ areas even if some of the existing secure habitat was lost. However, given the low amount of existing secure habitat in BORZ, future losses may result in adverse effects to female grizzly bears in BORZ areas or exacerbate the adverse effects an individual may already be experiencing. Most bears that currently use BORZ areas are males (Kasworm et al. 2019a, p. Appendix 4; Kasworm et al. 2019b, Appendix 4; W. Kasworm 2020, *in litt*.). Female grizzly bear use of BORZ is peripheral for the most part, occurring where life ranges primarily overlap the recovery zone with a smaller overlap of BORZ. Patches of secure habitat within BORZ may be important for female grizzly bear use, and as such, we anticipate any reduction in the amount of secure habitat, or fragmentation of larger blocks of secure habitat, would result in adverse effects to these grizzly bears, or may modify the use patterns in BORZ where some females may use BORZ with less frequency. Future projects that propose removing some roads so that others can be built

elsewhere, and thus, meeting the "no net increase" standard, may have a range of effects, depending on the location and habitats affected by new road construction and loss of secure habitat. The full range of effects cannot be anticipated in this consultation, and future projects will be subject to project-specific consultation to assess the site-specific effects to the grizzly bear if the modification results in a loss of secure habitat.

Monitoring. Under the proposed action, the IPNF will continue its ad hoc and opportunistic monitoring within BORZ, as described in the BA (p. 8), and has committed to addressing issues immediately if materials and equipment are available or as soon as possible, within the same bear year or early the following bear year. Prompt response to any issues it discovers will help ensure the effectiveness of access management decisions in terms of benefitting grizzly bears, including the placement of devices intended to restrict public or all motorized access on restricted or barriered routes, respectively.

Summary of Effects to Grizzly Bears in BORZ

The Service anticipates that secure habitat in BORZ may be affected through the implementation of some exceptions to the "no net increase" standard, especially where effects occur simultaneously within a given BORZ area. When combined with existing low amounts of secure habitat in BORZ, some adult females may be displaced from key habitats to the extent they experience adverse effects to their normal ability to readily find food resources, breed and raise young, and find adequate shelter at some time over the life of the LRMP.

We anticipate that adverse effects from existing motorized access conditions, permanent and/or temporary road construction and use, and temporary use of restricted roads are likely to affect only a few adult female grizzly bears in BORZ over the life of the LRMP, based on monitoring results to date. Not all adult female bears exposed to stressors associated with motorized access in BORZ are likely to have their breeding, feeding, or sheltering activities significantly disrupted because the magnitude of these disturbance effects are likely to vary on an annual basis depending upon the wariness of the individual bear, the size of and habitat quality within her home range, the number of other grizzly bears using the particular area, climate conditions, availability of annual food resources, and the nature, intensity and duration of human activity during any particular year. All of these factors influence the response by adult females to exposure to motorized vehicular activity. Finally, while future permanent effects to secure habitat within BORZ caused by road relocations may result in adverse effects to some female grizzly bears, the under-use of habitat does not necessarily preclude use or form a barrier to dispersal and movement within or across BORZ.

3.3.1.3 Effects to the Grizzly Bear from Motorized Winter Travel in Light of the Extended Timeline to Complete a Winter Travel Plan

This analysis addresses the effects of motorized winter travel (may also be referred to as "snowmobiling or "snowmobile use"), in light of the IPNF proposed extension of the timeline to complete a winter travel plan. The 2013 biological opinion on the IPNF LRMP determined that there were areas of the IPNF where overlap between grizzly bears and snowmobiling could

occur. The ITS accompanying the 2013 biological opinion included a Term and Condition requiring the IPNF to complete a winter travel plan within five years of implementation of the LRMP (i.e., by February of 2020). The IPNF has been developing the Kaniksu Winter Travel Plan since January of 2018 (BA, p. 32). However, to date, a proposed plan has not been completed, and no NEPA public scoping on a proposed plan has occurred. As a result, the IPNF has not yet complied with the ITS Term and Condition, but, under the proposed action, commits to do so by the end of 2023 (BA, p. 7). The winter travel plan will consider and evaluate the risk of encounter between grizzly bears and late season snowmobiling, and may include area closures or other restrictions, if deemed necessary to protect grizzly bears emerging from their dens.

3.3.1.3.1 General Effects of Motorized Over-Snow Access on Grizzly Bears

In general, effects on grizzly bears from snowmobiling may occur during denning, after den emergence, and in spring habitat. Available information regarding the effects of snowmobiles on grizzly bears is largely anecdotal, based on grizzly bear responses to various stimuli other than snowmobiles that were collected during research. Such reports typically lack information related to the timing of disturbance, type of den, winter conditions or other important factors necessary to assess the significance of disturbance to grizzly bears, if any. Some information collected on black bears or other Ursids may have some relevance, but even the data on these species is incidental and largely theoretical. Subsequent attempts to locate research on the effects of snowmobiling on grizzly bears were unfruitful.

The available research indicates that grizzly bears may experience some disturbance where snowmobiling occurs while bears are in their den, but the effects are thought to be minor as snow is an excellent sound barrier (Blix and Lentfer 1992, p. 22) and impacts to denning bears would likely be less in deep snow situations than in shallow snow conditions. It is likely that hibernating bears exposed to meaningless noise, with no negative consequences to the bear, would habituate to this type of disturbance (Knight and Gutzweiler 1995).

Den abandonment has been documented in association with industrial activity and direct approach (Reynolds et al. 1986, p. 174; Harding and Nagy 1980, p. 278; Craighead and Craighead 1972, p. 31). Harding and Nagy (1980, p. 278) found that one grizzly bear abandoned its den after having the den driven over by a seismic vehicle. On the other hand, other events with seemingly similar levels of disturbance have not led to den abandonment (Reynolds et al. 1986, p. 174; Mace and Waller 1997, p. 41; Linnell et al. 2000, pp. 407-408). We are not aware of any primary-source reports in the literature of grizzly bear den abandonment directly attributed to snowmobile activity (USFWS 2008, p.33). Nor has other substantive adverse effects on bears from snowmobile use been substantiated (USFWS 2008, pp.32-53). In fact, Mace and Waller (1997, p. 41) reported no abandonment of dens by grizzly bear even though snowmobiles were often seen within 2 km of den sites. Likewise, the Interagency Grizzly Bear Study Team has intensively researched grizzly bear ecology in the Yellowstone Grizzly Bear Ecosystem from the 1970's to the present, but this research has never documented den abandonment attributed to snowmobiles.

After den emergence in spring, grizzly bears seek sites that melt snow early and produce green vegetation (Kasworm et al. 2010, p. 65). There is limited potential for snowmobiles to occur in these areas, but there is the potential for snowmobiling to overlap spring grizzly bear habitat for a short period of time after den emergence. The portion of the population using these habitats in early spring is most likely to be males and lone females that can move away from the disturbance (W. Kasworm 02/03/2013 pers. comm. cited in USFWS 2013, p. II-9).

Any disturbance from snowmobiling may be most consequential shortly before or after den emergence of a female with cubs (Graves and Reams 2001, entire). Females and their cubs remain in the den site area for several weeks after emergence from dens (Haroldsen et al. 2002, p. 33; Mace and Waller 1997, pp. 37-38). Females with cubs have high energetic needs, and cubs have limited mobility for several weeks after leaving the den. Disturbance levels that cause a female to prematurely leave the den in spring or move from the den area could impair the fitness of the female and safety of the cubs. If cubs attempt to follow their mother, they will likely experience decreased fitness and the family group may be pushed to less suitable habitat.

3.3.1.3.2 Effects to the Grizzly Bears from Over-Snow Access in the Action Area under the Extended Timeline to Complete the Winter Travel Plan

Motorized over-snow use may occur in the form of motorized trail grooming, but we do not expect trail groomers to venture from the trail prism, nor do we expect grooming to overlap grizzly bear den sites; therefore, we expect any effects to grizzly bears from grooming will be discountable. The primary concern to grizzly bears from motorized over-snow use is from public activity.

Snowmobiling is designated on 303,595 acres (79 percent) of the SE and on 216,405 acres (87 percent) of the CYE; however, not all of this acreage is available for snowmobiling. Snowmobiling in the SE is limited across most of the recovery zone by a closure order put in place to protect woodland caribou (Court Order NO. CV-05-0248-RHW). There is no such closure order in the CYE, but topography and vegetation also limit where this activity can actually occur in both ecosystems. Grizzly bear denning habitat was modeled separately for the SE and CYE using local data. The IPNF-managed portion of the SE include 14 miles of groomed routes overlapping approximately 118,200 acres of modeled grizzly bear denning habitat and off-route use occurs on approximately 7,440 acres of modeled grizzly bear denning habitat. There are 26 miles of groomed routes overlapping approximately 74,750 acres of modeled grizzly bear denning habitat and off-route use on approximately 14,250 acres of modeled grizzly bear denning habitat within the IPNF-managed portion of the CYE (BA, p. 53). Both on and off-route snowmobiling overlaps 6 and 19 percent of the IPNF-managed portion of the SE and CYE, respectively (BA, pp. 53-54). At the recovery zone level, snowmobiling overlaps just 9 percent of the CYE. The current level of overlap is expected to remain until the winter travel plan is complete.

Snowmobiling may also occur in all BORZ on the IPNF, and there is no closure order limiting the area where snowmobiling may occur in BORZ. Routes available for snowmobiling vary across the three IPNF-managed BORZ (Table 12). Public motorized use is facilitated by a

combined 71.3 miles of groomed and ungroomed routes in the Priest BORZ, a combined 30.9 miles of groomed and ungroomed routes in the Pack River BORZ, and 21.4 miles of groomed routes in the Mission-Moyie BORZ. Grizzly bear denning habitat has not been mapped in BORZ, but is likely variable across BORZ. For example, the Priest BORZ is comprised of lower elevation habitat with flatter topography, making many areas of the Priest BORZ less suitable for denning. Despite this, there is one male grizzly bear known to have denned in the Priest BORZ (W. Kasworm 2020, *in litt.*). In addition, there have been 3 males and 1 female known to have denned in the Mission-Moyie BORZ.

Table 12. Routes that receive or are available for motorized winter over-snow use in BORZ.

BORZ	Recovery Zone	Groomed Snowmobile Trail (miles)[a]	Ungroomed Snowmobile Trail (miles)	Groomed Cross Country Ski Trail (miles)[b]	Groomed Snowshoe Trail (miles)[b]	Total Trails with Motorized Use (public use)
Priest	Selkirk	26.5	44.8	7.6	1.5	80.4 (71.3)
Pack River	Selkirk	18.4	12.5[c]	N/A	N/A	30.9 (30.9)
Mission-Moyie	Cabinet-Yaak	21.4	N/A	N/A	N/A	21.4 (21.4)

[a] Trail grooming generally does not occur after April 1 (D. Probasco 2020b, *in litt.*).
[b] Grooming vehicles are the only motorized use on these trails.
[c] Not specifically designated as a snowmobile trail, but is an identified trail where snowmobiling is permitted.

In general, we assume grizzly bear denning is likely less prevalent in BORZ, compared to the recovery zones based on the fact that we expect fewer grizzly bears to use BORZ, compared to the recovery zones, as previously described. Despite the limited grizzly bear use in BORZ and the fact that denning habitat has not been modeled in BORZ, we conservatively assume there is some undetermined amount of overlap between late season snowmobiling and grizzly bear denning habitat in BORZ. The current overlap between any late-season snowmobiling and grizzly bear denning habitat will remain until the winter travel plan is completed, by the end of 2023. We expect the winter travel plan will evaluate the overlap between late season snowmobiling and grizzly bear denning habitat in BORZ (BA, p. 64), and will be consistent with guideline FW-GDL-WL-01 that specifies management activities in BORZ should reduce or minimize disturbance in areas of predicted denning habitat during spring emergence.

Additional elements of the LRMP that reduce current impacts to grizzly bears and would provide protection of grizzly bear in the development of the winter travel plan include the following two desired conditions: 1) FW-DC-WL-01 that states dens for threatened and endangered species are relatively free of human disturbance when they are in use; and 2) FW-DC-WL-04 that states all BMUs must have low levels of human disturbance to facilitate grizzly bear use such as denning. The winter travel plan will also consider guideline FW-GDL-WL-01, which restricts management activities during the grizzly bear spring emergence April 1 through May 1 where predicted denning habitat occurs and standard FW-STD-WL-04 that prohibits grooming of snowmobile routes in grizzly bear Core habitat after April 1 of each year. All proposed IPNF projects on the NFS lands must adhere to the LRMP standards and guidelines. On that basis, we

expect the winter travel plan to fully consider and evaluate the risk of encounters between grizzly bears and snowmobiling, and include area closures or other restrictions, as appropriate, to protect grizzly bears. Effects to grizzly bears from the winter travel plan will be subject to separate consultation.

We acknowledge that some denning habitat in both the SE and CYE on the IPNF occurs in grizzly bear Core habitat or in BORZ secure habitat. There is no winter season ending date for motorized use on the IPNF. Therefore, snowmobiling on roads, trails, and open areas is allowed as long as the snow persists. Snow conditions within the action area are often suitable for snowmobiling to continue beyond April 1, the beginning of the grizzly bear non-denning period. Therefore, some level of motorized use (snowmobile only) will likely occur within Core and/or secure habitat and on restricted roads during the non-denning period, compromising the effectiveness of Core and/or secure habitat and OMRD for a short period of time. This overlap could occur in late fall through early spring of each year, but the effects to grizzly bears are most consequential during den emergence for females with cubs at den sites. Extending the timeframe for completing the winter travel plan will prolong the existing temporal and spatial exposure of grizzly bears to snowmobile use until the end of 2023.

Effects on Denning Habitat. The potential for disturbance to denning grizzly bears on the IPNF does exist but is probably low due to the low probability of a direct encounter of a snowmobile to a den and even in that unlikely case, the excellent insulative properties of snow to mitigate noise minimizes effects to denning bears. Typical high-use snowmobile areas overlap denning habitat on six percent of the IPNF-managed SE and nineteen percent of the IPNF-managed CYE. The amount of snowmobile overlap with denning habitat in BORZ is less certain, but is likely limited at lower elevations and in areas with gentler topography (BA, p. 64). Typical high-use snowmobile areas and potential den sites also have a limited likelihood of overlap because grizzly bears generally den in either timbered habitat or very steep slopes, including the slopes of open basins (USFWS 2010, p. 26). Most of the heavy snowmobile use occurs on trails, roads, or open basins, and meadows, although some snowmobile riders use steep open basins for “high marking”, in which case there is potential for direct overlap between denning habitat and steep open slopes favored for “high marking” by snowmobiles. However, most denning habitat, except for “high- marking” areas, is less favorable for snowmobile use and, as such there is a reduced chance of adverse overlap between grizzly bear den sites and snowmobile traffic.

Therefore, there is a low likelihood that some grizzly bears in the IPNF-managed SE, CYE or BORZ may be affected during the denning season, but the Service believes that the magnitude of impacts during this time in both the recovery zone and BORZ would be insignificant and unlikely to adversely affect grizzly bears.

Effects on Spring Habitat. After den emergence in spring, grizzly bears seek sites that melt snow early and produce green vegetation (Kasworm et al. 2019b, p. 55). These sites can often overlap with ungulate winter range and provide winterkill carrion. Spring habitat use in the SE and CYE (April and May) indicated use of low elevation sites. The portion of the population using these habitats in early spring is most likely to be males and lone females that are mobile and can move from disturbance (W. Kasworm 01/28/2013 pers. comm.).

Females with cubs are more vulnerable, but are likely to remain at the higher elevation denning habitat in the early spring. The potential for disturbance or displacement of grizzly bears from spring feeding habitat in the action area (CYE and SE) is influenced by the variability in snowpack and the rate of spring melt. It is likely that some level of motorized (snowmobile only) use occurs during the spring period within Core/secure habitat and on restricted roads during the non-denning period, which will likely compromise the effectiveness of Core/secure habitat and OMRD for a short period of time. However, these areas remain designated as Core habitat in the recovery zones and as secure habitat in BORZ, and will continue to provide secure areas for grizzly bears during the remainder of the non-denning period. The risk of such a compromise within spring habitat is likely lessened due to the fact that if the area is accessible to snowmobiles then it is not likely providing spring habitat for grizzly bears at the same time.

The LRMP will prohibits grooming of snowmobile trails in Core habitat after April 1, and grooming in BORZ generally does not occur after April 1 (D. Probasco 2020b, *in litt.*). For this reasons and based on the discussion above, the Service expects impacts to spring habitat and foraging grizzly bears is low in both the recovery zone and BORZ and the magnitude of impacts during this time would be insignificant and unlikely to result in adverse effects.

Effects on Emerging Females with Cubs of the Year. Disturbance from snowmobiles may adversely affect grizzly bears shortly before or after den emergence of a female with cubs. To date, we are unaware of any documentation of snowmobile-related impacts on post-den emergent females with cubs, although detection of such events may go unreported. We have found no primary-source reports in the literature of grizzly bear den abandonment directly attributed to snowmobile activity (Hegg 2010 pp. 26-27; Servheen 2010 pers. comm. as cited in USFWS 2011b, p. 34) nor has other substantive adverse effects to bears from snowmobile use been substantiated (Mace and Waller 1997, p.41; USFS 2006, pp.3-263 to 3-373). However, snowmobiles could disturb females and their cubs near the den site after emergence from dens. Disturbance levels that cause a female to prematurely leave the den in spring or move from the den area could impair the fitness of the female and safety of the cubs. If cubs attempt to follow their mother, they will likely experience decreased fitness and the family group may be pushed to less suitable habitat.

Most of the data on den emergence in the SE is from female grizzly bears. Sample sizes are small, but some information can be garnered. Den emergence in the SE ranges from the third week of March to the second week of May (Kasworm et al. 2019a, p. 32). Den emergence in the CYE is similar to the SE, but ranges from the first week of March to the third week of May with 95 percent of bears out of their dens by the second week of May (Kasworm et al. 2019b, pp. 47-48). Denning chronology is not available for BORZ, but is assumed to be consistent with the recovery zones of which they are associated. The IPNF considers over-snow vehicle use in May is “rare to non-existent” due to avalanche danger and because the roadbeds are melting out, making travel into areas with enough snow for snowmobiling difficult, but some snowmobile users may try to reach higher elevations (BA, p. 52). By May 1, fourteen percent of grizzly bears in the CYE were still in their dens, and more than half of which were females with cubs-of-the-year (Kasworm et al. 2019b, p. 47), so any overlap of snowmobiling during den emergence is likely to affect females with cubs disproportionately more than other grizzly bear cohorts.

The USFS and the Service agree that the overlap between late spring snowmobiling (i.e., April 15 to May 31) and grizzly bear denning habitat is currently very small in both space and time within the SE and CYE recovery zones, and within BORZ. As previously discussed, the combined on and off-trail snowmobiling overlaps approximately six and nineteen percent of modeled grizzly bear denning habitat in the IPNF-managed portion of the SE and CYE, respectively. Snowmobiling may occur anywhere in BORZ on the IPNF, but is likely limited by the availability of public access routes (Table 12). However, there is no winter season ending date for motorized use on the IPNF, so snowmobile use of roads, trails, and open areas is allowed as long as the snow persists.

The likelihood of impact from snowmobiling on emerging females with cubs is low because (BA, p. 61; USFWS 2013, p. II-69):

- Snowmobile use overlaps just 19 percent of modeled denning habitat in the IPNF-managed CYE and 6 percent of the IPNF-managed SE, in which snowmobile use is limited by the court-ordered closure that will remain in effect until the winter travel plan is complete;
- Grizzly bears use BORZ at a lower density than the recovery zones, and there has only been one female known to den in BORZ on the IPNF.
- The number of snowmobilers declines by April of each year (USFS 2013a, p. 84; USFWS 2011a, p.A-44);
- Restrictions prevent grooming snowmobile routes in Core habitat after April 1 (FW-STD-WL-04) and grooming does not occur in BORZ after April 1, which may limit off-route user access to high-elevation areas.
- Lack of trail grooming and breaking snowpack limits snowmobiling access to higher elevations, and road closures are in effect after April 1;
- Late den exit dates for females with cubs in the SE and CYE, with median dates the third week of April when snowmobile access is limited by poor snow conditions at lower elevations, road closures, and lack of trail grooming;
- Guideline (FW- GDL- WL-01) which restricts management activities, including those that might increase human use, in predicted denning habitat between April 1 and May 1; and
- The Geographic areas in the Lower Kootenai, Pend Oreille, and Priest have specific desired conditions, GA-DC-WL-LK-03, GA-DC-WL-PO-02 GA-DC-WL-PR-02, that identify areas which limit levels of human disturbance during grizzly bear spring emergence (April 1 – May 1).

