# Supplemental Environmental Impact Statement

# For the Proposed Amendment

# to the

# Endangered Species Act 10(a)(1)(B) Permit

# Associated with the

# Montana Department of Natural Resources and Conservation

# Forested State Trust Lands Habitat Conservation Plan

Lead Agencies

U.S. Department of the Interior, U.S. Fish and Wildlife Service and Montana Department of Natural Resources and Conservation

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## Abstract

The Montana Department of Natural Resources and Conservation (DNRC) is amending its Forested Trust Lands Habitat Conservation Plan (2010 HCP) to incorporate the terms of a settlement agreement and add lands that it acquired since the U.S. Fish and Wildlife Service (USFWS) issued an incidental take permit (permit) to DNRC in December 2011. The USFWS is proposing to amend the associated permit under Section 10(a)(1)(B) of the Endangered Species Act (ESA) to authorize additional take of all but one of the species covered in the 2010 HCP resulting from addition of the acquired lands. In compliance with both the National Environmental Policy Act and Montana Environmental Policy Act, this final Supplemental Environmental Impact Statement (EIS) was prepared to evaluate the environmental effects of the issuance of an amended Permit. This Supplemental EIS evaluates the amendment of the 2010 HCP, which represents the incorporation of a Montana 2015 Settlement Agreement in the Stillwater and Coal Creek State Forests and implementing the HCP on 81,416 acres of recently acquired DNRC lands. The draft Supplemental EIS was published in July 2017 and made available for public review at https://www.regulations.gov/docket?D=FWS-R6-ES-2017-0044 and http://dnrc.mt.gov/divisions/trust/forest-management/hcp. Following a 45-day comment period on the draft Supplemental EIS, the USFWS and DNRC reviewed and responded to comments in writing and modified the EIS and HCP as appropriate. These changes are summarized in the Preface, included as part of this final Supplemental EIS. Public comments on the draft Supplemental EIS are included in Chapter 4 of this final Supplemental EIS. This final Supplemental EIS is being published for additional public review. The USFWS will then prepare a Record of Decision formally documenting its decision on whether to issue a Permit amendment, while DNRC will prepare a Record of Decision formally documenting the amendment to the HCP conservation strategies it will implement for the covered species on the added lands.

**ACRONYMS**

| | |
|---|---|
| AAU | aquatic analysis unit |
| ARMs | Administrative Rules of Montana |
| BMPs | best management practices |
| CMZ | channel migration zone |
| CWD | coarse woody debris |
| CYE | Cabinet-Yaak Ecosystem |
| DNRC | Department of Natural Resources and Conservation |
| EIS | environmental impact statement |
| ESA | Endangered Species Act |
| HCP | habitat conservation plan |
| LMA | lynx management area |
| LWD | large woody debris |
| MDEQ | Montana Department of Environmental Quality |
| MEPA | Montana Environmental Policy Act |
| MFWP | Montana Fish, Wildlife and Parks |
| MMBF | million board feet |
| MNHP | Montana Natural Heritage Program |
| MOU | memorandum of understanding |
| NCDE | North Continental Divide Ecosystem |

| | |
|---|---|
| NEPA | National Environmental Policy Act |
| NOI | notice of intent |
| NROH | non-recovery occupied habitat |
| PBFs | physical and biological features |
| Permit | incidental take permit |
| Plaintiffs | Friends of the Wild Swan, Montana Environmental Information Center, and Natural Resource Defense Council |
| ROD | record of decision |
| RMZ | riparian management zone |
| Stillwater Block | Stillwater State Forest and Coal Creek State Forest |
| Security Zones | Seven land areas in the Stillwater Block managed for grizzly bears |
| SMZ | streamside management zone |
| SOC | species of concern |
| SYC | sustained yield calculation |
| USFS | United States Forest Service |
| USFWS | United States Fish and Wildlife Service |
| WMZ | wetland management zone |

**TABLE OF CONTENTS**

CHAPTER 1:PURPOSE AND NEED FOR ACTION ……2

1.1 Background ……..2

1.2 Purpose and Need for Action ……...4

1.3 Proposed Action ……..5

1.4 Decision Framework ……8

1.5 Public Involvement ……..10

1.6 Document Structure ……10

CHAPTER 2:ALTERNATIVES ……...12

2.1 Proposed Action – Amended HCP Alternative ……12

2.1 No Action Alternative ……27

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES…….……28

3.1 Affected Environment ……28

3.2 Climate ……...33

3.3 Forest Vegetation …….……..40

3.4 Air Quality …….……43

3.5 Transportation ……46

3.6 Geology and Soils …….....51

3.7 Water Resources ……55

3.8 Plant Species of Concern, Noxious Weeds, and Wetlands ……58

3.9 HCP-COVERED SPECIES ……...63

3.10 Transition Lands Strategy …….……116

3.11 Other Fish and Fish Habitat …….……130

3.12 Other Wildlife and Wildlife Habitat …….……132

3.13 Recreation …….137

3.14 Visual Resources ……..…139

3.15 Cultural Resources ……....141

3.16 Socioeconomics and Environmental Justice …….143

3.17 Short-term Uses and Long-term Productivity ……...146

3.18 Irreversible and Irretrievable Commitments of Resources ……...147

3.19 Cumulative Effects …….……..147

CHAPTER 4: CONSULTATION AND COORDINATION …….…….154

4.1 Preparers and Contributors …….…….154

4.2 Distribution of the Supplemental Environmental Impact Statement ……..155

4.3 Public Comment Process …….……157

4.4 Public Comments on the Draft Supplemental EIS …….…….157

4.5 Responses to Comments …….158

CHAPTER 5:GLOSSARY ……..190

CHAPTER 6:REFERENCES ……..219

APPENDICES:

Appendix A: Amended HCP

Appendix B: 2015 Settlement Agreement

Appendix C: DNRC's Assessment of Incidental Take Under the Amended HCP

Appendix D: DNRC's HCP Funding commitment

Appendix E: Summary of Road Conditions on the Added Lands

Appendix F: HCP Baseline Update Tables (2012)

# PREFACE

On August 29, 2017, the USFWS and DNRC published the draft amendment to the 2010 Montana Forested State Trust Lands Habitat Conservation Plan (2010 HCP) and associated Endangered Species Act (ESA) Section 10(a)(1)(B) Incidental Take Permit (Permit) and draft Supplemental EIS on the amendment. Thirteen individual comment letters or emails were received (see Chapter 4).

After review of the comments, the USFWS and DNRC prepared this final Supplemental EIS, which includes responses to public comments and modifications to the draft Supplemental EIS. We modified the EIS analysis, corrected data in the EIS, and made minor editorial changes to the EIS. Where the Supplemental EIS was revised in response to a comment, the comment response identifies the section where the changes were made.

In this final Supplemental EIS, substantive modifications from the draft are shown as gray-shade text. Minor edits that did not alter the content of the analysis are not shown in a specialized format. Similarly, for updated numerical tables only the new numbers are shown. Deleted numbers are not shown in order to preserve the format and legibility of the tables.

Substantive modifications to the Supplemental EIS were made based on 1) public comments on the draft Supplemental EIS; 2) litigation and peer-reviewed, published literature that was not available at the time the draft Supplemental EIS was published; or 3) clarification of information presented in the draft Supplemental EIS.

# CHAPTER 1: PURPOSE AND NEED FOR ACTION

In 2012, the U.S. Fish and Wildlife Service (USFWS) issued an Incidental Take Permit (Permit) under Section 10(a)(1)(B) of the Endangered Species Act (ESA) to the Montana Department of Natural Resources and Conservation (DNRC) for its 2010 Montana Forested State Trust Lands Habitat Conservation Plan (2010 HCP, DNRC 2010a). The 2010 HCP addressed the following covered species:

- grizzly bear (*Ursus arctos horribilis*),
- Canada lynx (*Lynx canadensis*),
- bull trout (*Salvelinus confluentus*),
- westslope cutthroat trout (*Oncorhynchus clarki lewisi*), and
- Columbia redband trout (*O. mykiss gairdneri*).

The USFWS and DNRC have prepared this final Supplemental Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), and other relevant Federal and State laws and regulations in order to evaluate the effects of a proposed amendment to the 2010 HCP and the proposed issuance of an amended Permit. This final Supplemental EIS discloses the direct, indirect, and cumulative environmental impacts that would result from Montana DNRC amending the 2010 HCP and the potential issuance of an amended Permit by USFWS. The amended 2010 HCP is herein referred to as the Amended HCP.

## 1.1 Background

In February 2012, the USFWS issued a Permit to the Montana DNRC for its Forest Management Program on forested trust lands. The Permit was the culmination of nearly 10 years of coordination between the two agencies to develop an HCP; analyze its effects on the environment in a NEPA and MEPA EIS; comply with Sections 7 and 10 of the ESA; and issue a Record of Decision and Statement of Findings. The general chronology of the 2010 HCP is summarized below:

- April 2003. A notice of intent to prepare an EIS for the proposed DNRC Forested State Trust Lands HCP was published in the Federal Register (68 FR 22412-22414).
- 2003-2008. The USFWS provided technical assistance to the Montana DNRC for the development of its 2010 HCP.
- October 2005. USFWS and DNRC solicited public input on draft conservation strategies.
- June 2009. USFWS and DNRC issued the draft EIS/draft HCP and held four public meetings. Public review of the draft EIS/HCP closed in October 2009.
- September 2010. USFWS and DNRC issued the final EIS/ final HCP.
- December 2011. USFWS issued its biological opinion on the effects of the 2010 HCP along with its Record of Decision, Statement of Findings, and Implementing Agreement related to the 2010 HCP.
- February 2012. USFWS issued the Permit and DNRC initiated implementation of the 2010 HCP.

In April 2013, Friends of the Wild Swan, Montana Environmental Information Center, and Natural Resources Defense Council challenged the issuance of the permit in a Federal District Court in Montana. The Court ruled in the Service's favor on all but one count. DNRC and the plaintiffs subsequently entered a settlement agreement for the remaining count in September 2015. The future addition of lands to the HCP and permit were not part of the complaint or the settlement agreement.

In the 2010 Final EIS analyzing the effects of implementing the 2010 HCP, USFWS and DNRC acknowledged that DNRC might acquire recently disposed Plum Creek Timber Company (Plum Creek) lands (USFWS and DNRC 2010, p. vi. and pp. 4-385 through 4-388; DNRC 2010a, pp. 3-4 through 3-6). While negotiating the terms of the 2015 Settlement Agreement, DNRC completed these acquisitions. As disclosed in the 2010 Final EIS, these lands are similar to the 2010 Final EIS Planning area lands and support the HCP-covered species with the exception of Columbia redband trout; therefore, to facilitate management and provide for the conservation of the HCP-covered species, DNRC desires to manage these acquired lands under the HCP.

On July 7, 2016, DNRC submitted a Permit amendment application to the USFWS to amend its 2010 HCP and associated Permit to add lands and increase associated incidental take and incorporate the terms of its 2015 Settlement Agreement.

## 1.2 Purpose and Need for Action

The USFWS received an application for a Permit amendment under Section 10(a)(1)(B) of the ESA from the Montana DNRC for its 2010 HCP (DNRC 2010a).

The purpose of the USFWS' action is to respond to DNRC's application for an amended Permit. Approval of the Permit would authorize additional incidental take of three listed species (grizzly bear, Canada lynx, bull trout) and one unlisted species, should it be listed (westslope cutthroat trout) on 81,614 acres of lands proposed for inclusion in the HCP. There are no occurrences or habitat for Columbia redband trout on the lands proposed to be added to the HCP. Issuance of an amended Permit would require implementation of the Amended HCP on the added lands to minimize and mitigate the take of these HCP species to the maximum extent practicable. The Amended HCP would also incorporate the terms of the 2015 Settlement Agreement between DNRC and its Plaintiffs for the 2010 HCP. Chapter 2: Alternatives, describes in detail the terms of the 2015 Settlement Agreement.

Appendix A to this Supplemental EIS is an excerpt from the 2010 HCP reflecting the amendments addressed in this Supplemental EIS. Appendix A uses strikethrough-to identify the portions of the 2010 HCP to be removed, and underline to show changes, or additions, to the commitments under the Proposed Action. Appendix B is the 2015 Settlement Agreement between DNRC and Plaintiffs on the 2010 HCP; and Appendix C is DNRC's assessment of incidental take on the added lands under the amended HCP.

To evaluate the application and determine whether to issue an amended Permit authorizing additional incidental take of the HCP-covered species, the USFWS and DNRC are preparing this final Supplemental EIS to evaluate the environmental impacts of this amendment and to ensure the amended HCP would continue to meet all the section 10(a)(1)(B) permit issuance criteria, including minimizing and mitigating the take of these HCP-covered species to the maximum extent practicable, as well as other HCP requirements.

Therefore, the Amended HCP considered in this analysis is the addition of 81,416 acres of lands to the 2010 HCP project area and the incorporation of the terms of the 2015 Settlement Agreement, which established seven grizzly bear security zones in the Stillwater Block where forest management activities are restricted to the denning season only below 6,300 feet elevation.

## 1.3 Proposed Action

The Proposed Action is the issuance of an amended Permit based on an amended HCP to: 1) incorporate the terms of the 2015 Settlement Agreement between DNRC and Plaintiffs on the 2010 HCP, and 2) to add 81,416 acres of lands in six acquisition areas (Swan, Chamberlain, Potomac, Lolo Land Exchange, Upper Blackfoot, and Southern Bitterroot).

Both the USFWS and DNRC will use this final Supplemental EIS to identify and evaluate the potential impacts of the Proposed Action including the direct, indirect, and cumulative effects.

### *1.3.1 Conservation Strategies*

Under an amended HCP, the aquatic and terrestrial conservation strategies would largely remain the same. However, several of the 2010 HCP grizzly bear commitments in the Stillwater Block would be replaced by the terms of the 2015 Settlement Agreement and some individual commitments in the 2010 HCP would be modified to accommodate the addition of lands to the HCP project area. The amended HCP would also include the protection of lands through existing conservation easements held by either Montana Fish Wildlife and Parks (MFWP) or USFWS on three of the acquisition areas: 16,446 acres of the Swan, 13,453 acres of the Chamberlain, and 3,097 acres of the Upper Blackfoot. The conservation strategies under the Proposed Action are described in Chapter 2: Alternatives.

### *1.3.2 Permit Term*

The Permit term for the amended HCP would remain 50 years. The Permit was issued in February 2012 and DNRC subsequently began implementation. Therefore, the Permit term under the Proposed Action would end at the end of 2061. The 2010 HCP's aquatic conservation strategy included timeframes (i.e., specific period of time to accomplish inventories or corrective actions) for achievement of various individual commitments. Under the amended HCP, the timeframes for

completing the commitments on the 2010 HCP-covered lands would remain the same. For the added lands, the same timeframes (i.e., duration) within which DNRC is required to complete certain actions, would apply. For the sediment delivery reduction aquatic strategy on these added lands, timeframes would start upon issuance of the amended Permit. For example, all sites at high risk of sediment delivery in bull trout watersheds would be addressed by 2032, assuming the amended HCP is implemented in 2017. To the extent possible, DNRC would attempt to meet the 2010 HCP timeframes for the added lands.

For the fish passage corrective actions, the timeframe is retroactive to the start of the 2010 HCP. Therefore, all priority 1 fish connectivity sites are required to be improved by year 2027. All other fish connectivity sites would be corrected by 2042.

### *1.3.3 Covered Lands*

The covered lands include the 2010 HCP's project area and an additional 81,416 acres, such that the HCP project area (covered lands) would increase from 548,500 acres to 629,915 acres (Table 1-1; Figure 1-1).

The lands proposed for addition were recently acquired by DNRC and are located within its Northwestern and Southwestern Land Offices. The lands occur on five DNRC administrative

units and were acquired in six acquisition areas: Swan, Chamberlain, Potomac, Lolo Land Exchange, Blackfoot, and Bitterroot (Table 1-2; Figures 1-2 through 1-7). The condition of these lands is described in Chapter 3: Affected Environment, Added Lands.

**Table 1-1. Acres in the 2010 HCP Project Area and Amended HCP Project Area.** Highlighted cells indicate the administrative unit offices where acreage increases would occur.

| Land Office/Administrative Unit | 2010 HCP Project Area | Amended HCP Project Area |
|---|---|---|
| **Northwestern** | **273,500** | **291,464** |
| **Kalispell Unit** | 41,700 | 41,700 |
| **Libby Unit** | 28,500 | 28,500 |
| **Plains Unit** | 53,600 | 55,118 |
| **Stillwater Unit** | 19,300 | 19,300 |
| **Swan Unit** | 0 | 0 |
| **Stillwater Unit (Blocked)** | 90,700 | 90,700 |

| | | |
|---|---|---|
| **Swan Unit (Blocked)** | 39,700 | 56,146 |
| **Southwestern** | **161,800** | **225,252** |
| **Anaconda Unit** | 43,900 | 43,900 |
| **Clearwater Unit** | 44,100 | 64,095 |
| **Hamilton Unit** | 20,900 | 22,543 |
| **Missoula Unit** | 52,900 | 94,714 |
| **Central** | **113,200** | **113,200** |
| **Bozeman Unit** | 16,500 | 16,500 |
| **Conrad Unit** | 0 | 0 |
| **Dillon Unit** | 70,600 | 70,600 |
| **Helena Unit** | 26,100 | 26,100 |
| **Total Acres** | **548,500** | **629,915** |

**Table 1-2. Acreage of Added Lands by Land Office and Administrative Unit**

| Location of Added Lands | Northwestern Land Office | | Southwestern Land Office | | | Total Acres |
|---|---|---|---|---|---|---|
| | Plains Unit | Swan Unit | Missoula Unit | Clearwater Unit | Hamilton Unit | |
| **Swan** | 0 | 16,446 | 0 | 0 | 0 | 16,446 |
| **Chamberlain** | 0 | 0 | 0 | 14,537 | 0 | 14,537 |
| **Potomac** | 0 | 0 | 32,266 | 0 | 0 | 32,266 |
| **Lolo** | 1,518 | 0 | 9,548 | 0 | 0 | 11,066 |
| **Upper Blackfoot** | 0 | 0 | 0 | 5,458 | 0 | 5,458 |
| **Southern Bitterroot** | 0 | 0 | 0 | 0 | 1,643 | 1,643 |
| **Total Acres** | **1,518** | **16,446** | **41,814** | **19,995** | **1,643** | **81,416** |

### *1.3.4 Covered Species*

The covered species would remain the same as those identified in the Permit and 2010 HCP; the federally listed grizzly bear, Canada lynx, bull trout, and federal candidate species westslope cutthroat trout. There are no occurrences or habitat for Columbia redband trout on the added lands.

### *1.3.5 Covered Activities*

The covered activities would remain the same as those described in Chapter 1 of the 2010 HCP (DNRC 2010a, pp.1-15 through 1-24). The covered activities specifically resulting in take of the covered species include:

- habituation and food conditioning of grizzly bears in the Northern Continental Divide Ecosystem (NCDE) and all other remaining HCP project area lands, excluding the Cabinet-Yaak Ecosystem (CYE) resulting in direct mortality of up to four bears;
- transportation management leading to total road density (TRD) in grizzly bear subunits exceeding 2 mi/mi2 on the Stillwater, Coal and Swan River State Forests;
- transportation management leading to open road density (ORD) in grizzly bear subunits exceeding 1 mi/mi2 in the Stillwater, Coal and Swan River State Forests;
- transportation management leading to high road densities on scattered parcels throughout the 2010 HCP project area, excluding the CYE;
- timber harvest that reduces winter foraging habitat in lynx management areas;
- sediment delivery from forest management roads within 300 feet of an HCP-covered, fish-bearing stream;
- sediment delivery from livestock grazing licenses on HCP-covered, fish-bearing streams; and
- installation of new culverts in HCP-covered, fish-bearing streams.

## 1.4 Decision Framework

### *1.4.1 USFWS Decision to be Made*

Based on the purpose and need, the deciding official will review the Proposed Action, the No Action Alternative, and the environmental consequences evaluated in this final Supplemental EIS. The USFWS must ensure that all requirements of Section 10(a)(1)(B) of the ESA are met before issuing the amended Permit. The following five questions must be answered affirmatively for the USFWS to grant an amended permit for the added lands:

1. Is the proposed take incidental to an otherwise lawful activity?
2. Are the impacts of the proposed take minimized and mitigated to the maximum extent practicable?

3 Has the applicant ensured that adequate funding will be provided to implement the measures proposed in the HCP?

4 Is the proposed take such that it will not appreciably reduce the likelihood of survival and recovery of the species in the wild?

5 Will other required measures, if any, be met by the HCP?

After evaluating the requirements, the USFWS may: 1) issue an amended Permit based on implementation of the amended HCP as proposed, 2) issue an amended Permit with additional measures for inclusion in the amended HCP, as deemed necessary by the USFWS, or 3) deny the request for a Permit amendment.

The USFWS must also comply with NEPA, which requires federal agencies to evaluate the effects of the Proposed Action on the human environment in an environmental document that addresses:

- impacts of the proposed action,
- reasonable and appropriate alternatives to the proposed action,
- whether any unavoidable adverse impacts would result from the proposed action,
- the relationship between short-term uses of the human environment versus maintenance and enhancement of long-term productivity, and
- any irreversible and irretrievable commitment of federal resources that would be involved if the proposed action is implemented.

### *1.4.2 DNRC Decision to be Made*

From DNRC's perspective, the decision to be made is to determine if selecting the Proposed Action (amending the HCP and Permit) provides long-term ESA regulatory certainty and supports or enhances DNRC's ability to meet its trust mandate to maximize revenues to trust beneficiaries.

DNRC must also comply with MEPA, which requires state agencies to evaluate the effects of the proposed action on the human environment in an environmental document addressing the same

criteria as those listed above under NEPA.

## 1.5 Public Involvement

The notice of intent (NOI) to prepare a Supplemental EIS for the proposed amendment was published in the Federal Register on November 29, 2016 (81 FR 86000). The NOI informed the public of the USFWS' receipt of an application for an amendment to the 2010 Permit, and USFWS' intent to prepare a draft Supplemental EIS and to solicit comment on the Supplemental EIS upon its publication. A notice of availability (NOA) for the draft Supplemental EIS was published in the Federal Register on August 29, 2017. The NOA informed the public of the availability of the Supplemental EIS for public comment. In addition, as part of the public involvement process, a public notice was sent to all entities on the 2010 HCP/EIS public contact list and the DNRC statewide forest management scoping list. The NOA was also posted to the federal regulations website: https://www.regulations.gov/docket?D=FWS-R6-ES-2017-0044 and DNRC websites: http://dnrc.mt.gov/public-interest/public-notices and http://dnrc.mt.gov/divisions/trust/forest-management/hcp/hcp-announcements.

Upon publication of this final Supplemental EIS, the document will be available on the federal regulations website: https://www.regulations.gov/docket?D=FWS-R6-ES-2017-0044 and on

the DNRC website: http://dnrc.mt.gov/divisions/trust/forest-management/hcp/hcp-announcements.

## 1.6 Document Structure

This Supplemental EIS is organized into six chapters.

- *Chapter 1: Purpose and Need for Action* - The chapter includes information on the history of the Proposed Action, the purpose of and need for the project, and the USFWS's proposal for achieving that purpose and need.

- *Chapter 2: The Proposed Action* - This chapter describes the Proposed Action to which the USFWS must respond, as well as a No Action Alternative.

- *Chapter 3: Affected Environment and Environmental Consequences* - This chapter provides

an update of the affected environment for the 2010 Final EIS planning area, 2010 HCP project area, and the added lands. This chapter also describes the environmental effects of implementing the Proposed Action and No Action Alternatives. This analysis is organized by environmental element (e.g., Air Quality, Forest Vegetation, Water Resources, etc.).

- *Chapter 4: Consultation and Coordination* - This chapter provides a list of preparers and agencies consulted during the development of the Supplemental EIS. It also provides a summary of the results of public involvement, including comments on the draft Supplemental EIS, and USFWS and DNRC responses to those comments.

- *Chapter 5: Glossary* - This chapter provides the definitions of terms used in this Supplemental EIS.

- *Chapter 6 References* - The references cited in this Supplemental EIS are included in this Chapter.

- *Appendices* - The appendices provide more detailed information to support the analyses presented in the environmental impact statement and include:

    - Appendix A: Amended HCP
    - Appendix B: 2015 Settlement Agreement
    - Appendix C: DNRC's Assessment of Incidental Take Under the Amended HCP
    - Appendix D: DNRC's HCP Funding Commitment
    - Appendix E: Summary of Road Conditions on the Added Lands
    - Appendix F: Updated HCP Baseline Tables (2012).

Additional documentation, including more detailed analyses of project-area resources, may be found in the Administrative Record located at the USFWS' Montana Ecological Services Office, at 585 Shephard Way, Suite 1 in Helena, Montana. The contact number is 406-449-5225.

# CHAPTER 2: ALTERNATIVES

This chapter describes the Proposed Action and No Action Alternatives.

## 2.1 Proposed Action – Amended HCP Alternative

The Proposed Action involves two primary actions: 1) the incorporation of the terms of the 2015 Settlement Agreement into the HCP, and 2) the addition of 81,416 acres to the 2010 HCP, including the adjustment of some 2010 HCP commitments to accommodate these additional lands. As dictated by the U.S. Federal District Court, DNRC is required to comply with the terms of the 2015 Settlement Agreement.

Under the Proposed Action (amended HCP), the Permit term would be the same as the 2010 HCP (i.e., 50 years). The additional lands would be managed under the HCP conservation strategies for the remainder of the 2010 HCP Permit term through year 2061. The covered species and covered activities would also remain the same as those identified for the 2010 HCP. The HCP conservation strategies include a suite of commitments for grizzly bears (GB), Canada lynx (LY) and HCP-covered fish (AQ). For grizzly bears and lynx, the commitments are organized by geographic location: program wide (PR), grizzly bear non-recovery occupied habitat (NROH), grizzly bear recovery zones (RZ), the Stillwater Block (ST), Swan River State Forest (SW), scattered parcels (SC), lynx habitat (HB), and lynx management areas (LM). For aquatic species, the commitments are organized by effects of timber management on aquatic species: riparian management zone (RM), sediment delivery (SD), fish habitat connectivity (FC), grazing (GR), and cumulative watershed effects (CWE).

Under the Proposed Action, the timeframes for completing corrective actions related to sediment delivery to HCP fish-bearing streams on the added lands [commitments AQ-SD1 (10); AQ-SD2 (3), (4), (10), (11)] would be the same as outlined in the 2010 HCP; however, the timeframe would start upon issuance of the amended Permit. That is, corrective actions for sites at risk of sediment delivery would be completed by years 2033 for bull trout streams and 2043 for westslope cutthroat trout streams, assuming the proposed amended Permit is issued in year 2018. Fish passage corrective actions (AQ-FC1) would be completed within the timeframes of the 2010 HCP (i.e., year

2027 for Priority 1 sites and year 2042 for all other sites).

The Proposed Action also includes landed protected by conservation easements that exist on the lands proposed to be added. These conservation easements include 16,446 acres of the Swan, 13,453 acres of the Chamberlain, and 3,097 acres of the Upper Blackfoot added lands.

Appendix A is the amended HCP commitments. The following sections describe the changes in the 2010 HCP commitments in order to incorporate the 2015 Settlement Agreement and added lands to the HCP.

### 2.1.1 Incorporation of the Terms of the 2015 Settlement Agreement in the HCP

Under the Proposed Action, DNRC would amend its conservation commitments in the Stillwater Block to incorporate the terms of a 2015 Settlement Agreement between DNRC and Plaintiffs on the 2010 HCP (Appendix B). In this portion of the 2010 HCP project area, the negotiated terms of the 2015 Settlement Agreement replace a portion of the 2010 HCP commitments as described below and summarized in Table 2-1.

The primary difference between the Stillwater Block commitments under the 2010 HCP and the 2015 Settlement Agreement is the replacement of the 19,400 acres of Class A lands designated under the 2010 HCP. The 2015 Settlement Agreement created seven areas of lands with 22,007 acres defined as grizzly bear security zones (security zones) (Figure 2-1). These security zones include much of the 2010 HCP Class A lands, but also include a new area (Security Zone 7 - 2,300 acres in Coal Creek State Forest) (Figure 2-1). Under the 2010 HCP on Class A lands, no new permanent road construction was allowed, and lands were divided into four subzones to be managed on a 4-year active timber management/8-year rest rotation. Under the 2015 Settlement Agreement, forest management activities in the seven security zones will be restricted to the denning season only, eliminating the need for a management/rest rotation. Under the 2010 HCP, all lands not included as Class A lands were referred to as Class B lands (DNRC 2010a, p. 2-20 and pp.2-28 through 2-29). Under the 2015 Settlement Agreement, all lands outside the security zones are referred to as “lands outside security zones” and will continue to be managed as described for Class B lands in the 2010 HCP. The Stillwater Block Transportation Plan for the lands outside the

security zones would remain the same as detailed in the 2010 HCP. There are some minor differences in miles by road class in the Proposed Action transportation plan compared to the 2010 HCP transportation plan. This is because all data in the 2010 HCP was updated to correct errors and capture proposed roads that were subsequently constructed as allowed under the transportation plan during the first several years of HCP implementation (Table 2-2; Figure 2-1).

| **Table 2.1 Comparison of 2010 HCP Commitments and 2015 Settlement Agreement Commitments in the Stillwater Block.** | |
|---|---|
| **2010 HCP Commitments[1]** | **2015 Settlement Agreement Terms** |
| **GB-ST1: Transportation Management** | |
| 1. Implement transportation plan as depicted in the 2010 HCP (DNRC 2010a; Table 2-2 and Figure C-4B). | 1. Implement transportation plan as amended and depicted in Figure 2-1 and Table 2-2 of this final Supplemental EIS. |
| 2. Notify USFWS, amend baseline when previously unknown roads are identified. | 2. Same. |
| 3. Up to 8 miles of temporary roads are allowed at any one time. | 3. Same. |
| 4. If a parcel in the Stillwater Block is sold or traded, the data in the 2010 HCP (DNRC 2010a; Table 2-2) would be updated and other | 4. Same. |
| **GB-ST2: Class A Lands.** The following commitments apply to 19,400 acres in four subzones of the Stillwater Block. | **GB-ST2: Security Zones.** The following commitments apply to 22,007 acres of security zones comprised of seven different land areas in the Stillwater Block. |
| **Roads** | |
| 1. No new permanent roads. Access needed for management activities would be from existing or temporary roads. | 1a. Same. No permanent road construction allowed and access needed for management activities would be from existing or temporary roads.<br><br>1b. DNRC shall construct and reclaim any temporary roads and skid trails after completion of project activities in a manner that prevents future use by motorized vehicles, including off-road vehicles, during the non-denning season. |

| **Table 2.1 Comparison of 2010 HCP Commitments and 2015 Settlement Agreement Commitments in the Stillwater Block, continued.** | |
|---|---|
| **Secure Habitat** | |
| 2. Manage on a 4-year management/8-year rest rotation. Forest management allowed at any time during the 4-year management period. | 2a. Motorized activities including public, DNRC administrative, and DNRC commercial forest management activities are prohibited during the grizzly bear non- denning season from April 1-November 15 each year. |
| 3. Management allowed during denning season on Class A lands below 6,300 feet. | 3. Same. Motorized activities are allowed only during the grizzly bear denning season from November 16 - March 31. |
| | **Actions Near Security Zones** |
| NA | 3a. When conducting DNRC commercial forest management activities near identified security zones during the non-denning season, DNRC will minimize |
| | duration of ground-based harvest activities to the extent practicable, particularly in known areas of seasonal importance for bears. |
| NA | 3b. DNRC will minimize the duration of low intensity forest management activities (i.e., administrative activities) near security zones to the extent practicable. |
| | 3c. Allowance: Short-term disturbance will be allowed in any security zones at any time and for the necessary duration to address road sedimentation issues required by the HCP Aquatic Conservation Strategies and Forest Management Administrative Rules of Montana (ARMs). |
| **Helicopter Use** | |
| Implement GB-PR8. | The following terms are added to GB-PR8. |
| NA | 4a. DNRC shall make efforts to design helicopter flight routes in a manner that avoids and/or minimizes flight time across security zones during the non-denning season, and/or known seasonally secure areas. |
| NA | 4b. When conducting DNRC commercial forest management activities near identified security zones during the non-denning season, the DNRC will minimize the duration of air-based harvest activities to the extent practicable, particularly in known areas of seasonal importance for bears. |
| NA | 4c. Where practicable, DNRC shall design flight paths to occur greater than one mile from potentially affected security zones and/or areas of known seasonal importance during the non-denning season. |

| Table 2.1 Comparison of 2010 HCP Commitments and 2015 Settlement Agreement Commitments in the Stillwater Block, continued. | |
|---|---|
| **GB-ST3: Salvage on Class A Lands** | **GB-ST3: Salvage in Security Zones** |
| Salvage allowed during winter period. Also allowed for limited days during the non-denning season with conditions. | DNRC commercial forest management activities (including salvage) allowed during the denning season below 6,300 feet. |
| 1. Outlines DNRC order of preference for | 1. No salvage allowed outside the non-denning season. |
| 2. Salvage allowed for up to 150 days during the non- denning season, with conditions. | NA |
| **GB-ST4: Class B Lands.** | **GB-ST4: Lands outside Security Zones** |
| 1 and 2. On Class B lands, existing, proposed, and temporary roads are identified on the HCP Stillwater Block Transportation Plan (DNRC 2010a; Table 2-2 and Figure C-4B). | 1 and 2. Same. Access management and seasonal restrictions and road construction requirements will be implemented according to the DNRC HCP Transportation Plan measures that apply to Class B Lands as defined in the HCP and as depicted on the Amended transportation plan map (Figure 2-1). |
| 3. Access for commercial activities, motorized use associated with low-intensity management activities are identified by road restrictions in the Transportation Plan. | 3. Same. Motorized public activities, DNRC commercial forest management activities and DNRC administrative activities are allowed during the denning and non-denning seasons as defined in the 2010 HCP Transportation Plan as depicted on the amended transportation plan map (Figure 2-1). |
| 4. On roads where spring restrictions are identified on the 2010 HCP transportation plan, (DNRC 2010a, Table 2-2 and Figure C-4B) the spring habitat restrictions (commitment GB-NR3) extend through June 30. On all other roads on Class B lands that do not have spring | 4. Same. |
| 5. A general description of the location and length for proposed road segments is provided in the 2010 HCP transportation plan map (DNRC 2010a, Figure C-4B). Estimated road lengths are rounded to within 0.1 mile. Precise miles and locations may vary slightly during | Same. See Figure 2-1. |
| **Additional Programmatic Commitments for All Grizzly Bear Habitat on DNRC Lands** | |
| GB-PR8. Helicopter Use.<br><br>DNRC will design helicopter operations requiring flights less than 500 meters (1,640 feet) above ground level for forest management activities in a manner that avoids | DNRC will design helicopter operations requiring flights less than 500 meters (1,640 feet) above ground level for forest management activities in a manner that avoids or minimizes flight time over known seasonally important areas in NROH or recovery zones, scattered parcels in rest in recovery zones, grizzly bear security zones, |

| **Table 2.1 Comparison of 2010 HCP Commitments and 2015 Settlement Agreement Commitments in the Stillwater Block, continued.** | |
|---|---|
| **GB-RZ5 Post-Denning Mitigation** | |
| Prohibits motorized activities above 6,300 feet during post-denning season from April 1 through May 31. | Same. And also:<br><br>In the Stillwater Block security zones, DNRC commercial forest management activities will be allowed during the |
| **AQ-SD2 Commitments for Reducing Sediment Delivery from Existing Roads** | |
| 10. Corrective action will be completed on identified sites with high risk of sediment delivery located within bull trout watersheds that are in the HCP project area within the first 15 years of implementation (2027). | 10a. DNRC will complete corrective action as specified in the 2010 HCP on high risk sediment sites located within bull trout watersheds by 2027.<br><br>10b. DNRC will prioritize and complete corrective actions at all sites located on the Stillwater Block with high risk of |

[1] GB-ST1, GB-RZ5, GB-PR8, and AQ-SD2 denote the commitment number from the 2010 HCP. GB refers to the grizzly bear conservation strategy. ST refers to commitments in the Stillwater Block. RZ refers to commitments in the recovery zone and PR refers to programmatic (or HCP-wide) commitments. AQ refers to the aquatic conservation strategy and SD refers to the sediment delivery commitments.

**Table 2-2. Road Miles by Road Class, Activity Category, and Restriction Type for the Stillwater Block Under the Amended HCP.**

| Road Class Number | Activity Category | | | Road Miles |
|---|---|---|---|---|
| | Motorized Public Access | Commercial Forest Management Activity | DNRC Low Intensity Forest Management Activity | |
| **Existing Roads** | **Restriction Type** | **Restriction Type** | **Restriction Type** | |
| **Existing Open Forest Road (190)** | Open Year-Round | Open Year-Round | Open Year-Round | |
| **Existing Restricted (130)** | Restricted Seasonally (C or D) | Restricted Spring (B) | Open Year-Round | |
| **Existing Restricted Spring (131)** | Restricted Spring (C or D) | Restricted Spring (B) | Restricted Spring (B) | |
| **Existing Restricted Non-Denning (132)** | Closed Year-Round | Restricted Non-Denning (E) | Restricted Non-Denning (E) | |
| **Existing Restricted (120,** | Closed Year-Round | Restricted Spring (A) | Open Year-Round | |
| **Existing Restricted (127,** | Closed Year-Round | Restricted Spring (B) | Open Year-Round | |
| **Existing Restricted (125,** | Closed Year-Round | Restricted Spring (B) | Restricted Spring (B) | |
| **Existing Road Subtotal** | | | | **363.5** |
| **Proposed Roads** | **Restriction Type** | **Restriction Type** | **Restriction Type** | |
| **Proposed (021)** | Closed Year-Round | Restricted Spring (A) | Open Year-Round | 8.8 |
| **Proposed (027)** | Closed Year-Round | Restricted Spring (B) | Open Year-Round | 2.6 |
| **Proposed (025)** | Closed Year-Round | Restricted Spring (B) | Restricted Spring (B) | 5.0 |
| **Proposed Road Subtotal** | | | | **16.4** |
| **Total** | | | | **379.9** |

| Footnote: Road Restriction Types and Periods | |
|---|---|
| DNRC Spring Restriction (A) | Spring Restriction April 1 to June 15 |
| DNRC Spring Restriction (B) | Spring Restriction April 1 to June 30 |
| Public Spring and Fall Restrictions (C) | Spring Restriction April 1 to June 30 AND Fall Restriction September 16 to November 30 |
| Public Spring Restriction (D) | Spring Restriction April 1 to June 30 |
| DNRC Non-Denning Restriction (E) | Non-Denning Restriction April 1 to November 15 |

### *2.1.2 Add 81,416 Acres to the 2010 HCP-covered Lands and Incidental Take Permit*

The Proposed Action would add 81,416 acres to the 2010 HCP project area, such that the HCP project area (covered lands) would be increased from 548,500 acres to 629,915 acres and amend the Permit to authorize additional incidental take associated with the added lands. To accommodate the added lands, some of the 2010 HCP commitments would require amendment. In the Swan River State Forest, these proposed changes include the addition of lands and an amendment to the forest boundary, expansion of the transportation plan, amendment of the grizzly bear active timber management/rest rotation, and expansion of the Swan lynx management area (LMA) boundary. Other proposed changes to the 2010 HCP commitments include protection of lands by conservation easements on 16,446 acres of the Swan, 13,453 acres of the Chamberlain, and 3,097 acres of the Blackfoot, the addition of lands to the Garnet LMA, and adjustment of the acreage of lynx critical habitat in the HCP project area. The sections below describe these changes in detail.

#### Amendment of the Swan River State Forest

Adding lands to the HCP would increase the acreage of the Swan River State Forest from 39,600 acres to 56,046 acres (Figure 2-2). Like the 2010 HCP, these lands would be managed within five subzones but the total acreage in the subzones would increase proportionally with the expanding land base (Figure 2-2).

##### Transportation Management

Under the Proposed Action, DNRC would implement the 2010 HCP Swan River State Forest Grizzly Bear Transportation Management commitments (GB-SW1). However, to accommodate the added lands and implement the Proposed Action in the Swan River State Forest, some changes to the Swan River State Forest Grizzly Bear Transportation Management commitments are required.

The Proposed Action would amend the Swan River State Forest Transportation Management Plan to include the existing road miles on the added lands in the Swan, incorporate the road constraints described in the MFWP conservation easement on the Swan, update the baseline data to include the roads constructed to date under the 2010 HCP, and increase the miles of temporary roads allowed in the Swan River State Forest proportionately to the acreage of added lands. The changes in

commitments are detailed below.

**GB-SW1 (1a).** DNRC commits to transportation management as identified in Table 2-3. Under the Proposed Action, the total allowable amount of restricted road that DNRC could construct over the 50-year permit term on the 2010 HCP-covered lands would remain at 70.3 miles. To date, DNRC has constructed 24.1 miles of these restricted roads, such that a balance of 46.2 miles could yet be constructed under the Proposed Action over the remainder of the 50-year permit term (Table 2-3).

**Table 2-3. Miles of Roads on the Swan River State Forest under Baseline Conditions and at the End of the Permit Term.**

| | Current (2016) | | | Permit Term (50 years) | | |
|---|---|---|---|---|---|---|
| | **2010 HCP Lands** | **Added Lands** | **Net Total** | **2010 HCP Lands** | **Added Lands** | **Net Total** |
| **Open Roads[1]** | 35.8 | 8.9 | 44.7 | 35.8 | 8.9 | 44.7 |
| **Restricted Roads** | 196.1 | 189.4 | 385.5 | 242.3 | 211.3[4] | 454.0 |
| **Seasonally Restricted Roads[2]** | 5.3 | 4.4 | 9.7 | 5.3 | 4.4 | 9.7 |
| **Abandoned** | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 |
| **Reclaimed** | 8.2 | 22.0 | 30.6 | 0.0 | 0.0 | 0.0 |
| **Total** | **231.9[3]** | **220.3[4]** | **430.2** | **278.1[3]** | **220.3** | **498.7** |

1. Open Highway/County roads not included.
2. Seasonally Restricted Roads are a subset of Restricted Roads.
3. To date, DNRC has constructed 24.1 miles of the 70.3 miles allowed over the 50-year term in the Swan River State Forest under the 2010 HCP. Therefore, the Total under the Permit Term includes the additional 46.2 miles allowed under the 2010 HCP.
4. The baseline miles of roads on the Swan added lands include the 22.0 miles that DNRC has reclaimed since acquisition. Therefore, DNRC could increase total restricted roads on the added lands over the Permit term by an additional 22.0 miles.

Under the 2010 HCP, DNRC indicated that new roads subject to reciprocal access agreements could result in a worst-case scenario of up to 28.2 miles of new roads managed as open to public access and DNRC management year-round. The reciprocal access agreements are no longer applicable because DNRC now owns these lands in the Swan River State Forest (versus the previous checkerboard ownership). Only in limited circumstances would additional roads be required to be open. Therefore, under the Proposed Action, the miles of open road on the Swan added lands are not expected to increase over the current condition (2016) (Table 2-3).

**GB-SW1 (1b).** The transportation plan for the Swan added lands reflects the terms of a conservation easement held by MFWP that was placed on the lands at the time of DNRC's acquisition. The easement requires DNRC to manage at, or below, the baseline miles of roads that existed on the lands when they were acquired Table 2-3. Therefore, under the Proposed Action, for the Swan added lands, DNRC would maintain no more than 8.9 miles of open roads and 211.4 miles of restricted roads for a total of 220.3 miles of roads. DNRC is allowed to add new roads in new locations for each length of existing road that it abandons or reclaims. Thus, while the baseline road miles would not increase, their locations could change over the Permit term to a minor degree.

**GB-SW1 (2 and 3).** Commitments GB-SW1 (2) and (3) would remain the same and require DNRC to notify the USFWS if a previously unidentified road is added to the transportation plan and to adjust the transportation plan if parcels are sold or traded.

**GB-SW1 (4)(a).** Under the 2010 HCP, DNRC provided a transportation plan map showing the locations of proposed roads (DNRC 2010a; Figure C-6B). An updated transportation plan map is included in Figure 2-2. Under the Proposed Action, DNRC would no longer attempt to predict the exact locations of proposed roads, but rather would report the locations of roads constructed in the Swan River State Forest and added lands in the 5-year monitoring reports. The primary reason for this change is that through five years of HCP implementation, DNRC has discovered that it is extremely inaccurate to predict and map proposed roads with any certainty without better understanding of the harvest unit that comes from extensive field verification and design work.

**GB-SW1 (4)(b).** Under the 2010 HCP, during the course of each operating season, DNRC was allowed to actively construct and use up to five miles of temporary road. Under the amended HCP, this commitment would allow DNRC to construct and use up to 6.5 miles of temporary road, which is in proportion to the acreage of added lands.

**GB-SW1 (4)(c and e).** Commitments GB-SW1 (4)(c and e) would remain the same and require DNRC to limit the amount of new road construction on the Swan River State Forest to those approximate amounts estimated by decade in the 2010 HCP (see Appendix A; Table A2-4).

Road use on restricted roads will generally conform to the "low use" (less than one vehicle per day) category of Mace et al. (1999).

**GB-SW1 (4)(d).** This commitment, which pertains to road use allowed by access easements with other neighboring landowners, is no longer applicable because DNRC now owns these lands in the Swan River State Forest.

## Active Timber Management/Rest Rotation

The 2010 HCP conservation strategy in the Swan divided the lands into five subzones of management. According to GB-SW3, each subzone would be managed on a 4-year active timber management/8-year rest rotation. The 2010 HCP contains a 4-year active timber management/8-year rest rotation to provide greater opportunities for grizzly bear recruitment through a longer rest period while providing DNRC greater flexibility to conduct commercial management.

However, over the past 5 years of HCP implementation, DNRC realized that the smaller land base in the Swan (56,046 acres under the Proposed Action) and the smaller subzone sizes are not conducive to a 4-year active timber management/8-year rest rotation. That is, the subzones can be effectively managed in three years but require entry more frequently than every eight years.

Therefore, under the Proposed Action, commitment GB-SW3(1) would be revised to a 3-year active timber management, including salvage harvest/6-year rest rotation as is the current practice in the Swan River State Forest.

## Swan River State Forest Lynx Management Area

The Proposed Action would expand the boundary of the Swan River State Forest Lynx Management Area (Swan LMA) from 39,657 acres to 56,302 acres to encompass the Swan added lands (Figure 2-3). All 2010 HCP commitments for lynx would remain the same. The status of lynx habitat in the 2010 HCP Swan LMA using the 2015 monitoring year data and amended Swan LMA is identified in Table 2-4.

| Table 2-4. Acres of Lynx Habitat and Percent of Total Potential Lynx Habitat for the 2010 Swan LMA (2015 reporting year) and Amended Swan LMA. | | | | |
|---|---|---|---|---|
| **Lynx Habitat Type** | **2010 Swan LMA** | | **Amended Swan LMA** | |
| | **Acres** | **Percent of Total[1]** | **Acres** | **Percent of Total[1]** |
| **Winter Foraging** | 19,858 | 55% | 28,509 | 56% |
| **Summer Foraging** | 4,847 | 13% | 8,010 | 16% |
| **Other Suitable** | 3,657 | 10% | 4,858 | 10% |
| **Suitable Habitat Subtotal** | 28,362 | 78% | 41,376 | 81% |
| **Temporary Nonsuitable** | 7,784 | 22% | 9,612 | 19% |
| **Total Potential Habitat[2]** | 36,146 | 91% | 50,988 | 91% |
| **Non-Habitat** | 3,507 | 9% | 5,313 | 9% |
| **Total Acres[3]** | **39,653** | **100%** | **56,302** | **100%** |

1. Percentages for suitable habitat, winter foraging, summer foraging, other suitable, and temporary nonsuitable are calculated using total potential habitat as the denominator.
2. Total potential habitat is the sum of suitable habitat and temporary non-suitable habitat.
3. Total acres is the sum of total potential lynx habitat and non-habitat.

## Addition of the Terms of Conservation Easements

The Proposed Action includes the protection of lands by conservation easements held by MFWP on 16,446 acres of the Swan and 13,453 acres of the Chamberlain, and the conservation easement held by USFWS on 3,097 acres of the Blackfoot added lands (Table 2-5).