Nevertheless, winter motorized use could occur in a small proportion of denning habitat during the den emergence period under the LRMP, resulting in disturbance of females with cubs that could impair the fitness and safety of the female and cubs. Some level of motorized use (snowmobile only) may occur within Core habitat and on restricted roads during the non-denning period, compromising the effectiveness of Core habitats and resulting in restricted road miles being counted as "open" for a short period of time. Given the limited overlap in time and space between over-snow motorized use areas and grizzly bear denning sites, we conclude that the risk of a grizzly bear-snowmobile encounter on the IPNF is very low, but cannot be discounted. The

extension to complete a winter travel plan until the end of 2023 will prolong the amount of time that adverse encounters could occur in the few select areas where overlap is more likely.

Until the IPNF completes their winter travel plan, by the end of 2023, we expect an encounter between a female grizzly bear with cubs and a motorized over-snow user to result in adverse effects to grizzly bear feeding, breeding (i.e., cub rearing), and sheltering behavior as a result of potential displacement from the den site. This may result in increases physiological distress, reduced foraging efficiency, or reduced cub survival, especially should a cub be separated from its mother. Displaced females with cubs risk encounters with infanticidal adult males, and cub survival is reduced when females move further between forage patches because cubs are unable to maximize energy for growth and development. We expect not all female grizzly bears with cubs would be affected. We also expect that adversely affected bears would not be affected for more than one season because grizzly bears do not reproduce every year and because grizzly bears typically do not reuse their dens. Given the relatively small overlap with grizzly bear denning habitat and permitted motorized over-snow activity, we expect disturbed females to locate alternative denning habitat in subsequent years, reducing the potential for displacement to occur across multiple years and minimizing the adverse effects to an individual to a single year.

As with any encounter between people and grizzly bears, there is the potential that an encounter could result in intentional (i.e., self-defense) grizzly bear mortality; however, most human-caused mortality of grizzly bears is associated with hunting and occurs during the fall or spring hunting season. We expect it is more likely that a security conscious female grizzly bear with cubs would flee the area upon encountering motorized over-snow vehicle, and we do not expect an encounter to result in actual mortality of the adult bear. Given the minimal overlap of over-snow use areas and grizzly bear denning habitat, and the low likelihood of an encounter that would actually result in the intentional killing of a grizzly bear, and the short period before a winter travel plan is complete, we expect the risk of human-caused mortality of a grizzly bear as a result of over-snow use in the interim while the IPNF develops a winter travel plan to be discountable. Similarly, due to the limited overlap of over-snow activity and grizzly bear denning habitat, we do not expect the delay to complete the winter-travel plan to contribute to grizzly bear fragmentation; therefore, we expect fragmentation effects to grizzly bears would be discountable.

The winter travel plan will consider and evaluate the risk of encounter between grizzly bears and late season snowmobiler use, and may include area closures or other restrictions, if deemed necessary to protect grizzly bears emerging from dens. Future winter travel planning will take Management Area direction into consideration when developing a winter travel plan both within the recovery zones and the BORZs (BA, p. 54). Effects to grizzly bears from the winter travel plan will be subject to separate consultation.

3.3.2 Habitat Management

This section describes the general effects and effects specific to the action area on grizzly bears from vegetation management, fire management, and linkage. As previously discussed, these factors of the LRMP have not changed since the 2013 biological opinion was completed. Our

analysis of this factor relies primarily on the biological assessment for the LRMP from 2013, considered in light of the current environmental baseline (USFS 2013a) , and largely retains the text of the 2013 biological opinion.

3.3.2.1 Vegetation Management

3.3.2.1.1 General Effects of Vegetation Management on Grizzly Bears

Vegetation management activities include timber harvest, salvage, planting, thinning, prescribed burns, and mechanical fuel treatment. Vegetation management may impact grizzly bears by affecting food resource availability, proximity to escape cover, human access and conflicts, or temporarily shifting grizzly bears into less secure areas.

A study by Zager (1980, p. 35) in the Flathead National Forest in northwestern Montana found 81.8 percent of collared grizzly bears used harvested stands in proportion to their availability in the home range. The use of harvested stands increased in the summer, when huckleberry productivity was high and decreased in the fall, as bears moved to higher elevations or unharvested areas, likely related to the opening of hunting season. Harvested stands produced the most food resources for grizzly bears approximately 8-15 years after harvest (Zager 1980, Martin 1983). Similarly, Lindzey and Meslow (1977) documented abundant food resources for black bears in harvest units 15 years after harvest.

Another factor to consider with regard to vegetation management is the availability and proximity of escape cover (Zager and Jonkel 1983, p. 131). A decrease in the amount of escape cover may result in different effects on grizzly bears and their habitat. If cover is limiting in the project area, either by the amount or distribution, timber harvest would likely result in negative impacts (Zager 1980, pp.75-76). However, if cover is not limiting in a project area, timber harvest may have either no effect or a positive effect in those situations where food abundance or distribution is improved. By removing or reducing overstory vegetation through harvesting, slashing and/or burning, grizzly bear food production may be increased during summer (Mace and Waller 1997, p. 120; Waller 1992, p. 36). This includes food resources such as berries and succulent forbs.

Harvest unit size and shape may have an indirect effect on grizzly bear use in that they determine the proximity of escape cover (Zager et al. 1983, p.131). Zager, in northwestern Montana, found that nearly half of the harvest units used by grizzly bears were less than 40 hectares; however, grizzly bear sign was also documented in units larger than 160 hectares. In Yellowstone, Mealey et al. (1977) documented spring grizzly bear use in harvested stands less than 20 hectares that included leave trees and did not document use in larger units without leave trees, presumably due to the lack of cover.

If food production or distribution is improved with timber harvest but human activity is not controlled after the completion of harvest activities, negative impacts on grizzly bears may occur due to an increase in the potential for conflicts between humans and grizzly bears. Adequate motorized access management can support the exploitation of rejuvenated food resources in older harvested units by grizzly bears. Reduced cover may increase the visibility of grizzly bears, which could increase their vulnerability to illegal human-caused mortality. Harvested stands that are easy to access may receive an influx of berry pickers during the berry season which may limit grizzly bear use or increase human-caused mortality (Zager 1980). Waller

(1992, p. 37) found that of the harvested stands that he studied in the Swan Mountains of Northwestern Montana, those with the highest grizzly bear use had limited access due to closed gates and/or over-grown roads. Grizzly bears within his study area that used harvested stands were found at higher elevations and spent little time in lower elevation harvested stands where harvest was most common. Waller attributed this to human use of those lower, more accessible harvested stands. Waller also found that grizzly bears avoided stands where the vegetation had not recovered enough to provide security cover and preferred to use stands that were 30 to 40 years post-harvest.

Most timber harvest activities that will occur during the grizzly bear denning season are not likely to impact grizzly bears. Snow is an excellent sound barrier and impacts to denning bears will likely be less in deep snow situations than in shallow snow conditions. However, the type, depth, and moisture content of the snow can determine how sound is transmitted through snow (Blix and Lentfer 1992, p. 22). It is likely that hibernating bears exposed to meaningless noise, with no negative consequences to the bear, habituate to this type of disturbance (Knight and Gutzweiler 1995, p. 133).

Fuels reduction is not expected to adversely affect grizzly bears. These projects remove cover for the purpose of fire prevention near residential development. These stands may be treated again to retain them as fuel breaks, and not allowed to regenerate. Given the proximity to residential developments, many fuel reduction projects occur in or very near areas where management should discourage use by grizzly bears and focus on preventing conflicts between people and grizzly bears (e.g. MS-3 habitat).

Often, temporary roads are constructed in order to access harvest units. Temporary roads built for timber harvest may remain on the landscape for several years and receive a substantive amount of use. Such roads may also cause adverse effects to grizzly bears, such as displacement from key habitats. The impacts of temporary roads were considered in our analysis of effects related to the Access Amendment.

Helicopters may also be used in vegetation management projects. Helicopter use has advantages for grizzly bears in that it can often reduce the need for road use and road construction. Thus there are no lingering effects of roads on the landscape. Helicopter use in occupied grizzly bear habitat may elicit a response in grizzly bears, but the response is variable depending on several variables. Effects may range from a simple awareness of the helicopter, short-term disturbance or flight response or displacement from an area. In timbered habitats, McLellan and Shackleton (1989, p. 378) found that an overt avoidance or displacement response required high intensity helicopter activity, such as carrying equipment within 200 meters of a grizzly bear. If helicopter use is short in duration and low in frequency, it is not likely to result in significant impacts on grizzly bears (USFWS and USFS 2009, p. 4). Extended use with multiple passes could interfere with the normal behavior patterns of grizzly bears. The effects to grizzly bears of repeated, low altitude flight paths that follow open roads may partially offset the existing under-use of habitat in the immediate vicinity of the roads due to the “avoidance” by the grizzly bears of habitat in close proximity to open roads. In many cases, the effects of helicopter logging that occurs in roaded habitat will have insignificant effects to grizzly bears as long as all roaded areas and roadless habitat provide adequate secure habitat for grizzly bears. However, helicopter logging in areas that are not highly roaded could result in adverse effects similar to adverse effects caused by roads.

3.3.2.1.2 Effects of Vegetation Management on Grizzly Bears in the Action Area

Timber Harvest. There are no areas identified for timber production (timber stands with planned, scheduled entries for the purpose of generating commercial timber products) in the IPNF-managed portion of the SE of CYE, but timber harvest (timber cutting for wood fiber utilization and other multiple-use purposes, including resource benefits and fuels management) may occur across 291,066 acres (76 percent) in the SE and 217,146 acres (87 percent) in the CYE of suitable timber lands.

Most of the area in existing BORZ contain suitable timber acres (USFS 2013a, p. 81; USFS 2020, p. 30) and we expect that future BORZ areas will also contain high amounts of suitable timber acres. Timber harvest may occur across 87,175 acres (100 percent) of NFS lands in the Mission-Moyie BORZ (associated with the CYE), but only 72,946 (84 percent) are available for timber production. The 2013 biological assessment on the LRMP reported 100,639 acres (97 percent) available for timber harvest across the existing BORZ associated with the SE (i.e. Priest and Pack River; USFS 2013a, p. 81), and that number has increased by 10,360 acres with the Pack River BORZ expansion (BA, p. 31).

As described above, timber harvest has varying effects on foraging opportunities for grizzly bears. The primary effect of timber harvest on grizzly bears is the disturbance resulting from people and equipment operating in grizzly bear habitat as well as the effects of roads used to access the timber stand. The effects of roads are addressed above. Timber harvest may result in temporary disturbance of bears during the time period the harvest takes place. During this time period bears would move away from the disturbance to access necessary resources. Since some commercial harvest occurs in winter, some effects on grizzly bears from displacement would be reduced in those cases. Additionally, the Access Amendment also indirectly limits the amount of grizzly bear habitat in BMUs affected by vegetation management activities during the active bear year that generate noise and other disturbance (e.g. timber harvest and recreation) by limiting the road access needed for these activities. Given the healthy condition of Core habitat and adequate open and total route density management under the LRMP, we do not anticipate that this disturbance would result in adverse effects on grizzly bears that cause impairment of the ability to feed, breed, or shelter. Presently, approximately 53 percent of the CYE serves as Core habitat and this will increase to approximately 58.5 percent at full compliance with the Access Amendment (USFWS 2011a, p. A-39, A-60). Approximately 61 percent of the IPNF portion of the SE recovery zone serves as Core habitat and this will increase to approximately 61.4 percent at full compliance with the Access Amendment (USFWS 2011a, p. A-61).

Based on our history of consultation on vegetation management projects, information in our files, and the exclusion of Core habitat from timber production (i.e., commercial timber harvest with planned regular entries) we do not anticipate that vegetation management activities (not including associated roads) by themselves would result in effects to grizzly bears that would significantly impair breeding, feeding, or sheltering. Large areas of Core habitat in each BMU and other land allocations, such as MA1-wilderness- no timber harvest and MA5-backcountry-limited timber harvest (Table 2) with limited human disturbance would still be available for grizzly bears to meet their resource needs. Similarly, due to the availability of wilderness and Core habitat, nor do we anticipate significant impairment of grizzly bears' ability to feed, breed, or shelter as a result of incidental harvest outside the suitable timber base for other resource

objectives such as fuels management or habitat restoration (allowed in MA2 (except wild river segments), MA3, MA5, MA6, and MA7).

In BORZ, grizzly bears have fewer options providing undisturbed areas to select from if disturbed by timber harvest. In general, we do not anticipate significant impairment of grizzly bears' ability to feed, breed, or shelter as a result of timber production or timber harvest for resource benefit. This is attributed to the occupation of these areas by grizzly bears despite the sub-optimal conditions (including existing, ongoing levels of timber harvest), the elements of the Access Amendment that limit open, total, and temporary roads, and the Access Amendment requirement in BORZ to schedule timber harvest activities that will occur within multiple watersheds in a manner to minimize disturbance of grizzly bears resulting from road use during project level consultation.

Fuels management projects in the WUI that remove vegetative layers in order to reduce fire risk may or may not affect bears. Grizzly bears may forage in the WUI where there is sufficient cover and security or distance from human developments. Projects in the WUI that remove various forest canopy layers may reduce or increase foraging opportunities for bears depending on site-specific conditions. However, because the WUI occurs in proximity to communities and other human developments, we are less concerned about providing habitat for grizzly bears in these areas. Reduced foraging opportunities and hiding cover for grizzly bears in the WUI may help reduce the risk of grizzly bears becoming attracted to anthropogenic food sources on adjacent private lands and/or reduce the risk of grizzly bears encountering people, leading to grizzly bear mortality.

Opening Size / Proximity of Cover – This section addresses the effects of the desired vegetative conditions on the IPNF as it relates to opening size. The LRMP desired condition is for a greater range in patch sizes (openings). Of concern to the Service is that opening sizes on the IPNF under the LRMP may have increased (Table 1 and Appendix A in USFS 2013a) from those that typically occurred as a result of vegetation management (including prescribed fires) under the previous Forest Plan. Larger opening size potentially create more grizzly bear foraging habitat but at the same time these larger openings may be underused by grizzly bears due to lack of cover. Larger opening sizes may also increase the visibility of grizzly bears, which may potentially increase their vulnerability to human-caused mortality and/or contribute to displacement from preferred habitats. Lastly, larger openings may contribute to an overall reduction in cover within grizzly bear habitat on the IPNF.

The IPNF states that desired conditions for larger openings are based on natural disturbance processes, which are the conditions grizzly bears evolved with in this area, and that security for grizzly bears is maintained or improved by implementing the Access Amendment (FW-STD-WL-02) and through public information and education programs that reduce the risk of human/bear conflicts. The Kootenai and Idaho Panhandle Zone (KIPZ) Planning Team also states that often in a timber harvest design leave patches, thickets, riparian corridors, and/or other areas of unique habitat features are retained in the harvest unit, dependent upon site conditions and that these features may interrupt line of sight; reduce visibility; and provide cover for bears (J. Anderson 03/12/2012 pers. comm.). Cover is abundant in grizzly bear habitat in the KIPZ planning area (J. Anderson 07/15/2013 pers. comm.). For example, where LAUs overlap the grizzly bear recovery zones there would be an influence from the NRLMD on "cover" for grizzly bears due to the limits on treatments in multi-story foraging and stand initiation stage snowshoe

hare habitat. Generally, if a stand has a high stem density and horizontal cover to provide snowshoe hare habitat, it likely is capable of providing cover for grizzly bears. Further, timber harvest activities are expected to be small when measured against the total size of the IPNF; acres of regeneration harvest are anticipated to total approximately 16,830 acres over the first decade on the IPNF (this amounts to 0.6 percent of the entire IPNF). Including the acres of intermediate harvest (27,850 acres total in the first decade on the IPNF) increases the total timber harvest to 44,680 acres on the IPNF, which is 1.8 percent of the entire IPNF. In addition, grizzly bear Core habitat areas are not included in the suitable timber base and are not part of the 1.8 percent that is anticipated to have regeneration or intermediate harvest over the first decade. Hence, opening sizes from timber harvest are not expected to contribute to measureable reductions in cover under the LRMP.

Of primary concern to the Service is the effect of large openings adjacent to open roads or seasonally managed roads allowing public access into recently harvested areas. In these situations, foraging opportunities may be avoided or under-used due to the presence of human use (Waller 1992, p.37). This condition may persist for some period of time post-harvest (Waller 1992, p.39) based on site conditions and stand cover types. Additionally, grizzly bears that select these areas may be at higher risk of human detection, conflict, and resulting grizzly bear mortality. These types of effects would be site-specific depending on site conditions. The IPNF states that larger openings are more likely to result from natural disturbances than from planned vegetation management activities. Additionally, the effects from larger openings may be reduced, depending on site conditions, by measures included during site-specific project development such as:

- Retention of riparian corridors (FW-DC-RIP-04; FW-STD-RIP-04).
- Retention of untreated patches that provide for structural diversity and these may provide vegetative screening or cover in openings
- Closure of roads for public use during and immediately after vegetation management activities.
- Ensuring adequate closure devises (i.e., gates, barriers, full or partial recontouring/ripping of road) are in place and functioning properly.

The IPNF states that large openings are more likely to result from natural disturbances rather than project activities. Still, vegetation management projects proposing large opening sizes that would have adverse effects on bears may be proposed under the LRMP. Security for bears in these situations may be included in the site-specific project design and would be provided by the Access Amendment (FW-STD-WL-02) and through public information and education programs that reduce the risk of human/bear conflicts. Therefore, adverse effects resulting in impairment of breeding, feeding, and sheltering would be infrequent and we do not expect substantial negative effects on the population. Any such proposals would be subject to project- specific consultation regarding effects to grizzly bears so long as the grizzly bear remain listed.

In BORZ, there are fewer limitations on timber harvest and more human presence. In addition, MS1 designation does not apply. However, there are also fewer bears in BORZ, and security for bears in these situations would be provided by the Access Amendment (FW-STD-WL-02) and through public information and education programs that reduce the risk of human/bear conflicts.

Therefore, adverse effects resulting in impairment of breeding, feeding, and sheltering would be infrequent and we do not expect substantial negative effects on the population. Future site-specific consultations may also apply.

Helicopter Harvest - The LRMP allows the use of helicopters for vegetation management projects. All helicopter operations on the IPNF are designed using the Guide to Effects Analysis of Helicopter Use in Grizzly Bear Habitat developed by the Montana/Northern Idaho Level 1 Terrestrial Biologists Team (USFWS and USFS 2009) in order to avoid, limit, or minimize the potential for adverse effects (S. Dekome 08/13/2013 pers. comm.). The effects of helicopter use on grizzly bears are highly site-specific and variable. Nevertheless, projects using helicopter harvest with adverse effects on bears may be proposed under the LRMP. Based on our history of consultation on vegetation management projects with the IPNF, helicopter harvest is infrequent. In general, helicopter harvest accounts for less than 10 percent of timber harvest on the IPNF (S. Dekome 08/13/2013 pers. comm.). Additionally, the LRMP implements the IGBC guidelines for MS 1 (see Section A.2 of USFWS 2013), which encompasses the entire CYE and SE recovery zones. Under MS1 designation, the needs of grizzly bears are favored when grizzly habitat and other land use values compete. LRMP desired conditions would also moderate effects of helicopter harvest in grizzly bear habitat (FW-DC-WL-01, 03, 04); and effects of helicopter harvest are mostly temporary, ending after the harvest is complete (versus using permanent roads which remain on the landscape). Therefore, adverse effects resulting in impairment of breeding, feeding, and sheltering would be infrequent and we do not expect substantial negative effects on the population. Project-specific consultation will apply in the future, when appropriate.