The Swan conservation easements (MFWP and PCTC 2006; MFWP and TNC 2010a,b) restrict, in perpetuity, all 16,466 acres on the Swan as follows: no net increase in the baseline miles of roads, no grazing licenses, and no commercial or residential development. Further, timber harvest and mechanized equipment operation are prohibited within designated riparian exclusion zones on important bull trout streams: South Woodward Creek, Swan River, Goat Creek, and Squeezer Creek. The riparian exclusion zone encompasses the entire channel migration zone (CMZ) of these streams plus an additional 80 feet beyond the CMZ on each side of the stream.

| Table 2-5. Acreage of Added Lands under Conservation Easement by Easement Holder and Restriction Type. | | | | | | |
|---|---|---|---|---|---|---|
| **Location of Added Lands** | **Easement Holder and Acreage** | | **Restriction Type and Acreage Affected** | | | |
| | **USFWS** | **MTFWP** | **Maintain Baseline Miles of Roads** | **No Grazing** | **No Commercial or Residential Development** | **Other Restrictions** |
| **Swan** | 0 | 16,446 | 16,446 | 16,446 | 16,446 | No harvest exclusion or mechanized equipment in riparian area on specified bull trout streams.<br><br>No adverse effects on |
| **Chamberlain** | 0 | 13,453 | 13,453 | 11,083 | 13,453 | Complete fish passage corrective actions by July 2025.<br><br>No adverse effects on |
| **Blackfoot** | 3,097 | 0 | New roads require approval | 0 | 3,097 | Road construction only when related to forest management & approved by USFWS. |
| **Total** | **3,097** | **29,899** | **29,899** | **27,529** | **32,996** | |

Under the Chamberlain conservation easement (MFWP and TNC 2010c), the entire added lands are limited to no net increase in the baseline miles of roads and no commercial and residential development. In the core area of the Chamberlain acquisition (11,083 acres), DNRC is prohibited from issuing grazing licenses. Non-core area may be subdivided into no more than three separate fee ownerships, and all corrective actions related to connectivity on bull trout and westslope cutthroat trout streams and high-risk sediment sites must be achieved by July 2025.

Further, the 120-foot riparian management zone (RMZ) on Class 1 streams with a CMZ is widened to incorporate the entire CMZ. On Class 1 streams with no CMZ, the RMZ is 120 feet on either side of the stream measured from the top of the bank. The conservation easement also states that actions may not result in adverse effects on wetlands. Under the North Chamberlain conservation easement, DNRC will coordinate with MFWP to reduce roads in riparian management zones.

The Blackfoot conservation easement (MFWP and DNRC 2004, USFWS and TNC 2005a, USFWS and TNC 2005b) restricts 3,097 acres of the added lands from an increase in baseline miles of roads and commercial or residential developments. New road construction is only allowed when approved by the easement holder (i.e., USFWS).

## Amendment of the Garnet Lynx Management Area

The Proposed Action would increase the acreage owned by DNRC in the Garnet LMA from 7,507 acres to 9,015 acres (Figure 2-4) to incorporate lynx habitat occurring within portions of the Chamberlain and Potomac added lands. All HCP commitments for lynx would remain the same. The status of lynx habitat for the 2010 HCP Garnet LMA (based on 2015 monitoring year) and amended Garnet LMA is shown in Table 2-6.

**Table 2-6. Acres of Lynx Habitat and Percent of Total Potential Lynx Habitat for the 2010 Garnet LMA (2015 monitoring year) and Amended Garnet LMA.**

| Lynx Habitat Type | 2010 Garnet LMA | | Amended Garnet LMA | |
|---|---|---|---|---|
| | Acres | Percent of Total[1] | Acres | Percent of Total[1] |
| **Suitable Habitat Subtotal** | 3,182 | 87% | 3,577 | 87% |
| **Winter Foraging** | 1,079 | 30% | 1,492 | 36% |
| **Summer Foraging** | 255 | 7% | 241 | 6% |
| **Other Suitable** | 1,847 | 51% | 1,844 | 45% |
| **Temporary Nonsuitable** | 462 | 13% | 533 | 13% |
| **Total Potential Habitat[2]** | 3,644 | 49% | 4,110 | 46% |
| **Non-Habitat** | 3,863 | 51% | 4,905 | 54% |
| **Total Acres[3]** | **7,505** | **100%** | **9,015** | **100%** |

4. Percentages for suitable habitat, winter foraging, summer foraging, other suitable, and temporary nonsuitable are calculated using Total Potential habitat as the denominator.

5. Total potential habitat is the sum of suitable habitat and temporary non-suitable habitat.

6. Total acres is the sum of total potential lynx habitat and non-habitat.

## Designated Lynx Critical Habitat

The USFWS published a final rule designating Canada lynx critical habitat on February 25, 2009 and it became effective on March 27, 2009 (74 FR 8616). Under the final rule, 175,127 acres of DNRC HCP-covered lands fell within the designation of critical habitat and this is reflected in the 2010 Final EIS analysis and USFWS 2011 biological opinion (USFWS 2011). On September 25,

2013, in response to litigation over the 2009 critical habitat designation, the USFWS published a revised designation of Canada lynx critical habitat as well as a revised definition of the lynx distinct population segment. This revision to lynx critical habitat was published as a final rule on September 12, 2014 and became effective on October 14, 2014 (79 FR 54782). In the October 2014 final rule, USFWS removed all DNRC HCP-covered lands from designation as critical habitat. Therefore, the Proposed Action acknowledges that 175,127 acres of the 2010 HCP-covered lands are no longer designated lynx critical habitat. The added lands were not specifically identified as excluded from critical habitat designation by the 2014 final rule, and as such, the new total of lynx critical habitat lands within the amended HCP project area would be 56,014 acres. In response to litigation over the 2014 final rule, USFWS will again revisit the lynx critical habitat designation.

### Amend the HCP Transition Lands Strategy

The 2010 HCP included 5 percent and 10 to 15 percent caps on removal of lands from the HCP. The 5 percent cap was applied to the total acreage of NCDE and CYE grizzly bear recovery zone lands, CYE grizzly bear non-recovery occupied habitat (NROH), all LMAs, and bull trout core areas. The Proposed Action would retain the 5 percent cap on these lands. However, the acreage of lands subject to the 5 percent cap would increase from 227,271 acres to 308,687 acres under the Proposed Action. Thus, the total acres that could be removed under the 5 percent cap would increase from 11,363 acres to 15,434 acres.

The 2010 HCP also applied a 10 to 15 percent cap on the total acreage of lands that could be removed from the baseline acres of the HCP (minus the acres subject to the 5 percent cap). As such, the 2010 HCP 10 percent cap applied to 321,229 acres and capped the removal of lands at 32,122 acres. As described in the 2010 HCP, at such time that DNRC added at least 15,000 acres to the HCP-covered lands, the cap would increase from 10 to 15 percent. The Proposed Action would add 81,416 acres of lands to the 2010 HCP. Therefore, the 10 percent cap would be increased to 15 percent. Because all of the newly added lands are subject to the 5 percent cap, the total acreage of lands subject to the 15 percent cap would remain at 321,229 acres; however, the total lands allowed for removal from the HCP under the cap would increase to 48,184 acres.

## 2.1 No Action Alternative

The No-Action Alternative would include amending the HCP to incorporate the terms of the 2015 Settlement Agreement, which is legally required, but would not include adding lands or issuing an amended permit authorizing additional take. DNRC would continue to implement the 2010 HCP on the 2010 covered lands under its existing Permit, along with the terms of the 2015 Settlement Agreement.

The acquisition areas would be managed under the existing DNRC Forest Management Administrative Rules of Montana (ARMs 36.11.401 through 36.11.456) as described in detail for the No Action Alternative in the 2010 Final EIS (USFWS and DNRC 2010, pp. 3-4 through 3-6). The ARMs that would apply to the non-HCP lands could be revised over time at DNRC's discretion by following procedures required under the Montana Administrative Procedures Act. Such revisions would not require consultation or oversight from the USFWS, and could result in fewer conservation measures for the covered species on the non-HCP lands. Under the No Action Alternative, DNRC would implement the existing legally-binding conservation easements for the non-HCP lands in the Swan, Chamberlain, and Blackfoot added lands as described in Table 2-5 in Section 2.1.2.

The Swan River State Forest would be managed under both the 2010 HCP and the conservation easement on the added lands. Given the conservation easement restrictions on roads, the Swan Transportation Plan for the entire blocked lands would likely remain very similar to that depicted in Figure 2-2 and detailed in Table 2-3. Management of the Stillwater Block would proceed as described above in Section 2.1.1.

# CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter considers the 2010 affected environment (i.e., planning area and HCP project area) described in the 2010 Final EIS and provides an overview of the major changes to the affected environment since publication of the 2010 Final EIS. This is followed by a description of the affected environment for the added lands and a discussion of DNRC's update of its annual sustainable yield calculation. Finally, this chapter contains an analysis of both the affected environment and environmental consequences for each element of the environment analyzed in the 2010 Final EIS, but is updated to reflect the effects of the Proposed Action and No Action Alternatives.

## 3.1 Affected Environment

This section provides a brief overview of the status of the affected environment for the 2010 Final EIS planning area, 2010 HCP project area, and the added lands. This is followed by a discussion of the sustained yield calculation that DNRC adopted in 2015 and that would be implemented under either the Proposed Action or No Action Alternatives considered in this document. The added lands are located within the 2010 Final EIS planning area and within the close geographic vicinity of 2010 HCP project area. Therefore, the affected environment for all elements of the environment on the added lands is largely the same as that described in Chapter 4 of the 2010 Final EIS for the planning area and HCP project area and is hereby incorporated by reference.

### *3.1.1 2010 Final EIS Planning Area*

Across the 2010 Final EIS planning area, the greatest landscape-wide change since the 2010 Final EIS analysis is the sale, transfer of ownership, and management changes associated with 310,586 acres of lands previously owned by Plum Creek. As described in the 2010 Final EIS (Chapter 5, pages 5-13 through 5-14), between December 2008 and December 2010, the Nature Conservancy and Trust for Public Lands purchased 310,586 acres of land from Plum Creek within the planning area. Within the planning area from 2009 to 2014, The Nature Conservancy transferred ownership of 275,527 acres of these lands to conservation-minded State, Federal, and private landowners. Much of these lands will continue to be managed for timber production; though in a manner

consistent with the conservation goals of the over-riding conservation easements or HCPs. Lands transferred to the U.S. Forest Service (USFS) are now managed for multiple uses in accordance with federal regulations (±160,000 acres).

Major policy and regulatory changes in the planning area since publication of the 2010 Final EIS include: USFWS finalizing the bull trout recovery plan (USFWS 2015) and USFWS revising the designation of lynx critical habitat (79 FR 54782).

These policy and regulatory changes have not generated substantial physical changes in the planning area due to their recent implementation and the reality of implementing measurable changes across a large landscape.

### *3.1.2 2010 HCP Project Area*

The conditions on the 2010 HCP project area are described extensively in the 2010 Final EIS (Chapter 4, hereby incorporated by reference) and much of that information is still relevant for this analysis. The 2010 HCP and 2010 Final EIS required a large dataset to support a project of this size and duration. Therefore, the baseline data presented in the 2010 Final EIS was "frozen" and based on DNRC's forestry database as of 2008 (DNRC 2008). A portion of the database was updated in 2010 prior to publication of the Final EIS to incorporate the revised bull trout critical habitat designation. In 2012, the first year of HCP implementation, DNRC updated the baseline metrics relevant to implementation and compliance with HCP commitments for the entire HCP-covered lands. The updated baseline data is available in Appendix F. Additionally, there are four annual reports demonstrating DNRC's success with HCP implementation, trends in forest management, and progress with corrective actions. These reports are hereby incorporated by reference and are available at: http://dnrc.mt.gov/divisions/trust/forest-management/hcp/hcp-implementation-and-monintoring. Since 2012, when DNRC began implementing the HCP, 920 acres of DNRC lands were removed from the HCP in accordance with the Transition Lands Strategy for lands subject to a 10 percent cap (lands outside key habitat areas) on removal. This amount represents less than 0.3 percent of the allowable acreage that could be disposed to non-conservation entities.

When warranted, additional information on the condition of the HCP project area is provided for the elements of the environment analyzed below.

### *3.1.3 Added Lands*

This section describes the affected environment for the added lands by acquisition area. Information on the existing condition for each of the elements of the environment is discussed in the subsections below.

The 81,416 acres proposed for addition to the 2010 HCP by the Proposed Action are located within six general areas within the 2010 HCP project area (Table 1-1; Figure 1-1). Many of the added lands were first identified and described in the 2010 HCP (DNRC 2010a, pp. 3-4 through 3-6) and partially analyzed in the 2010 Final EIS (USFWS and DNRC 2010, p. vi, pp. 4-385 through 4-388) and Biological Opinion (USFWS 2011, pp. I-19, II-110 through 112, III-79 through 81, and IV-279 through 280) in anticipation of DNRC's desire to ultimately include them in the HCP. The added lands are located within the 2010 Final EIS planning area and within the close geographic vicinity of 2010 HCP project area lands. Therefore, the affected environment for all elements of the environment on the added lands is largely the same as that described for the planning area and HCP project area in the 2010 Final EIS.

The majority of the added lands were managed as industrial forest lands (i.e., managed for timber production). Others were managed for grazing or other multiple uses.

The Swan, Upper Blackfoot, and Potomac added lands were previously owned by Plum Creek and managed primarily for wood fiber production. Thus, currently, mature forested stands are present in low abundance on the Swan added lands. However, lands logged during the last several decades now support well-stocked and overstocked stands of young conifer saplings and pole-sized timber. Most of the Upper Blackfoot added lands was harvested at varied intensities, which is reflected in the variable stand age and tree size classes present on these lands. The Potomac acquisition is also dominated by forested stands of young age classes. These lands primarily support ponderosa pine (*Pinus ponderosa*), western larch (*Larix occidentalis*), and Douglas-fir (*Pseudostuga menziesii*). Lodgepole pine (*Pinus contorta*), Engelmann spruce (*Picea engelmannii*), and other conifers present in lesser amounts. Most stands will approach merchantable size within the next 30 to 60 years, most nonmerchantable stands are fully stocked, and pre-commercial thinning has been completed on many stands. The Potomac added lands also have a long history of grazing by the Bonita-Clinton-Potomoc Grazing Association. The former license was retired when DNRC acquired these lands but

was reissued under the DNRC grazing program after changes to some of the grazing pastures.

The Chamberlain added lands were also managed as industrial forest with wood fiber production as the primary management objective. This intensive management resulted in the harvest of mature forest stands within this landscape. Most stands logged during the last several decades resulted in thriving stands of young conifer saplings and pole-sized timber. Many of the more advanced stands will approach merchantable size within the next 30 to 60 years.

Lands in the South Bitterroot continue to recover from the Sula fire in 2000. These added lands were previously managed as non-industrial private lands for the purpose of livestock grazing and timber production. Recovery of both the vegetation and watershed conditions is progressing better than originally expected given the intensity of that fire.

The Lolo Land Exchange (Lolo) was acquired by DNRC from the Lolo National Forest and reflects a variety of management intensities and types as they are scattered across a sizable geographic area (Figure 1-7). These parcels have generally received much less harvest than the other added lands during the last several decades, as they were previously managed for multiple uses and not solely for wood fiber production. Most of the lands contain mature forest and occur along the Lower Clark Fork River corridor.

All of the added lands are currently managed under the Forest Management ARMs. Additionally, three of the acquisition areas are also subject to conservation easements held by USFWS or MFWP: Swan, Chamberlain, and Upper Blackfoot (Table 2-5). The terms of the conservation easements are described in Section 2.1.2.

### Sustainable Yield Calculation

In 2015, DNRC contracted the determination of a new annual sustained yield calculation (SYC) to incorporate the recent acquisition of 81,416 acres of corporate timberland and incorporate the terms of the 2015 Settlement Agreement. The 2015 calculation addressed four scenarios, including one scenario that incorporated the anticipated terms of the 2015 Settlement Agreement and constrained the additional lands with the terms of the HCP. This scenario became the new 2015 SYC (Mason, Bruce, and Girard 2015). For the 2015 calculation, and in contrast to prior calculations, DNRC used a different model that incorporated local variants that are specific to Montana forests for growth and

yield projections and incorporated data collected from forested stands on state trust lands. This resulted in significant improvements in inventory estimates and growth and yield projections in the model.

The 2015 SYC is an annual harvest of 56.9 million board feet (MMBF) (Table 3.1). Sensitivity testing on this calculation showed that 67,000 acres of the 81,416 acres of added lands contributed an additional 4.6 MMBF to the annual sustainable harvest per year. This increase was, however, offset by a reduction in inventory on 105,000 acres affected by fires and insects, as well as an increase in acres that were deferred from management from 89,000 in 2010 (DNRC 2010b) to 116,000 in 2015. The 2015 SYC of 56.9 MMBF is similar to that generated for the 2010 HCP (57.6 MMBF), and is within the range of SYC's analyzed for all action alternatives in the 2010 Final EIS.

The 2015 SYC is also applicable to the No Action Alternative because both the SYC and the No Action Alternative would implement the 2015 Settlement Agreement. Further, all added lands were considered in the 2015 SYC regardless of the conservation measures applied on those lands.

**Table 3.1. Sustainable Yield Calculation for the 2010 HCP and the Proposed Action and No Action Alternatives.**

| | Annual Harvest in Million Board Feet | | |
|---|---|---|---|
| **DNRC Land Office** | **2010 HCP** | **Proposed Action (2015 SYC)** | **No Action (2015 SYC)** |
| **NWLO** | 38.7 | 35.2 | 35.2 |
| **Stillwater Block** | 14.5 | 11.5 | 11.5 |
| **Swan River Block** | 6.8 | 8.0 | 8.0 |
| **Other NWLO Units** | 17.4 | 15.6 | 15.6 |
| **SWLO** | 12.6 | 16.7 | 16.7 |
| **CLO** | 4.0 | 2.7 | 2.7 |
| **Eastern Land Offices** | 2.3 | 2.4 | 2.4 |
| **Total** | **57.6** | **56.9** | **56.9** |

## 3.2 Climate

### *3.2.1 Affected Environment for Climate*

This section provides an update on the climate change literature for Montana and the covered species. The environmental consequences below analyze the contribution of the Proposed Action and No Action to climate change through greenhouse gas emissions and carbon storage and release. The effects of climate change on other aspects of the environment are discussed in Section 3.19 Cumulative Effects.

The 2010 Final EIS characterized global, regional, and local trends in climate described the effects on climate change resulting from forest management under the proposed HCP (Chapter 4, p. 4-5 through 4-21). That information is incorporated by reference. In brief, at the local scale, the 2010 Final EIS identified the following climatic information for Montana (USFWS and DNRC 2010, Chapter 4, p. 4-13):

Observed effects of climate change reported in the 2010 Final EIS included:

- increasing temperatures and changing hydrologic cycle, including less frequent extremely cold days and more frequent hot days (Karl et al. 2009; Pederson et al. 2009),
- increasing length of season over which hot days occur (Pederson et al. 2009),
- decreasing annual average precipitation in western Montana (Climate Prediction Center 2010),
- shifting in the timing of precipitation throughout the state (Climate Prediction Center 2010), and decreasing annual snowfall (Montana Climate Office 2010).

Projected climatic changes in Montana were identified as follows:

- more frequent extreme weather events, such as heat waves, droughts, and heavy rainfall (Karl et al. 2009),
- increased summer maximum temperatures and winter minimum temperatures (Pederson et al. 2009).
- an increase in the growing season by approximately 2 months in the northern Rocky Mountains (Running 2009).

- earlier spring snowmelt by 4 to 6 weeks (Running 2009).
- extended summer drought period by 6 to 8 weeks (Running 2009).

Since publication of the 2010 Final EIS, several peer-reviewed publications have addressed climate change in Montana. The Montana Climate Assessment (Whitlock et. al 2017, p. XXIV; Assessment) provides an update and analysis of Montana's recent climate trends and how climate is projected to change in the future. These trends and projected changes are used in the Assessment to explain the key impacts of climate change observed in recent decades and projected in the future. The key findings of the Assessment for Montana's climate, forests, and water are presented below by discipline:

The key findings relative to climate in Montana are summarized below (p. XXVI):

- Annual average temperatures, including daily minimums, maximums, and averages, have risen across the state between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period.
- There are no historical changes in average annual precipitation between 1950 and 2015.
- There have been changes in average seasonal precipitation between 1950 and 2015. Average winter precipitation decreased by 0.9 inches (2.3 cm), which can largely be attributed to natural variability and an increase in El Niño events. A significant increase in spring precipitation (1.3-2.0 inches [3.3-5.1 cm]) also occurred during this period for the eastern part of the state.
- Montana is projected to continue to warm in all geographic locations, seasons, and under all emission scenarios throughout the 21st century.
- By mid-century, Montana temperatures are projected to increase by approximately 4.5-6.0°F (2.5-3.3°C) depending on the emission scenario.
- By the end-of century, Montana temperatures are projected to increase 5.6-9.8°F (3.1-5.4°C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nationally.
- Across the state, precipitation is projected to increase in winter, spring, and fall; precipitation is projected to decrease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to occur during summer in the central and southern parts of the state.

Relative to water, rising temperatures are expected to reduce snowpack, shift historical patterns

of streamflow in Montana, and likely result in additional stress on Montana's water supply, particularly during summer and early fall. Key messages associated with these findings follow (p. XXXII):

- Montana's snowpack has declined over the observational record (i.e., since the 1930s) in mountains west and east of the Continental Divide; this decline has been most pronounced since the 1980s.
- Warming temperatures over the next century, especially during spring, are likely to reduce snowpack at mid and low elevations.
- Historical observations show a shift toward earlier snowmelt and an earlier peak in spring runoff in the Mountain West (including Montana). Projections suggest that these patterns are very likely to continue into the future as temperatures increase.
- Earlier onset of snowmelt and spring runoff will reduce late-summer water availability in snowmelt-dominated watersheds.
- Groundwater demand will likely increase as elevated temperatures and changing seasonal availability of traditional surface-water sources (e.g., dry stock water ponds or inability of canal systems to deliver water in a timely manner) force water users to seek alternatives.
- Rising temperatures will exacerbate persistent drought periods that are a natural part of Montana's climate.

Key messages associated with these findings include:

- Multi-year and decadal-scale droughts have been, and will continue to be, a natural feature of Montana's climate [high agreement, robust evidence]; rising temperatures will likely exacerbate drought when and where it occurs.
- Changes in snowpack and runoff timing will likely increase the frequency and duration of drought during late summer and early fall.

Relative to forests, the direct effects of climate change include increased temperatures and shifts in precipitation that together alter humidity, soil moisture, and water stress. Direct effects can be beneficial or detrimental to forest growth and survival. The key findings are summarized below (p. XXXIV):

- Increased temperatures will have positive or negative effects on individual trees and forest-wide processes, depending on local site and stand conditions, but impacts from

increased extreme heat will be negative.

- Direct effects of climate change on individual trees will be driven by temperature in energy-limited forests and moisture in water-limited forests.
- The speed and magnitude of climate change may mean that increased forest mortality and contractions in forest distribution will outpace any gains in forest growth and productivity over the long run, leading to a net loss of forested area in Montana.

While the Assessment presents considerable information and refined models and projections regarding climate change effects in Montana, the primary findings summarized above are largely consistent with those effects described in the 2010 HCP Final EIS (Chapter 4, pp. 4-5 to 4-18, 4-50 to 4-52, and 4-437 to 4-440). Further, the Assessment states that there are still many knowledge gaps, particularly the magnitude of future changes for specific river basins (p. 246).

## Climate Change Influence on the Status of HCP Fish Species and Their Habitats

Climate is discussed extensively throughout the 2011 biological opinion and specifically the effects of climate change on future trends for HCP-covered fish species and habitat are discussed on 2011 biological opinion (Chapter IV, pp. IV-63 through IV-69). That analysis is hereby incorporated by reference. This section provides an update on climate literature on the HCP-covered fish since publication of the 2011 biological opinion.

Kovach et al. (2015a) suggested that climate variation may influence evolutionary processes in bull trout by lowering genetic diversity. They further stated that bull trout are potentially limited in their capacity to adapt to climate change, especially isolated populations of bull trout in marginal habitat conditions. HCP fish species rely on cold water throughout their various life stages. Research published after 2011 indicates increasing air temperatures attributed to climate change likely has caused 1) reductions in the availability of suitable, cold water habitat and stream flow, 2) increases in competition with non-natives species, and 3) reductions in distribution (Al-Chokhachy et al. 2016; Benjamin et al. 2016; Kovach et al. 2015a; Eby et al. 2014; and Muhlfeld et al 2014). Based on modeling, Rieman et al. (2007) indicated that the effects of climate change on bull trout populations in the United States have been more pronounced in some regions than in others because bull trout are distributed across a broad range of environments and landforms of varied relief. This scenario likely applies to westslope

cutthroat trout populations as well (Young et al. 2016; Al-Chokhachy et al. 2014). The mechanism by which hybridization is likely to occur is through increasing distribution of introduced rainbow trout into headwater systems which had previously been marginal or unsuitable habitat due to cold water temperature (Kovach et al. 2015b, Young et al. 2016). There is increasing evidence that the alteration of precipitation patterns, and ultimately stream temperature, may increase the risk of introgression in westslope cutthroat populations (Muhlfeld et al. 2009, Yau and Taylor 2013, Al-Chokhachy et al. 2013, Muhlfeld et al. 2014, McKelvey et al 2016, Young et al. 2016, Muhlfeld et al. 2017).