Prescribed Fire – The effects of prescribed fire on bears would be similar to that of timber harvest. Prescribed fires may result in disturbance and displacement impacts to grizzly bears through presence of humans, temporary camps, and use of motorized equipment for fire containment. During this time period bears would move away from the disturbance to access necessary resources. Given the healthy condition of Core habitat and adequate open and total route density management under the LRMP, we do not anticipate that this disturbance would result in adverse effects on grizzly bears that cause impairment of the ability to feed, breed, or shelter. Presence of humans implementing prescribed fires are not expected to contribute to conflicts given the likelihood that bears would be displaced from the area; a food storage order is in place on all IPNF lands north of the Clark Fork River, Lake Pend Oreille, and Pend Oreille River (encompassing the CYE, SE, and BORZ); and there is no history of conflicts from such activities on the IPNF.

Prescribed fires would reinvigorate and increase the amount or quality of grizzly bear forage species such as grasses and berry-producing shrubs. We expect the only potential adverse effect on grizzly bears from prescribed fire would be those creating large opening size. The effects would be the same as those described above.

The LRMP implements the IGBC guidelines for MS 1 (see Section A.2 of USFWS 2013a), which encompasses the entire CYE and SE recovery zone. Under MS1 designation the needs of grizzly bears are favored when grizzly habitat and other land use values compete. Security for bears in these situations would be provided by the Access Amendment (FW-STD-WL-02) and through public information and education programs that reduce the risk of human/bear conflicts. Also, a very small proportion of available BMU acres are treated with prescribed fire. Therefore, adverse effects resulting in impairment of breeding, feeding, and sheltering would be infrequent

and we do not expect substantial negative effects on the population. Project-specific consultation will apply, when appropriate.

In BORZ, grizzly bears would have fewer options providing undisturbed areas to select from if disturbed by prescribed fire activities. However, we do not anticipate significant impairment of grizzly bears' ability to feed, breed, or shelter. This is attributed to the relatively few acres of BORZ treated with prescribed fire (just 3,573 acres or less than 1 percent of the available acres in the SE and CYE BORZ since 1987), the occupation of these areas by grizzly bears despite the sub-optimal conditions (including existing, ongoing levels of timber harvest), the elements of the Access Amendment that limit open, total, and temporary roads, and the Access Amendment requirement in BORZ to schedule timber harvest activities that will occur within multiple watersheds in a manner to minimize disturbance of grizzly bears resulting from road use during project level consultation (prescribed fire is often implemented as a post-harvest activity [USFS 2013a, p.77]).

3.3.2.2 Fire Management

Fire management is the process of deciding which fires to allow to burn and which to suppress along with the physical activities of suppressing wildland fires.

3.2.2.1 General Effects of Fire Management on Grizzly Bears

Fire maintains the mosaic of openings and varying vegetative successional stages on the landscape that provide the diversity of foods required by bears. Natural fire often stimulates the understory and/or increases the vegetative diversity in high quality grizzly bear habitat, benefitting grizzly bears in the long-term. Fire suppression alters the natural development of forests and species composition and can render forests susceptible to large-scale disturbance due to increased fuels and denser stands. Higher intensity stand-replacing fires may also occur requiring longer to recovery or requiring active management to restore.

Fire management may result in disturbance and displacement impacts to grizzly bears through presence of humans and use of motorized equipment for fire suppression. Generally, grizzly bears would leave an area on their own, in advance of an approaching fire, and therefore, be out of the area associated with fire suppression activities. However, if suppression activities were to take place prior to an approaching fire, a grizzly bear may be affected before leaving the area.

There may be some effects from disturbance caused by the overall increase in human activity in a particular area. These activities may include increased vehicular traffic, aerial support, and fire camps, any of which may cause disturbance or displacement of a grizzly bear prior to or when they are moving from the area. Similarly, there may be a concentration of human activities associated with fire suppression or fire clean-up, assessment, and restoration activities that result in disturbance and open roads that displace bears, or increase the risk of human food and attractants luring grizzly bears into the area.

Indirect, long-term effects from fire suppression activities may result from opening previously closed roads, constructing new roads or temporary roads, constructing firebreaks or constructing machine lines. These actions may contribute to the open and total road densities which are limited in certain areas to protect grizzly bears or result in effects to grizzly bears similar to effect of roads on grizzly bears. The adverse impacts of roads on grizzly bears are described above.

Wildland fires for resource benefit are typically allowed to burn with some degree of certainty that the fire would go out naturally or could be contained within predefined lines. Wildfires, when allowed to burn, can result in short-term negative effects and/or long-term beneficial effects depending on the vegetation species and fire severity. Some foraging habitat and/or cover may be lost in the short-term. However, natural fire often stimulates the understory and/or increases the vegetative diversity in high quality grizzly bear habitat, benefitting grizzly bears in the long-term as long as these areas are not also subject to human access or pressure from collection forest products (huckleberries and mushrooms).

3.3.2.2.2 General Effects of Fire Management on Grizzly Bears in the Action Area

To reiterate, the effects of wildland fire on bears include short-term displacement, loss of forage, and alteration of habitat use patterns. In the long-term, bears are expected to benefit from fires from stimulated understory growth and increased vegetative diversity. The LRMP includes an emphasis on the use of fire to trend vegetation towards the desired condition (FW- DC-FIRE-03; MA1abc-DC-VEG-01, MA1abc-DC-FIRE-01, MA1abc-GDL-FIRE-01, MA2- DC-FIRE-01, MA5-DC-VEG-01, MA5-DC-FIRE-01, and MA5-GDL-FIRE-01). The IPNF states that the use of fire to trend towards the desired conditions for vegetation and restoring habitats would provide the approximate types and amounts of habitats that grizzly bears would have evolved with on the IPNF (USFS 2013a, p.106). Early successional grasses and forbs would provide forage for grizzly bears, and the following successional stages in habitat types preferred by bears would also provide food and cover. Thus, the effects on grizzly bears of allowing unplanned ignitions to burn may result in temporary displacement of grizzly bears, a temporary reduction in foods and cover within the burned perimeter. Grizzly bears evolved with wildfire and so while the displacement effects may be adverse to individuals in specific instances, these negative effects would be offset beginning soon after the burn in many locations as regrowth of vegetation begins.

Under the LRMP, undesirable wildfires will continue to be suppressed where necessary to protect life, property, and key resources (FW-DC-FIRE-03). Fire suppression activities introduce a concentration of human activity into the affected area. Even when a decision is made to allow a fire to burn, it is typically controlled within a predetermined boundary. The effects of fires suppression and fire containment activities on grizzly bears include increased vehicular traffic, aerial support, and fire camps, any of which may cause disturbance or displacement of a grizzly bear prior. However, we do not anticipate adverse displacement effects on bears from these types of fire suppression activities. This is because bears would leave an area on their own, in advance of an approaching fire, and therefore be out of the area associated with fire suppression activities. There may also be human activities associated with fire clean-up, assessment, and restoration activities that result in open roads that displace bears or increase the risk of human food and attractants luring grizzly bears into the area. All fire suppression activities would comply with the Food Storage and Sanitation Special Order. Still other activities associated with wildfire suppression (such as fire breaks, temporary roads, changes in open or total road densities) are variable and may result in adverse effects on grizzly bears. These types of actions are planned and conducted under emergency situations and so the effects to grizzly bears would be analyzed in emergency consultation during and after the activities are complete (50 CFR 402.05).

3.3.2.3 Linkage

The following description of habitat linkage is largely excerpted from Servheen et al. (2003).

3.3.2.3.1 General Effects of Habitat Management on Linkage for Grizzly Bears

Linkage zones are areas of habitat connectivity within or between populations of animals that foster the genetic and demographic health of the species. Often, these are specific locations on the landscape where conditions foster movement. Connectivity refers to the arrangement of habitat that allows animals to move across the landscape; patches of similar habitats are either close together or linked by corridors of vegetation. Linkage zones may be connected on the greater landscape only to be fragmented by major highways, railroads, high road densities, and human developments (i.e., fracture zones).

Habitat linkage and connectivity are important components of grizzly bear habitat (Servheen et al. 2001, 2003; USFWS 1993). The main factors generally considered to affect the quality of linkage zones are major highways, railroads, road density, human site development, availability of hiding cover, and the presence of riparian areas (USFS 2005). Factors affecting connectivity of habitat include vegetative cover, adjacency of habitat, and habitat security. Actions that fragment habitat, either temporarily (timber harvest) or permanently (developments), or alter species composition or stand characteristics, or decrease habitat security (access) also compromise habitat connectivity and linkage zones.

For the discussion of linkage zones, we note that these areas must be maintained through consideration of three areas: 1) the highways, railroads, and developments that create the fracture zones; 2) the private lands in the valley bottoms; and 3) the public lands that serve as approach areas on the side-slopes of the valleys (Servheen et al. 2003).

Linkage areas for grizzly bears between recovery zones and Canada are critical to the long-term survival and recovery of bears, particularly in the CYE and SE since it influences population size and genetic health of populations in the U.S. portion of the recovery zones (Proctor et al. 2004, entire). According to Proctor et al. (2012) north-south movements within mountain ranges are more common than east-west movements across mountain valleys. Our knowledge of grizzly bear movements between the recovery areas and Canada is detailed in Section 3.2.2.5 "Population Fragmentation and Genetic Isolation" of this Opinion.

3.3.2.3.2 General Effects of Habitat Management on Linkage for Grizzly Bears in the Action Area

The main areas of concern associated with the CYE and SE for establishing long-term linkage for movement of bears between Canada and U.S. recovery zones as identified in Servheen et al. (2003) are as follows: 1) Cabinet Mountains and the Yaak River drainage of the CYE – SR-2 and SR-56 and the railway lines that parallel SR- 2; 2) SE to B.C. – Highway 3 (in Canada); 3) Between the SE and CYE – SR-95 and the parallel railway; 4) Between the CYE and the Bitterroot Mountains – SR-200 and the parallel railway; and 5) Between the CYE and the NCDE – SR-2 and SR-93. Of these, SR-95 and portions of SR- 2 are located within the action area of the Proposed Action.

Servheen et al. 2003, (p. 13) identified SR 95 and Highway 1 as completely separating the two recovery zones. In addition, significant amounts of public and private development have

occurred in the Purcell Trench and the communities of Sandpoint and Bonners Ferry, Idaho. Additional fragmentation was also identified in the area surrounding Priest Lake, Idaho (Servheen et al. 2003, p. 26). At some future date, connecting these two bear populations across highways through the use of wildlife crossing structures (above or below ground culverts or passages where animals can cross high volume roads without risk of being struck by a vehicle) may become necessary to maintain linkage for this wide-ranging species. As described in the section 3.2.2.5 "Population Fragmentation and Genetic Isolation," some limited immigration by both males and females has been documented in both the SE and CYE since the 2013 biological opinion on the LRMP was issued.

If warranted in the future, the development of crossing structures for linkage is dependent on future interagency coordination and collaboration with the public, primarily because the highways and railroads that may be barriers for wildlife are not under the jurisdiction of the IPNF. However, the IPNF may manage lands near future crossing structures (i.e., approach areas) and have thus identified the need to manage lands near those features to maintain the effectiveness of those features. Because of the importance of linkage for grizzly bears, it is likely that they would be one of the species considered in the design of future crossing structures or maintenance or enhancement of lands near crossing areas to link blocks of habitat important to grizzly bears.

The IPNF does have the capacity to ensure habitat conditions in the approach areas to linkage zones support continued use of existing areas of linkage and at future crossing structures. The IPNF also manages lands on either sides of highways and can enhance the potential for bears to cross by maintaining high quality habitat, including cover, for grizzly bears. The LRMP includes direction for linkage on their lands through FW-DC-WL-18, which states that IPNF management contributes to wildlife movement within and between national forest parcels; movement between parcels separated by other ownerships is facilitated by management of the NFS portions of linkage areas identified through interagency coordination; and Federal ownership is consolidated at approach areas to highway and road crossings to facilitate wildlife movement. This condition would be achieved through implementation of guidelines FW-GDL-WL-15 through 17. Specifically, FW-GDL-WL-15 through 17 require that IPNF coordinate with others on the development of crossing structures when major highways are reconstructed, and that they manage lands near future structures to maintain the effectiveness of the structure and maintain Federal ownership in identified linkage areas.

To support and maintain connectivity across the IPNF, the desired conditions for wildlife for MA1-wilderness and MA5-backcountry (MA1a,b,c,e-DC-WL-01 and MA5-DC-WL-01) state that these areas serve as large, remote areas with little human disturbance and habitat conditions that contribute to wildlife movement. Lastly, the GA direction and MA3-DC-WL-01 (in Special Areas) aids in maintaining grizzly habitat and connectivity across the IPNF in those areas where it would have been found under natural disturbance processes (historical conditions) (USFS 2013a, p. 102). Specifically, the desired conditions in GAs that will facilitate grizzly bear linkage and habitat connectivity include:

GA-DC-WL-PR-01. NFS lands provide habitat conditions for wildlife movement, especially woodland caribou, throughout the Selkirk recovery zone.

GA-DC-WL-PR-03. Habitat conditions for wildlife movement on the divide between Idaho and Washington, from the Canadian border south are retained.

GA-DC-WL-LK-01. National Forest System lands contribute habitat conditions for wildlife movement between the Yaak and the Selkirk Mountain range and between the Cabinet and the Selkirk mountain ranges.

GA-DC-WL-LK-02. Use of the area along the divide between Idaho and Montana from Northwest Peaks south to the Kootenai River is retained.

GA-DC-WL-PO-01. Habitat conditions are retained for wildlife movement along the divide between Idaho and Montana from the Kootenai River south to Scotchman Peaks and across the Clark Fork River and for wildlife movement between the Cabinet-Yaak ecosystem and the Selkirk Ecosystem.

GA-DC-WL-SJ-02. Use of the area for wildlife movement along the Idaho/Montana divide between the Salmon and Selway/Bitterroot Wilderness Areas is retained.

Existing levels of fragmentation attributed to roads in BMUs will continue under the LRMP, and some proposed projects may cause localized adverse effects on connectivity for individual bears. However, we do not anticipate substantial negative effects on the population. This is attributed to the Access Amendment, which reduces or maintains moderate densities of open and total roads and provides large blocks of secure habitat where motorized use of roads and trails is prohibited. Notably, the IPNF took into consideration connectivity issues when setting the individual BMU access management parameters (USFS 2010, p.50; Kaiser 2003 In USFWS 2011a, p. A-76). Additionally, the LRMP includes numerous provisions for linkage areas on the IPNF, including MA and GA direction for wildlife movement; and the Food Storage Order would reduce risk of human-bear conflicts in lower elevations with higher concentrations of human development. Therefore, we conclude that Forest Plan elements would support linkage conditions on NFS lands that are likely to foster movement of subadult and male grizzly bears which are required for genetic recovery, and in time will also likely support linkage for females with cubs needed for demographic recovery.

More recently, the importance of BORZ in linking the recovery zones has been highlighted for the CYE and NCDE on the adjacent KNF. Females with cubs have been documented using the habitat and moving between NCDE and CYE (Kasworm et al. 2019, p. 30).

Because there are more allowable uses and higher road densities in BORZ, there are more existing effects on the baseline condition of linkages and connectivity. Under the LRMP, we expect that these areas will support grizzly bear movement and linkage on the whole, while causing some adverse effects on individual bears from site-specific projects. However, we do not anticipate substantial negative effects on the population. This is because the allowable uses under the LRMP are already occurring in the BORZ and yet bears are meeting resources needs, albeit at lower densities than in the recovery zones. Additionally, the LRMP implements the Access Amendment in BORZ, which limits open and total road miles to no more than the existing baseline conditions, which supports some use by grizzly bears, including females with cubs. Notably, the IPNF took into consideration connectivity issues when setting the individual BMU access management parameters (USFS 2010a, p.50; Kaiser 2003 In USFWS 2011a, p. A-76) as well as the development of the BORZ polygons (USFS 2010a: Appendix F In USFWS

2011a, p. A-76). Lastly, the food storage order in BORZ will further facilitate connectivity between the recovery zones (and Canada) by limiting risk of conflicts between bears and humans.

These provisions to maintain baseline motorized access conditions in the BORZ and implement food storage orders would provide for continued use of these areas by grizzly bears and eventual linkage of the CYE and SE to other recovery zones, albeit at lower densities than areas within the recovery zones.

3.3.3 Management of Human-Caused Mortality Risk

This section describes the general effects and effects specific to the action area on grizzly bears from sanitation/food storage and Information and Education programs, and grazing. As previously discussed, this portion of the LRMP has not changed since the 2013 biological opinion was completed. Our analysis of this factor relies primarily on the biological assessment for the LRMP from 2013, considered in light of the current environmental baseline (USFS 2013a), and largely retains the text of the 2013 biological opinion.

3.3.3.1 Sanitation/Food Storage and Information and Education Programs

Human-caused mortality of grizzly bears in the CYE and SE occurs disproportionately on non-federal lands than on NFS lands. To date, there have been no grizzly bear deaths associated with food attractants on IPNF-managed lands in the CYE and SE (D. Probasco 2020a, *in litt*.).

3.3.3.1.1 General Effects of Sanitation/Food Storage and Information and Education Programs on Grizzly Bears

Improperly stored garbage, livestock or pet foods can lure grizzly bears to areas near people and pose a significant risk of habituating bears to human presence and/or conditioning grizzly bears to seek out anthropogenic foods and attractants. Food conditioned grizzly bears enter unsecured garbage receptacles, sheds and other buildings in search of a reward. Accessibility to human related attractants and conditioning to those rewards can lead to management removal of grizzly bears and additionally, mortality of grizzly bears by people defending their life and property.

Bears are particularly susceptible to anthropogenic foods and attractants during years of poor natural food production. The increase in total known mortality beginning in 1999 in the CYE is thought to be linked to poor food production during 1998 to 2004. Huckleberry production during these years was about half the 20-year average (Kasworm et al. 2012, p.33). Similar to the CYE, there appears to be a relationship between poor huckleberry production and total grizzly bear conflicts in the U.S. portion of the SE, but the sample size is limited and the conditions that elicit grizzly bear mortalities can be variable (W. Wakkinen 07/02/2013 pers. comm.).

Information and education programs, and food storage orders are particularly important during years of poor berry production and in seasons of high nutritional and energy needs for bears. On the Montana side of the CYE ecosystem, the MFWP has stated that perhaps the greatest advancement in the management of problem bears has been the development of dedicated bear management specialist positions (MFWP 2001 In USFWS 2011a, p. A-75). Although difficult to measure statistically, effective human-bear conflict response, in combination with education,

outreach, and prevention may play a large role in preventing human-caused grizzly bear mortality in the Montana portion of the CYE (Annis and Trimbo 2019, p. 14).

To demonstrate the effectiveness, in the CYE, based on anecdotal information, there has been an increase in the number of residents seeking proactive help (e.g. fencing gardens, beehives and other attractants) to prevent conflicts prior to an incident and fewer incidents involving problem bears have occurred between 2007 and 2019 (Annis and Trimbo 2019, pp. 11-13). This represents notable progress toward reducing the potential for conflicts between people and grizzly bears, and in return reduces grizzly bear mortality. We believe the importance of these types of programs is often underestimated, as the effects of these programs work over time, in some cases many years as the attitudes and behavior of local residents and visiting public change. Through information and education, people can learn to live in a way that is more compatible with the needs and behaviors of grizzly bears. Education programs can reduce grizzly bear mortalities by instructing people to avoid situation where self-defense becomes necessary and prevent habituation of grizzly bears to unnatural foods. While the described program is specific to Montana, its implementation in the CYE portion of the KNF, benefits the CYE population as a whole.