### Climate Change Influence on the Status of Canada Lynx Habitat

The effects of climate change on future trends for Canada lynx and lynx habitat is discussed in the 2011 biological opinion (USFWS 2011, Chapter II, pp. II-29 through II-30). That analysis is hereby incorporated by reference. This section provides an update on climate literature related to Canada lynx since publication of the 2011 biological opinion.

In the Lynx Status Assessment (USFWS 2018), lynx experts concluded that they expect lynx populations in each geographic unit of the DPS to become smaller and more patchily-distributed due largely to projected climate-driven losses in habitat quality and quantity and related factors. The experts also acknowledged that, the timing, rate, and extent of habitat decline due to projected warming and corresponding effects to lynx populations is highly uncertain. The expert team determined that lynx are likely to persist in all units of the DPS through 2025 and in all or most at 2050; the team expressed less certainty at 2100. The team also concluded that though lynx would persist in all 5 units, smaller, more isolated populations would be at higher risk of extirpation.

### Climate Change Influence on the Status of Grizzly Bear Habitat

The effects of climate change on future trends for grizzly bears and grizzly bear habitat is discussed in the 2011 biological opinion (USFWS 2011, Chapter II, pp. III-30 through III-32). That analysis is hereby incorporated by reference. This section provides an update on climate literature on grizzly bears since publication of the 2011 biological opinion.

Grizzly bears are opportunistic omnivores that have evolved versatile foraging strategies. Most

of the recent analysis and literature regarding the effects of climate changes on food sources for grizzly bears do not describe this factor as a threat to grizzly bears. The GYE conservation strategy (USFWS 2016) identifies the grizzly bears' ability to shift its diet among various food sources as they are available through in space and time (Schwartz et al. 2003, 2014). Gunther et al. (2014) documented the diet of grizzly bears in the Greater Yellowstone Ecosystem (GYE) to include over 266 distinct plant and animal species. Their diverse diet serves as an adaptive mechanism that increases their ability to persist in instances of rapid and long-term changes in availability and abundance of foods. For example, despite the decline of whitebark pine in the GYE and the naturally variable availability of other food resources there, grizzly bears have shown considerable resilience by adjusting their use of habitats (Costello et al. 2014) and shifting their diets to maintain their body weight and condition (Schwartz et al. 2014, Ebinger et al. 2016). Most grizzly bear biologists in the United States and Canada do not expect habitat changes predicted under climate change scenarios to directly threatened grizzly bears, though concern has been expressed that climate may play a role in driving grizzly bear/human interactions and conflicts (Servheen and Cross 2010, p.4).

### *3.2.2 Environmental Consequences of Forest Management on Climate*

The 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-5 through 4-22) identified the effects of forest management on atmospheric carbon dioxide levels through carbon dioxide emissions from harvest and road maintenance, addition of aerosols in the atmosphere from smoke and wildfires, and removal of forest biomass.

#### **Effects of the Proposed Action**

##### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

Implementing the 2015 Settlement Agreement in the Stillwater Block is not expected to have a measurable change in effects on climate from that analyzed in the 2010 Final EIS. This is because the parameters used to analyze effects in 2010 are largely the same for the Proposed Action: the Stillwater Block transportation plan remains unchanged from the 2010 HCP, and the statewide SYC is within 1.2 percent of the statewide SYC calculated for the 2010 HCP, indicating a relatively unchanged level of road building and timber harvest activity and related

carbon dioxide emissions, and a relatively unchanged level of wildfire risk over the Permit term.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

The majority of the added lands already contain sufficient road miles to support forest management activities, and approximately 28,998 acres of the added lands are restricted by conservation easements to maintain the existing baseline miles of roads. Further, for the 1,789 acres of added lands on scattered parcels in grizzly bear recovery zones commitment GB-SC1 requires open roads on these areas to be evaluated during each project to determine if additional closures are possible. Therefore, substantial increases in road miles are not anticipated; DNRC anticipates just 15.2 miles of new road may be needed over the remaining Permit term, primarily on the Lolo added lands to provide additional access for timber management (see Section 3.5 Transportation, below). Therefore, adding lands to the HCP is not expected to contribute a measurable increase in carbon dioxide emissions above those predicted in the 2010 Final EIS.

Adding lands to the HCP would not change DNRC's forest management strategy to move its forests towards a desired future condition (i.e., the land or resource conditions that will exist if forest management goals and objectives are fully achieved), nor DNRC's wildfire suppression activities. As the added lands move toward desired future condition, the risk of wildfire from fuels buildup and dead and dying trees combined with DNRC's fire suppression activities could slightly decrease the risk of carbon emissions from wildfire.

The amount of sequestered carbon on the added lands is expected to increase over time as trees grow and accumulate carbon as retained in the harvested wood products. Carbon is released slowly over time in the following circumstances: 1) as trees in the forest rot or burn or 2) from the residual waste from harvested wood products. Overall, forest management activities on the added lands would contribute a small fraction of statewide emissions from all sources and significant effects on climate change are not anticipated.

### Summary of Effects of the Proposed Action

The SYC under the Proposed Action is within 1.2 percent of the SYC for the 2010 HCP and substantial new roads are not anticipated for the added lands. Therefore, the Proposed Action would generate similar effects on carbon dioxide emissions associated with timber harvest and

road building as analyzed in the 2010 Final EIS. As the added lands move toward desired future conditions, the risk of wildfire from fuels buildup and dead and dying trees would decrease the risk of carbon emissions from wildfire. Overall, forest management activities on the added lands would contribute a small fraction of statewide emissions from all sources and significant effects on climate change are not anticipated.

#### Effects of the No Action Alternative

The No Action Alternative would implement the same SYC and is expected to build similar roads on the added lands as the Proposed Action. DNRC would also similarly move the forest towards desired future conditions for the added lands. Therefore, the effects of the No Action Alternative on climate change would not substantially differ from the Proposed Action and overall forest management activities would contribute a small fraction of statewide emissions from all sources and significant effects on climate change are not anticipated for the No Action Alternative.

## 3.3 Forest Vegetation

### *3.3.1 Affected Environment for Forest Vegetation*

The affected environment for forest vegetation on the HCP project area (covered lands) is largely the same at that described in the 2010 Final EIS. Since HCP implementation in 2012, DNRC annually harvested between 50 and 70 MMBF forest wide (which equates to harvest on approximately 8,000 acres per year), which is consistent with both the 2010 HCP SYC and the 2015 SYC (see SYC discussion above). At this scale of activity, over a 6-year period, few discernable changes have occurred on the HCP-covered lands. This is because it often takes one to three years to undertake planning and project preparation, and it takes several harvest rotations across a broad acreage for a measurable change in age class, size class, or cover type to occur. While DNRC has implemented limited harvest in a few management subzones in the Stillwater Block since adoption of the 2010 HCP, the amount of acreage harvested has not generated a discernable difference in forest conditions in this localized portion of the forest.

Spruce budworm continues to contribute to defoliation and mortality in parts of Southwestern and Central land offices. Douglas-fir beetle (*Dendroctonus psuedotsuga* Hopkins) is spreading

and contributing to mortality in the Northwestern Land Office. DNRC continues to conduct supplemental western white pine (*Pinus monticola*) plantings to aid the recovery of this species (DNRC 2015a). The mountain pine beetle (*Dendroctonus ponderosae)* outbreak is waning due to host depletion but is still active in some localized areas (DNRC 2015a).

Forest vegetation conditions on the added lands are described in Section 3.1.3 Added Lands. The majority of added lands were industrial forest lands (i.e., managed for timber production). This management is reflected in the stand conditions on the Swan, Potomac, and Chamberlain added lands, which are dominated by young, dense conifer stands expected to reach merchantable timber in 30 to 60 years. Lands in the Bitterroot acquisition continue to recover from the Sula fire of 2000, and the stand ages in the Upper Blackfoot are variable. The Lolo areas are mostly comprised of mature forest stands situated within the greater Clark Fork River drainage.

## *3.3.2 Environmental Consequences for Forest Vegetation*

This section considers the effects of the alternatives on forest vegetation. The attributes considered include age class, size class, cover type, and desired future conditions of forested stands.

### Effects of the Proposed Action

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

Under the Proposed Action, as a result of the 2015 Settlement Agreement, forest management activities would be limited across 22,007 acres that occur in seven grizzly bear security zones on the Stillwater Block. Any allowed management requiring motorized activities in these areas will be restricted to the grizzly bear denning period (November 16 - March 31) and areas below 6,300 feet. This requirement limits the extent of forest management that could occur on these lands due to the challenges associated with winter harvest on steep terrain. Therefore, as demonstrated in the 2015 SYC, the annual harvest in the Stillwater Unit will decrease by 900,000 board feet as a result of the 2015 Settlement Agreement (Table 3.1). This means that some lands in the Stillwater Block that were opened to more active forest management under the 2010 HCP would actually not undergo the degree of anticipated changes in forest vegetation conditions described in the 2010 Final EIS (Chapter 4, pp. 4-55 through 4-62) and associated effects with these

activities would not occur. On these lands, progress toward desired future condition in the absence of natural disturbance, would be delayed. Further, older age classes and mature sawtimber size classes would persist for a greater proportion of the Permit term until natural disturbances convert stands to younger age classes. Limits on commercial harvest may also slightly increase the susceptibility of these lands to wildfire and insect and disease outbreaks.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

By adding lands to the HCP, the following localized changes in forest vegetation are anticipated. Currently, forest conditions on the Swan, Potomac, and Chamberlain added lands are primarily young, densely-stocked conifers. Therefore, within the HCP permit term, these lands are likely to undergo thinning activities, which would be followed by an increase in the mature sawtimber class over time. For stands that reach maturity and are subject to even-aged harvest regimes during the HCP Permit term, the acreage of seedling/sapling size class would slightly increase. Commercial logging projects on much of the acreage within these added lands would not be viable for another 30 to 60 years. For these lands, the acreage of seedling/sampling size class would increase and will approach poletimber and mature age classes during the Permit term.

Patches of mature trees would be retained in accordance with the 50-foot no-harvest buffer for Class 1 lakes and streams (AQ-RM1), for visual screening along open roads (GB-RZ2), along ridge tops and saddles in lynx habitat (LY-HB5), and for meeting lynx winter foraging habitat requirements (LY-LM3).

Lands in the Lolo Land Exchange will likely provide a merchantable source of timber sooner than those for Swan, Potomac, Upper Blackfoot, and Chamberlain. Therefore, the acreage of mature sawtimber class on the Lolo Land Exchange would slightly decrease and the acreage of seedling/sapling size class would slightly increase over the Permit term with the exception of areas where patches of mature trees would be retained as described for the Swan, Chamberlain, Upper Blackfoot, and Potomac added lands.

Lands in the Bitterroot would continue to be monitored and supplemented as needed to recover from the Sula wildfires of 2000.

Summary of Effects of the Proposed Action

Under the Proposed Action the annual SYC is 56.9 MMBF. This rate of annual harvest is within 1.2 percent of the SYC for the 2010 HCP (2010 Final EIS, 57.6 MMBF). Therefore, forest attributes under the Proposed Action are expected to be similar to those described in the 2010 Final EIS. That is, under the Proposed Action, progress toward desired future condition would continue, with seral forest types increasing and late-successional forests decreasing. The acreage of seedling/sapling size class would slightly increase and mature sawtimber class would slightly decrease. Young stands are expected to increase and older stands decrease slightly, but then remain relatively stable over time.

**Effects of the No Action Alternative**

The No Action Alternative would also implement the 2015 SYC (56.9 MMBF). Therefore, forest management, forest attributes, and the changes in forest vegetation on the added lands under the No Action Alternative would be similar to that described for the 2010 HCP and the Proposed Action. However, without the constraints of the HCP on the added lands, some localized differences in the amount of mature trees in riparian areas, amount of vegetation along open roads, the size of timber harvest units, and abundance of patches of lynx foraging habitat may be discernable.

## 3.4 Air Quality

### *3.4.1 Affected Environment for Air Quality*

The 2010 Final EIS identified air quality conditions in the planning area as generally affected by pollutants monitored and controlled under the Clean Air Act (i.e., emissions) and smoke from wildfires and burning operations (Chapter 4, pp. 4-63 through 4-67). These factors continue to represent the primary sources of air pollutants in the planning area. Overall, the status of air quality and nonattainment areas in the planning area has not significantly changed since 2010. There continues to be nine non- attainment areas within the planning area (MDEQ 2016a), and twelve government agencies and private companies currently hold major open burning Permits in Montana. This represents one less entity than described in the 2010 Final EIS (MDEQ 2016b).

Prescribed burning continues to be managed through a Memorandum of Agreement for the Montana/Idaho Airshed Group, which now operates under an updated Operating Guide (2010). Therefore, air quality conditions in the planning area and HCP project area remain similar to those described in the 2010 Final EIS (Chapter 4, p. 4- 63 through 4-67).

The added lands are located within the planning area and adjacent to the HCP project analyzed in the 2010 Final EIS and were similarly managed for timber production or grazing licenses prior to acquisition. Therefore, air quality conditions on the added lands are similar to those described in the 2010 Final EIS; air quality on the added lands is good, except temporarily on a localized scale when a stand is subject to timber harvest, prescribed burning, slash pile burning, or wildfire.

### *3.4.2 Environmental Consequences for Air Quality*

The primary effects on air quality from a forest management program and HCP are attributed to pollutants associated with smoke (oxides of nitrogen, volatile organic compounds and particulate matter) from prescribed burning, slash burning, and wildfires, and exhaust admissions from various types of combustions engines use d in forest management or grazing management vehicles and equipment. These effects are considered below in terms of the amount of lands harvested (i.e., the SYC), road building, grazing acreages, and annual average burning.

#### Effects of the Proposed Actions

##### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

As previously described, the changes in access for the 22,007 acres of grizzly bear security zones in the Stillwater Block limit the extent of forest management that could occur on these lands. Therefore, the extent of localized decreases in air quality from increased timber harvest, prescribed burning, and slash pile burning in the Stillwater Block described in the 2010 Final EIS would be slightly reduced as a result of the 2015 Settlement Agreement.

##### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Implementing the HCP commitments would not change types of air quality effects (vehicle emissions and smoke from fires) generated on the added lands because substantial changes in

road miles, grazing acreage, rate of timber harvest and likelihood of wildlife are not anticipated.

**Summary of Effects of the Proposed Action**

DNRC's management strategy is to move forests towards a DFC in order to provide a healthier forest that is better adapted to surviving wildfires and that emulates a wildfire return interval within the range of natural frequencies. The management constraints applicable to the Proposed Action SYC resulted in an annual SYC that is within 1.2 percent of that analyzed in the 2010 Final EIS for the 2010 HCP. Therefore, air quality effects from forest management activities would be similar to those described for the 2010 HCP in the 2010 Final EIS (USFWS and DNRC 2010, pp. 4-67 through 4-69).

The proportion of unmanaged forests estimated under the Proposed Action would be slightly greater than the 2010 HCP (116,000 acres deferred from management in the 2015 SYC versus 89,000 in the 2010 SYC). Under the Proposed Action, DNRC would continue to suppress wildfire and would not change its levels of prescribed burning described for the 2010 HCP. Further, prescribed burning and slash burning policies would continue to comply with memorandum of agreement for the Montana/Idaho Airshed Group, which now operates under an updated Operating Guide (2010). This group represents those entities holding major open burning Permits in the region. Signatories to the agreement comply with the terms of the Operating Guide to minimize the risk of adverse effects on air quality related to open burning permits. The Proposed Action would not generate adverse effects on air quality discernable at the landscape scale.

## Effects of the No Action Alternative

Under the No Action Alternative, the effects on air quality would be the same as those described for the 2010 HCP in the 2010 Final EIS (USFWS and DNRC 2010, pp. 4-67 to 4-69). Localized decreases in air quality from increased timber harvest in the Stillwater Block would no longer occur since implementation of the 2015 Settlement Agreement would functionally prevent timber harvest on 22,007 acres of grizzly bear habitat whereas 19,400 acres of these lands were opened to seasonal timber harvest under the 2010 HCP.

If the added lands were not added to the HCP project area, the air quality effects would likely

still be the same as those described above for the Proposed Action. This is because the SYC would remain the same for both alternatives. DNRC would continue to manage these lands for timber production and they would continue to be subject to forest management activities generating smoke and exhaust emissions and risk of periodic wildfire as well as fire suppression actions. The No Action Alternative would not generate adverse effects on air quality discernable at the landscape scale.

## 3.5 Transportation

### *3.5.1 Affected Environment for Transportation*

Much of the Federal land within the 2010 HCP planning area is grizzly bear habitat and is subject to limitations on amounts of motorized access routes. Therefore, increases in road miles on Federal lands in the planning area continue to be carefully regulated, particularly within grizzly bear recovery zones. The net miles of road within the HCP project area has slightly decreased since implementation of the 2010 HCP. Although, some areas have increased, specifically grizzly bear NROH, while miles of road in grizzly bear recovery zones and on non-grizzly bear habitat have decreased (Table 3.2).

**Table 3.2 Miles of Road in the HCP Project Area at Year 2012 (baseline) and Year 2015 by Grizzly Bear Habitat and Non-Habitat (DNRC 2015b).**

| | Grizzly Bear Recovery Zones | | Grizzly Bear NROH | Non-Grizzly Bear Habitat (all other HCP lands) | Total |
|---|---|---|---|---|---|
| | Blocked Lands | Scattered Parcels | | | |
| **2012 Baseline by Land Office** | | | | | |
| **Northwestern** | 601 | 78.7 | 245.3 | 567.2 | 1,492.2 |
| **Southwestern** | 0 | 42.9 | 255 | 620.9 | 918.8 |
| **Central** | | 0.5 | 78.5 | 189.6 | 268.6 |
| **Total** | **601** | **122.1** | **578.8** | **1,377.7** | **2,679.6** |
| **2015 Update by Land Office** | | | | | |
| **Northwestern** | 597.7 | 77.6 | 256.2 | 566.6 | 1,498.1 |
| **Southwestern** | 0 | 28.7 | 260.4 | 608.3 | 897.4 |
| **Central** | 0 | 0.2 | 78.5 | 180.2 | 258.9 |
| **Total** | **597.7** | **106.5** | **595.5** | **1,355.1** | **2,654.4** |

The 2010 Final EIS predicted linear road densities of 5.0 and 5.6 miles per square mile respectively for blocked lands and scattered parcels in the Northwestern and Southwestern Land Offices at year 50 of HCP implementation (USFWS and DNRC 2010, Chapter 4, p. 4-86, Table

4.4-7). Predicted linear road densities for the Stillwater Block were 2.7 miles per square mile and for the Swan River State Forest were 4.8 miles per square mile (USFWS and DNRC 2010, Chapter 4, p. 4-86, Table 4.4-7). As of 2015, the linear road densities for the Stillwater Block and Swan River State Forest were 2.6 and 3.8 miles per square mile, respectively (DNRC 2015b).

Table 3.3 is a summary of the existing road network on the added lands. Overall, the added lands are roaded and total linear road densities are mostly high, ranging from a low of 4.1 miles per square mile for the Lolo acquisition to a high of 7.7 miles per square mile for the Swan.

The condition of these roads is summarized in Appendix E by individual parcel based on an assessment of the percentage of the amount of existing road segments meeting Best Management Practices (BMPs) for Forestry in Montana (DNRC 2015c). Roads that meet best management practices provide fish passage at culverts and are not a significant source or erosion or sedimentation to nearby streams. A parcel with 90-100 percent of road segments meeting BMP's was indexed in the "excellent" condition class; 80-90 percent was indexed as "good"; 70- 80 percent as "fair"; and below 70 percent of road segments meeting BMP's indexed as "poor".

As demonstrated in Appendix E, although the road conditions overall range from good to excellent as summarized in Table 3.3, the added lands contain some road segments that do not meet BMPs, and are at high risk for sediment delivery (i.e., those sites in need of corrective actions as described in the 2010 HCP). DNRC has completed road inventories, including collection of data on status of BMPs and sediment delivery risk, on the Chamberlain added lands. The Chamberlain area represents approximately 15 percent of the total added land base.

Based on a query of these data, approximately 5 percent of the roads do not meet BMPs, and approximately 2 percent of the road miles are in need of corrective actions as they possess moderate to high risk for sediment delivery. This is a similar level to that inventoried for the 2010 HCP project area analyzed in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4. p. 4-193, and pp. 4-251 through 4-252). Based on the Chamberlain assessment and estimates from DNRC's hydrology specialists, it is anticipated that up to 5 percent of the total acquisition road miles could require corrective actions.

| Table 3.3. Miles of Road, Road Density, and Road Condition for the Added lands. | | | | | | |
|---|---|---|---|---|---|---|
| | Open Road | Restricted Road | Reclaimed by DNRC | Total[1] | Road Density[2] | Road Condition |
| **Swan** | 8.9 | 189.4 | 22.0 | 198.2 | 7.7 | **Good** |
| **Chamberlain** | 17.5 | 132.6 | 6.2 | 150.1 | 6.6 | **Excellent** |
| **Potomac** | 27.8 | 320.7 | 0.0 | 348.5 | 6.9 | **Good to Excellent** |
| **Lolo Land Exchange** | 24.0 | 40.1 | 0.0 | 64.1 | 3.7 | **Excellent** |
| **Upper Blackfoot** | 8.6 | 40.5 | 1.0 | 49.1 | 5.8 | **Good** |
| **Southern Bitterroot** | 0.9 | 10.7 | 0.0 | 11.6 | 4.5 | **Excellent** |
| **Total** | **87.7** | **734.0** | **29.21** | **821.7** | **6.6** | |

1. Total does not include reclaimed roads. DNRC has reclaimed 22.0 miles in the Swan, 1.0 mile in the Blackfoot, and 6.2 miles in the Chamberlain which could be added over the Permit Term.

2. Miles/square mile.

## *3.5.2 Environmental Consequences for Transportation*

The effects of a forest management program and associated HCP on transportation considers both management of roads and miles of road added to the landscape.

### Effects of the Proposed Action

#### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

In the Stillwater Block under the Proposed Action, the transportation plan and predicted road densities would remain essentially the same as those analyzed and described in the 2010 HCP. The 2010 HCP described 19,400 acres of "Class A lands" where a 4-year active timber management/8-year rest rotation would allow access during a 4-year operating window, primarily on temporary road systems with no new permanent road construction. Under the

Proposed Action, these subzones would be replaced by seven security zones totaling 22,007 acres where no permanent roads are allowed and where access would be limited to the winter periods on existing or temporary roads, and only at elevations below 6,300 feet. The net difference is an additional 2,607 acres where no permanent roads are allowed and less likelihood of access from existing or temporary roads on all 22,007 acres because access for winter harvest is challenged by deep snow on steep terrain. Transportation within the remainder of the Stillwater Block would remain the same as described in the 2010 HCP.

## Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

The effects on transportation from implementing the HCP on the added lands are influenced by their location relative to grizzly bear habitat.

The Swan added lands would add 198.2 miles to the Swan River State Forest. Since acquisition, DNRC has voluntarily reclaimed 22.0 miles of unneeded road on these lands, reclaiming these roads provides DNRC some flexibility over the Permit term to construct a similar amount of road in other locations, should the need arise. Therefore, the total miles on the added lands in the Swan River State Forest could increase to 220.3 miles but would be capped at this baseline level as required by the conservation easement (Table 3.3). Therefore, the existing approximate road densities could never be exceeded. While the baseline road miles would not increase, their locations could change over the Permit term. However, DNRC will also coordinate with MFWP to reduce roads in riparian management zones under the terms of its conservation easement.

Adding lands to the Swan commitments in the HCP would not change limitations on access or road miles required under the 2010 HCP Swan River State Forest transportation plan (Table 2-3). To date, DNRC has constructed 24.1 miles of the 70.3 miles of allowed roads in the Swan River State Forest transportation plan and would construct 46.2 additional miles for the remaining term of the HCP. Therefore, existing road density levels may increase by up to 0.68 miles/per square mile (i.e., 42 miles of road divided by 62 square miles of land in 2010 HCP) over the remainder of the permit term and then would be capped.