While IDFG does not currently have full-time bear mitigation specialists like MFWP, there is a conservation officer whose duties are similar in many aspects to the bear management specialist positions. Further, the IPNF and cooperating agencies (Idaho Department of Fish and Game, Idaho Department of Lands) maintain and financially support a regular program of public information and education within the SE and CYE recovery zones.

3.3.3.1.2 General Effects of Sanitation/Food Storage and Information and Education Programs on Grizzly Bears in the Action Area

The presence of food or other attractants may result in bear/human encounters that often lead to the relocation or the death of the bear. To date, there have been no grizzly bear deaths associated with food attractants on IPNF-managed lands in the action area (D. Probasco 2020a, *in litt*.). There has been a concerted effort to improve sanitation on NFS lands throughout the action area as a whole, with many campgrounds now having bear-resistant garbage and/or food storage containers to reduce such encounters and the potential for subsequent habituation. Currently, all resort and recreation residence special use permits renewals in-or-near the recovery zones boundaries incorporate sanitation guidelines as part of the special use permit. Finally, all four National Forests that encompass the CYE and SE recovery zones have implemented mandatory food storage orders that assist in minimizing this impact. The Service affirms these programs as key to avoiding conflicts associated with attractants on the IPNF.

Currently, the IPNF is a member of the Selkirk/Cabinet-Yaak Subcommittee of the Interagency Grizzly Bear Committee. Through this committee, the USFS has participated in and implemented several information and education programs on the IPNF. For example, in 2012 the Selkirk Grizzly Bear Law Enforcement and Education Project emphasized information and education programs by giving 45 grizzly bear presentations throughout northern Idaho and 2 grizzly bear workshops to the U.S. Border Patrol covering bear biology and conflict avoidance strategies. The Project also used an IGBC grant to obtain 3,000 grizzly bear coloring books for future education and outreach (Selkirk LE & Education Accomplishments 2012, accessed June 24, 2013, http://www.igbconline.org/index.php/selkirk-cabinet-yaak-subcommittee). The IPNF

and cooperating agencies (Idaho Department of Fish and Game, Idaho Department of Lands) maintain and financially support a regular program of public information and education within the SE and CYE (BA, pp. 17-18). Under the LRMP, these programs will continue through guideline FW- GDL-WL-18, which implements the elements of the most recent "Interagency Grizzly Bear Guidelines."

We expect that implementation of the Food Storage and Sanitation Special Order coupled with IPNF's other efforts to inform and educate the public as well as elements of the LRMP (FW-STD-WL-03 and FW-GDL-WL-18) would ensure that the risk of conflicts on the IPNF remains low. We do not expect adverse effects to grizzly bears on the IPNF as a result of inadequate food and attractant storage.

Under the LRMP, Forest-wide desired conditions for recreation state that food and garbage storage do not contribute to recreation user/wildlife conflicts (FW-DC-AR-01; standard FW-STD-WL-03 requires permits and operating plans (e.g., special use, grazing, mining) to specify sanitation measures to reduce human/wildlife conflicts and mortality by making wildlife attractants (ex: garbage, food, livestock carcasses) inaccessible through proper storage or disposal. Additionally, the LRMP implements guideline FW-GDL-WL-18, which implements the elements of the most recent "Interagency Grizzly Bear Guidelines" that address attractants and other sources of sanitation issues on the forest (i.e., recreation and grazing).

We expect that implementation of the Food Storage and Sanitation Order coupled with IPNF's other efforts to inform and educate the public as well as elements of the LRMP (FW-STD- WL-03 and FW-GDL-WL-18) will ensure that the risk of conflicts on the IPNF remains low. We do not expect adverse effects to grizzly bears on the IPNF as a result of inadequate food and attractant storage.

3.3.3.2 Grazing

3.3.2.5.1 General Effects of Livestock Grazing on Grizzly Bears

Grizzly bears may be attracted to grazing operations and facilities to forage on newborn animals or carcasses of dead livestock. Grizzly bear predation on livestock can result in risks to human life, property damage, or indirectly, in mortality through habituation and removal of a bear to protect human safety. Grizzly bears can benefit from feeding on livestock carcasses in remote locations away from people. However, when dead livestock occur near human dwellings or other areas with high levels of human activity, the potential for human/bear encounters may be high, which can eventually lead to the death of the bear through management actions. Less frequently, grizzly bears learn to prey on livestock on more remote grazing lands and become repeat offenders, removed from the population through management action.

3.3.2.5.2 General Effects of Livestock Grazing on Grizzly Bears in the Action Area

To date, no grizzly bear/livestock conflicts have occurred on the IPNF.

The desired condition for grazing under the LRMP is that grazing occurs at sustainable levels in suitable locations while protecting resources (FW-DC-GRZ-01). Therefore, under the LRMP, grazing allotments will continue to be permitted within suitable areas but no changes in existing allotments are expected (USFS 2011a, p. 388-389; D. Probasco 2020a, *in litt*.). Cattle grazing is currently permitted in two allotments that overlap BMUs in the SE (14,328 acres) on the IPNF

and one allotment overlaps the Priest BORZ. The IPNF anticipates the number of allotments to remain the same over the next 10-15 years. As BORZ expand, there is some potential for an expansion of the Priest BORZ to overlap a portion of a second allotment.

Notably, the LRMP states that for wildlife the long-term desired condition is recovery of threatened and endangered species (FW-DC-WL-03). Therefore, changes to existing allotments and new requests for grazing allotments will be evaluated at the site-specific level in adherence with the elements of the LRMP. Additionally, FW-DC-GRZ-01 states that grazing occurs at sustainable levels while protecting resources and all permits will include sanitation measures to reduce attractants that will cause a human/livestock/bear conflict (FW-STD-WL-03).

Additionally, the IGBC Guidelines for grazing will be applied (FW-GDL-WL-18). These elements of the LRMP along with the expectation that current use levels would be maintained reduce the likelihood of new grazing allotments where conflicts with bears might occur or that existing allotments might contribute to conflicts in the future.

We do not anticipate that implementation of the LRMP will result in habituation of grizzly bears leading to conflicts in the CYE and SE because few acres are subject to livestock grazing, current use is expected to continue (USFS 2011a, p.389; D. Probasco 2020a, *in litt.*), the LRMP includes measures to address potential risks to bears from livestock grazing, and there is no history of grizzly bear human-grizzly bear conflicts from grazing allotments in the CYE and SE on NFS lands. While grazing occurs in BORZ, these allotments have existed for several decades with no history of conflicts with grizzly bears. We expect that grizzly bear numbers in BORZ will grow relatively slowly over time, and so we expect the likelihood of conflicts associated with these allotments to remain low. Hence, we do not consider this type of land use, at its current or anticipated levels, to result in adverse effects on grizzly bears.

3.3.4 Other Potential Effects

Other actions on the forest with the potential to affect grizzly bears include mining, collection of forest products, and operations associated with special use permits. This section describes the general effects and effects specific to the action area on grizzly bears from these potential effects. As previously discussed, this portion of the LRMP has not changed since the 2013 biological opinion was completed. Our analysis of this factor relies primarily on the biological assessment for the LRMP from 2013, considered in light of the current environmental baseline (USFS 2013a), and largely retains the text of the 2013 biological opinion.

3.3.4.1 Mining

3.3.4.1.1 Effects of Mining on Grizzly Bears in the Action Area

Mining encompasses: (1) the location and extraction of mineral materials (e.g., sand, gravel, rock); (2) the location and extraction of locatable minerals (e.g. gold, silver, copper); and (3) mineral leasing for oil, gas, coal, geothermal resources, potassium, sodium, phosphates, oil shale, and sulfur, which includes exploration and surface occupancy (extraction).

As discussed previously, there are no major mining operations on the IPNF at this time. There are currently 30 approved Plans of Operations and 35 Notices of Intent for locatable minerals on the IPNF. There is one Plan of Operation in the North Lightning BMU, but it is currently not

active. The majority of on-going activities are related to maintenance of existing facilities and most locatable mineral operations are less than five acres in size. There are no oil or gas leases within the IPNF. The IPNF considers the potential for future mineral discovery to be "low". There are approximately 434 active mineral material pits (i.e., sand, rock, or gravel quarries) within the IPNF; 62 are in BMUs and 24 at in either the Priest or Mission-Moyie BORZ. Pits are generally between less than one to five acres in size. There are no leasable minerals located on the IPNF at this time and potential is considered "low." As such, little commercial interest in leasing for such resources is anticipated. Even though the number of acres of grizzly bear habitat where leasable mineral activities are allowed in both recovery zones (216,077 acres in the SE and 154,388 acres in the CYE) appears fairly expansive, this is not expected to have a significant effect on grizzly bear habitat. However, future mining activities could occur in grizzly bear habitat under the LRMP.

Such activities may result in loss of habitat within the footprint of the mine, disturbance to grizzly bears from road use and mining activities, displacement from habitat from road use or mine development, or impacts to habitat connectivity. The range of effects of future mining activities on grizzly bears is expected to be similar to those occurring at existing mining sites (Troy Mine and Rock Creek Mine in the CYE on the KNF). The extent of these effects will be limited by elements of the LRMP. Any mining proposal on the IPNF would be considered in terms of Forest-wide desired conditions that trend the IPNF toward providing remote areas for species with large home ranges, recovering Federally-listed species, facilitating denning and habitat use through low levels of disturbance, and managing motorized access to promote recovery (FW-DC-WL-01 through 05). At the project level, Forest-wide guidelines and standards would address potential effects of mining proposals on connectivity and linkage areas (FW-GDL-WL-15 through 17), food storage and attractants (FW-STD-WL-03, Food Storage Order), disturbance of grizzly bears (FW-GDL-WL-01), and access management (FW-STD-WL-02). Effects will also be limited through site-specific project development, mitigation, and site-specific consultation.

Combined, this LRMP limits the potential impacts of mining activities on grizzly bears. Some adverse effects on bears are anticipated if future mining activities are proposed, but we expect that the potential for adverse effects will be reduced or minimized through LRMP requirements and standards and guidelines applied at the project level. Any additional effects from mining will be related to site- and plan- specific details and will be identified and addressed at the project level. Combined, the LRMP elements and required mitigation plans will reduce or limit the impacts of mining activities on grizzly bears such that adverse effects are not anticipated for the population.

3.3.4.2 Collection of Forest Products

3.3.4.2.1 Effects of Collection of Forest Products on Grizzly Bear in the Action Area

Special forest and botanical products may be collected Forest-wide, unless an area has been closed for a specific reason. The acres of grizzly bear habitat where commercial and personal collection of other forest products will be allowed are reduced under the LRMP in both recovery zones and in BORZ on the IPNF.

Commercial use of special forest and botanical products is not allowed in designated wilderness; recommended wilderness; wilderness study area; wild, scenic and recreational rivers; special

areas; or Resource Natural Areas. The opportunity for collecting special forest and botanical products is also affected by the amount of motorized access on the IPNF. Areas with no motorized access (i.e., Core habitat or secure habitat) limits opportunities and reduces the ability to collect products. Existing uses are often tied to historical knowledge and patterns of use. The most popular special forest and botanical products on the IPNF include huckleberries, firewood, Christmas trees, and boughs. Mushroom picking is also a popular activity following wildfires.

The primary effect on bears associated with collection of forest products is disturbance and risk of human/grizzly bear conflicts, and we expect that these risks are low. Generally, the collection of forest products occurs in close proximity to roads and the density of people engaged in this activity diminishes with increasing distance from a road or trail. Areas adjacent to roads are typically avoided by bears (McLellan and Shackleton 1988, p.456; Mace et al. 1996, p. 1403).

Human presence for collection of forest products may disturb or displace bears, but we anticipate this effect will likely be short-term, temporary and for the most part, relatively low in intensity. We expect that grizzly bears will avoid the area while people are collecting products, but are likely to return after people leave the area. The LRMP adequately manages roads and Core habitat, so if displaced by human presence and activity, grizzly bears will have options to find needed food and shelter elsewhere. There will be areas on the IPNF that will have very little or no collection of forest products due to limited accessibility. As discussed above, we anticipate that the information and education programs, Food Storage Order, IGBC Guidelines, and access management will reduce the risk of conflicts. Forest-product collection activities are subject to these measures and so we expect no adverse effects to grizzly bears as a result of Forest-product collection.

3.3.4.3. Special Uses

3.3.4.3.1 Effects of Special Uses on Grizzly Bears in the Action Area

Special use authorizations permit occupancy and use on NFS lands by federal, state and local agencies, private industry, and individuals. Non-recreation special uses vary from low-intensity, often short-term actions such as filming or locations for scientific instruments, to larger developed facilities such as roads, communication sites, dams, and utility/energy transmission infrastructure. Special use permits may allow activities that cause disturbance to grizzlies due to human activities or risk of human/grizzly bear conflicts, resulting in grizzly bears avoiding the area. The IPNF currently has 190 recreation Special Use Permits and agreements. Outfitter and Guides also operate on NFS lands under special use permit. The permitting of special uses will not be changed with implementation of the LRMP, including the requirement for a permit specific analysis for any renewals or modifications to existing permits or proposed new permits to insure compliance with the LRMP.

Special uses can also alter some habitat, such as a ski area or utility corridor. There are no existing proposals that will remove or alter large areas.

Under the LRMPs, future proposals will be considered in terms of Forest-wide desired conditions that trend the forest toward providing remote areas for species with large home ranges, recovering Federally-listed species, facilitating denning and habitat use through low levels of disturbance, and managing motorized access to promote recovery (FW-DC-WL-01 through 05, FW-DC-AR-07). From a disturbance perspective, the LRMP will have more of

areas (i.e., areas available with a lower likelihood of human disturbance (wilderness, roadless, etc.) available for bears, compared to previous conditions. FW-STD-WL-02, MA1a- DC-WL-01, MA1b-DC-WL-01, MA1c-DC-WL-01, MA1e-DC-WL-01, MA3-DC-WL-01, and MA5-DC-WL-01 create and maintain large, remote security habitats that are likely to have a lower amount of human use due to the difficulties of access.

At the project level, Forest-wide guidelines and standards will address potential effects of special use permits on connectivity and linkage areas, food storage and attractants (FW-STD-WL-03) and Food Storage Order), disturbance of grizzly bears (FW-GDL-WL-01), and access management (FW-STD-WL-02).

Special uses are less likely in MA1a or MA1c. Additionally, some special uses authorizations are less likely to be considered in MA1, MA2, MA3, or MA4 (USFS 2013a, p. 292) because these areas are managed to protect their special values. National Forest System lands that provide secure habitat or contribute as linkage areas are also less likely to be considered for disposal or exchange (USFS 2013a, p. 292). Therefore, special uses are less likely to occur inside BMUs in the action area.

Combined, the LRMP direction and extensive areas where special uses are less likely to be authorized will reduce or limit the potential impacts of special uses on grizzly bears. We anticipate no adverse effects to grizzly bears as a result of most special use permits. However, large-scale permitted activities such as ski areas or utility corridors may result in habitat loss or other adverse effects, but we expect these effects to be lessened by measures detailed above. Exceptions would be infrequent and related to large-scale activities and would be addressed at the project level.

However, in the 10 to 15-year term of the LRMP, large-scale proposals may arise that result in adverse effects on individual grizzly bears. For the reasons described above, and the fact that the LRMP implements the IGBC guidelines for MS 1, which encompasses all of the CYE and SE recovery zones and favors the needs of grizzly bears when grizzly habitat and other land use values compete, we do not expect substantial negative effects on the population.

3.3.5 Integration and Synthesis of Effects of the Action on Grizzly Bears

This section considers the aggregated effects of the Project on the overall reproduction, numbers, and distribution of grizzly bears as a result of continued implementation of the LRMP in light of the extended timeline to reach full compliance with the Access Amendment direction, updating the baseline condition and clarifying the “no net increase” standard for BORZ, and extending the time to complete a winter travel plan.

Grizzly bear numbers, reproduction and distribution have been improving across both the SE and CYE since the Access Amendment was implemented. The SE population trend appears to be increasing and is likely at or above the population goal of 90 bears. Additionally, immigration has begun to occur, although female reproduction has not yet occurred and the population has yet to meet all of its recovery criteria. The CYE population remains below the population goal of 100 bears and the CYE has not met its recovery criteria; however, the population appears to be

increasing and successful augmentation and natural immigration has led to improved genetic diversity. In both recovery zones, human-caused mortality has declined.

As described in the above sections and in our 2013 biological opinion on the LRMP, the primary adverse effect that may result in impairment of feeding, breeding, and sheltering activities by grizzly bears under the LRMP is attributed to the effects of high road densities and decreased secure habitat for grizzly bears. High motorized route densities provides people with easy access into grizzly bear habitat, which contributes to potential increased risk of human-bear conflicts resulting in human-caused grizzly bear mortality. We conclude that the LRMP, grizzly bear Access Amendment, and food storage order would continue to substantially reduce adverse impacts to grizzly bears from IPNF management activities within the action area.

Through our analysis, we have determined that grizzly bears in the BMUs that do not meet the research benchmarks for road density and secure habitat (i.e., Core habitat) are likely to experience adverse effects. The delay in achieving full compliance with the Access Amendment will prolong the existing conditions that are likely to impart adverse effects to some female grizzly bears in three BMUs under IPNF-management beyond the timeframe envisioned in the 2013 biological opinion on the LRMP. Under the proposed action, the IPNF will meet the established standards in the SE and one BMU in the CYE by the end of 2023 and in the third BMU by the end of 2028. We do not expect all female grizzly bears in these BMUs would experience adverse effects, and we do not expect any adult male, subadult, or transient grizzly bears would experience adverse effects. We recognize that grizzly bears that utilize habitat within these BMUs likely use habitat elsewhere in adjacent landscapes, and we expect adverse effects will be limited to those grizzly bears that occur primarily within these BMUs. Therefore, we expect extending the due date for compliance with the Access Amendment direction may reduce the reproductive capacity of a small number of female grizzly bears in a small number of total BMUs, but the effects would be short-lived, until the IPNF comes into compliance with the direction.

As characterized in the Access Amendment biological opinion and reiterated in this biological opinion, the Access Amendment significantly reduces incidental take attributed to high road densities but does not reduce the possibility of incidental take in all BMUs. Once compliance standards are reached, we anticipate adverse effects to a few individual female grizzly bears as a result of motorized access in a few BMUs that will not meet the research benchmark for OMRD, TMRD, and/or Core habitat, namely the Lakeshore BMU in the SE and Grouse BMU in the CYE. Adverse effects are minimized by: (1) providing Core habitat at or beyond research benchmarks in seven of the eight BMUs in the SE and 3 of four BMUs in the IPNF-managed CYE; and (2) limiting motorized use on restricted roads in BMUs to administrative only. However, we expect the IPNF portion of the SE and CYE will contain motorized access conditions and qualities of secure habitat that support successful reproduction of female grizzly bears.

Population-level effects related to reaching compliance with the Access Amendment would require time to become evident because of the low reproductive rate of grizzly bears, which results in a population that increases or decreases slowly over time and that long term monitoring of the population would be needed to verify trends. The Service evaluated access management data from 2011 to 2019 in the CYE and SE, to determine whether there was any apparent correlation between access management conditions in individual BMUs and occupancy by

females with cubs, or grizzly bear mortality. We found no correlation to suggest that occupancy of a BMU by females with cubs is directly tied to a BMU meeting access management standards or benchmarks. While it is likely that some females have experienced adverse effects in BMUs with suboptimal access management conditions that have reduced their ability to successfully reproduce, the data show that others have successfully reproduced in some BMUs that do not meet standards and/or research benchmarks. This is consistent with the analysis in the biological opinion for Access Amendment (USFWS 2011a, pp. AA-57 to AA-58), in which we stated, "the findings reported by Wakkinen and Kasworm (1997) are based on an average of motorized access conditions within a total of six female grizzly bear home ranges in the CYE and SE. These averages did not translate into definitive thresholds of grizzly bear tolerance for these parameters. Some bears successfully used habitat that was more developed (in terms of roads) than the reported averages, some bears successfully used habitats that were more pristine (fewer roads) than the reported averages."