The Chamberlain added lands contains 150 miles on 14,537 acres of grizzly bear NROH associated with the NCDE. Total road miles would be capped at baseline levels described in Table 3.3 as required by an existing conservation easement with MFWP and under the North Chamberlain conservation easement, DNRC will coordinate with MFWP to reduce roads in riparian management zones. Therefore, road densities on these lands would not be able to exceed 6.6 miles per square mile for the duration of the Permit, although, the locations of roads could change over the Permit term

The remaining scattered parcels on the added lands support road densities that range from 4.5 to 6.9 miles per square mile (Table 3.3). Appreciable increases in total roads on the landscape are

not anticipated, but over time would likely mirror the road densities predicted across the HCP project area in the 2010 Final EIS, which range between 5.0 and 5.6 miles per square mile (USFWS and DNRC 2010, p. 4-86, Table 4.4-7). Scattered parcels in the Upper Blackfoot and Lolo Land Exchange (1,789 acres in the grizzly bear recovery zones), would be subject to further scrutiny under the Amended HCP, because grizzly bear commitment GB-SC1 requires open roads on each scattered parcel in recovery zones to be evaluated during each project to determine if additional closures are possible, thus reducing open road density where possible.

**Summary of Effects of the Proposed Action**

In summary, the Proposed Action would largely maintain the 2010 HCP transportation plans for the Stillwater Block and Swan River State Forest. Predicted road miles on the 2010 HCP scattered parcels would also remain the same. The Proposed Action would add 81,416 acres to the HCP project area that contain 821.7 miles of existing roads. Baseline road miles in the Swan and Chamberlain added lands would be capped at existing levels; DNRC could add 22.0 miles in the Swan. Any new roads proposed in the Upper Blackfoot would require approval by USFWS as the conservation easement holder. At this time, DNRC anticipates needing just 15.2 miles of roads, primarily within the Lolo added lands. While DNRC does not anticipate the need for additional miles of roads on the other added lands, total roads could increase in the Potomac, Lolo, portions of the Upper Blackfoot, and Southern Bitterroot acquisitions areas but would be subject to the terms of the HCP, ARMs, and existing conservation easements. Nevertheless, management of the added lands under the Proposed Action is expected to limit open and total roads on these landscapes due to the additional scrutiny these lands receive as habitat for the covered species.

The effects of the anticipated changes in the road network on the other elements of the environment are described in the pertinent sections.

## Effects of the No Action Alternative

Under the No Action Alternative, road miles on the Swan and Chamberlain added lands would be capped as required by the conservation easements, but no further scrutiny would be applied to open roads on 1,789 acres of the scattered parcels in the Upper Blackfoot and Lolo added lands.

Road management on the remainder of the added lands would proceed according to ARM 36.11.421, which directs DNRC to minimize the extent of roads and impacts of roads on other resources. Like the Proposed Action Alternative, DNRC anticipates the construction of just 15.2 miles of new roads, primarily on the Lolo added lands.

## 3.6 Geology and Soils

### *3.6.1 Affected Environment for Geology and Soils*

Factors affecting geology and soils in the project area include roads, grazing licenses, culvert barriers, and timber harvest. Since implementation of the 2010 HCP, DNRC has completed BMP maintenance on 613.7 miles of roads, reclamation of 11 miles of road, and abandonment of 2.7 miles or roads (DNRC 2015b). BMP maintenance includes maintaining, installing, or upgrading features to reduce erosion and sedimentation from roads, and to ensure continued operation and function of the road in compliance with BMPs for Forestry in Montana (DNRC 2015c). Further, DNRC has provided corrective actions on eight grazing parcels and replaced five culvert barriers/sources of sedimentation, and completed its tracking database for corrective actions. The acres of grazing licenses have not changed in the HCP project area since publication of the 2010 Final EIS. Although miles of roads have increased in some localized areas across the HCP project area, total miles of road were reduced (DNRC 2015b). Overall, impacts on soils and geologic features at localized areas of the 2010 HCP project area where corrective actions were implemented have likely improved since HCP implementation.

The geologic and soil conditions on the added lands are within the range of conditions described in the 2010 Final EIS (Chapter 4, pp. 4-100 through 4-120). Overall, the condition of roads on the added lands is good (Appendix E). Approximately 5 percent of the roads on the added lands likely do not meet BMPs and require corrective actions, which is a similar proportion to that identified for the 2010 HCP project area analyzed in the 2010 Final EIS. Additionally, on the added lands, there are 33,432 acres of grazing licenses and 15 culverts identified as barriers with 9 of these culverts still requiring corrective actions. The majority of acreage on the added lands was previously managed for timber production, and not only were the previous landowners required to implement the SMZ law and Montana Forestry BMPs but also all lands owned by Plum Creek were managed under its Native Fish HCP. Therefore, the existing condition of soils

and geology in timber harvest units is the same as that described in the 2010 Final EIS and in some locations slightly improved as a result of the Plum Creek Native Fish HCP.

### *3.6.2 Environmental Consequences for Geology and Soils*

The effects of a forest management program and associated HCP on geology and soils considers miles of road added to the landscape, management of said roads to address sediment delivery, acres of grazing licenses, and acres of timber harvest.

#### Effects of the Proposed Action

##### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

Implementing the 2015 Settlement Agreement in the Stillwater Block is likely to maintain soils conditions. This is in contrast to the localized impacts on soils and geologic features from increased timber harvest in the Stillwater Block described in the 2010 Final EIS. The maintenance of conditions is attributed to the limitation of timber harvest to the winter period on 22,007 acres in the grizzly bear security zones and DNRC's commitment to: 1) complete corrective actions on high risk sediment sites located within bull trout watersheds by 2027, and complete corrective actions at all sites located on the Stillwater Block with high risk of sediment delivery to waters identified as bull trout critical habitat (75 FR 63898-64070, October 18, 2010) by 2024.

##### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Adding lands to the HCP is expected to benefit soils and geology by reducing erosion and sediment delivery to streams over the Permit term. This is attributed to limited miles of additional roads anticipated on the added lands (up to 15.2 miles of new roads primarily on the Lolo added lands) and the implementation of the sediment delivery reduction commitments in the aquatic conservations strategy (AQ-SD1 through AQ-SD5). Some localized impacts on soils and geological features are anticipated for the added lands during construction of limited new roads and timber harvest but these effects are not expected to persist.

Further, DNRC would inventory and correct sources of erosion at roads on the added lands within the same timeframes proposed for the 2010 HCP (AQ-SD1 through SD5), although the

timeframe would start upon issuance of an amended Permit for the Proposed Action (see details in Section 1.3). Inventories would be ongoing for the full term of the HCP. Therefore, similar to the findings of the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-131 through 4-132), sources of sediment delivery associated with roads would be reduced on the added lands.

Stream crossings can be a major source of sediment delivery. There are currently nine culverts in need of replacement or removal on the added lands. Under the HCP commitments, DNRC would inventory and correct stream crossing sites on the added lands within the same timeframes proposed for the 2010 HCP (AQ-FC1). Therefore, similar to the findings of the 2010 Final EIS, sources of sediment delivery associated with stream crossings sites would be reduced.

When DNRC acquired the added lands, it retired the existing grazing licenses, changed some grazing pastures, and reissued new DNRC grazing licenses. Just 33,432 acres of the 81,416 acres of added lands currently support grazing licenses and an additional 27,529 acres are restricted by conservation easements from the initiation of new grazing licenses. With implementation of conservation easements and the HCP commitments that limit the expansion of grazing licenses (GB-NR5 and RZ4), no substantial increases in grazing licenses are expected.

With implementation of existing HCP commitment AQ-GR1, which protects watersheds containing covered aquatic species from grazing related sources of sedimentation, the effects of grazing on sediment delivery are expected to be reduced for the added lands.

Through the HCP's enhanced riparian timber harvest commitments (AQ-RM1), additional analysis for large-scale projects in HCP fish-bearing watersheds (AQ-SD4), and wider riparian buffers implemented through the conservation easement on the Swan and Chamberlain added lands, soil erosion and subsequent sediment delivery associated with timber harvest is expected to be reduced for the added lands.

Overall, some localized adverse effects on soils are likely to occur where existing roads deteriorate over time, new roads are constructed, or culverts are replaced. However, the HCP commitments include continued inventory and corrective action throughout the permit term. Therefore, future road maintenance needs would be discovered and corrected in a timely manner throughout the Permit term. The added lands as a whole would trend toward a reduction in

effects on soils and geology through long-term reductions in sediment delivery as predicted in the 2010 Final EIS for implementation of HCP commitments (USFWS and DNRC 2010, Chapter 4, pp 4- 124 through 4-127). Though the amount of sediment reduction realized might be slightly less for those added lands where corrective actions were implemented under the Native Fish HCP.

**Summary of Effects of the Proposed Action**

The combined effects of the Proposed Action would minimize or reduce sediment erosion and effects on soils and geology over the long term. Section 3.6.1 describes the extent of corrective actions implemented by DNRC since implementation of the 2010 HCP. These same measures would be expanded on 81,416 acres under the Proposed Action. Therefore, the Proposed Action similarly has the potential to reduce sources of sedimentation and minimize or improve soils and geologic conditions.

The SYC under the Proposed Action is within 1.2 percent of the SYC calculated for the 2010 HCP. Therefore, the effects on soils and geological features from rate of harvest under the Proposed Action would be the same or slightly less than those described for the 2010 HCP (Chapter 4, p. 4- 120 to 4-133 of the 2010 Final EIS) though spread across a broader geographic area to encompass the added lands.

Given that only 15.2 miles of new roads would be added to the miles of roads anticipated for the 2010 HCP and the extensive road base (821.7 miles) on the added lands would be subject to the HCP commitments (AQ-SD1 through 5) as well as ongoing corrective actions at stream crossings (AQ-FC1), the Proposed Action overall is expected to reduce the risk of erosion from roads. Acres of grazing licenses are not expected to substantially increase beyond baseline conditions for the 2010 HCP Project Area and added lands given the HCP commitments and conservation easements that limit the expansion of grazing. Therefore, impacts on soils and geologic features from grazing overall would likely remain virtually the same as described in the 2010 Final EIS or improve over the Permit term.

Combined, these factors are expected to reduce sediment erosion and delivery over the amended HCP Project Area, thereby, potential effects on soils and geology would be reduced.

### Effects of the No Action Alternative

Under the No Action Alternative, the effects on geology and soils would be largely the same as those described in the 2010 Final EIS (p. 4-120 to 4-133) for the 2010 HCP-covered lands.

However, the extent of localized impacts on soils and geologic features from increased timber harvest in the Stillwater Block would no longer occur since implementation of the 2015 Settlement Agreement would again close the majority of grizzly bear habitat that was opened to periodic timber harvest under the 2010 HCP. The trends in sediment reduction described for the 2010 HCP in the 2010 Final EIS would be expected to continue.

Due to the existing roaded condition and limitations on roads and grazing licenses related to the conservation easements on a portion of the acquisition lands, substantial increases in road miles, grazing licenses, and any related impacts on soils and geological features are not anticipated for the No Action Alternative on the added lands. Under the No Action Alternative, the Forest Management ARMs, and other applicable regulations described in Section 4.5.1.1 of the 2010 Final EIS would be implemented on the added lands. These measures are also expected to reduce sediment delivery and impacts on soils and geologic features on the added lands.

However, the extent of sediment reduction and timeframe for its achievement anticipated for the 2010 HCP would not necessarily be realized on the added lands. This is because under the No Action Alternative, only the Swan and Chamberlain added lands would be subject to no-harvest buffers and expanded riparian harvest buffers, or have set timeframes to address sediment problem sites.

## 3.7 Water Resources

### *3.7.1 Affected Environment for Water Resources*

The water quality and water quantity conditions described for the 2010 Final EIS planning area (USFWS and DNRC 2010, Chapter 4, pp. 4-135 through 4-148) have not measurably changed over the past six years. Therefore, the affected environment for water resources on the HCP-covered lands including the added lands is largely the same at that described in the 2010 Final EIS.

### *3.7.2 Environmental Consequences for Water Resources*

The effects of a forest management program and associated amended HCP on water resources consider miles and management of roads, acres of grazing licenses, existing sources of sedimentation, and acres of timber harvest.

#### Effects of the Proposed Action

##### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

Implementation of the 2015 Settlement Agreement would generally not change the effects on water resources described in the 2010 Final EIS for the Stillwater Block because the transportation plan and commitments for sediment delivery reduction would remain unchanged.

Some localized improvements in water quality may occur. Bull trout streams in critical habitat may experience improvements sooner than predicted in the 2010 Final EIS, because the timeframe for corrective actions in the Stillwater Block would be shortened by five years as a result of the 2015 Settlement Agreement. Further, limiting timber harvest to the winter period on 22,007 acres of grizzly bear habitat in the Stillwater Block would also reduce the likelihood of sediment delivery from timber harvest, thereby reducing the risk of effects on water quality in this localized area. Restrictions on the construction of new permanent roads on an additional 2,607 acres (19,400 acres under the 2010 HCP and 22,007 acres under the 2015 Settlement Agreement) would also reduce risks of effects on water quality from roads.

##### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

By adding lands to the HCP, these areas would be subject to: 1) limits on timber harvest adjacent to streams (AQ-RM1-2), 2) measures that protect waters from grazing activities (AQ-GR1), and 3) measures that limit the expansion of grazing licenses (GB-NR5 and RZ4), such that the risk of impacts on water quality and water quantity would be reduced.

As described in Section 3.5 Transportation, the added lands are roaded and DNRC does not anticipate the need for substantial increases in miles of roads. Further, as described for Soils and Geology, HCP commitments that reduce the risk of erosion (AQ-SD1 through AQ-SD5) would limit long-term effects on water quality for those added lands supporting HCP fish-bearing

streams. Lastly, conservation easements would apply the following restrictions: 32,996 acres may not exceed established baseline levels of roads; 27,529 acres are restricted from grazing licenses; and wider riparian buffers would be implemented on important HCP fish-bearing streams in the Swan and Chamberlain added lands.

Under the Swan conservation easement, timber harvest and mechanized equipment operation is prohibited within all designated riparian exclusion zones on bull trout streams including South Woodward Creek, Swan River, Goat Creek and Squeezer Creek. The conservation easement also requires that management actions may not result in adverse effects to wetlands. Under the Chamberlain conservation easement, all Class 1 streams require a 120-foot riparian management zone (RMZ), and where applicable the 120-foot RMZ is widened to incorporate the entire CMZ. The Chamberlain conservation easement also requires that management actions may not result in adverse effects on wetlands.

For these reasons, the proposed action is not expected to substantially contribute to water quality impacts. The combined HCP commitments and conservation easement terms would reduce the likelihood of water quality impacts on the added lands. Further, adding lands to the 2010 HCP is expected to improve water quality and quantity conditions as a result of improvements in ongoing sedimentation issues as described in Section 3.6 Geology and Soils.

**Summary of Effects of the Proposed Action**

The 2010 Final EIS determined that implementation of the 2010 HCP on covered lands would reduce the risk of adverse effects on water quality through the HCP commitments that 1) reduce sediment delivery, 2) enhance stream buffers (AQ-RM1-2), 3) limit and monitor grazing (AQ-GR1), and 4) provide enhanced watershed analysis for projects with a high risk of cumulative watershed effects (AQ-CW1). Additionally, the conservation easements restricting activities and expanding riparian buffers would further reduce the risk of adverse effects on water quality. Further, considering that limited miles of new roads are proposed for the added lands and the SYC would remain within 1.2 percent of that associated with the 2010 HCP, the risk of adverse effects on water quality and quantity would likely be reduced.

Therefore, overall, under the Proposed Action, water quality and quantity conditions for the amended HCP project area are anticipated to improve as a result of corrective actions to address ongoing sedimentation issues. No landscape scale adverse effects on water quality or quantity are anticipated under the Proposed Action, though minor localized adverse effects may occur from sedimentation to surface waters at localized level associated with road building and culvert replacement activities at the project level.

#### Effects of the No Action Alternative

Under the No Action Alternative, water quality and quantity conditions would still be expected to improve as a result of corrective actions to address ongoing sedimentation issues conducted by DNRC on the 2010 HCP project area and through the Forest Management ARMs and conservation easements on the added lands. The biggest difference for the No Action Alternative would be that: 1) there is no set timeframe to achieve the benefits of sediment reduction on the added lands and 2) the extent of water quality improvements may be slightly less for the added lands not included in a conservation easement. Areas not included in the conservation easement would not be subject to the HCP commitments for a 50-foot no-harvest buffer or extended buffers for CMZs, and would not have set timeframes to address sediment problem sites on roads, culvert barriers, or grazing corrective actions on HCP fish-bearing streams.

No landscape scale adverse effects on water quality or quantity are anticipated under the No Action Alternative though adverse effects may occur from sedimentation to surface waters at localized level associated with road building and culvert replacement activities.

## 3.8 Plant Species of Concern, Noxious Weeds, and Wetlands

### *3.8.1 Affected Environment for Plant SOC, Weeds, and Wetlands*

Since publication of the 2010 Final EIS, the 2006 Plant Species of Concern publication, identifying vascular plant, bryophyte and lichen Species of Concern (SOC) in Montana was replaced by a web-based report (MNHP 2016). The new report describes 408 plant SOC and 95 plants of potential concern (versus 358 and 133, respectively in 2006). The three federally threatened species identified in the planning area in 2010 remain on the list: Spalding's catchfly

(*Silene spaldingii)*; Ute's ladies tresses *(Spiranthes diluvialis)*; and water howellia (*Howellia aquatilis*). The USFWS completed a five-year review on the status of water howellia in 2013. In that 5-year review process, the USFWS concluded that water howellia was no longer in danger of extinction (or becoming endangered) throughout all or a significant portion of its range. This conclusion was reached because the threats to water howellia identified at the time of ESA-listing have been removed or largely minimized, populations have increased range-wide, and increased habitat protections have been established. This review resulted in a recommendation to delist and develop a post delisting monitoring strategy (81 FR 87246-87272, December 2, 2016). The USFWS is currently undergoing a species review on water howellia.

No other federally listed plants occur in the planning area. Whitebark pine (*Pinus albicaulis*) was identified as a candidate for listing under the ESA in 2011 (76 FR 42631). Whitebark pine is hardy; tolerating poor soils, steep slopes, and windy exposures; and occurs at subalpine elevations to tree line throughout its range (81 FR 87246-87272). On December 15, 2016, the USFWS notified its conservation partners that it would analyze the best scientific and commercial data available on the whitebark pine, and make a determination on whether to propose listing the species under ESA by fiscal year 2019 (81 FR 87246-87272). The manner in which DNRC addresses species of concern and threatened species also has not changed since 2010. That is, DNRC continues to minimize potential impacts to known populations of SOC and listed plants by conducting queries of the MNHP database, identifying populations where present, and incorporating measures in project design that minimize impacts to the species. As described in 2010, one parcel in the 2010 HCP project area in the Swan River State Forest supports federally threatened water howellia. One additional parcel on the Swan added lands supports federally threatened water howellia.

The 2010 Final EIS identified 28 noxious weed species across the state of Montana with potential to occur on DNRC trust lands. The statewide list of noxious weeds now includes 33 species (MDAG 2016). The methods by which DNRC documents and manages noxious weeds are described in the 2010 Final EIS and have not changed.

Like the 2010 HCP project area, the added lands support a variety of riverine, lacustrine, and palustrine wetlands. Given Federal and State regulations that limit actions in wetlands and other

Waters of the U.S., the status of wetlands in the planning area and HCP project area has not changed since publication of the 2010 Final EIS.

### *3.8.2 Environmental Consequences for Plant SOC, Weeds, and Wetlands*

The primary risk for effects on plant SOC, spread of noxious weeds, and wetlands are the amount and location of lands harvested, road building, and grazing acreages.

#### Effects of the Proposed Action

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

**Plant Species of Special Concern -** The 2015 Settlement Agreement will increase the acreage where no new roads are allowed in the Stillwater Block by 2,607 acres, which would reduce the risk of adverse effects on plant SOC for these acreages. Further, limiting timber harvest to the grizzly bear denning season (i.e., winter) for 22,007 acres in the Stillwater Block would avoid adverse effects on SOC plants from timber harvest when compared to the risks described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-163 through 4-167). Risk of impacts on plant SOC for the remainder of the Stillwater Block would remain the same as that described in the 2010 Final EIS. No federally listed plants are expected to occur in the Stillwater Block and no adverse effects are anticipated.

**Noxious Weeds -** Under the 2015 Settlement Agreement, the acreage where no new permanent roads would be allowed in the Stillwater Block will increase by 2,607 acres, which would reduce risk of noxious weed spread. Limiting timber harvest to the grizzly bear denning season (i.e., winter) for 22,007 acres in the Stillwater Block would also greatly reduce the likelihood of noxious weed spread from timber harvest when compared to the risks described for noxious weed spread in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-171 through 4-174). Risk of noxious weed spread for the remainder of the Stillwater Block would remain the same as that described in the 2010 Final EIS.

**Wetlands -** Under the 2015 Settlement Agreement, the acreage where no new permanent roads would be allowed in the Stillwater Block would increase by 2,607 acres, which would reduce risk of wetland impacts for these areas. Limiting timber harvest to the grizzly bear denning

season (i.e., winter) for 22,007 acres in the Stillwater Block would avoid adverse effects on wetlands from timber harvest. Effects on wetlands for the remainder of the Stillwater Block would be the same as those described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4- 178 through 4-180).

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

**Plant Species of Concern -** None of the HCP commitments directly address listed or plant SOC. The DNRC ARMs (36.11.428 and 36.11.436) described in the 2010 Final EIS does address effects on federally listed plants and plant SOC on the added lands. Additionally, some HCP commitments would indirectly benefit or protect listed plants and plant SOC, including the aquatic riparian timber harvest strategy (AQ-RM), spring management restrictions in grizzly bear habitats (GB-NR3, GB-ST1, and GB-SW1), limits on road building and sedimentation risk (AQ-SD1-5, GB-NR1, GB-ST1 and GB-SW1), and enhanced grazing monitoring (AQ-GR1).

The conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands would further reduce the risk of adverse effects on listed and SOC plants for the following reasons: 1) new grazing leases are prohibited on 27,529 acres, 2) increases in road miles above established baselines are prohibited on 29,899 acres, and 3) in the Swan and Chamberlain acquisitions, an expanded no-harvest buffer and avoidance of adverse effects on wetlands are required. With implementation of the ARMs, HCP commitments, and conservation easements, no adverse effects on the population of water howellia on the Swan added lands are anticipated.

**Noxious Weeds -** The DNRC ARMs (36.11.445; 36.25.159) described in the 2010 Final EIS would address noxious weeds on the added lands. Further, some HCP commitments are expected to reduce the risk of noxious weed spread on the added lands, including limitations on roads (AQ-SD1-5, GB-NR1, GB-ST1 and GB-SW1), limited harvest in riparian areas (AQ- RM1), control requirements at gravel pits (GB-PR7), and enhanced grazing monitoring and corrective actions (AQ-GR1). The conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands, which prohibit grazing leases and increases in baseline road miles, and increase the no-harvest buffer in the Swan and Chamberlain would further reduce the risk of noxious weed spread.

**Wetlands -** None of the HCP commitments directly address wetlands. As described in the 2010 Final EIS, implementation of the existing DNRC ARMs (36.11.301 through 313 and 36.11.426) would continue to protect wetlands from forest management activities for the added lands. Additionally, some HCP commitments would indirectly benefit or protect wetlands from forest management activities on the added lands including limitations on riparian timber harvest (AQ-RM1) and commitments that reduce sediment delivery from roads and grazing licenses (AQ-SD2 and AQ-GR1), or limit the expansion of new grazing licenses (GB-RZ4) on wetlands.

The conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands, which prohibit grazing leases and increases in road miles above baseline caps, and both expand the no-harvest buffer and prohibit adverse effects on wetlands in the Swan and Chamberlain, would further reduce the risk of adverse effects on wetlands in these areas.

**Summary of Effects of the Proposed Action**

The combined effects of the Proposed Action would reduce the risk to listed plants and plant SOC, noxious weed spread, and wetlands in the Proposed Action project area slightly more than that described in the 2010 Final EIS (pp. 4-171 through 4-180) because of the expansion of the security zones by 2,607 acres, limiting timber harvest to the grizzly bear denning season (i.e., winter), and existing conservation easements on the added lands.

Therefore, no adverse effects on listed and SOC plants or wetlands are anticipated for the Proposed Action. Further, the Proposed Action is expected to reduce the abundance and risk of spread of noxious weeds.

## Effects of the No Action Alternative

Under the No Action Alternative, the effects of the 2015 Settlement Agreement on listed plants and plant SOC, noxious weed spread, and wetlands would be the same as that described for the Proposed Action. This is because the DNRC ARMs, which would be implemented under the No Action Alternative, are the primary mechanism for reducing the effects of forest management on listed and SOC Plants, noxious weed spread, and wetlands. Further, the conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands that 1) prohibit grazing leases on 27,529 acres, 2) prohibit increases in baseline road miles on 29,899 acres, 3) expand the no-

harvest buffer, and 4) prohibit adverse effects on wetlands would also benefit SOC plant populations and wetlands and decrease the risk of spread of noxious weeds.