Similarly, we found no evidence in the data from 2011 to 2019 to suggest that mortalities are more abundant in BMUs that do not meet standards. Some bears died in Core habitat, and some died in more developed habitat. The majority of human-caused mortality was closer to roads or other human development, such as residences, outbuildings, campgrounds (Kasworm et al. 2019b, p. 17-18), likely due to the higher incidence of human contact and the availability of unnatural attractants (e.g. garbage, livestock feed). These analyses correspond with what other researchers have articulated regarding the multiple factors that affect grizzly bear habitat selection, distribution, reproduction, and mortality (Schwartz et. al 2010, entire; Proctor et al. 2020, entire). That is, access management is one very important piece of the equation for providing habitat that research has shown supports successful female grizzly bear occupancy and reproduction and is important for attaining recovery goals, but it is not the sole driver.

Grizzly bears are given high priority in IPNF management inside the Recovery Zone, but grizzly bears are not the primary management consideration in land management in the action area outside of the recovery zone. Grizzly bears outside the recovery zone probably experience a higher level of adverse impacts due to land management actions than do grizzly bears inside. However, a number of grizzly bears are apparently using habitat within the BORZ. We expect this occupancy to continue albeit at lower densities than expected in fully functioning habitat. The proposed action includes habitat protections in BORZ that limit increases in the miles of open and total roads beyond the existing condition, but expect there is likely to be some small loss of secure habitat even while maintaining these protections. The existing highly roaded condition within BORZ likely limits grizzly bear movement between recovery zones but, because the majority of roads in BORZ are forest roads, we do not expect the roaded condition to act as a complete barrier to movement.

Female grizzly bear occupancy is a multi-generational process where females must live year-round in an area, successfully reproduce, and rear offspring that disperse into adjacent, unoccupied habitat. Within the CYE, female grizzly bear occupancy is radiating out from a few areas at roughly a rate of 10-15 km per generation (W. Kasworm, pers. comm., 2020), which aligns with rates observed in other populations (McLellan and Hovey 2001, p. 841; Proctor et al. 2004, p. 1113). We expect grizzly bear dispersal in the SE roughly follows this same pattern. Therefore, we expect that the distribution of female grizzly bears in the action area will continue to increase slowly, and that an extension of time to meet access management standards for the

next few years will not impede female grizzly bears' ability to continue to expand their distribution.

Grizzly bears have been expanding their range outside of the recovery zones, and we expect this to continue. The IPNF will continue to implement the "no net increase" standard in managing motorized access conditions to the baseline condition at the time when BORZ are delineated. Updates to the baseline condition of BORZ and the application of exceptions to the "no net increase" standard may result in motorized access conditions that reduce secure habitat in BORZ. We anticipate adverse effects to a few female grizzly bears as a result of the existing low amounts of secure habitat in BORZ, as well as future permanent reductions and temporary reductions in the effectiveness of secure habitat in BORZ. Some females may experience significant reductions in their feeding, breeding, and sheltering.

The IPNF had not previously considered effects to secure habitat in BORZ, and thus lacks data to show what changes have occurred in terms of secure habitat since the no-net-increase standard was enacted in 2011. Some change in motorized access conditions may have reduced secure habitat in some areas, or potentially created secure habitat in others, in the past decade. Both permanent and temporary effects to secure habitat have likely occurred as a result of projects in BORZ. During that time, increasing use of BORZ and expansion of BORZ has occurred. It is reasonable to expect that grizzly bears, including some female grizzly bears, will continue to find resources and to use BORZ at a level similar to the use that occurred from 2011 to 2019. We expect grizzly bears to continue to occupy BORZ at lower densities and under potentially higher mortality risks than within the recovery zone.

Over the life of the plan, additional adverse effects may result from displacement of a very few female grizzly bears with cubs by snowmobile activities during the den emergence period. The Service determined that the extension to complete a winter travel plan would maintain the current opportunities for motorized winter travel access to overlap grizzly bear denning habitat that may result in adverse effects to feeding, breeding (i.e., cub rearing), and sheltering behavior of a few female grizzly bears during den emergence. Such disturbances may result increased stress, reduce foraging efficiency, and may lead to premature den abandonment that may decrease cub survival. However, we determined that the current overlap between grizzly bear denning habitat motorized winter access is very low in both BMUs and BORZ and that very few females would be affected. We expect grizzly bears would only be affected during den emergence and that effects would not persist more than one year for any individual. Because of the low number of grizzly bears that may experience adverse effects, we do not expect the extension of time to complete a winter travel plan will substantially alter the numbers, reproduction or distribution of grizzly bears in the IPNF-managed portions of the SE or CYE.

Under the LRMP, other, site-specific projects may result in adverse effects to individual grizzly bears primarily associated with vegetation management activities (timber harvest or prescribed fire) creating larger opening sizes; potential mining proposals; large-scale special use permits; and use of helicopters during vegetation management activities. As discussed in the analysis of effects, we expect these activities to occur infrequently and associated adverse effects to be reduced by the elements of the LRMP such that we do not anticipate substantial negative effects to grizzly bear populations in the SE or CYE.

In summary, implementation of the LRMP in light of the proposed changes may cause localized and short- or long-term adverse effects to some female grizzly bears within the action area, but would result in overall ecosystem-wide improvements within the IPNF portions of the SE and CYE. The proposed action would also allow for some expansion of grizzly bears outside of the recovery zones and reduce disturbances associated with motorized access that may impair connectivity between recovery zones. We have seen a positive trend towards meeting standards since 2011, thus a positive trend towards improving habitat conditions for grizzly bears related to access management in BMUs, and protecting habitat conditions related to access management in BORZ. Some forest management may result in some additional adverse effects, but we do not expect population-level effects. Since 2010, grizzly bear numbers and distribution have increased in the SE and CYE, and we anticipate that, with continued improvements in habitat conditions (i.e., reducing road density and improving secure habitat), combined with efforts to minimize mortality, particularly human-caused mortality, that grizzly bears in the SE and CYE will continue to increase their distribution and population trend. As previously described in the 2013 biological opinion on the LRMP, the net effect of the access management direction supports survival and recovery of these population by supporting the numbers, distribution and reproduction of grizzly bears, including females, across each ecosystem.

3.4 Cumulative Effects

The implementing regulations for section 7 define cumulative effects as those effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. A conclusion that activities are reasonably certain to occur must be based on clear and substantial information, using the best scientific data available. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Due to the broad geographic scope of the LRMP and, therefore, the action area, it is difficult to comprehensively assess all of the future, non-Federal activities reasonably certain to occur in the action area that may affect the grizzly bear. This analysis of cumulative effects is based on an assessment of land ownership and use patterns, and the patterns of grizzly bear mortality caused by non-Federal activities, as discussed above in the Status of the Species and Environmental Baseline sections above.

The SE spans approximately 2,200 mi^2 in size, and in the U.S. portion of the SE, land ownership is approximately 20 percent State and private lands. The CYE spans approximately 2,582 mi^2, and state and private lands comprise approximately 10 percent of the recovery zone. According to the BA (p. 67), there are approximately 74,050 (11 percent) and 23,785 (13 percent) acres of private, state, and corporate timber land inholdings within the combined SE and CYE BMUs and BORZ, respectively, on the IPNF. Despite the relatively low proportion of private lands, grizzly bear mortality occurs disproportionately on private lands. Of 76 human-caused grizzly bear mortalities in or within 10 miles of the SE (includes portions of BORZ), approximately 52 percent occurred on private lands. Of 44 known or suspected human-caused grizzly bear mortalities in or within 10 miles of the CYE (includes portions of BORZ), approximately 43

percent occurred on private lands. Most human-caused mortalities of grizzly bears occur during the hunting seasons.

Timber harvest, road construction, and fuels reductions efforts occurring on private or State, lands may impact the distribution, amount, and quality of grizzly habitat within the recovery zones and may impact connectivity between NFS lands in the action area. Impacts from these activities may also impact recurring use by grizzly bears within the BORZ. Human activities may cause avoidance of these areas, or conversely, increase the potential for habituation and subsequent removal or death of these bears for public safety.

Decisions made by non-Federal landowners regarding management of their lands could potentially result in cumulative disturbance, displacement, or increased risk of human/grizzly bear conflicts. Timber harvest and developments on private or State lands may also affect connectivity within the action area. These comprise a relatively small portion of the action area. The Access Amendment established management direction for roads and secure habitat on NFS lands within the action area. The calculations used for determining road densities and Core habitat on NFS lands include roads on state and private lands within the BMUs considered in this action, even though standards set by the Access Amendment apply only to NFS lands. Therefore, activities on non-federal lands may in some cases limit discretion for road use on federal lands in order to meet standards (USFWS 2011a, p. A-75), partially offsetting or moderating effects of road densities on state and private lands.

The LeClerc BMU in the SE is comprised of a checkerboard ownership between the Colville National Forest (CNF) and the Stimson Lumber Company. The Stimson Lumber Company manages approximately 21,000 acres of land within the LeClerc BMU and has entered into a Conservation Agreement with the CNF and the Service to minimize adverse effects to grizzly bears (USFWS 2001, pp.53-54). Through the Agreement, Stimson commits to leaving hiding cover for grizzly bears within created openings, along open roads, and within riparian habitats. Stimson also commits to log during the winter in some areas to reduce disturbance to grizzly bears, and to report logging activities and road entries to the CNF annually. The Service's biological opinion (USFWS 2001) on that Agreement included an ITS with terms and conditions providing for no net decrease in grizzly bear Core habitat or an increase in TMRD on affected NFS lands.

The State of Idaho continues to allow hunting for black bears, as well as other wildlife species, within and around the SE and CYE. This has the potential to result in grizzly bear mortality as a result of mistaken bear identification or self-defense within the action area. Idaho began a voluntary black bear hunter testing and certification program in 2011 to help educate hunters in distinguishing species and reducing mistaken identity and reducing grizzly bear mortalities. The IPNF and cooperating agencies (IDFG, Idaho Department of Lands) maintain and financially support a regular program of public information and education within the SE and CYE. We expect these programs to continue to reduce and contribute to offsetting the risks of human-grizzly bear conflicts and human-caused mortality of grizzly bears.

Recreation is likely to increase on all land ownership types because of human population growth. Increases in human population and new or improved technologies (e.g. mountain bikes, ATVs, snowmobiles, etc.) have led to more crowded recreation experiences during peak use times and increased levels and range of demands on resources on the IPNF and adjacent state and private lands, particularly those providing access or similar recreational experiences. Increases in recreational use in the action area on non-federal lands may contribute to disturbance and cause the portions of NFS lands that have lower human disturbance to become more important for grizzly bears. Additionally, with increased human presence on all land ownerships and increasing grizzly bear numbers in the CYE and SE, there is potential for an increase in human/bear conflict, which may result grizzly bear mortality.

The Access Amendment established management direction for roads and secure habitat on USFS lands within the action area. The IPNF commitment to maintain access management restrictions in BMUs is likely to partially offset or moderate the cumulative effects on grizzly bears caused by high road densities within core areas that overlap State and private lands.

Illegal Motorized Access

An individual's non-compliance with the IPNF's access management restrictions is an illegal activity. Such activities are not part of or caused by the USFS's proposed action (and therefore are not considered in the effects of the action section), but we also consider whether such activities are "reasonably certain to occur" in the future such that it should be considered a cumulative effect. Under our regulations, factors to consider for determining whether an activity is "reasonably certain to occur" include "past experience with activities that have resulted from actions that are similar in scope, nature and magnitude to the proposed action," "existing plans" for the activity, and "any remaining economic, administrative, and legal requirements necessary for the activity to go forward" (50 CFR 402.17(a)).

The IPNF has no fore-knowledge of an individual's decision to engage in illegal motorized use. There are no "existing plans," and illegal activities, by their nature, have no economic, administrative, or legal requirements necessary for the activity to go forward. As a result, we could conclude that future illegal motorized access is not reasonably certain to occur, and not attempt to address such activity as a cumulative effect. However, given past experiences from effectiveness monitoring on the IPNF (as described in section 3.2.3.7 "Illegal Motorized Access," above), the Service believes instances of illegal motorized use are reasonably certain to occur in the action area in the future.

While cumulative effects to grizzly bears may occur as a result of illegal motorized access, information as to the location, duration, intensity, and type of use, among other conditions, is and will continue to be unknown until such time that illegal access is discovered. The probability of long-term illegal motorized access coinciding with the presence of grizzly bears is expected to continue to be low but is not quantifiable. As such, the potential consequences to grizzly bears is uncertain. We expect the effects to grizzly bears from illegal motorized access will continue to be spatially disparate and temporary and is not likely to collectively cause an adverse effect

because most users follow travel regulations and when illegal use is observed or when user-created roads are discovered, the USFS corrects the situation as soon as they are able.

The monitoring data do not show a clear trend, increasing or decreasing, in the amount of illegal access that was documented from 2011-2019; thus, we do not have reason to believe the amount of illegal access will substantially change in the next 10-15 years during which the LRMP is implemented. Because of the access management standards, we do not anticipate a substantial increase in opportunities for illegal motorized access because most illegal access occurs in relation to existing roads. We assume that the amount and type of illegal motorized access in the future will be similar, and effects to bears will be similar to the effects from 2011-2019 (a time in which grizzly bear mortality rates decreased and population trend increased, as described previously in this opinion). However, illegal trespass activity by a private individual is not part of the proposed action, and unauthorized wheeled motorized access is not covered by ESA section 9 take exemptions that accompany this Opinion. Individuals that participate in unauthorized motorized uses on the IPNF will remain subject to penalties for violation of the IPNF closure orders as well as ESA section 9 penalties for any resulting incidental take of grizzly bears.

In summary, hunting, recreational use, timber activities and road use on State and private lands in the action area, along with unauthorized motorized use on public lands, have the potential to result in cumulative effects on grizzly bears in the action area. Potential effects include grizzly bear disturbance and displacement, fragmentation of bear habitat and human/grizzly bear conflicts resulting in mortality of bears. The vast majority of the CYE, SE, and BORZ are NFS lands, yet a disproportionate number of bears are killed on private lands. The implementation of: the Access Amendment on Federal lands, which takes into account actions on private lands; hunter education programs; grizzly bear outreach programs; and the Stimson (LeClerc BMU) Conservation Agreement with CNF all address grizzly bear conservation needs and contribute to offsetting the cumulative effects of bear mortality on private lands. At this time, the cumulative effects on grizzly bears occurring on State and private lands contribute to human-caused mortality of grizzly bears in the SE and CYE. However, both the CYE and SE populations show an increasing population trend and the programs described above to offset the effects of human-caused mortality of grizzly bears appear to be helping to stabilize these grizzly bear populations. For this reason, cumulative effects are not expected to result in substantial adverse effects to the grizzly bear at the population level.

3.5 Conclusion

After reviewing the current status of the grizzly bear, the environmental baseline for the action area, effects of the proposed action, and cumulative effects, it is the Service's biological opinion that ongoing implementation of the IPNF LRMP, inclusive of the proposed timeline extensions and clarifications, is not likely to jeopardize the continued existence of the grizzly bear.

As previously discussed, grizzly bear numbers, reproduction and distribution have been improving across both the SE and CYE since the Access Amendment was implemented, but neither recovery zone has met all recovery criteria, and movement remains relatively low

between the SE and CYE, and between the CYE and NCDE. In addition, the CYE population size remains small. As described in the above sections, the primary adverse effect that may result in impairment of feeding, breeding, and sheltering activities by grizzly bears under the LRMP is attributed to the effects of high road densities and decreased secure habitat for grizzly bears.

Implementation of the LRMP, with the updates to the timelines and clarifications provided in the BA, is likely to result in adverse effects to some individual grizzly bears in BMUs and BORZ, but is not likely to alter the ongoing positive trajectory of the grizzly bear populations in the SE and CYE in terms of grizzly bear reproduction, numbers, or distribution. While the time extension to reach compliance with the Access Amendment direction may cause some minor adverse effects to the conservation role of affected BMUs in the survival and recovery of the grizzly bear, we do not expect grizzly bears in any other BMU under IPNF management to be adversely affected by the extension. The adverse effects to BMUs affected by the extension are likely to be offset by the long-term beneficial effects associated with meeting the Access Amendment direction that is expected to provide for suitable grizzly bear habitat and moderate human disturbance in support of long-term grizzly bear survival and reproduction across the IPNF.

The biological opinion also analyzed a number of other project or activity types allowed under the LRMP, some of which could result in adverse effects and less frequently, impairment of breeding, feeding and sheltering. These include the creation of larger opening sizes, mining proposals, large-scale special use permits, and use of helicopters for vegetation management activities. As detailed above, the LRMP desired condition trends the forest toward a system of large, remote areas with limited human disturbance for wildlife, and trends the forest toward the recovery of listed species over the long-term. The LRMP would also reduce the likelihood of adverse effects from these actions, and/or would minimize the impacts of many adverse effects on grizzly bears. As such, we conclude that although some individual bears may be adversely affected, these effects (including potential take), would not rise to the levels that would have substantive impacts on either the CYE or SE grizzly bear populations.

Within the SE and CYE recovery zones, access management and other LRMP direction will continue to maintain large expanses of suitable habitat that will support occupancy by female grizzly bears, allow for reproduction, and generally support some level of connectivity within the recovery zones. Within BORZ, we expect some individual grizzly bears will continue to use the areas for dispersal or exploratory movements, and potentially some home range establishment, albeit at densities lower than those in the recovery zones. The conservation role of BORZ has not been determined, but managing access conditions in those BORZ within the intervening areas between recovery zones will be important for moderating those threats to grizzly bear in the SE and CYE associated with small population size and genetic isolation.

3.6 Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened fish and wildlife species, respectively, without specific

exemption. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." Harm is further defined by the Service to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering."

Incidental take is defined as take that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESAQ provided that such taking is in compliance with the terms and conditions of an Incidental Take Statement (ITS).

The measures described below are non-discretionary, and must be undertaken by the IPNF and must become binding conditions of any grant or permit issued by the IPNF to an applicant for the exemption in section 7(o)(2) to apply. The IPNF has a continuing duty to regulate the activity covered by this ITS. If the IPNF (1) fails to assume and implement the terms and conditions, or (2) fails to require an applicant, as appropriate, to adhere to the terms and conditions of this ITS through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the IPNF and any applicant, as appropriate, must report the progress of the action and its impact on the grizzly bear to the Service as specified in the ITS in accordance with 50 CFR 402.14(i)(3).

3.6.1 Scope of the ITS Exemption

The IPNF LRMP is a mixed programmatic action. Mixed programmatic actions are defined at 50 CFR 402.02 to mean "…for purposes of an incidental take statement, a Federal action that approves action(s) that will not be subject to further section 7 consultation, and also approves a framework for the development of future action(s) that are authorized, funded, or carried out at a later time and any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further section 7 consultation.

For a mixed programmatic action, an ITS is required at the programmatic level only for those program actions that are reasonably certain to cause take and are not subject to further section 7 consultation. In this case, there are two such actions: (1) motorized access management; and (2) motorized winter travel.

3.6.2 Form and Amount or Extent of Take

3.6.2.1 Form of Take

Access Management

This program action is likely to cause take of the grizzly bear in the form of harm as a result of significant habitat alteration that decreases fitness and impairs a female grizzly bear's normal reproductive potential. We do not expect all adult female grizzly bears affected by displacement or by alteration of habitat caused by the proposed action to be subject to impairment of their feeding, breeding, and sheltering. We do not anticipate any take of adult male, subadult, or transient grizzly bears. Male grizzly bears have larger home ranges than females, and males and subadults are more mobile and do not have the same energetic needs as adult females. We also do not anticipate take of grizzly bears that are transient (moving through areas outside of home range use). Such individuals are highly mobile and not restricted to finding food and shelter within a home range. Thus, while displacement may affect behavioral patterns such as feeding or sheltering, we do not anticipate such effects would result in actual injury to transient, subadult, or male grizzly bears.

In the BORZ, we anticipate incidental take of some female grizzly bears in the form of harm because: (1) densities of motorized routes are relatively high and secure habitat is relative low across BORZ areas; and (2) the IPNF has not specifically managed for grizzly bear habitat relative to motorized access standards outside of recovery zones. We anticipate that relatively high motorized route densities and relatively low amounts of secure habitat in BORZ are likely causing incidental take of some female grizzly bears by significantly disrupting normal behavioral patterns to the extent that a female's normal reproductive potential is impaired. This is a conservative conclusion. Since grizzly bears moving into these areas did so under prevailing conditions, it is also possible that incidental take of every affected female is not occurring. Grizzly bears are known to tolerate a range of conditions; some apparently adjust to high levels of human activity without apparent consequence. Further, because few grizzly bears occupy this area, intraspecific competition is probably not significant and grizzly bears using BORZ likely have options related to home range selection and use.

Motorized Winter Travel

In the SE and CYE, incidental take of some grizzly bears is likely to occur where late season snowmobiling overlaps with grizzly bear post-denning habitat. The incidental take is expected to be in the form of harass as a result of the premature den emergence or premature displacement from the den site area of adult female grizzly bears and their cubs resulting in reduced fitness of females and reduced fitness and survivorship of cubs.

3.6.2.2 Amount of Take

It is not practical to express the amount of take in terms of a number of individual grizzly bears for the following reasons:

1. The amount of take resulting from the proposed action depends on the number of adult female grizzly bears impacted in a manner that conforms to take. Grizzly bears are not easily detected or observed in the wild. Specific information on the precise number of adult female grizzly bears that use the action area is not available, but due to the amount of habitat meeting acceptable habitat parameters, we reasonably assume very few adult

females would be affected. In the case of harm resulting from snowmobiling, we assume very few adult females would be subject to take due to the low amount of grizzly bear denning habitat that overlaps motorized winter travel use areas.

2. Individual grizzly bears react differently to disturbance. Some individual grizzly bears are more tolerant of human disturbance than others. Not all adult female bears that are exposed to disturbance would be adversely impacted to an extent where take is likely to occur.
3. Reproductive rates of individual female grizzly bears vary naturally due to environmental and physiological causes. A reduction in "normal" reproductive success of an individual female, or the reason a grizzly bear fails to breed and/or failure to complete gestation is not easily discernible in the wild.

In accordance with the regulations at 50 CFR 402.14(i)(1)(i), a surrogate may be used to express the amount or extent of incidental take provided that the biological opinion or the ITS describes: the causal link between the surrogate and take of the listed species; why it is not practical to express the amount or extent of take in terms of individuals of the listed species; and a clear standard for determining when the level of anticipated take has been exceeded.

The discussion above explains why it is not practical to express the amount or extent of take in terms of individual grizzly bears. The Service is using six habitat-based surrogate measures to express take of grizzly bears. The **first surrogate** measure uses the research benchmarks for OMRD, TMRD, and Core habitat within BMUs to express the anticipated amount of take related to motorized access within the SE and CYE. The **second surrogate** measure provides a one-time entry into Core habitat within a BMU, for the sole purpose of completing road decommissioning or stabilization, as a measure of the amount of take associated with displacement from Core habitat. The **third surrogate** measure represents the extent of existing adverse conditions in BORZ to express the anticipated amount of take related to the high road densities that result in low quantities of secure habitat. The **fourth surrogate** measure relies on the "no net increase" standard discussed above to express the anticipated amount of take related to a permanent loss of secure habitat due to factors where the IPNF lacks discretion to prevent such losses. The causal link between the road densities, OMRD, TMRD and secure habitat standards and effects to grizzly bears was described above in this Opinion (e.g., see section 3.3.1.1 "Road Metrics Used in Grizzly Bear Effects Analyses" on pp. 66-70). The Service is using overlapping acreage of motorized winter travel and grizzly bear denning habitat in BMUs as the **fifth surrogate** measure for the anticipated amount of take in the SE and CYE caused by the delay to complete the winter travel plan. The Service is using the miles of groomed and ungroomed trails providing access to snowmobiling in BORZ as the **sixth surrogate** measure for the anticipated amount of take in those BORZ caused by the delay to complete the winter travel plan. The causal link between motorized over-snow use disturbances and effects to grizzly bears was described above in this Opinion (e.g., see section 3.3.1.3.1 "General Effects of Motorized Over-Snow Access on Grizzly Bears" on pp. 84-85).

Access Management

Based on the best available research and information, we anticipate that some level of incidental take of female grizzly bears will occur within individual BMUs as long as: (1) OMRD exceeds one mile per square mile in more than 33 percent of a BMU; (2) TMRD exceeds two miles per square mile in more than 26 percent of a BMU, and/or (3) a core area makes up less than 55 percent of a BMU. Incidental take of grizzly bears is unlikely to occur when the research benchmarks are achieved in those BMUs. Two exceptions to this, where we do not expect grizzly bears to be subject to adverse effects as a result of OMRD conditions below the research benchmarks, are the Scotchman and North Lighting BMUs described the section 3.3.1.2.1 "Effects to Grizzly Bear from Access Management in Light of the Extended Timeline to Meet Access Management Standards in BMUs" (pp. 75-76) of this Opinion. The IPNF will reduce motorized route densities through 2028 to achieve the LRMP standards in all BMUs managed by the IPNF.

As a result of the proposed action, we expect incidental take of some female grizzly bears in the SE Blue-Grass BMU until the end of 2023 and in the CYE Grouse and Boulder BMUs until the end of 2023 and the end of 2028, respectively, until the IPNF bring these BMUs up to the established standards. In each of these BMUs, the IPNF has signed decisions to meet the timeline identified in this Opinion. Accompanying the biological opinions for projects the Blue-Grass and Grouse BMUs (Service reference numbers 01EIFW00-2019-F-0876 Bog Creek Road Project and 01EIFW00-2018-F-0279 Grouse BMU Compliance Project, respectively), the Service issued an ITS for incidental take of grizzly bears at the project-level recognizing and including the extension of the LRMP timeline to meet the established standards. We reiterate that level of take in this ITS, recognizing it has been exempted elsewhere. In the biological opinion for the project in the Boulder BMU (Service Reference number and 01EIFW00-2018-F-1309 Boulder Creek Restoration Project), the Service exempted incidental take for grizzly bears related to the project-specific action, recognizing the project would not be completed until sometime in 2028, but the Service did not specifically asses the extension of the LRMP timeline in the ITS, so we are providing the take exemption here. Until these BMUs meet these standards, we expect some level of incidental take to some female grizzly bears.

Using the **first surrogate** measure of incidental take, all BMUs in the SE and all BMUs in the CYE *with the exception of the Boulder BMU*, shall reach the LRMP established standards shown in Table 13 by the end of 2023 or the amount of take we anticipated and analyzed here would be exceeded, and reinitiation of consultation would be required. The Boulder BMU shall reach the LRMP established standards shown in Table 13 by the end of 2028 or the amount of take we anticipated and analyzed here would be exceeded.

By the end of 2023 in the SE, we expect 7 of the 8 BMUs in the IPNF-managed portion of the SE will achieve BMU established standards that will either meet or exceed research benchmarks that avoid adverse effects to grizzly bears. Currently, in the CYE, two of the four BMUs managed entirely by the IPNF (North Lightning and Scotchman) have conditions very near to research benchmarks combined with unique circumstances that avoid adverse effects to grizzly bears (i.e., the Scotchman and North Lightning BMUs).

Table 13. Access Amendment established standards for OMRD, TMRD, and Core habitat for Bear Management Units (BMUs) managed by the Idaho Panhandle National Forests (USFWS 2011). Shaded indicated the established standard **does not** meet the research benchmarks.

Recovery Zone	Bear Management Unit	Percent OMRD >1 mi/mi^2	Percent TMRD >2 mi/mi^2	Percent Core Area
	Research Benchmarks	≤ 33	≤ 26	≥ 55
Selkirk	Blue-Grass	33	26	55
Selkirk	Long-Smith	25	15	67
Selkirk	Myrtle	33	24	56
Selkirk	Ball-Trout	20	13	69
Selkirk	Lakeshore	82	56	20
Selkirk	Kalispell-Granite	33	26	55
Selkirk	Sullivan-Hughes	24	19	61
Selkirk	Salmo-Priest	33	26	64
Cabinet-Yaak	18 (Boulder)	33	29	55
Cabinet-Yaak	19 (Grouse)	59	55	37
Cabinet-Yaak	20 (North Lightning)	35[a]	20	61
Cabinet-Yaak	21 (Scotchman)	34[a]	26	62

[a] As described in section 3.3.1.2 "Effects of Wheeled Motorized Access to Grizzly Bear in the Action Area," the Service has determined the OMRD condition in these BMUs do not confer adverse effects to grizzly bear.

In three of the 12 BMUs managed entirely by the IPNF (i.e., Lakeshore in the SE and Boulder and Grouse in the CYE), one or more of the established standards do not meet the research benchmarks for one or more of the criteria (i.e., OMRD, TMRD, or Core habitat). Even after the BMUs reach compliance with the Access Amendment, by the end of 2023 for the Grouse BMU and by the end of 2028 for the Boulder BMU, the likelihood of incidental take would not be entirely eliminated in these BMUs because the established standards are worse than the research benchmarks. We anticipate take will be very low for the Boulder BMU because it has a TMRD standard near the research benchmark and will eventually provide 55 percent Core habitat. We anticipate grizzly bear in this BMU will be able to take advantage of the large blocks of Core habitat to avoid road-related disturbances, lessening (but not avoiding) the potential for adverse effects (USFWS 2011, p. A-66). The LRMP established standards in the Lakeshore and Grouse BMUs at levels that may not be capable of providing the full suite of home range needs for the average adult female grizzly bear within two BMUs on the IPNF. Female grizzly bears with home range use in these BMUs may continue to avoid key habitat, and so incidental take in the form of harm is likely to be a persistent long-term condition.

As previously analyzed in the biological opinion on the LRMP and provided in the associated ITS (USFWS 2013, p. II-58, II-103, respectively), the LRMP allows the IPNF to conduct a one-time entry (i.e., one season of construction activity) into Core habitat within a BMU, for the sole purpose of completing needed road decommissioning and/or stabilization activities on existing closed or barriered roads in Core habitat (i.e., legacy roads that were closed to create Core habitat before this issue was identified). This can occur once per BMU per 10 years. The

Service uses the **second surrogate** measure to express the level of incidental take associated with a one-time entry into Core habitat. If more than one entry of Core habitat occurs within a BMU more than once per 10-year time frame, continues for more than one bear season, or occurs for reasons other than the sole purpose of completing road decommissioning or stabilization activities on existing closed or barriered roads in Core habitat (see Part I.B.2.a in USFWS 2011b, p. 13), the level of incidental take exempted here would be exceeded.

We anticipate some level of incidental take of female grizzly bears is occurring in BORZ as a result of existing relatively high motorized route densities and low secure habitat. Since grizzly bears moving into these areas did so under prevailing conditions, it is also possible that incidental take is not occurring for every female. We anticipate a low level of incidental take of female grizzly bears in the BORZ in the form of harm through significant habitat modification as a result of high motorized route densities and associated disturbance, which causes actual injury to grizzly bears by significantly disrupting normal behavioral patterns, to the extent that a female's normal reproductive potential is impaired. We use the existing level of secure habitat (i.e., the baseline condition as of 2019) at the time of BORZ delineation as our **third surrogate** measure of incidental take of grizzly bears related to motorized access (Table 14). Should the IPNF permanently reduce secure habitat in a BORZ, resulting in a lower quantity of secure habitat reported as the 2019 baseline condition, the amount of incidental take will be exceeded, *unless that reduction in secure habitat is the result of a "no net increase" exemption described below*.

Table 14. Baseline condition of secure habitat in BORZ as of 2019, and calculation for permanent loss of secure habitat due to small administrative changes (i.e., road relocations) or changes for which the IPNF lacks discretion to prevent. Source: USFS 2020a.

Bears Outside Recovery Zone	Recovery Zone	Total Size, all land ownerships (Acres)	National Forest System Lands		
			Total Area (Acres)	Baseline Condition, 2019 (acres)[1]	2 Percent Exempted Loss of Secure Habitat[2]
Priest Lake	Selkirk	80,733	75,793	11,671	233.4
Pack River Combined	Selkirk	36,013	30,747	13,546	270.9
Mission-Moyie Combined	Cabinet - Yaak	107,517	90,806	12,370	247.4

[1] 2019 Baseline Condition, representing the best available information of the baseline condition of exempted incidental take. Loss of secure habitat beyond this level will exceed the level of incidental take of grizzly bears exempted through this Opinion.
[2] Level of potential permanent loss of secure habitat from actions related to required access to private lands, and/or short movements of road segments or gates/closure devices to improve effectiveness and safety. Loss of secure habitat beyond this level will exceed the level of take anticipated in this Opinion.

Minor changes in linear miles of motorized routes, and potential decreases in secure habitat below the baseline condition, may occur in BORZ, related to exceptions to the "no net increase"

standard and for short route relocations done for safety purposes. We expect these losses may occur as the result of IPNF obligations to provide access on NFS lands to private lands, and/or short movements of road segments or gates/closure devices to improve access management effectiveness and safety. We assume actions will result in no more than a 2 percent net decrease in secure habitat within each BORZ. Therefore, we use a 2 percent decrease in secure habitat in each BORZ, due to exceptions to the "no net increase" standard, as our **fourth surrogate** measure of incidental take. If an IPNF action permanently reduces the amount of secure habitat by more than 2 percent of the reported baseline condition, or if the purposes for the decrease are other than those associated with exceptions to the "no net increase" standard or route relocation for safety purposes or to improve effectiveness, the level of incidental take anticipated here would be exceeded and reinitiation of consultation would be required. Based on the best information available at this time, the reported baseline condition of secure habitat in BORZ and the 2 percent loss exempted through this ITS are reported in Table 14.

Winter Travel Plan

Based on the best available research and information, we anticipate that some level of incidental take of female grizzly bears in the IPNF-managed portion of the SE and CYE where late season winter motorized over-snow use (referred to here as "snowmobiling" or "snowmobile use") overlaps with grizzly bear post-denning habitat. Monitoring shows female grizzly bears with cubs generally remain in their dens until after April 15, so we conservatively assume incidental take to some female grizzly bears may occur anytime between April 15, when female grizzly bears begin den emergence, and May 31, when we conservatively anticipate conditions would no longer be conducive to snowmobile use. Incidental take is expected to be in the form of harm to some individual female grizzly bears and/or cubs caused by premature den emergence or premature displacement from the den site area in response to disturbances related to late season snowmobiling, resulting in reduced fitness of females and reduced fitness or survivorship of the cubs. We expect the amount and extent of take would be very low, and would affect very few individual females with cubs. We expect conditions to persist until a winter travel plan is complete, by the end of 2023.

We use the acres of denning habitat that overlap with late-season snowmobile use as our **fifth surrogate** measure of incidental take. Therefore, we conservatively anticipate some level of incidental take between April 15 and May 31 each year until a winter travel plan is complete and implemented, no later than the end of 2023, where snowmobile use currently overlaps 7,440 acres of denning habitat in the SE. Likewise, we conservatively anticipate some level of incidental take between April 15 and May 31 each year until a winter travel plan is complete and implemented, no later than the end of 2023, where snowmobile use currently overlaps 14,250 acres of denning habitat in the IPNF-managed portion of the CYE (Table 15). Late season snowmobiling outside of the exempted period or exceeding the acres of overlapping snowmobiling to grizzly bear denning habitat reported in Table 15 would exceed the amount of incidental take anticipated here.

Table 15. Table of incidental take coverage in the SE and IPNF-managed portion of the CYE from late-season winter motorized over-snow use ("snowmobiling").

Recovery Zone	Date Range of Incidental Take	Habitat surrogate for Incidental Take
Selkirk	April 15 to May 31 each year through 2023	7,440 acres of overlapping snowmobile use and denning habitat
Cabinet-Yaak	April 15 to May 31 each year through 2023	14,250 acres of overlapping snowmobile use and denning habitat

Similar to BMUs, incidental take may occur where late season snowmobiling overlaps grizzly bear post-den habitat in BORZ. Incidental take is expected to be in the form of harm to some female grizzly bears and/or cubs caused by premature den emergence or premature displacement from the den site area in response to disturbances related to late season snowmobiling, resulting in reduced fitness of females and reduced fitness and survivorship of the cubs. We expect the extent of take would be very low given the low density of females expected to den in BORZ. Denning habitat has not been modeled in the BORZ, so we use acreage of BORZ available to snowmobiling and miles of groomed and ungroomed trails in BORZ as our **sixth surrogate** measure of incidental take. Therefore, we conservatively anticipate some level of incidental take between April 15 and May 31 in BORZ where motorized over-snow use occurs across 90,806 acres facilitated by 21.4 miles of groomed trails in the Mission-Moyie BORZ, across 75,793 acres facilitated by 18.4 miles of groomed and 12.5 miles of ungroomed trails in the Pack River BORZ, and across 30,747 acres facilitated by 26.5 miles of groomed and 44.8 miles of ungroomed trails in the Priest BORZ. We expect this level of take to persist until the winter travel plan is completed and implemented, no later than by the end of 2023. Late season snowmobiling outside of the exempted period, exceeding the acreage of BORZ available for snowmobiling or miles of groomed or ungroomed trails reported in Table 16 would exceed the amount of incidental take anticipated here.

Table 16. Table of incidental take coverage in BORZ from late-season winter motorized over-snow use ("snowmobiling").

Bears Outside Recovery Zone ("BORZ")	Date Range of Incidental Take	Habitat surrogate, Incidental Take for acreage of winter motorized over-snow use (acres)	Habitat surrogate, Incidental Take for miles of groomed (ungroomed) trails
Mission-Moyie BORZ	April 15 to May 31, each year through 2023	90,806	21.4 (0)
Pack River BORZ	April 15 to May 31, each year through 2023	75,793	18.4 (12.5)
Priest BORZ	April 15 to May 31, each year through 2023	30,747	26.5 (44.8)

3.6.3 Effect of the Take

In the accompanying Opinion, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the grizzly bear across its range.

3.6.4 Reasonable and Prudent Measures

The Service has determined that the following Reasonable and Prudent Measures are necessary to further minimize the impacts of such take on the grizzly bears.

1. Reduce the potential for displacement of grizzly bears related to wheeled motorized access.
2. Reduce the potential for disturbance to grizzly bears related to late-season snowmobile use in grizzly bear denning habitat.

3.6.4.1 Terms and Conditions

The following Terms and Conditions are necessary to implement the Reasonable and Prudent Measures.

To implement Reasonable and Prudent Measure #1:

1. When managing wheeled motorized access, the IPNF shall assure closure devices on restricted roads and barriered roads are, at a minimum, consistent with the closure devices described in IGBC 1998 for restricted roads and reclaimed/obliterated roads, respectively.

2. The IPNF shall continue to monitor the effectiveness of closure devices in BMUs and BORZ as described in the Proposed Action section of this Opinion, i.e., 30 percent monitoring in BMUs and a combination of ad hoc and opportunistic monitoring in BORZ.

3. If any closure devices are found to be ineffective at preventing motorized access, the IPNF shall continue to remedy the situation (i.e., respond with an appropriate fix) as soon as practical within the same bear year, or no later than the following bear year. The IPNF shall prioritize their response to prevent unauthorized wheeled motorized access in Core habitat in BMUs and in secure habitat in BORZ.

4. The IPNF shall provide an annual monitoring report to the Service on or before May 1 of each year, describing permanent and temporary wheeled motorized access condition in each BMU and BORZ for the preceding calendar year. The monitoring reports shall include all of the elements described in section 3.6.5, “Monitoring and Reporting,” below, and include information and data gathered during the effectiveness monitoring efforts described in Term and Condition 2 above.

To implement Reasonable and Prudent Measure #2:

1. The IPNF shall complete and implement a Winter Travel Plan by the end of 2023, which will include considerations for post-den emergent grizzly bears.

3.6.5 Reporting and Monitoring Requirement

In order to be exempt from the prohibitions of section 9 of the ESA, the IPNF must comply with the following required reporting/monitoring requirements.