# 3.9 HCP-COVERED SPECIES

## *3.9.1 Affected Environment for HCP-covered Fish*

The 2010 Final EIS (Chapter 4, Section 4.8, pages 4-184 through 4-218) and the 2011 Biological Opinion, Chapter IV, Section B and C. describe the affected environment, status, and baseline conditions for the HCP covered fish in the affected environment. Those analyses are incorporated by reference.

**Status of HCP-Covered Fish**

The bull trout population within the lands encompassed in HCP Project Area and added lands in the Proposed Action is contained entirely within the Columbia Headwaters Recovery Unit. The Columbia Headwaters Recovery Unit implementation plan describes the threats to bull trout and the site-specific management actions necessary for recovery of the species within the unit (USFWS 2015). The Columbia Headwaters Recovery Unit is located in western Montana, northern Idaho, and the northeastern corner of Washington. The Columbia Headwaters Recovery Unit is divided into five geographic regions: Upper Clark Fork, Lower Clark Fork, Flathead, Kootenai, and Coeur d'Alene Geographic Regions (USFWS 2015, p. D-2 through D-4). This recovery unit contains 35 bull trout core areas; 15 of which are complex core areas as they represent larger interconnected habitats, and 20 of which are simple core areas as they are isolated headwater lakes with single local populations. The 20 simple core areas are each represented by a single local population, many of which may have persisted for thousands of years despite small populations and isolated existence (USFWS 2015, p. D-1). Fish passage improvements within the recovery unit have reconnected some previously fragmented habitats (USFWS 2015, p. D-1), while others remain fragmented. Unlike the other recovery units in Washington, Idaho and Oregon, this recovery unit does not have any anadromous fish overlap and therefore does not benefit from the recovery actions for salmon (USFWS 2015, p. D-41). The current condition of the bull trout in this recovery unit is attributed to the adverse effects of climate change, historical mining and contamination by heavy metals, expanding populations of

nonnative fish predators and competitors, modified instream flows, migratory barriers (e.g., dams), habitat fragmentation, forest practices (e.g., logging, roads), agriculture practices (e.g. irrigation, livestock grazing), and residential development. Conservation measures or recovery actions implemented include habitat improvement, fish passage improvements, and removal of nonnative species.

Based on annual redd counts completed since 2011, bull trout redds have declined slightly across the core areas within the action area (MFWP 2017). However, trend information since 2011 is difficult to interpret, due to missing counts and other factors; that is, no trend is discernible from the sparse data.

The environmental baseline section of the 2011 biological opinion includes a discussion of the status of whirling disease (*Myxobolus cerebralis*) in relation to the AAUs occupied by the HCP-covered fish (USFWS 2011, Chapter IV, pp. IV-63 through IV-156). That discussion is hereby incorporated by reference.

There is no new information on the status of westslope cutthroat trout since the publication of the 2011 biological opinion. The status and environmental baseline for westslope cutthroat trout in the 2011 biological opinion is incorporated by reference.

### Status of Habitat in the HCP Project Area

Habitat conditions in the 2010 HCP project area for the HCP-covered fish species are largely the same as described in the 2010 Final EIS. Some localized improvements in HCP-covered fish species habitat have occurred since implementation of the HCP commitments. Section 3.6 Geology and Soils of this Supplemental EIS, describes the actions completed by DNRC since implementation of the 2010 HCP to address erosion and sediment delivery to streams. Additionally, the net miles of roads in the HCP project area have decreased by 25.2 miles (Table 3.2). The acres of grazing licenses have not changed in the HCP project area since publication of the 2010 Final EIS (DNRC 2015b).

## Status of Habitat on the Added Lands

The 2010 Final EIS described fish habitat in terms of aquatic analysis units (AAUs). Each AAU is approximately analogous to one or more bull trout primary core area as described in the Final Bull Trout Recovery Plan (USFWS 2015). The AAUs are used in this Supplemental EIS analysis to assess effects on habitat and fish populations within the context of the geographic watershed rather than at the DNRC land office or other administrative unit boundary.

The added lands contain 11.7 stream miles of bull trout habitat and 49.2 stream miles of westslope cutthroat trout habitat in five of the AAUs analyzed in the 2010 Final EIS: Blackfoot, Upper Clark Fork, Middle Clark Fork, Swan, and Bitterroot (Table 3-4). The added lands would add 46 acres to a sixth AAU, the Middle Kootenai. However, there are no HCP fish-bearing streams within these 46 acres and this AAU is not further discussed. As described in Section 3.5 Transportation of this Supplemental EIS, the added lands support an extensive road system.

Under current conditions within HCP fish habitat, there are a total of 52.4 miles of existing road within 300 feet and 76 crossings of HCP fish-bearing streams on the added lands (Table 3-4). Of the 76 stream crossings, a total of 35 occur in fish habitat (i.e., fish must pass through these culverts to access upstream and downstream habitat). The remaining stream crossings are in areas that do not provide immediate habitat, but rather are in headwaters or tributaries to downstream habitat. Upon acquisition of the lands, all 35 culverts in fish habitat were inventoried for barriers. A total of 15 culverts were identified as barriers to passage and to date, 6 of these have been replaced or removed. Four of the corrective actions occurred on the Potomac added lands, one on the Chamberlain added lands, and one on the Swan added lands. Also on the added lands, there are 17,936 acres of grazing licenses affecting 22.6 miles of HCP fish-bearing streams (Table 3-4).

| Table 3-4. Existing and Proposed HCP-Covered Fish Species Habitat Conditions on the Added Lands by Aquatic Analysis Unit. | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Added lands (AAU)** | **Miles of Road within 300' of an HCP Fishery** | **Number of Stream Crossings on HCP Fishery** | **Fish Passage Barriers** | **Grazing License Acres Supporting HCP Fishery** | **Miles of HCP fishery with grazing licenses** | **Miles of Bull Trout Streams** | **Miles of WCT Streams** |
| **Swan** | | | | | | | |
| **(Swan)** | 7.1 | 13 | 4 | 0 | 0 | 7.6 | 10. |
| **Chamberlain** | | | | | | | |
| **(Blackfoot)** | 17.7 | 24 | 0 | 0 | 0 | 2.6 | 11. |
| **Potomac** | | | | | | | |
| **(Blackfoot)** | 20.4 | 31 | 9 | 15,537 | 19.3 | 0.9 | 20. |
| **(Upper Clark Fork)** | 3.9 | 4 | 1 | 1,406 | 2 | 0 | 2.5 |
| **Blackfoot** | | | | | | | |
| **(Blackfoot)** | 1.8 | 1 | 0 | 790 | 1.1 | 0 | 1.1 |
| **Lolo Land Exchange** | | | | | | | |
| **(Upper Clark Fork)** | 0 | 0 | 1 | 0 | 0 | 0.0 | 2.5 |
| **(Middle Clark Fork)** | 1.1 | 1 | 0 | 203 | 0.2 | 0.6 | 1.5 |
| **Bitterroot** | | | | | | | |
| **(Bitterroot)** | 0.4 | 2 | 0 | 0 | 0 | 0 | 2.2 |
| **Total** | **52.4** | **76** | **15** | **17,936** | **22.6** | 11.7 | 49. |

## Bull Trout Critical Habitat

The Swan, Potomac, and Lolo added lands support 7,646 acres of bull trout critical habitat (Table 3-5).

**Table 3-5. Acres of Bull Trout Critical Habitat on the Added lands.**

| Location of the Added Lands | Critical Habitat (acres) |
|---|---|
| Swan | 6,055 |
| Potomac | 1,348 |
| Lolo Exchange | 243 |
| **Totals** | **7,646** |

Critical habitat provides the physical and biological features that are essential to the conservation of bull trout and that may require special management considerations or protection (ESA). These features are the physical and biological features (PBFs) laid out in the appropriate quantity and spatial arrangement for conservation of the species. The PBFs for bull trout are those habitats components that are essential for the primary biological needs of foraging, reproducing, rearing of young, dispersal, genetic exchange, or sheltering (75 FR 63898). The PBFs for bull trout designated critical habitat are:

1 Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.

2 Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including, but not limited to, permanent, partial, intermittent, or seasonal barriers.

3 An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

4 Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.

5 Water temperatures ranging from 2 to 15 C (36 to 59 F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.

6 In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the- year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.

7 A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departures from a natural hydrograph.

8 Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

9 Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

### *3.9.2 Environmental Consequences for HCP-covered Fish*

The 2010 Final EIS (Chapter 4, Section 4.8.4, pages 4-247 through 4-303) and the 2011 Biological Opinion, Chapter IV, Section D. describe the effects of the HCP and Permit issuance on HCP-covered fish. These analyses are incorporated by reference.

#### **Effects of the Proposed Action on HCP-covered Fish**

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The 2015 Settlement Agreement would require DNRC to complete corrective actions by 2024 on the Stillwater Block on sites with high risk of sediment delivery to waters identified in bull trout critical habitat. This is three years sooner than required by the 2010 HCP. Therefore, sediment delivery

reduction would be achieved sooner in some localized areas of the Stillwater Block for waters identified as bull trout critical habitat.

The 2015 Settlement Agreement would limit forest management in the grizzly bear security zones that were opened to increased commercial harvest under the 2010 HCP. Therefore, localized adverse effects from sediment delivery associated with reactivated roads, timber harvest, and potential associated soil movement, would be largely avoided. The reduced likelihood of harvest in the security zones in combination with the HCP riparian timber harvest commitments would ensure recruitment of large woody debris to stream channels to support habitat complexity and maintenance of stream-side shade and stream temperatures.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

The 2010 Final EIS assessed the effects of the HCP on the various habitat components that comprise healthy, productive fish habitat: sediment delivery, complexity, temperature and shade, and connectivity. The effects on these habitat components for the added lands are examined below.

#### Sediment Delivery

Forest management activities on the added lands have the potential to generate sediment delivery to streams from roads, stream crossings, grazing licenses, and timber harvest. With implementation of the HCP commitments on the added lands, the risk of sediment delivery to HCP fish-bearing streams is reduced as described below.

**Road Surface Sediment Production.** There are 821.7 miles of existing roads on the added lands (Table 3-3). Of these, 224 miles are within 300 feet of a stream and 52 miles are within 300 feet of an HCP fish-bearing stream (Table 3.4). Hence, the proportion of roads within 300 feet of a stream supporting HCP fish species on added lands (6.3 percent) is less than the 2010 HCP project area (9 percent). All added lands have undergone some level of road inventory (Appendix E). Of the roads inventoried on the added lands, 95 percent met current standards for BMPs to address the risk of sediment delivery and 5 percent did not meet BMPs. Using a subsample that includes the 150 miles of road located on the Chamberlain added lands (which represents 18 percent of the total roads on the added lands), DNRC determined that approximately 2 percent of the roads have moderate or high risk of sediment delivery and are in need of corrective action. Thus, the portion of roads in need of

corrective actions is also similar to the 2010 HCP project area (3 percent). Therefore, the sediment delivery risks and conditions on the added lands are within the range of those analyzed in the 2010 Final EIS.

**Table 3-6. Proposed roads within 300 feet and proposed culverts on HCP fish-bearing streams.**

| Location of the Added Lands (AAU) | Proposed Condition | | |
|---|---|---|---|
| | Proposed Roads within 300' of an HCP Fishery | Proposed New Stream Crossings | Proposed New Roads |
| **Swan** | | | |
| **(Swan)** | 2.25 | 9 | |
| **Chamberlain** | | | |
| **(Blackfoot)** | 0.25 | 1 | |
| **Potomac** | | | |
| **(Blackfoot)** | 0.75 | 3 | 0.75 |
| **(Upper Clark Fork)** | 0.25 | 1 | 0.25 |
| **Blackfoot** | | | |
| **(Blackfoot)** | 0.25 | 1 | 0.25 |
| **Lolo Land Exchange** | | | |
| **(Upper Clark Fork)** | | 0 | |
| **(Middle Clark Fork)** | 0.50 | 2 | 13.75 |
| **Southern Bitterroot** | | | |
| **(Bitterroot)** | 0.25 | 1 | 0.25 |
| **Total** | **4.5** | **18** | **15.25** |

Extensive road building would not be required for the added lands. As identified in Section 3.5 Transportation and evidenced in (Table 3-2), the added lands are already roaded. Additionally, 26,802 acres of the added lands (specifically within the Swan and Chamberlain added lands) are limited to no net increase in baseline road miles, and new roads on 3,097 acres of the Upper Blackfoot added lands are subject to approval by USFWS. While this does not mean that roads cannot be constructed, it does limit the likelihood of extensive new roads such that DNRC anticipates only 15.25 miles of new roads would be needed with 13.75 miles specifically located on the Lolo added lands. Approximately 1.0 miles of new road would be located on the Potomac added lands, 0.25 miles of new road would be located on the Upper Blackfoot added lands, and the remaining 0.25

miles of new road on the Bitterroot added lands (Table 3-6). Further, DNRC may also reduce roads in riparian areas. Under the multi-resource management plans for the Swan conservation easement and the standards for forest management for the North Chamberlain conservation easement, DNRC will coordinate with MFWP to reduce roads in riparian management zones.

DNRC would limit the construction of new roads within 300 feet of HCP fish-bearing streams to circumstances where new stream crossings are proposed or existing crossings would be replaced and realigned. Therefore, DNRC anticipates it would need approximately 4.5 miles of new road within 300 feet of HCP fish-bearing streams. As described in the HCP commitments, when constructing new roads, DNRC will design and implement site-specific BMPs and other mitigation measures to reduce the risk of sediment delivery to HCP fish-bearing streams to the maximum extent practicable.

The implementation of the HCP commitments for reduction of sediment delivery (AQ-SD1 through AQ-SD5) on the added lands would contribute to the overall net reduction in sediment delivery for the affected AAUs as described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-256 through 4-257). However, implementation of BMPs on existing roads would not eliminate all sediment delivery to HCP fish-bearing streams. Therefore, although reduced by implementation of 2010 HCP commitments on the added lands, some adverse effects on HCP fish-bearing streams within 300 feet of roads are likely to occur at some time over the Permit term for the added lands.

There are 15 culverts that are barriers to fish passage on the added lands. Under the 2010 HCP fish connectivity commitments, all barriers will be replaced or removed over the Permit term. As culverts are replaced or removed and new culverts are added, there will be an associated pulse of sediment input that could cause short-term adverse effects on fish resulting in displacement from the vicinity of the culvert project.

**Grazing -** Implementation of the HCP grazing strategy (AQ-GR1) on the added lands would provide enhanced measures and timeframes (i.e., grazing licenses inspected on a 5-year cycle, field verification completed within one year of coarse-filter evaluations, corrective actions for

severe problem sites completed within the same grazing season, corrective actions for high priority sites completed within 1-year of verification) to address grazing issues generating sediment delivery to HCP fish-bearing streams. Corrective actions would be developed on a site-specific basis best

suited to the circumstances involved. In many cases, corrective action would simply require enforcement of existing grazing license terms and conditions. In other cases, changes to the grazing license, such as carrying capacity, season of use, or installation of improvements would be used if determined to be appropriate or necessary. Frequently, stream grazing exclosures are used to address more sensitive stream habitat or higher levels of impact. There are currently 11 different stream grazing exclosures protecting approximately 2.66 miles of HCP fish-bearing streams that are maintained by DNRC on the Potomac acquisition parcels. The numerical guidelines for riparian forage and browse utilization, and streambank disturbance levels is expected to minimize the loss of riparian vegetation and physical damage to stream banks, maintain channel stability and channel morphological characteristics, and promote diverse and healthy riparian plant communities.

There are 27,529 acres on the Swan and Chamberlain added lands prohibited from grazing. Therefore, no adverse effects on sediment delivery from grazing would occur on these lands. The benefits of the HCP would be realized for the AAUs with the highest amount of HCP fish habitat within lands with grazing licenses: Blackfoot, Middle and Lower Clark Fork AAUs (Table 3-4). These AAUs have the most parcels (acreage) with grazing licenses; these parcels also have the highest stream miles with HCP-covered fish species (Table 3-4). Nevertheless, on the 22.6 miles of stream where cattle have direct access to HCP fish habitat, adverse effects on the HCP-covered species are likely to occur in the form of sediment delivery to streams.

**Timber Harvest, Site Preparation and Slash Treatment -** The effects of timber harvest and associated activities on sediment delivery to streams occur primarily through soil disturbance and subsequent erosion. The 2010 Final EIS concluded that the existing SMZ Law and rules, ARMs, Montana Forestry BMPs, and DNRC forest management policies are generally effective at minimizing soil disturbance from activities associated with timber harvest; thus, timber harvest is not a significant source of sediment delivery to HCP fish-bearing streams. Adding the HCP commitments to the added lands would increase the no-harvest buffer for HCP fish-bearing stream to 50 feet. Further, as described in Chapter 2, Section 2.1.2, the riparian timber harvest buffer on the Swan and Chamberlain added lands would be wider, providing additional capacity to filter sediments prior to delivery to streams.

**Gravel Pits -** There are no large, active pits on the added lands, though there are some small borrow

sites and there are 4 large pits that could be activated on the Swan added lands. The 2010 Final EIS stated that DNRC would design and implement site-specific BMPs and other mitigation measures to reduce the risk of sediment delivery to streams affecting HCP fish species from all gravel pits. Specifically, a DNRC water resource specialist would make recommendations that would be integrated into the development of contract specifications, permits, and Plans of Operation in order to minimize the risk of sediment delivery. Further, under the 2010 HCP commitment AQ-SD5, gravel pits are prohibited within SMZs or RMZs. Therefore, gravel pits are not expected to generate significant sediment delivery to streams supporting HCP-covered fish species on the added lands.

**Sediment Delivery Summary –**. Under the Proposed Action, on the added lands, sediment delivery issues would be inventoried and prioritized and required to be addressed within a specific timeframe. This enhanced approach, along with enhanced measures and specified timeframe to address grazing issues, and increased width of riparian buffers would reduce sediment delivery to HCP fish-bearing streams on the added lands. The greatest reductions are likely to occur where there is overlap between the highest number of stream miles with HCP- covered fish and the highest mileage of roads within 300 feet of streams, highest number of stream crossings, and/or most acreage of grazing licenses. Timber harvest is considered to be equally likely to occur for all lands. Therefore, the biggest benefits of the HCP on the added lands would be realized in the Blackfoot AAU, followed by the Swan AAU, and the Upper and Middle Clark Fork AAUs (Table 3-4). DNRC expects to build 13.75 miles of new roads on the Lolo added lands (Upper and Middle Clark Fork AAUs). Just 4.5 miles are expected within 300 feet of an HCP fish-bearing stream for new crossings. Despite the anticipated reduction in sediment delivery, HCP-covered fish-bearing streams within 300 feet of roads and some streams within grazing licenses are likely to suffer adverse effects from sediment delivery at some time over the HCP term either from new construction, culvert replacement or removal, damage to channel form and function, or natural events that generate sediment delivery. Increased sediment loading to rivers and streams results in filled pools, substrate embeddedness, increased turbidity, and deterioration of in-stream habitat. Sediment effects on spawning, rearing, overwintering, and migratory habitats may occur such that HCP-covered fish species are unable to meet their feeding, breeding, and/or sheltering needs. The miles of roads within 300 feet and the number of culvert crossings of an HCP fish-bearing stream on the added lands is low (Table 3-6).

Nevertheless, a single storm event or above-normal spring runoff has the potential to deliver above

background sediment levels to an HCP fish-bearing stream especially from those road segments located within 300 feet of a stream or at culvert stream crossings. In turn, adverse impacts to HCP fish species due to sediment increases could potentially occur by filling pools, increasing turbidity, and deteriorating in-stream habitat which would degrade spawning and rearing habitat or impair normal feeding, breeding, and sheltering behavior.

**Habitat Complexity**

In-stream habitat complexity is directly influenced by stream-side recruitment material (i.e., large woody debris [LWD]) and integrity of vegetation adjacent to streams). As previously stated, the added lands are expected to support healthy streamside forests from past implementation of the Plum Creek Native Fish HCP on the Swan, Potomac, and Upper Blackfoot added lands and implementation of SMZ laws for the remainder of the added lands.

Implementing the DNRC HCP riparian timber harvest commitments and grazing strategy would maintain the integrity of habitat complexity for HCP fish-bearing streams. The effects of the HCP on LWD recruitment for the added lands (with the exception of the Swan, which is discussed below) are represented in the 2010 Final EIS model by the Dingley Creek, Gird Creek, and Beaver Creek - Rosgen Class A, Class B, and Class D, F, G scenarios. Based on the modeling results, implementation of the HCP on the added lands would meet and/or exceed LWD target levels for the duration of the Permit term for all modeled scenarios (USFWS and DNRC 2010, Chapter 4, pp. 4-272 through 4-274, Figures 4.8-11 through 4.8-13). The 2010 Final EIS model used a 25-foot no-harvest buffer because at the time of the model run, the HCP commitment (AQ-RM1) was a 25-foot no-harvest buffer. The no-harvest buffer was increased from 25 feet to 50 feet between the draft and final HCP. Therefore, the increased no-harvest buffer combined with the enhanced riparian timber harvest requirements for the Chamberlain added lands (described in Section 2.1.2 of this Supplemental EIS) mean that HCP fish-bearing streams on the added lands and affected AAUs are even more likely to meet or exceed LWD target levels for the duration of the Permit term.

The availability of LWD recruitment to streams on the added lands is expected to maintain habitat complexity for HCP fish-bearing streams in the affected AAUs: Blackfoot, Bitterroot, Upper Clark Fork, and Middle Clark Fork.

HCP fish-bearing streams in the Swan River State Forest are represented in the 2010 Final EIS model by South Lost Creek. On the Swan added lands, HCP fish-bearing streams are managed under a conservation easement requiring a wider no-harvest buffer. Therefore, on the Swan added lands, HCP fish-bearing streams are expected to achieve results similar to those in the 2010 Final EIS for Alternative 3, which included a wider no-harvest buffer. Based on the Alternative 3 modeling results, LWD target levels in the South Lost Creek system were met for the duration of the permit term for Rosgen Class A, D, F, and G streams. For Rosgen Class B streams, LWD target levels would be met immediately following harvest and again at year 45. The availability of LWD recruitment to streams on the added lands is expected to maintain habitat complexity for HCP fish-bearing streams in the Swan AAU.

The HCP allows for the management of a portion of the total Class 1 RMZ acreage using harvest prescriptions designed to meet the minimum retention tree requirement of the SMZ Law. This allowance is limited by the amended HCP in extent and scope to 20 percent of any one AAU, and by the riparian buffers in the conservation easements for the Chamberlain added lands and South Woodward Creek, Swan River, Goat Creek, and Squeezer Creeks for the Swan added lands. Therefore, the limited management that could occur in the RMZ on the added lands is not expected to have a substantial effect on LWD recruitment overall.

The Potomac and Upper Blackfoot added lands support active grazing licenses. The amended HCP grazing commitments are expected to maintain habitat complexity in HCP fish-bearing streams by minimizing impacts to streamside riparian vegetation that is accessible to livestock within the grazing allotment, enhanced monitoring, and specific timeframes for addressing corrective actions.

**Temperature and Shade**

The added lands (with the exception of the Swan, which is discussed below) are represented in the 2010 Final EIS model analysis for effects on streamside shade and water temperatures by the Dingley Creek, Gird Creek, and Beaver Creek - Rosgen Class A, Class B, and Class D, F, G scenarios for a total of 9 scenarios. The 2010 Final EIS estimated that implementation of the 2010 HCP commitments for riparian timber harvest is expected to retain about 80 percent of the basal area in the RMZs of Class 1 streams, including full retention of a 50-foot no-harvest buffer, and the same is anticipated for the added lands that are not protected by conservation easements (USFWS and DNRC

2010, Chapter 4, p. 4-281). In all modeled stand and channel type scenarios, the shade levels resulting from the implementation of the HCP commitment AQ-RM1 increased or were maintained throughout the Permit term (USFWS and DNRC 2010, Chapter 4, p. 4-282 through 4-284, Figure 4.8-14 through 4.8-16). Therefore, as concluded in the 2010 Final EIS, with implementation of the HCP there would be no measurable changes in-stream temperatures on HCP fish-bearing streams from DNRC timber harvest on the added lands. The enhanced riparian buffer on the Chamberlain added lands provides additional assurances that stream temperatures would not increase as a result of timber harvest.

HCP fish-bearing streams in the Swan River State Forest are represented in the 2010 Final EIS model by South Lost Creek. On the Swan added lands, HCP fish-bearing streams are managed under a conservation easement as described in this Supplemental EIS (Chapter 2, Section 2.1.2). Therefore, on the Swan added lands, HCP fish-bearing streams are expected to achieve results similar to those presented in the 2010 Final EIS for Alternative 3, which provided a similar, wider no-harvest buffer. Based on the Alternative 3 modeling results, the combination of the HCP commitments with the conservation easement requirements, would increase or maintain shade levels for all modeled scenarios in the Swan River State Forest (USFWS and DNRC 2010, Chapter 4, p. 4-282 through 4-284, Figure 4.8-14 through 4.8-16). Therefore, implementation of the HCP on the Swan added lands is expected to maintain stream temperature for those systems supporting HCP fish-bearing streams.

The HCP allows for the management of a portion of the total Class 1 RMZ acreage (20 percent of any one AAU) using harvest prescriptions designed to meet the minimum retention tree requirement of the SMZ Law. This allowance would be limited in extent and scope by the terms of the HCP and by the riparian buffers for the Chamberlain conservation easement and for South Woodward Creek, Swan River, Goat Creek, and Squeezer Creek in the Swan conservation easements. Therefore, limited management in the RMZ for some added lands is not expected to affect levels of streamside shade or stream temperatures.

**Connectivity**

Upon acquisition, DNRC inventoried all culverts in HCP fish-bearing streams on the added lands to identify fish passage barriers. A total of 15 barriers were identified on the added lands; six barriers were subsequently replaced or removed. With implementation of the HCP on the added lands, all

culverts creating barriers to connectivity would be removed or replaced with functional culverts in accordance with commitment AQ-FC1 within the original timeframes contained in the 2010 HCP. None of the remaining culvert barriers represent priority 1 barriers. Therefore, under the terms of the HCP, the barriers on the added lands would be replaced by 2042. DNRC anticipates that it would remove or replace the culverts within the timeframe of the 2010 HCP (by year 2042). Until such time, impacts on westslope cutthroat trout would include ongoing lack of access to habitat upstream of culverts. The HCP commitment requires that the fish passage assessments be ongoing and updated throughout the Permit term. The habitat connectivity commitment (AQ-FC1), in combination with AQ-SD2 (which requires DNRC to identify and correct road stream crossings with a high risk of sediment delivery), would result in the timely correction of problem sites for the duration of the permit term on the added lands and affected AAUs. Therefore, habitat connectivity would improve on the added lands, potentially re-establishing fish access to historical habitat areas or increasing overall fish habitat.

DNRC anticipates the installation of 18 new road crossings on HCP fish-bearing streams (Table 3-7). In addition to new crossings, some existing culverts on the added lands may fail over the Permit term and require replacement or removal (the estimated average functional life of a culvert is about 35 years). New culvert installations would be designed using current stream crossing criteria, design, and installation procedures. The specific impacts to the HCP fish species from the proposed 18 new crossings are unknown, because their precise locations cannot be determined at this time. These new culverts would be installed on streams with least bull trout or westslope cutthroat trout and in accordance with the HCP commitments to maintain passage. Nevertheless, some percentage of future culvert installations on the added lands could potentially become problem sites for connectivity in the future. Using an estimate of 38 percent of new culverts that could potentially become problem sites for connectivity during the Permit term (USFWS 2011, Chapter IV, p. IV-257 through IV-258), approximately seven of the proposed new culverts could require additional correction or replacement over the Permit Term. This figure may be inflated because new culvert installations maintain successful fish passage at a much higher rate due to better stream crossing criteria, design, and installation procedures.

**Table 3-7. Status of Fish Passage Culverts on the Added lands.**

| Aquatic Analysis Unit | Total Culvert Crossings | Total Culverts in HCP Fishery | Culverts Inventoried as Potential Barriers | Culverts Identified as Fish Passage Barriers | Number of Culverts Already Replaced | Proposed New Crossings |
|---|---|---|---|---|---|---|
| **Blackfoot** | 481 | 60 | 22 | 10 | 5 | 5 |
| **Bitterroot** | 3 | 2 | 0 | 0 | 0 | 1 |
| **Upper Clark Fork** | 0 | 4 | 3 | 1 | 0 | 1 |
| **Middle Clark Fork** | 38 | 1 | 0 | 0 | 0 | 2 |
| **Swan** | 182 | 13 | 10 | 4 | 1 | 9 |
| **Total** | **704** | **76** | **35** | **15** | **6** | **18** |

**Summary of Effects of the Proposed Action**

Sediment delivery from roads within 300 feet, from grazing management, and from culverts that obstruct fish passage in HCP fish-bearing streams could result in adverse impacts on HCP- covered fish species. These adverse effects include habitat modifications from sediment that fills spawning gravels or increases turbidity and culverts that prohibit access to habitat.

Implementation of the HCP on the added lands would minimally increase the risk of incidental take of bull trout and westslope cutthroat trout associated with sediment delivery from 4.5 miles of new roads within 300 feet of HCP fish-bearing streams, 22.6 miles of HCP fish-bearing streams where cattle have direct access to the stream channel, 18 new crossings on HCP fish- bearing streams, and the potential for some existing culverts on the added lands to fail over the Permit term.

Implementation of the HCP on the added lands would offset these adverse effects by the HCP commitments to reduce sedimentation from roads and grazing licenses, and remove or replace culverts that block fish passage. Total sediment production for all HCP-covered lands would be reduced by 10 percent at each 10-year review. New roads on the added lands (15.25 miles total) would be constructed with BMPs to reduce the risk of new sources of sediment delivery. On grazing licenses, DNRC would continue to inspect and monitor conditions and implement a new coarse filter monitoring system to identify problem areas, develop corrective actions, and monitor for implementation and effectiveness. All new culvert installations would be designed to simulate natural streambed form and function. All existing barriers on the added lands would be replaced over the permit term (9 in total; 6 were already replaced). All new installations would be monitored to ensure

passage is achieved.

Overall, the Proposed Action is expected to benefit the HCP-covered fish species by reducing sediment delivery and protecting the integrity of riparian vegetation, which would contribute to the maintenance of habitat complexity and stream temperature. The Amended HCP could also increase HCP-covered fish access to habitats presently blocked by culvert barriers.

**Sediment Delivery -** Sediment delivery from roads within 300 feet, from grazing management, and from culvert replacements in HCP fish-bearing streams could result in adverse impacts on HCP-covered fish species. These adverse effects include habitat modifications from sediment that fills spawning gravels or increases turbidity. Implementation of the HCP on the added lands would minimally increase the risk of incidental take of bull trout and westslope cutthroat trout associated with sediment delivery from 4.5 miles of new roads within 300 feet of HCP fish- bearing streams, 22.6 miles of HCP fish-bearing streams where cattle have direct access to the stream channel, 18 new crossings on HCP fish-bearing streams, and the potential for some existing culverts on the added lands to fail over the Permit term.

However, these adverse effects are offset by the long-term net reduction in sediment delivery to HCP fish-bearing streams predicted in the 2010 Final EIS. Under the Proposed Action, sediment delivery issues would be inventoried and prioritized and required to be addressed within a specific timeframe. This enhanced approach along with enhanced measures and specified timeframe to address grazing issues, and increased width of riparian buffers would reduce sediment delivery to HCP fish-bearing streams on the added lands.

**Habitat Complexity -** Implementation of the riparian timber harvest strategy under the Proposed Action is expected to provide for natural rates of LWD recruitment over the Permit term. The 50-foot no-harvest buffer adjacent to the stream channel and the higher concentration of retained trees next to this buffer ensure the attainment of target LWD rates as demonstrated in the 2010 Final EIS model and discussed above. Also, LWD recruitment from windthrow and bank erosion can be important sources of in-stream LWD, which were not encompassed in the model. Further, the wider riparian buffers on a portion of the Chamberlain and Swan added lands were also not considered in the model. Given that the model results attained target LWD and combined with the provisions described above,

implementation of the Proposed Action is expected to provide more than adequate habitat complexity for HCP fish-bearing streams on the HCP-covered lands, including the added lands. No adverse effects on habitat complexity from DNRC's riparian timber harvest strategy under the Proposed Action are expected during the Permit term.

The HCP allows for the management of a portion of the total Class 1 RMZ acreage (20 percent of any one AAU) using harvest prescriptions designed to meet the minimum retention tree requirement of the SMZ Law. This allowance would not occur on a portion of the Swan or Chamberlain added lands. Even with the allowance, the model indicates that it is not expected to have a substantial effect on LWD recruitment on streams within the HCP project area.

Implementation of the HCP grazing strategy is expected to minimize loss of riparian vegetation, minimize physical damage to stream banks, maintain channel stability and channel morphological characteristics, and promote diverse and healthy riparian plant communities, which contributes LWD and channel complexity. Protecting streambanks and streamside riparian vegetation from damage caused by livestock is necessary in order to maintain adequate streambank vegetation that provides stream bank stability and instream cover for HCP fish species. The enhanced measures and the specific timeframes (i.e., grazing licenses inspected on a 5-year cycle, field verification completed within one year of coarse-filter evaluations, corrective actions for severe problem sites within the same grazing season, and corrective actions for high priority sites within one year of verification) to address grazing issues would ensure that grazing management practices under the Proposed Action are effective at maintaining channel complexity.

**Stream Temperature and Stream-side Shade** - For the same reasons discussed above, there would be no measurable change in stream temperatures on HCP fish-bearing streams from DNRC timber harvest under the Proposed Action. Implementation of the riparian timber harvest strategy on the added lands is expected to maintain stream temperature for those systems supporting HCP fish-bearing streams. Furthermore, DNRC has implemented a monitoring program to measure any changes in-stream temperature as a way to verify model outputs and has committed to ensuring there would be no more than a $1^0$ F increase in-stream temperature from existing levels. Therefore, under the Proposed Action, no adverse effects on stream temperature from timber harvest are anticipated for the added lands.

Implementation of the grazing strategy under the Proposed Action is expected to minimize potential loss of riparian vegetation and physical damage to stream banks, maintain channel stability and channel morphological characteristics, and promote diverse and healthy riparian plant communities. Under the Proposed Action, it is expected that habitat degraded by past grazing impacts will improve faster when compared to the No Action Alternative and that stream temperatures suitable for HCP fish species will be maintained over the Permit period.

**Connectivity -** The Proposed Action will address all the fish passage barriers caused by existing failed culverts on forest roads. Proposed new culverts, including an additional 18 locations on the added lands, would be installed consistent with the HCP connectivity strategy (AQ-FC1).

Most of these new stream crossings would likely utilize culvert installations. To verify that connectivity is achieved, all culverts replaced under the Amended HCP would be monitored for post-installation effectiveness at years 2, 5 and 10, as well as after large flood events. These monitoring requirements provide assurances that the fish connectivity goals are met.

Therefore, it is expected that under the Proposed Action, fish passage barriers will be removed and conditions for HCP-covered fish on the added lands will improve over time, primarily by slightly increasing available habitat. As culverts are replaced or removed there will be an associated pulse of sediment input that could cause short-term adverse effects on fish and habitats in the vicinity of the culvert project. The work would be limited to the time period when HCP fish are least likely to be present in the affected reach. The long-term benefits of increased access to habitat would outweigh the short-term adverse effects from sediment inputs. Because of the extended time period over which culverts barriers will be fixed, some adverse effects on HCP fish species would remain until all corrective actions are completed. These effects would be less compared to the No Action Alternative due to the specified timeframes within which corrective actions must be completed under the Proposed Action.

### Effects of the Proposed Action on Critical Habitat

The analysis of effects of the Proposed Action addresses the key habitat factors required to sustain the HCP-covered fish species. These habitat factors are related to the PBFs for bull trout critical habitat (Table 3-8). The Proposed Action described the potential for increased sediment delivery for

HCP fish-bearing streams where roads are within 300 feet of streams, culverts are replaced or removed, or for stream segments within grazing licenses. Increased risk of sediment delivery could generate adverse effects on food sources (PBF 3) by filling the spaces between gravels and rocks with sediment that aquatic macroinvertebrates inhabit. Sediment delivery that fills the spaces between gravels and rocks similarly eliminates spawning/rearing areas (PBF 6). Increased sediment delivery could also affect PBF 8 by reducing water quality and clarity. However, for the remainder of the amended HCP project area, anticipated long-term reduction of sedimentation to bull trout streams would also serve to maintain spawning/rearing areas, improve migratory habitat, and enhance food source production.

**Table 3-8. Relationship of Key Habitat Factors Addressed in the HCP to Critical Habitat PBFs.**

| PBF | HCP Key Habitat Factor | | | |
|---|---|---|---|---|
| | Stream-side Shade and Temperature | Connectivity | Sediment Reduction | Habitat Complexity/ Large Woody Debris |
| 1.Groundwater sources | | | | |
| 2.Migration habitat | | X | | |
| 3.Abundance of food | | X | X | X |
| 4. Complex systems | | | | X |
| 5.Temperature | X | | | |
| 6. Spawning and rearing areas. | | X | X | X |
| 7.Flow, hydrograph | X | | | |
| 8. Water quality and quantity | X | | X | |
| 9. Nonnative, predatory species | | X | | |

Implementation of the HCP commitments would also ensure target levels of large woody debris are met, stream form and function are met and stream temperatures are maintained (PBF 4, 5, and 7). Culvert barriers on streams that limit the occurrence or spread of nonnative predatory species provide a benefit to PBF 9. Culvert barriers on streams that limit connectivity would generate adverse effects by limiting access to migration habitats (PBF 2), food sources (PBF 3), or spawning/rearing areas (PBF 6). The Proposed Action would remove or replace culvert barriers improving access and potentially increasing availability of food sources and spawning/rearing areas.

## Effects of the No Action Alternative

Under the No Action Alternative, the effects of forest management on the key habitat factors for the HCP-covered fish would be addressed by the DNRC Forest Management ARMs. However, the measures in the ARMs applied to the acquisition lands, not to be added to the HCP under this alternative, could be revised over time at DNRC's discretion by following procedures required under the Montana Administrative Procedures Act.

### Sediment Delivery

The No Action Alternative would similarly generate a net reduction in sediment delivery to HCP fish-bearing streams for both the 2010 HCP lands and the added lands, which would not be added to the HCP under this alternative, through implementation of Forest Management ARMs pertaining to roads, grazing, riparian buffers, stream crossings, and application of sediment BMPs on new roads. These measures would reduce sediment delivery to streams from existing roads and grazing licenses over the long term.

However, the results would take longer to achieve on the acquisition lands because the ARMs do not use the 2010 HCP's specified timeframe to implement inventory and corrective actions as required under the Proposed Action.

### Habitat Complexity

Under the No Action Alternative, the 2010 HCP lands are expected to achieve LWD recruitment levels that support habitat complexity for HCP fish-bearing streams. The enhanced riparian buffer commitments in a portion of the Swan and Chamberlain conservation easements would similarly achieve LWD recruitment levels that support habitat complexity for HCP fish-bearing streams. Implementation of the DNRC ARMs on the remaining added lands, not to be added to the HCP under this alternative, would decrease LWD recruitment levels compared to the Proposed Action. Though, in general, the DNRC ARMs are effective at maintaining adequate LWD levels within most stand and stream channel types. On two of the nine modeled scenarios, LWD recruitment targets would not be met for 30 of the 50-year HCP term. Because the 2010 Final EIS model did not assume the contribution of LWD from windthrow and bank erosion, the results may underestimate the total amount of in-stream LWD provided.

Implementation of the DNRC ARMs for grazing on the added lands is expected to maintain riparian characteristics that contribute LWD and channel complexity. However, when issues arise, the No Action Alternative would not implement the enhanced measures or timeframes of the 2010 HCP that require corrective actions within a specific period of time, which may result in adverse effects on HCP-covered fish species habitat persisting for a longer period of time until adequately addressed.

**Stream Temperature and Stream-side Shade**

Under the No Action Alternative, the 2010 HCP lands are expected to maintain stream temperatures and improve stream-side shade as a result of the riparian timber harvest strategy and its 50-foot no-harvest buffer. The enhanced riparian buffer commitments in the conservation easements on the Swan and Chamberlain added lands would similarly maintain stream temperatures and improve stream-side shade for HCP fish-bearing streams. Implementation of the DNRC ARMs on the remaining added lands is also expected to maintain stream temperatures (USFWS and DRNC 2010, Chapter 4, p. 4-281). However, as demonstrated in the 2010 Final EIS modeled scenarios, the amount of shade is expected to initially decrease for all modeled streams, with shade increasing at approximately year 20. Without the stream temperature monitoring required under the Proposed Action, there would be no way of ensuring that forest management activities did not generate measurable changes in HCP fish-bearing streams on the added lands.

Therefore, under the No Action Alternative there is no mechanism to ensure that impacts on stream temperature do not occur.

**Connectivity**

Under the No Action Alternative, the 2010 HCP lands are expected to maintain and enhance connectivity on the HCP fish-bearing streams as described for the No Action Alternative in the 2010 Final EIS (Chapter 4, p. 4-289). Under the No Action Alternative on the added lands, connectivity would gradually improve but culverts on HCP fish-bearing streams would not be subject to specific timeframes within which they must be replaced or removed. Therefore, the expected improvements in connectivity would take longer to achieve under the No Action Alternative than under the Proposed Action.

## Effects of the No Action Alternative on Critical Habitat

As described above for sediment reduction, the expected improvements in sediment reduction would take longer to achieve under the No Action Alternative, affecting PBFs 2, 3, 6, and 8 (migration habitats, abundance of foods, spawning and rearing areas, and water quality and quantity). Similarly, the expected improvements in connectivity would also take longer to achieve under the No Action Alternative, affecting PBFs 2, 3, and 9 (migration habitats, abundance of foods, and low occurrence of nonnative predatory species, respectively).

### *3.9.3 Affected Environment for Canada Lynx*

The 2010 Final EIS (Chapter 4, Section 4.9.4.1, pp. 4-356 through 4-366) and the 2011 Biological Opinion, Chapter IV, Section B and C describe the affected environment, status, and baseline conditions for the HCP covered fish. Those analyses are incorporated by reference.

This section provides an update on the status of Canada lynx, habitat in the HCP project area considered in the 2010 Final EIS, and habitat on the added lands.

#### Status of Canada Lynx

On January 11, 2018, the USFWS completed its scientific review of the Canada lynx in the contiguous United States (USFWS 2018. The review concluded that the Canada lynx may no longer warrant protection under ESA and should be considered for delisting due to recovery.

In Montana, from 1998 to 2015, 320 individual lynx were detected (Squires 2015). From 2002 to 2010, only 9 individual lynx were confirmed in the Garnet Range; 4 individual females, and 5 individual males (J. Zelenak, USFWS, pers. comm. 10/24/2017). More recent evidence (Squires 2015) suggests that fewer lynx may occur in the Garnet Range. However, in 2016, tracks of one individual were noted (J. Zelenak, USFWS, pers. comm. 10/24/2017) and additional survey efforts are planned.

#### Status of Lynx Habitat in the HCP Project Area

The primary risk factors for lynx as updated in the Lynx Assessment and Conservation Strategy (revised in 2013) are climate change, vegetation management, and wildfire management (Interagency

Lynx Biology Team 2013). The DNRC HCP addresses the primary risk factor for lynx on DNRC lands: vegetation management. Because forested lands are used to generate revenues for the trust beneficiaries, wildfires are aggressively suppressed on DNRC lands.

The baseline amount of Canada lynx habitat in the HCP project area was updated in 2012, the first year of the HCP implementation (Appendix F: 2012 Baseline Data Update). Canada lynx habitat as reported in DNRC's 2015 annual report is summarized for the LMAs and scattered parcels in Table 3-9 and Table 3-10, respectively.

| Table 3-9. Lynx Habitat in the LMAs in the HCP Project Area (2015). | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Habitat Class** | **Acres and Percentage OF Lynx Habitat by LMA (Land Office)** | | | | | | | | | | | |
| | **Stillwater West (NWLO)** | | **Stillwater East (NWLO)** | | **Coal Creek (NWLO)** | | **Swan (NWLO)** | | **Seeley Lake Area** | | **Garnet Area (SWLO)** | |
| **Winter Foraging Habitat** | 17,955 | 51% | 21,487 | 63% | 5,805 | 44% | 19,858 | 55% | 1,809 | 41% | 1,040 | 29% |
| **Summer Foraging Habitat** | 10,114 | 29% | 5,979 | 18% | 2,180 | 17% | 4,847 | 13% | 286 | 6% | 211 | 6% |
| **Other Suitable Habitat** | 3,524 | 10% | 2,870 | 8% | 1,677 | 13% | 3,657 | 10% | 777 | 17% | 1,809 | 50% |
| **Suitable Habitat Subtotal** | 31,593 | 90% | 30,336 | 89% | 9,662 | 74% | 28,362 | 78% | 2,872 | 65% | 3,060 | 85% |
| **Temporary Non-Suitable Habitat** | 3,337 | 10% | 3,691 | 11% | 3,402 | 26% | 7,784 | 22% | 1,575 | 35% | 533 | 15% |
| **Total Potential Lynx Habitat** | 34,930 | 91% | 34,027 | 93% | 13,064 | 86% | 36,146 | 91% | 4,447 | 45% | 3,593 | 48% |
| **Non-Habitat** | 3,644 | 9% | 2,628 | 7% | 2,166 | 14% | 3,507 | 9% | 5,478 | 55% | 3,923 | 52% |
| **DNRC Total Acres** | **38,574** | **100%** | **36,655** | **100%** | **15,230** | **100%** | **39,653** | **100%** | **9,925** | **100%** | **7,516** | **100%** |

| Table 3-10. Lynx Habitat on Scattered Parcels in the HCP Project Area (2015). | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Habitat Class** | **Existing Lynx Habitat Acres and Percentage by Habitat Class** | | | | | | |
| | **NWLO** | | **SWLO** | | **CLO** | | **Total** |
| **Winter Foraging Habitat** | 40,931 | 63% | 10,871 | 44% | N/A | N/A | 51,802 |
| **Summer Foraging Habitat** | 5,278 | 8% | 2,393 | 10% | 2,805 | 8% | 10,476 |
| **Other Suitable Habitat** | 10,756 | 16% | 6,423 | 26% | 24,708 | 71% | 41,887 |
| **Suitable Habitat Subtotal** | 56,965 | 87% | 19,687 | 80% | 27,513 | 79% | 104,165 |
| **Temporary Non-Suitable Habitat** | 8,344 | 13% | 4,969 | 20% | 7,195 | 21% | 20,508 |
| **Total Potential Lynx Habitat** | 65,309 | 47% | 24,656 | 18% | 34,708 | 31% | 124,673 |
| **Non-Habitat** | 74,918 | 53% | 113,134 | 82% | 78,478 | 69% | 266,530 |
| **Total Acres** | **140,227** | **100%** | **137,790** | **100%** | **113,186** | **100%** | **391,203** |

## Status of Lynx Habitat on the Added Lands

Lynx habitat on the added lands is summarized in Table 3-10. The added lands would add 16,446 acres to the Swan LMA, of which 14,659 acres are total potential lynx habitat. The added lands contain 1,417 acres of total potential lynx habitat within the existing DNRC Garnet LMA. Lastly, the added lands would increase total potential lynx habitat on scattered parcels by 13,366 acres. Three of the added lands contain lands that lie within the existing lynx critical habitat boundary. The acreage of lynx critical habitat on the added lands is 56,014 acres (Table 3-11).

**Table 3-11. Acres of Lynx Total Potential Habitat and Critical Habitat on the Added lands.**

| Location of the Added Lands | Swan LMA | Garnet LMA | Scattered Parcels | Critical Habitat |
|---|---|---|---|---|
| **Swan** | 14,659 | 0 | 0 | 11,355 |
| **Chamberlain** | 0 | 1,083 | 3,494 | 14,534 |
| **Potomac** | 0 | 334 | 5,151 | 30,125 |
| **Upper Blackfoot** | 0 | 0 | 977 | 0 |
| **Lolo Exchange** | 0 | 0 | 2,516 | 0 |
| **Southern Bitterroot** | 0 | 0 | 235 | 0 |
| **Totals** | | **1,417** | **13,366** | **56,014** |

The following sections provide an update on the status of five attributes of lynx habitat in the HCP project area that were considered in the 2010 Final EIS: 1) habitat suitability, 2) den site attributes, 3) CWD and snag retention, 4) foraging habitat attributes, and 5) habitat connectivity.

### Habitat Suitability

As demonstrated by annual monitoring (Table 3-9 and Table 3-10), the HCP commitments have maintained suitable lynx habitat within the LMAs and scattered parcels in the 2010 HCP project area above required thresholds (i.e., 65 percent of total potential habitat) (DNRC 2016). Suitable habitat in the LMAs ranges from 65 percent for the Seeley LMA to 90 percent for the Stillwater West LMA (Table 3-9). Total suitable habitat for scattered parcels ranges from 79 to 87 percent (Table 3-10).