1. To demonstrate that potential effects to grizzly bears from implementation of the LRMP have been adequately reduced, and that the incidental take of grizzly bears has been minimized, the IPNF shall, for the life of the LRMP, complete a report for the preceding calendar year with the information listed below and submit such report to the Service's Northern Idaho Fish and Wildlife Office on or before by May 1 of each year. The report shall include the following:
    a. In relation to the first surrogate measure of incidental take of grizzly bears and Reasonable and Prudent Measure #1, an up-to-date description of wheeled motorized access conditions (OMRD, TMRD, and Core) in the SE and CYE BMUs on the IPNF shall be provided. The report shall describe permanent conditions, as well as any temporary variations related to projects that have undergone separate consultation and were being implemented in the reported Bear Year.
    b. In relation to the second surrogate measure of incidental take, an ongoing list shall be provided that details the location, date, duration, and circumstances for invoking the allowance for entering Core habitat for the purposes of road decommissioning or stabilizations in any BMU on the IPNF.
    c. In relation to the third surrogate measure of incidental take, an up-to-date description of the number of acres of secure habitat present in each BORZ shall be provided. The report shall describe permanent conditions, as well as any temporary variations related to projects that have undergone separate consultation and were being implemented in the reported Bear Year.
    d. In relation to the fourth surrogate measure of incidental take, an ongoing list shall be provided that describes the location and amount of secure habitat in BORZ reduced as a result of permanent access changes for circumstances in which the USFS lacks discretion (e.g. ANILCA, RS2477).
    e. In relation to the fifth surrogate measure of incidental take, an up-to-date description shall be provided of any changes in the number of acres subject to late season over-the-snow use that overlaps grizzly bear denning habitat in the SE and CYE on the IPNF.
    f. In relation to the sixth surrogate measures of incidental take, an up-to-date description shall be provided of any changes in the amount of groomed or ungroomed trails providing over-the-snow use in any BORZ on the IPNF.
    g. In relation to Reasonable and Prudent Measure #1 & 2, a list shall be provided of any gates, barriers, or other closure devices (whether in BMUs or BORZ) that were found to be ineffective at managing wheeled motorized access, any unauthorized creation of additional routes that were discovered, and the IPNF's response to remedy the situation.

h. In relation to surrogate measures 3 and 6, the IPNF shall coordinate with State and Federal agency biologists to report credible grizzly bear observations that occur outside of the Recovery Zone boundaries so that this information can be added to the database used to update BORZ areas.

2. The IPNF shall report any bear-human conflicts or any grizzly bear mortality that occurs on the IPNF, regardless of cause or season, to the Service's Grizzly Bear Recovery Coordinator within 24 hours.

4. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species.

The Service provides the following conservation recommendations:

1. The Forest Service should work cooperatively with the Service to identify any linkage areas that may be important in providing landscape connectivity between recovery zones for grizzly bears, across all land ownerships.
2. Within linkage areas, the IPNF should provide for landscape connectivity by participating in the development and implementation of a management plan to protect and restore habitat connectivity within linkage areas on federal lands.
3. The IPNF should plan recreational development, and manage recreational and operational uses, to protect grizzly bear and to maintain effectiveness of grizzly bear habitat.
4. The IPNF should plan future project and management actions in BORZ to maintain and protect the largest blocks of secure habitat.
5. The IPNF should work cooperatively with the Service to monitor grizzly bear denning in BORZ and to provide a model BORZ denning habitat.

5. REINITIATION NOTICE

This concludes formal consultation on the supplemental Idaho Panhandle National Forests Land and Resource Management Plan for grizzly bear. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if:

1. The amount or extent of incidental take is exceeded;
2. New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion;
3. The agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or

4. A new species is listed or critical habitat designated that may be affected by the action.

6. LITERATURE CITED

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7. APPENDICES

7.1 Appendix A. Grizzly Bear Access Amendment Standards

Design Elements

I. The following access management standards apply to individual BMUs within the Selkirk Recovery Zone on the IPNF and Cabinet-Yaak Recovery Zone on the KNF, IPNF and portion of the LNF:

A. The following OMRD, TMRD, and percent Core habitat standards are established for the BMUs in the Cabinet-Yaak (Table 1) and Selkirk (Table 2) Grizzly Bear Ecosystems:

The access standards for the Cabinet-Yaak Grizzly Bear Recovery Zone, Kootenai, Idaho Panhandle, and Lolo National Forests.

Bear Management	Access Parameter	Alternative E-Updated	Bear Management	Access Parameter	Alternative E-Updated
1 Cedar	OMRD(%)	15	**12 Newton**	OMRD(%)	45
	TMRD(%)	15		TMRD(%)	31
	CORE(%)	80		CORE(%)	55
2 Snowshoe	OMRD(%)	20	**13 Keno**	OMRD(%)	33
	TMRD(%)	18		TMRD(%)	26
	CORE(%)	75		CORE(%)	59
3 Spar	OMRD(%)	33	**14 NW Peaks**	OMRD(%)	31
	TMRD(%)	26		TMRD(%)	26
	CORE(%)	59		CORE(%)	55
4 Bull	OMRD(%)	36	**15 Garver**	OMRD(%)	33
	TMRD(%)	26		TMRD(%)	26
	CORE(%)	63		CORE(%)	55
5 St. Paul	OMRD(%)	30	**16 E Fork Yaak**	OMRD(%)	33
	TMRD(%)	23		TMRD(%)	26
	CORE(%)	60		CORE(%)	55
6 Wanless	OMRD(%)	34	**17 Big Creek**	OMRD(%)	33
	TMRD(%)	32		TMRD(%)	26
	CORE(%)	55		CORE(%)	55
7 Silver Butte-Fisher	OMRD(%)	26	**18 Boulder**	OMRD(%)	33
	TMRD(%)	23		TMRD(%)	29
	CORE(%)	63		CORE(%)	55
8 Vermillion	OMRD(%)	32	**19 Grouse** (54% Federal)	OMRD(%)	59
	TMRD(%)	21		TMRD(%)	55
	CORE(%)	55		CORE(%)	37
9 Callahan	OMRD(%)	33	**20 North Lightning**	OMRD(%)	35
	TMRD(%)	26		TMRD(%)	20
	CORE(%)	55		CORE(%)	61
10 Pulpit	OMRD(%)	44	**21 Scotchman**	OMRD(%)	34
	TMRD(%)	34		TMRD(%)	26
	CORE(%)	52		CORE(%)	62
11 Roderick	OMRD(%)	28	**22 Mt. Headley**	OMRD(%)	33
	TMRD(%)	26		TMRD(%)	35
	CORE(%)	55		CORE(%)	55

The proposed action access standards for the Selkirk Grizzly Bear Recovery Zone, Idaho Panhandle National Forest.

Bear Management Unit	Access Parameter	Alternative E Updated Standard
Blue Grass	OMRD(%)	33
	TMRD(%)	26
	CORE(%)	55
Long-Smith	OMRD(%)	25
	TMRD(%)	15
	CORE(%)	67
Myrtle	OMRD(%)	33
	TMRD(%)	24
	CORE(%)	56
Ball-Trout	OMRD(%)	20
	TMRD(%)	13
	CORE(%)	69
Lakeshore	OMRD(%)	82
	TMRD(%)	56
	CORE(%)	20
Kalispell-Granite	OMRD(%)	33
	TMRD(%)	26
	CORE(%)	55
Sullivan-Hughes	OMRD(%)	24
	TMRD(%)	19
	CORE(%)	61
Salmo-Priest	OMRD(%)	33
	TMRD(%)	26
	CORE(%)	64

B. Parameters for establishing and managing Core habitat in all BMUs:
   1. In accordance with IGBC (1998) and the Selkirk and Cabinet-Yaak Subcommittee (1998) direction, Core areas (i.e., Core habitat) shall be established for the purpose of providing secure habitat for grizzly bears.
      a. Core Areas[7] (i.e., Core habitat) include high quality habitat within a BMU that contains no motorized travel routes or high use trails.
      b. Core Areas do not include any gated or restricted roads but may contain roads that are impassable due to re-growth of vegetation, effective barriers other than gates, or placement of logging or IPNF debris so as to no longer function as a motorized route.

[7] Percent Core Area is the sum of individual "blocks" or polygons of Core Area that are separated spatially from other Core Areas with the BMU. Their distribution and tenure are dependent on the existing transportation system and the history of access management activities within the BMU (e.g. road closures and decommissioning and/or changes from motorized road to non-motorized trail).

c. When possible, Core Areas will be delineated by identifying and aggregating the full range of seasonal habitats that are available in the BMU.
d. The IGBC anticipated that minimum Core Area size might be determined for each recovery zone. For the Selkirk/Cabinet-Yaak Grizzly Bear Recovery Zones, no scientifically-based minimum effective size polygon for Core Area has been determined (Wakkinen and Kasworm 1997), though minimum block sizes of 2-8 mi^2 were suggested. Therefore, discounting small or narrow blocks of Core Area is not prudent at this time. Individual project analyses will disclose the percent and size of Core Areas in each BMU.
e. Once route closures to create Core Areas are established and effective, these Core Areas should remain in place for at least 10 years. Therefore, except for emergencies[8] or other unforeseen circumstances[9] requiring independent section 7 consultation, newly created Core Area shall not be entered for at least 10 years after creation.
f. From the Record of Decision date forward, roads that are closed, decommissioned, or barriered to create Core Area will be put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years. Until such closed roads are placed in the above described condition, they will not be considered as contributing to Core Area.

2. Entering Core Area blocks for road decommissioning or stabilization activities:

a. Without further section 7 consultation on grizzly bears, the Forest Service may affect underlying Core Area habitat (i.e., any core habitat that is affected by the subject road and its buffer) within a BMU once per 10-year time frame, and not to exceed one bear year for the sole purpose of completing road decommissioning/stabilization activities on existing closed or barriered roads in Core habitat[10].
b. Subsequent needs to re-enter individual Core Areas within a BMU more frequently than once per decade for reasons other than emergencies shall be handled on a case-by-case basis through standard section 7 consultation procedures. The effects of additional entries will be analyzed pursuant to such project level consultation. Pending the outcome of each analysis, additional measures to minimize potential effects to grizzly bears may be required.

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

[9] "Unforeseen circumstances" means changes in the circumstances affecting the geographic area covered by the Access Amendment that could not reasonably have been anticipated by the ID Team. Unforeseen circumstances are not intended to include timber harvest, including salvage harvest.

[10] Previous to this direction, some Core Areas were established containing impassable, closed, or barriered roads exhibiting hydrologically unstable conditions such as undersized culverts. This creates a pending resource issue for watershed and fishery concerns. The intent of this Design Element is to respond to these resource threats and to improve the integrity of Core Areas so as not to require future management entry.

3. Routine IPNF management may be proposed in a Core Area block after 10-years of Core area benefit. However, BMU's must remain at or above the Core standard. Therefore potential losses to existing Core must be compensated with in-kind replacement concurrently or prior to incurring the losses. Such in-kind replacement of Core will be established within the affected BMU in accordance with the direction in Part I.B.1. above. For exceptions, see specialized circumstances outlined in Part I.D. concerning BMUs that exceed standards. Following management, Core habitat must subsequently be managed undisturbed for 10 years.

C. Parameters for BMUs currently not meeting Core Area, OMRD, and/or TMRD standards:
   1. These BMUs are anticipated to be brought up to standards in the following manner: 33 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within *three* years of the amendment decision date; 66 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within *five* years of the amendment decision date, and 100 percent of those BMUs currently not meeting one or more standard within each ecosystem are estimated to meet all standards within *eight* years of the amendment decision date.

D. For those BMUs currently meeting or exceeding (being better than) the standards for Core Area:
   1. Except as provided above for road stabilization projects or emergencies, no reductions in Core habitat without in-kind replacements will be proposed until all BMUs administered by the IPNF, KNF and LNF in the respective ecosystems are up to standard (Tables 1 and 2; which do not include the LeClerc BMU or the Idaho State Lands BMU in the Selkirk Recovery Zone.)
   2. Once all BMUs meet standards then subsequent projects which propose to permanently reduce Core Area by roads shall undergo independent section 7 formal consultation.
   3. Reductions of Core Area within individual BMUs shall not reduce the Percent Core Area below the standards for the affected BMU without compensating with in-kind replacement concurrently or prior to incurring the losses (see Part I.B.3.)

E. Road use associated with conducting administrative activities:
   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.

2. In the Cabinet-Yaak Ecosystem:
   a. Administrative use shall not exceed 60 vehicle round trips per active bear year per road, apportioned as follows: ≤18 round trips in spring (April 1 through June15); ≤23 round trips in summer (June 16 through September 15); and ≤19 round trips in fall (September 16 through November 30).
   b. If the number of trips exceeds 60 trips per active bear year in the Cabinet-Yaak 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.

II. The following access management applies to seven grizzly bear recurring use areas (i.e. BORZ areas) located <u>outside of the Cabinet-Yaak Grizzly Bear Recovery Zone (KNF and IPNF) and Selkirk Grizzly Bear Recovery Zone (IPNF)</u>:

A. The IPNFs shall ensure no increases in permanent linear miles of open road[11] on National Forest System lands in any individual BORZ, above the baseline conditions identified in Table 3, except in cases where the USFS lacks discretion to prevent road building across USFS lands due to legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares). Potential increases in linear miles of open roads must be compensated for with in-kind reductions in linear miles of open road concurrently with, or prior to, project implementation within the same BORZ.

Temporary increases in linear miles of open roads are acceptable under the following conditions:

1. Roads that are closed[12] to public motorized use or roads created or reconstructed to facilitate land management activities that are otherwise closed to public use may be "opened" to the public immediately following completion of all mechanized harvest and post-harvest slash activities requiring use of the road, to allow motorized public use during the bear summer season prior to the fall bear hunt (i.e. June 16 – August 31) for activities such as personal firewood collection. This public access would only be provided in cases where the mechanized harvest and/or post-harvest slash activities occurred during the same active bear year.

B. The IPNF shall ensure no net permanent increases in linear miles of total roads[13] in any individual BORZ area above the baseline conditions identified in Table 13, except in cases where the USFS lacks discretion to prevent road building across USFS lands due to

[11] Open roads are roads that are open for all or part of the active bear year.
[12] Closed with a closure order and/or some type of closure device such as a gate.
[13] Includes roads that do not have restrictions on motorized use and roads that are closed to public motorized use.

legal or other obligations (examples include, but are not limited to, ANILCA claims, identification of RS2477 thoroughfares, etc.). Otherwise, potential increases in linear miles of total roads must be compensated for with in-kind reductions in linear total road miles concurrently with, or prior to, new road construction or reconstruction of currently bermed or barriered roads.

Temporary increases (not off-set) in linear miles of total roads are acceptable under the following conditions:

1. Newly constructed roads will be effectively gated and will be restricted with a CFR closure clarifying they are not open for public use.
2. These roads[14] shall be closed immediately upon completion of activities requiring use of the road, except as described in Part II. A.1., above. Roads must be closed with a berm, guardrail or other measure that effectively prevents motorized access, and put in a condition such that a need for motorized access for maintenance is not anticipated for at least 10 years.
3. Upon completion of a land management project, linear miles of total roads will be returned to or below the baseline levels contained in Table 3.

C. Timber harvest activities that will occur within multiple watersheds shall be scheduled such that disturbance of grizzly bears resulting from road use is minimized. The appropriate scale for scheduling harvest activities will be determined pursuant to project level consultation.

The 2010 motorized access conditions for Bears Outside of Recovery Zone (BORZ) areas situated on the Idaho Panhandle and Kootenai National Forests.

BORZ Name	Grizzly Bear Ecosystem	Total Size (Acres)	NFS[1] Lands (Acres)	Total Linear Miles of Roads on NFS Lands	Total Linear Miles of Open Roads on NFS Lands
Priest	Selkirk	80,733	75,793	316.4	314.4
Pack River	Selkirk	33,869	28,097	41.9	37.9
Mission-Moyie	Cabinet-Yaak	71,545	58,472	200.3	167.3
Clark Fork	Cabinet-Yaak	101,701	100,223	256.1	176.9
Cabinet Face	Cabinet-Yaak	28,052	27,093	164.1	128.0
West Kootenai	Cabinet-Yaak	173,122	169,705	615.3	315.9
Tobacco	Cabinet-Yaak	287,240	266,947	1,123.9	867.0

[1]National Forest System Lands

III. To ensure the effective implementation of the open road density parameter, at least 30 percent of closure devices (gates and barriers) will be monitored annually within the respective ecosystems. Monitoring techniques may include visual checks as well as road counters.

[14] Includes temporary roads built to facilitate the completion of the project and not intended to be left on the landscape—i.e. typically for 10 years or less) as well as the re-opening of existing bermed or barried road prisms.

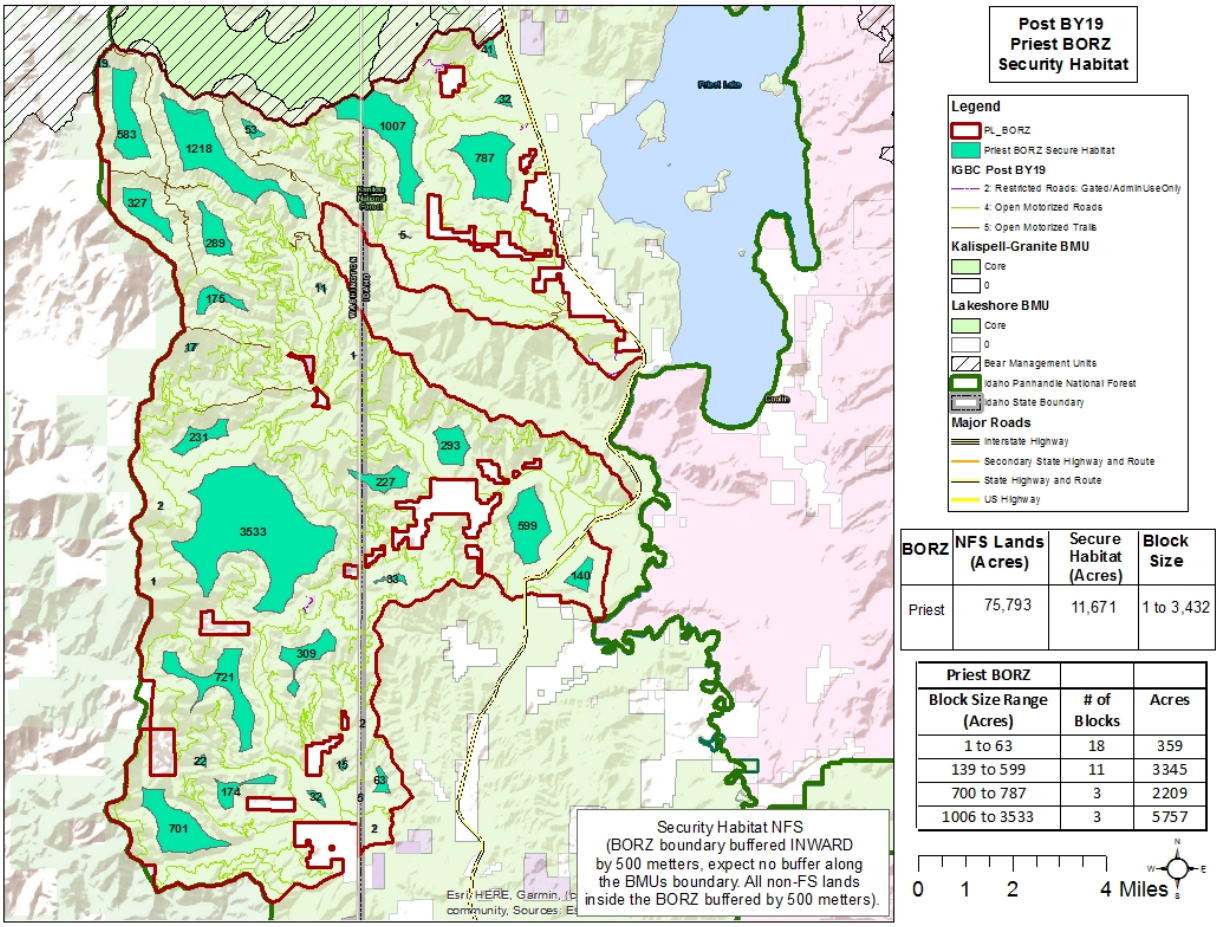
7.2 Appendix B. Secure Habitat in BORZ

Maps of secure habitat in each of the IPNF-managed BORZ were provided by the IPNF.

Secure habitat was calculated by removing motorized routes, including a buffer to account for the "zone of influence" associated with grizzly bear avoidance and/or displacement. All existing motorized routes are buffered by 500 meters on each side from the centerline of the route, regardless of whether they are legally open to public travel, or if they are restricted to administrative motorized use. Thus, the IPNF applied a 500 meter buffer around all open and restricted roads and motorized trails (all routes with IGBC codes 2, 4, and 5; see BA, pp. 19-20).

Because of the rapid growth of vegetation, the backlog of maintenance on existing routes, and the longer amounts of time that some restricted routes may go without any use, the estimates of secure habitat are in most cases underestimates of actual secure habitat that exists on the ground because an unknown number of routes that are physically impassable to motor vehicle use. The border of the IPNF between BORZ and non-BORZ areas of NFS lands are also buffered inward (into the BORZ) by 500 meters to account for uncertainties in the roaded condition outside of BORZ. This includes areas on NFS lands because the IPNF does not maintain detailed data regarding access management for roads outside the recovery zones, so it is difficult to accurately determine whether routes outside or the recovery zone or BORZ are available for motorized access or not. Likewise, the IPNF is not limited by motorized access standards outside of the recovery zone or BORZ. Similarly, the Forest does not have accurate data on access restrictions for routes on public or non-NFS lands within or adjacent to BORZ. Thus, the IPNF buffered all non-NFS lands by 500 meters (into the BORZ), assuming that some level of motorized access could occur that would reduce secure habitat within the BORZ. The IPNF did not buffer the border of BORZ boundary where it is adjacent to BMUs,

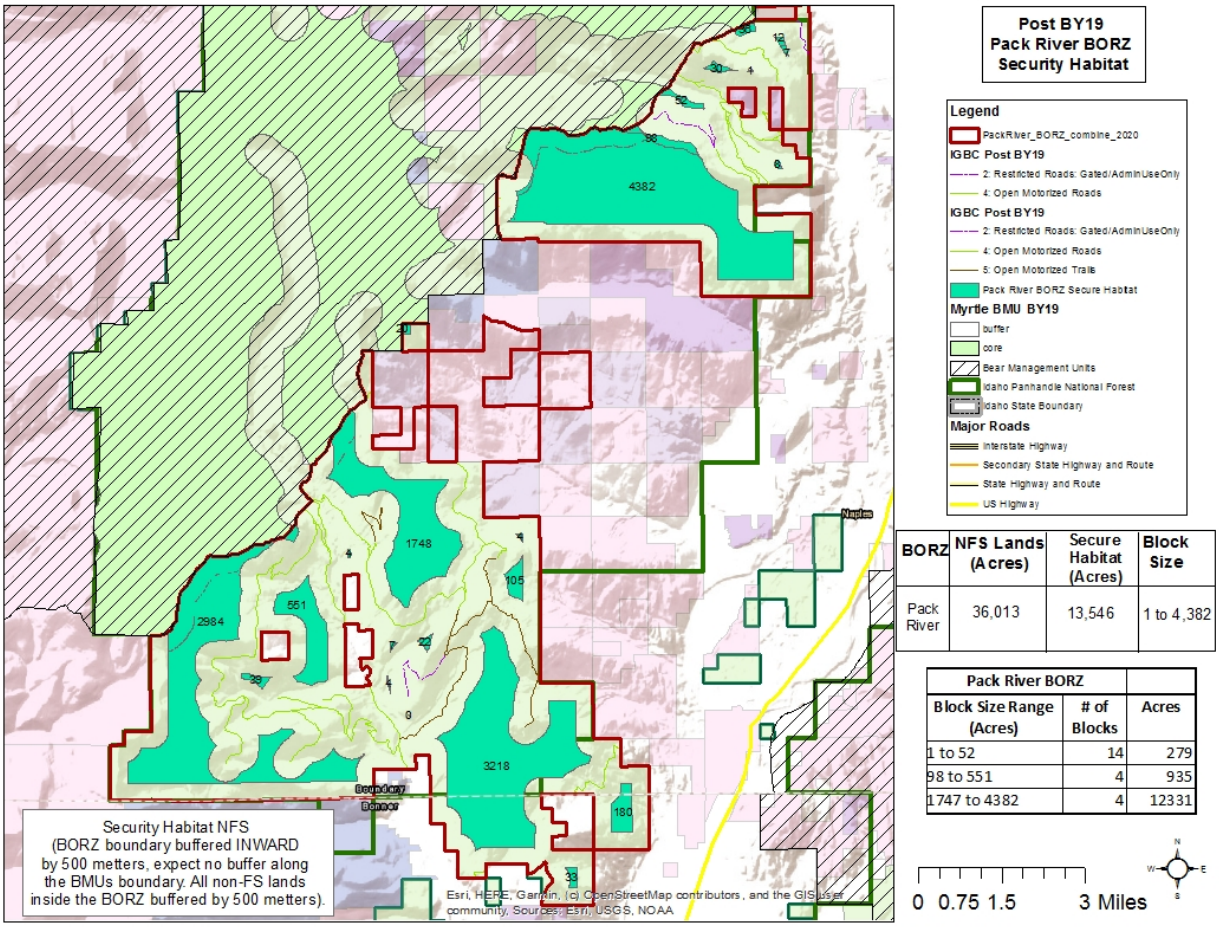
These methods lead to a conservative estimate of the amount of secure habitat that exists within each BORZ. Location and patch sizes are shown in the following maps. We expect that the IPNF will make corrections to these baseline maps and amounts of secure habitat, as necessary in the future, as improved information becomes available, and will provide the update in the annual monitoring report. We also expect the IPNF to buffer all future BORZ expansions similarly. The resulting amount of secure habitat are useful as a broad index of the secure habitat that may be available to grizzly bears that use BORZ.



BORZ	NFS Lands (Acres)	Secure Habitat (Acres)	Block Size
Priest	75,793	11,671	1 to 3,432

Priest BORZ		
Block Size Range (Acres)	# of Blocks	Acres
1 to 63	18	359
139 to 599	11	3345
700 to 787	3	2209
1006 to 3533	3	5757

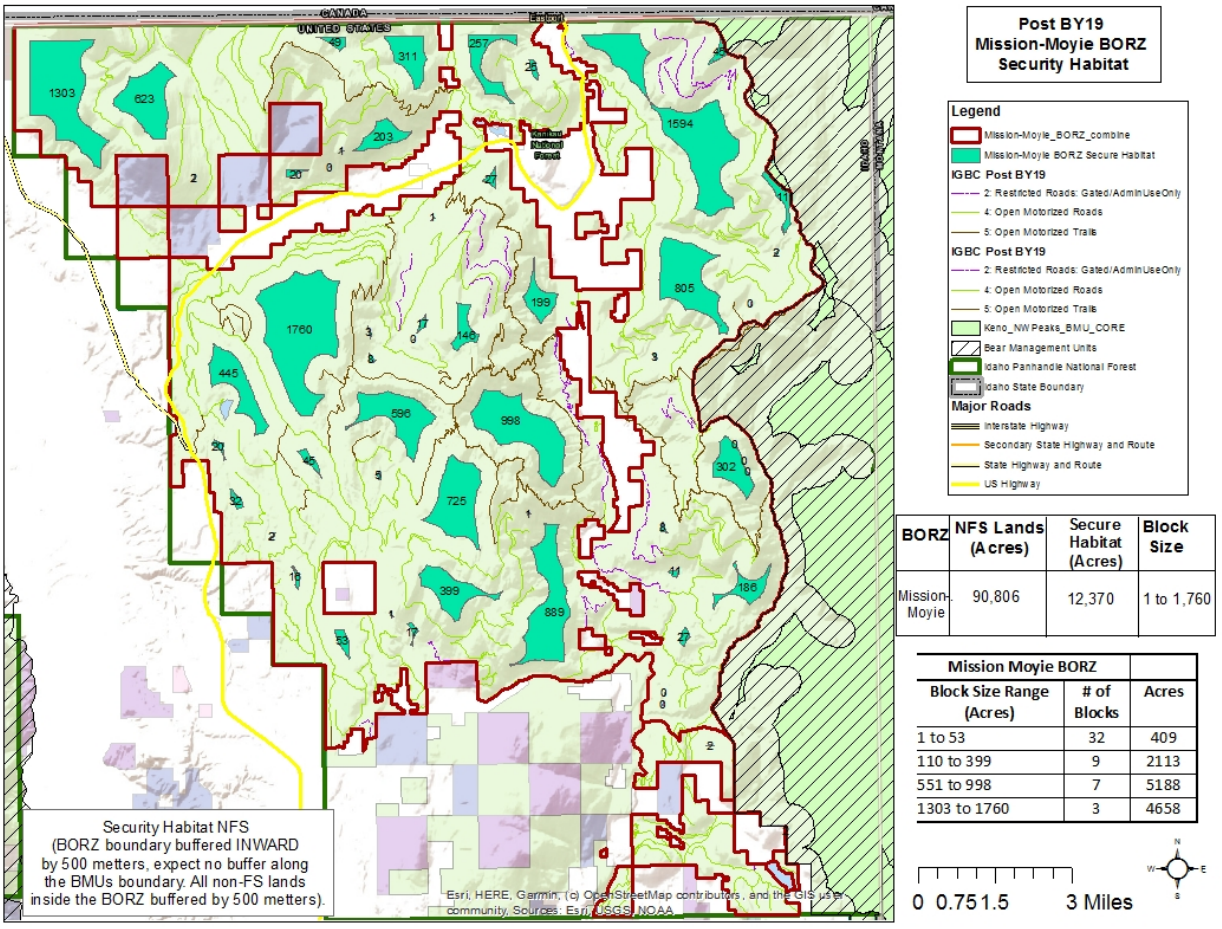
Secure habitat in the Priest Lake BORZ south and west of the Selkirk Recovery Zone.



BORZ	NFS Lands (Acres)	Secure Habitat (Acres)	Block Size
Pack River	36,013	13,546	1 to 4,382

Pack River BORZ		
Block Size Range (Acres)	# of Blocks	Acres
1 to 52	14	279
98 to 551	4	935
1747 to 4382	4	12331

Secure habitat in the Pack River BORZ south and east of the Selkirk Recovery Zone.



BORZ	NFS Lands (Acres)	Secure Habitat (Acres)	Block Size
Mission-Moyie	90,806	12,370	1 to 1,760

Mission Moyie BORZ		
Block Size Range (Acres)	# of Blocks	Acres
1 to 53	32	409
110 to 399	9	2113
551 to 998	7	5188
1303 to 1760	3	4658

Secure habitat in the Mission-Moyie BORZ west of the Cabinet-Yaak Recovery Zone.

7.3 Appendix C. Seasonal Grizzly Bear Habitat Availability

Recently, Proctor and Kasworm developed a fine-scale model of sex- and season - specific habitat use for grizzly bears in the SE and CYE (2017). Although the model seasons differ slightly from the bear seasons identified in the Forest Plan, the model still provides a useful tool in predicting bear use of seasonal habitat.

Seasonal habitat availability within the Selkirk and Cabinet-Yaak Recovery Zones, and across the entirety of the three IPNF-managed BORZ is provided in the table below.

Total female grizzly bear seasonal habitat availability in the Selkirk and Cabinet-Yaak Recovery Zones (RZ) and the adjacent BORZ for both the KNF and IPNF and is calculated without buffering roads or other motorized access routes. Habitat is based on modelling by Proctor and Kasworm (2017). Only 'Very High' and 'High' acreages are considered key foraging habitat for the species. The Mount Headley BMU has been omitted from the seasonal habitat total for the Cabinet-Yaak Recovery Zone due to lack of data.

		Total for Ecosystem/Recurring Use Areas			
Season	**Habitat Quality[1]**	**Selkirk RZ[2]**	**Cabinet-Yaak RZ[2]**	**IPNF BORZ**	**KNF BORZ**
Spring	Very High	49,403	60,553	5,704	17,368
	High	547,566	566,995	72,078	114,525
	Subtotal	**596,969**	**627,548**	**77,782**	**131,893**
	Percent	**35**	**41**	**37**	**40**
	Medium	883,219	816,296	110,917	178,151
	Low	206,818	90,838	19,953	21,513
	Total	**1,687,006**	**1,534,683**	**208,652**	**331,557**
Summer	Very High	78,066	55,727	66,545	32,003
	High	642,790	569,108	62,475	85,944
	Subtotal	**720,856**	**624,835**	**129,020**	**117,947**
	Percent	**43**	**41**	**62**	**36**
	Medium	583,402	518,555	49,548	107,409
	Low	382,613	391,312	30,081	104,799
	Total	**1,686,871**	**1,534,702**	**208,649**	**330,155**
Fall	Very High	144,461	92,280	14,632	16,864
	High	750,096	585,846	91,422	97,105
	Subtotal	**894,558**	**678,125**	**106,054**	**113,969**
	Percent	**53**	**44**	**51**	**34**
	Medium	679,790	653,216	87,630	175,431
	Low	112,664	203,447	14,968	42,172
	Total	**1,687,012**	**1,534,789**	**208,652**	**331,572**

[1] 'Very High' and 'High' habitats are used more than expected compared to what is available across the landscape, whereas 'Medium' and 'Low' quality habitats are used less than expected. Bears are known to

use habitats in the Medium and Low categories, but only for travel from High and Very High quality foraging habitats, and to explore and/or search for mates (Proctor and Kasworm 2017, p. 5).
[2] RZ = Recovery Zone
[2] Some habitat polygons in the Proctor and Kasworm habitat modeling GIS data that are attributed for one season may be attributed with "No Data" for another season. This is the reason for the discrepancy between seasonal acreages within the BMU. (Proctor and Kasworm (2017).

Seasonal habitat availability within each BORZ unit is provided in the table below.

Total female grizzly bear seasonal habitat availability in individual BORZ regardless of proximity to roads. Seasonal habitat data is not available for the Tobacco BORZ. Habitat is based on modelling by Proctor and Kasworm (2017). Only 'Very High' and 'High' acreages are considered key foraging habitat for the species.

		Kootenai BORZ			IPNF BORZ		
Season	Habitat Quality	Cabinet Face	Clark Fork	West Kootenai (total)[1]	Mission-Moyie (Total)[2]	Pack River (Total)[3]	Priest Lake
Spring	Very High	619	1,005	15,744	3,529	954	1,221
	High	4,403	25,937	84,184	27,909	22,641	21,528
	Subtotal	**5,022**	**26,942**	**99,928**	**31,438**	**23,595**	**22,750**
	Percent	**18**	**26**	**49**	**35**	**56**	**30**
	Medium	15,784	65,631	96,736	48,657	17,580	44,680
	Low	6,753	9,128	5,631	10,950	637	8,366
	Total	**27,560**	**101,702**	**202,296**	**91,045**	**41,811**	**75,795**
Summer	Very High	483	590	30,930	31,073	2,663	32,809
	High	2,100	16,604	67,239	12,934	17,,175	32,366
	Subtotal	**2,583**	**17,195**	**98,169**	**44,007**	**19838**	**65,175**
	Percent	**9**	**17**	**49**	**48**	**47**	**86**
	Medium	9,947	60,562	36,900	20,987	18,922	9,639
	Low	15,042	23,945	65,812	26,048	3,051	981
	Total	**27,572**	**101,702**	**200,881**	**91,042**	**41,811**	**75,795**
Fall	Very High	340	1,408	15,117	5,748	4,216	4,668
	High	3,163	20,730	73,212	27,285	28,758	35,379
	Subtotal	**3,502**	**22,138**	**88,329**	**33,033**	**32,973**	**40,048**
	Percent	**13**	**22**	**44**	**36**	**79**	**53**
	Medium	13,821	57,001	104,609	47,367	8,641	31,623
	Low	10,252	22,562	9,358	10,646	197	4,125
	Total	**27,575**	**101,702**	**202,296**	**91,045**	**41,811**	**75,795**

[1] Includes the 2010 West Kootenai BORZ plus the Bobtail Creek, Cedar Kootenai, and Lower Pipeline expansion areas.
[2] Includes the 2010 Mission-Moyie BORZ plus the Mission-Moyie II and Mission-Moyie III expansions.
[3] Includes the 2010 Pack River BORZ plus the Pack River II expansion.

7.4 Appendix D. Effectiveness Monitoring Results in BMUs, 2011 - 2019

Access Amendment Design Element III requires the IPNF to monitor at least 30 percent of closure devices (gates and barriers) annually to ensure the effectiveness of the open road density parameter within the BMUs they manage. The table below present the results of this effort.

Documented breaching of closure devices[1] in BMUs on roads managed by the IPNF[2] from the 2011 to 2019 bear years. Source: BA, Table 11 p. 40.

	BMU	Bear Year 2011	2012	2013	2014	2015	2016	2017	2018	2019
CABINET-YAAK	Boulder							1		
	Grouse	3	1 (1:0.8%)		1	1	1 (1:0.4%)	3 (1:0.4%)	1 (1:0.4%)	1 (1:0.4%)
	North Lightning		1 (1:1.4%)	1 (1:1.4%)	1 (1:1.4%)	2 (1:1.4%)	3 (1:1.4%)	1 (1:1.4%)		
	Scotchman				2	1	1	1		
	Keno[2]									
	Northwest Peaks[2]									
	Total # Breaches	**3**	**2 (2)**	**1 (1)**	**4 (1)**	**4 (1)**	**5 (2)**	**6 (2)**	**1 (1)**	**1 (1)**
	Total Devices[3]	**95**	**86**	**86**	**85**	**83**	**83**	**105**	**105**	**87**
	Monitored (#/%)	**53**	**50/58**	**50/58**	**48/56**	**70/84**	**45/54**	**51 / 49**	**51 / 49**	**51/59**
	Ineffective (%)	**6**	**4**	**2**	**10**	**7**	**14**	**12**	**2**	**2**
SELKIRK	Ball-Trout									
	Blue-Grass	1	1						1	
	Kalispell-Granite					1				
	Lakeshore				1	1	1			
	Long-Smith									1
	Myrtle									1
	Salmo-Priest[2]									
	Sullivan-Hughes[2]									
	Total #	**1 (-)**	**1 (0)**	**0**	**1 (0)**	**2 (0)**	**1 (0)**	**0**	**1 (0)**	**2**
	Total	**90**	**103**	**102**	**88**	**95**	**95**	**119**	**119**	**114**
	Monitored (#/%)	**64**	**86/83**	**89/87**	**58/66**	**83/87**	**64/67**	**79 / 66**	**81 / 68**	**74/65**

BMU	Bear Year								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ineffective (%)	2	1	0	2	3	2	0	1	2

[1]This number includes core breaches as well as gate breaches where it could be reasonably assumed that unauthorized use exceeded trip limits. Breaches that affect adjacent BMUs are only counted once. Core breaches are counted in the total, then specified as (# breaches: % core affected).
[2]For co-managed BMUs (Keno, NW Peaks with KNF; Salmo-Priest, Sullivan-Hughes with CNF), only breaches on IPNF roads are included.
[3]Gates and barriers. This includes gates that restrict use to 'undrivable' roads and gates that may have additional gates behind them. The latter explains some of the apparent 'jump' in gate numbers from 2016 to 2017. Most high-visibility gates gets monitored 3-5 times per year ensuring that approximately 90% of all drivable roads receive monitoring in any given year. Monitoring helps make sure that OMRD limits are being complied with per the stated LMRP reporting and monitoring requirement AND that most unauthorized activity gets discovered relatively quickly.
[4]Ineffective = percent of monitored closure devices (gates and other barriers/closures) that experienced a breach or unauthorized use.