Under the Proposed Action, the HCP project area would increase in the Garnet and Swan LMAs (Table 3-12). The addition of lands to the Swan LMA would increase the subtotal of suitable habitat in the LMA by 9 percent and winter foraging habitat by 1 percent compared to that

reported in DNRC's 2015 annual report (Table 3-9). The addition of lands to the Garnet LMA would decrease the subtotal of suitable habitat by 4 percent, but increase winter foraging habitat by 7 percent compared to that reported in DNRC's 2015 annual report (Table 3-9).

| Table 3-12. Acres of Lynx Habitat and Percent of Total Potential Habitat for the Amended | | | | |
|---|---|---|---|---|
| **Lynx Habitat Type** | **Swan LMA** | | **Garnet LMA** | |
| | **Acres** | **Percent of Total Potential Habitat** | **Acres** | **Percent of Total Potential Habitat** |
| **Winter Foraging** | 28,509 | 56 | 1,492 | 36 |
| **Summer Foraging** | 8,010 | 16 | 241 | 6 |
| **Other Suitable** | 4,858 | 10 | 1,844 | 45 |
| **Subtotal** | 41,376 | 81 | 3,577 | 87 |
| **Temporary Nonsuitable** | 9,612 | 19 | 533 | 13 |
| **Total Potential Habitat** | **50,988** | **100** | **4,110** | **100** |

The added lands would increase total potential lynx habitat on scattered parcels by 12,373 acres. Table 3-13 shows the amount of lynx habitat on DNRC scattered parcels for the 2010 HCP summed for the three land offices, and the amount of lynx habitat on scattered parcels for the amended HCP (which includes the added lands).

| Table 3-13. Acres of lynx habitat on scattered parcels outside of LMAs in the 2010 HCP and the | | | | |
|---|---|---|---|---|
| **Lynx Habitat Type** | **2010 HCP (2015 Reporting Year)** | | **Amended HCP** | |
| | **Acres** | **Percent of Total Potential Habitat** | **Acres** | **Percent of Total Potential Habitat** |
| **Winter Foraging** | 51,802 | 42 | 58,757 | 43 |
| **Summer Foraging** | 10,476 | 8 | 14,539 | 11 |
| **Other Suitable** | 41,887 | 34 | 43,601 | 32 |
| **Subtotal** | 104,165 | 84 | 116,897 | 85 |
| **Temporary Nonsuitable** | 20,508 | 16 | 21,142 | 15 |
| **Total Potential Habitat** | **124,673** | **100** | **138,039** | **100** |

## Den Site Attributes, CWD, and Snag Recruits

DNRC monitoring for den site attributes, first reported in 2012 (USFWS 2011, Chapter III, p.III-69) and finalized in 2013, showed that the DNRC Forest Management ARMs and HCP commitments resulted in conditions that provide adequate den sites for lynx on DNRC timber harvest units, and that den site features occur at a frequency of greater than 1 site per acre on forested and logged sites. Therefore, the added lands are expected to similarly provide adequate den sites for lynx. Prior to acquisition by DNRC, all but one of the acquisition areas were

managed more intensively for timber

harvest by the previous owners. However, the added lands are expected to provide adequate den sites due to the following factors: natural frequency of potential den site features on the landscape, Montana SMZ law that requires legacy tree retention in SMZs (implemented by all land managers), current prevalence of insect-killed and windthrown trees, and large scale of lynx home ranges.

### Foraging Habitat

As demonstrated by annual monitoring to date (Appendix F. Lynx 2012 Baseline Tables), the HCP commitments have maintained winter foraging habitat within the LMAs above required thresholds (20 percent of total potential habitat) in the HCP project area (DNRC 2016). Winter foraging habitat in the LMAs ranges from 29 percent for the Garnet LMA to 63 percent for the Stillwater East LMA (Table 3-9).

With the addition of lands to the Swan and Garnet LMAs, winter foraging habitat represents 56 percent and 36 percent of total potential habitat in the LMAs, respectively (Table 3-12). This is within 4 and 6 percent, respectively, of the acreages for the baseline of HCP implementation (Appendix F, Lynx 2012 Baseline Tables). Therefore, for the 2010 HCP project area and added lands, winter foraging habitat for lynx is available and above required thresholds.

### Habitat Connectivity and Linkage

Squires et al. (2013) modeled lynx movements that indicated lynx selected home ranges at mid-elevations with low surface roughness, high canopy cover, and little open grassland vegetation. They found that connectivity between lynx habitat in Canada and the conterminous U.S. is facilitated by only a few putative corridors that extend south from the international border. They identified a primary lynx corridor from Canada that extends from the Whitefish Range, along the western front of the Swan Range ending near Seeley Lake and a second corridor along the east side of Glacier National Park to the Bob Marshall Wilderness Complex. Under the Proposed Action, some lands added to the Swan LMA and existing HCP-covered lands occur within this modeled corridor.

The 2010 Final EIS describes lynx connectivity and linkage habitat as linear features such as ridges, saddles, and riparian zones, and an abundance of forested cover; although, the literature contains many examples of lynx crossing large, unforested openings (as cited in USFWS and DNRC 2010, Chapter 4, p. 4-365). Tables 3-9 and 3-10 demonstrate the abundance of habitat at various stages of forest and cover development and therefore linkage and connectivity for lynx movements in the HCP project area.

Further, the 2010 HCP aquatic timber harvest commitments (AQ-RM1) that protect the integrity of riparian areas, vegetative screening requirements for grizzly bears (GB-PR6 and GB-RZ2), and limits on harvest unit size in grizzly bear habitats (GB-NR4) all help protect the integrity of the HCP project area for linkage and connectivity of habitats for lynx.

The added lands support forested stands in a variety of successional stages contributing to the existing mosaic of lynx habitat. The Swan, Potomac, and Upper Blackfoot acquisition areas were previously managed under the Plum Creek Native Fish HCP prior to their acquisition by DNRC. The Plum Creek Native Fish HCP established 25-foot no-harvest buffers on HCP fish-bearing streams and under certain conditions expanded those buffers. Therefore, the riparian areas on these lands and the Lolo Land Exchange acquisition, which was managed by the USFS for listed species conservation, support riparian corridors for Canada lynx linkage and habitat connectivity.

#### Critical Habitat

The status of critical habitat designation for lynx is provided in Section 2.1.2 of this final Supplement EIS. The 2010 HCP described 175,127 acres of lynx critical habitat on covered lands. These lands have since been removed from critical habitat designation. Three of the acquisition areas contain lands that lie within the existing lynx critical habitat boundary. Therefore, 56,014 acres of the added lands are currently designated lynx critical habitat.

### *3.9.4 Environmental Consequences for Canada Lynx*

The 2010 Final EIS (Chapter 4, Section 4.9.4.2, pp. 4-366 through 4-380) and the 2011 Biological Opinion, Chapter III, Section D describe the effects of the HCP and Permit issuance on Canada lynx. Those analyses are incorporated by reference.

## Effects of the Proposed Action

### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The Stillwater Block supports the Stillwater West, Stillwater East, and Coal Creek LMAs. The status of lynx habitat in these LMAs in presented in Table 3-9.

Implementing the 2015 Settlement Agreement would not change the overall effects on lynx described for the 2010 HCP in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-366 through 4-380). The 2010 Final EIS identified the potential for adverse effects on Canada lynx from the HCP commitment to maintain 20 percent of total potential habitat as winter foraging habitat in the LMAs. Adverse effects were attributed to the potential reduction of the existing abundance of winter foraging habitat (which was reported at 71 percent in the Stillwater East LMA, 57 percent in the Stillwater West LMA, and 49 percent in the Coal Creek LMA in the 2012 baseline updates ([DNRC 2013]) to 20 percent under the 2010 HCP. Because the 2015 Settlement Agreement would limit DNRC's ability to access 22,007 acres of established grizzly bear security zones for the purpose of timber harvest, the rate at which the reduction in winter foraging habitat would occur, due to timber harvest in the Stillwater Block, may be slightly reduced.

There is no critical habitat in the Stillwater Block; therefore, no effects on critical habitat would occur from incorporating the 2015 Settlement Agreement in the HCP.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

The HCP commitments for lynx are applied in lynx habitat on scattered parcels and in LMAs. The benefits of adding lands to the HCP include: providing habitat connectivity for dispersal, and maintaining a continuum of forested stands in various structural stages that support snowshoe hare populations in areas of known (or high likelihood of) lynx population on DNRC lands. The sections below describe the effects on lynx from adding lands to the HCP for scattered parcels and LMAs.

#### Effects for Scattered Parcels

The added lands support 13,366 acres of total potential lynx habitat on scattered parcels outside

of LMAs. Because lynx occur at low densities and occupy large home ranges, it can be difficult to achieve conservation benefits for lynx on small parcels of land (USFWS 2007:47, as cited in [USFWS and DNRC 2010, Chapter 4, p. 4-370]). Nevertheless, implementing the HCP commitments on scattered parcels on the added lands to address the key habitat attributes for lynx would primarily benefit dispersing lynx, lynx roaming beyond the normal home range in search of food, or lynx occupying habitat in scattered parcels within lynx home ranges centered on adjacent federal lands. The commitments are expected to support a continuum of forested stands in various structural stages that support snowshoe hares, provide habitat connectivity and patches of foraging habitat, and add to the habitat on adjacent federal lands where ownership patterns allow.

**Effects for LMAs**

The LMAs are high priority areas to promote lynx conservation into the future, because they currently support lynx populations or are likely to periodically provide habitat for dispersing lynx (DNRC 2010, Chapter 2, p. 2-53). The Amended HCP would add 1,417 acres to the Garnet LMA. The Garnet LMA supports a persistent population of lynx and includes lands owned by BLM, DNRC, and University of Montana Lubrecht Experimental Forest. Therefore, adding lands to the HCP is expected to benefit lynx by providing greater habitat stability by maintaining a continuum of forested stands in various structural stages for the lynx population in this location during the remainder of the HCP Permit term. This is achieved through the LMA commitments that require that 65 percent of total potential lynx habitat be maintained as suitable habitat across the LMA (LY-LM1), limit the conversion of lynx suitable habitat over each 10-year period in the LMA (LY-LM3), and require that at least 20 percent total potential lynx habitat be maintained as lynx winter foraging habitat across the LMA (LY-LM2).

The Amended HCP would add 16,466 total acres to the Swan LMA, of which 14,659 acres are total potential lynx habitat. This addition would create an area of more contiguous management for lynx in the Swan River State Forest. As described for the Garnet LMA, this would provide greater habitat stability by providing a continuum of forested stands in various structural stages for lynx for the remainder of the HCP Permit term. Additionally, the increased acreage in the Swan LMA would allow DNRC to look at a broader landscape for management planning. Hence,

timber sales could be planned to more effectively link habitat patches, increase the size of habitat retention areas, and link movement corridors on adjacent timber sale units, which would all improve habitat linkage and connectivity. Under the Proposed Action, lands added to the Swan LMA would provide certainty that suitable habitat conditions would persist in this area should observed use by lynx occur in the presumed corridor described by Squires et al. (2013). Overall, the addition of lands to both LMAs is expected to benefit lynx populations in these locations.

**Effects on Summer Foraging Habitat in the LMAs**

Summer foraging habitat for lynx include dense sapling stands and moderately to densely stocked poletimber stands within suitable lynx habitat that possess horizontal cover. Some harvest units on the Potomac added lands in the Garnet LMA were thinned prior to acquisition by DNRC, and many were subsequently thinned by DNRC or are targeted for thinning during the next decade. Most stands on the Chamberlain added lands in the Garnet LMA (1,083 acres) were logged during the last several decades and now possess healthy stands of young conifer saplings and pole-sized timber providing lynx summer foraging habitat. Some of these units will require pre-commercial thinning within the first 20 years of HCP implementation, which would temporarily reduce the availability of summer foraging habitat for lynx on the added lands.

As described in Chapter 3, many of the harvest units on the Swan added lands are well-stocked or over-stocked; though just 16 percent of the LMA supports summer foraging habitat. These units would likely require pre-commercial thinning within the first 20 years of HCP implementation, which could temporarily reduce the availability of summer foraging habitat for lynx on the added lands.

The reduction of summer foraging habitat on the added lands in both LMAs is not expected to result in adverse effects on lynx because winter foraging habitat (not summer foraging habitat) is likely the predominant limiting factor for lynx, and the application of the HCP commitments would limit the amount of habitat reduction that could occur by 1) retaining 20 percent of thinning units in an unthinned condition (LY-LM3[2]), 2) limiting the overall conversion of lynx habitat (LY-LM2), and 3) retaining 65 percent of suitable habitat (LY-LM1). Given the dynamic nature of stands considered to be summer foraging habitat, a continuum of this habitat type is expected to be available in the LMAs over the Permit term.

### Effects on Winter Foraging Habitat in the LMAs

Adding lands to the Garnet LMA would increase winter foraging habitat to 1,492 acres, which is 36 percent of total potential habitat in the LMA (Table 3-12). This is a 6 percent increase in winter foraging habitat from that reported in the 2012 HCP baseline year (which was 30 percent at that time) and 7 percent more than reported in the 2015 annual update (DNRC 2013, 2016). Adding lands to the Swan LMA would increase winter foraging habitat by 8,651 acres to a current total of 28,506 acres.

This represents 56 percent of total potential habitat in the LMA (Table 3-12). This is a similar proportion to that reported for the LMA in the 2012 HCP baseline year (which was 60 percent at that time), and one percent more than reported for the LMA in the 2015 annual update (DNRC 2013, 2016).

### Effects on Other Habitat Attributes in the LMAs

The HCP lynx strategy on the LMAs also requires retention of den site attributes (LY-HB2), prohibits disturbance at known den sites (LY-HB4), and provides for habitat connectivity. Habitat connectivity and linkage is achieved through the habitat suitability requirements, as well as commitment LY-HB5, which requires a connected network of suitable habitat along riparian areas, ridge tops, and saddles.

HCP grizzly commitments for limits on harvest unit size, retention of vegetative screening, and the aquatic riparian strategy for no-harvest buffers would also contribute to lynx habitat connectivity on the added lands and existing HCP lands in the LMAs.

### Summary of Effects of the Proposed Action

#### *Summary of Effects on Scattered Parcels*

The Proposed Action would increase the DNRC land base managed to sustain lynx habitat. Applying the HCP commitments that require maintenance of suitable habitat on additional lands on scattered parcels would contribute to effective lynx habitat and a snowshoe hare prey base over a larger landscape meaningful to lynx. Overall, these measures would provide greater assurances for the retention of suitable lynx habitat on DNRC lands on scattered parcels

compared to the No Action Alternative. The HCP measures and increased availability of habitat would benefit lynx by facilitating habitat connectivity and linkage and providing cover and foraging opportunities for dispersing lynx, lynx roaming beyond their normal home range in search of food, or lynx occupying lands where scattered parcels occur within lynx home ranges centered on adjacent federal lands supporting lynx populations.

### *Summary of Effects on LMAs*

Overall, the Proposed Action promotes the conservation of lynx and their habitat through implementation of conservation commitments on an expanded land base. Adopting the Amended HCP would also promote lynx conservation through DNRC's implementation of compatible forest management practices, monitoring and adaptive management programs, maintenance of the habitat mosaics on the landscape, and provision of habitat structures for den sites. The Proposed Action would add lands to the Swan and Garnet LMAs, which would benefit lynx by increasing the amount of land maintained as suitable and foraging habitat for lynx in these areas of known or high likelihood of lynx occurrence.

Under the Amended HCP, the HCP commitments would require higher amounts of foraging habitat in the LMAs than the No Action Alternative. The LMA commitments maintaining 65 percent of total potential lynx habitat as suitable habitat, maintaining 20 percent of total potential lynx habitat as winter foraging habitat, and capping the amount of suitable habitat that can be converted per decade to nonsuitable habitat ensures that a continuum of young forest and mature suitable habitat are present on the landscape over time. These measures would also ensure that DNRC LMAs provide the landscape mosaic of habitat conditions needed for snowshoe hare production and lynx foraging habitat.

As discussed in the Final EIS and BO (USFWS 2011, Chapter III, p. III-59 through III-60) due to the large size of most of the LMAs and abundance of potential habitat within them, 20 percent of total potential habitat in LMAs maintained as winter foraging habitat would adequately sustain snowshoe hare densities to support lynx recruitment. Under the HCP, 65 percent of total potential habitat is retained as suitable habitat. Up to 35 percent of the forest in an LMA could be in early- to mid-seral conditions. This commitment supports a balance of stands in various structural stages, ensuring sustainability of lynx habitat within the HCP project area over the

long term. Additionally, as described above, some existing harvested stands in the HCP project area would continue to grow into winter foraging habitat throughout the Permit term, thereby replacing a portion of the annual loss of winter foraging habitat in some years.

Finally, four of the LMAs lie within portions of LAUs and two (the Stillwater LMAs) are adjacent to federal LAUs. Reduction in winter foraging habitat is largely prohibited by the management strategy for lynx on Federal lands in the planning area, which contributes to the adequacy of winter foraging habitat in these broader areas. The juxtaposition of LAUs and LMAs, and the lynx habitat management on both, would provide connectivity and larger expanses of suitable lynx habitat across which lynx would find habitat and occupy home ranges.

Winter foraging habitat is the primary limiting factor for lynx. Under the Amended HCP, the current abundance of winter foraging habitat in the Swan and Garnet LMAs could potentially be reduced over the remainder of the HCP term (40 percent reduction for the Swan LMA and a 16 percent reduction for the Garnet LMA). Individual projects that treat substantial amounts of multistoried winter foraging habitat in LMAs and/or the cumulative reduction in winter foraging habitat over the Permit term may result in adverse effects on lynx accustomed to the abundance of winter foraging habitat in the area.

The likelihood of adverse effects and the number of individuals affected is limited because the acres treated will be tracked and monitored for the Permit duration and if DNRC reaches the 20 percent threshold for winter foraging habitat in LMAs it would seek non-lynx habitat stands for harvest.

Summer foraging habitat for snowshoe hares is not limiting in the HCP project area. However, pre-commercial thinning by DNRC would affect regenerating stands with high stem densities and horizontal structure extending above snowpack during the winter, which provide winter snowshoe hare habitat. Lynx typically do not successfully forage in these areas given the high stem densities, but these areas are important for their contribution to overall snowshoe hare productivity on the landscape. Thus, thinning these stands may have adverse effects on lynx by reducing the availability of snowshoe hares on the landscape at the time of treatment. Thinning younger stands could reduce the amount of dense stands that will grow to supply winter forage

and cover in the future.

The potential for adverse effects on lynx from pre-commercial thinning would be low due to DNRC's operational constraints that limit the acres the agency can reasonably thin on an annual basis and the HCP commitments that: 1) retain 20 percent of thinning units in LMAs in an unthinned condition (LY- LM3; LY-HB4), 2) retain a component of shade tolerant tree species important for developing horizontal cover in regenerating stands (LY-HB4), and 3) accelerate development of multi-storied stands in LMAs and on scattered parcels (LY-LM3). Further, DNRC estimated that the acres treated annually would likely be replaced by habitat growing into summer foraging habitat across the HCP project area annually (USFWS 2011, Chapter III, p. III-62). Nevertheless, depending upon site-specific conditions (e.g., where snowshoe hare habitat is lacking or densities are low), pre-commercial thinning could reduce dense young stands that protrude above the snowpack and provide winter habitat for snowshoe hares, or reduce the amount of stands growing into winter snowshoe hare habitat resulting in adverse effects on lynx.

Overall, the Proposed Action would benefit lynx in the Garnet and Swan LMAs by promoting the conservation of lynx and their habitat through implementation of 2010 HCP commitments on an expanded land base. Adopting the Amended HCP would also promote lynx conservation through DNRC's implementation of compatible forest management practices, monitoring and adaptive management requirements, maintenance of habitat mosaics on the landscape, and provision of habitat structures for den sites. Limited adverse effects may occur where there are substantial reductions in foraging habitats supporting high densities of snowshoe hare, the primary prey for lynx. These effects may result in failure to breed or decreased recruitment of kits.

### Effects of the Proposed Action Alternative on Critical Habitat

The designation of critical habitat includes a description of the known PBFs of lynx habitat essential to the conservation of the species. For lynx, the PBF is boreal forest landscapes supporting a mosaic of differing successional forest stages and containing the following elements: a) a presence of snowshoe hares and their preferred habitat conditions, b) winter snow conditions that are generally deep and fluffy for extended periods of time, c) sites for denning that have abundant CWD, and d) matrix habitat that occurs between patches of boreal forest in

close juxtaposition such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range (79 FR 54782).

The key attributes of lynx habitat addressed by the HCP commitments encompass the PCEs attributes for critical habitat. The Proposed Action covered activities include timber harvest within lynx critical habitat on the added lands. The Proposed Action commitments for retention of Canada lynx suitable habitat within LMAs and on scattered parcels (LY-LM1 and LY-HB6) address the overall physical and biological feature essential to lynx: sustaining boreal forest landscapes supporting a mosaic of differing successional forest stages. These HCP commitments would maintain the function of these areas for lynx conservation. Lynx researchers have not conclusively determined how much foraging habitat lynx require within their home ranges (PCE 1a). The following HCP commitments address PBF 1a (habitat for snowshoe hares): 1) retain 20 percent of total potential lynx habitat in LMAs as winter foraging habitat and 2) retain 20 percent of thinning units in an unthinned condition (LY-LM3). Other HCP commitments that address PBF 1a include limits on the amount of lynx habitat conversion per decade in LMAs (LY-LM2), and requirements that pre-commercial thinning units retain small, shade-tolerant trees and patches of advanced regeneration of shade-tolerant tree species (LY-HB4).

These commitments provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover, accelerating the development of multi-storied stands, and expediting the development of future foraging habitat. Nevertheless, reductions in winter foraging habitat would likely result in adverse effects on PBF 1a within critical habitat on the added lands. Given the dynamic nature of the covered activities, the effects are partially offset by the forested acreage growing into winter foraging habitat and DNRC's commitment to retain 20 percent of total potential habitat as winter foraging habitat in the LMAs.

The covered activities under the Proposed Action would not affect PBF 1b (winter snow conditions) within critical habitat on the added lands. The HCP commitments for den site attributes and CWD would address PCE 1c (sites for denning that have abundant CWD) within critical habitat on the added lands. No adverse effects on den site attributes or CWD would occur under the HCP; no adverse effects on PCE 1c are expected. Monitoring by DNRC found adequate den sites for lynx on DNRC timber harvest units at a frequency of greater than one

potential site per acre on forested and logged sites (as cited in USFWS 2011, Chapter III, p. III-69).

The following are expected to provide adequate habitat connectivity to sustain Canada lynx movements and dispersal: 1) the mosaic of habitats provided by the HCP commitments, 2) tree retention along linear features (LY-HB5), 3) the 50-foot no-harvest buffer along HCP fish-bearing streams (AQ-RM1), 4) vegetative screening requirements for grizzly bears (GB-PR6 and GB-RZ2), and 5) limits on harvest size units in grizzly bear habitats (GB-NR4). Therefore, no adverse effects on PBF 1d (matrix habitat) are expected within critical habitat on the added lands.

### Effects of the No Action Alternative

The No Action Alternative would maintain lynx habitat as described in the 2010 Final EIS for the 2010 HCP project area. On the added lands, managing lynx habitat on scattered parcels under the existing ARMs would: 1) retain 10 percent of lynx habitat as mature or young foraging habitat, 2) delay thinning in young foraging habitat stands, 3) maintain CWD, and 4) maintain habitat connectivity. The ARMs would maintain areas of suitable habitat, foraging habitat, connectivity, and cover. Thus, implementing the ARMs would benefit dispersing lynx, lynx roaming beyond their normal home range in search of food, or lynx living where scattered parcels occur within lynx home ranges centered on adjacent federal lands that also provide habitat for lynx. These ARMs would also apply to the added lands in the Garnet LMA. However, the No Action Alternative would not be as beneficial to lynx as the Proposed Action because there would be: 1) no minimum percentage of required suitable lynx habitat to be maintained, 2) a lower required amount of foraging habitat to be maintained, and 3) less certainty that the mosaic of habitats required by lynx would be available in the Garnet LMA over time.

The ARMs would retain 10 percent of total lynx habitat in the grizzly bear BMUs overlapping the Swan added lands as a mixture of mature foraging and young foraging habitat. This would support the Swan LMAs by maintaining some lynx foraging habitat. However, there would be no minimum percentage of required suitable lynx habitat and therefore, less certainty that the mosaic of habitats would be linked and connected in the Swan LMA.

Effects of the No Action Alternative on Critical Habitat

Approximately 56,014 acres associated with the Swan, Chamberlain, and Potomac added lands lie within the current lynx critical habitat boundary. Under the No Action Alternative, implementation of the Forest Management ARMs for retention of Canada lynx denning habitat

would address the overall physical and biological feature essential to lynx (i.e., boreal forest landscapes supporting a mosaic of differing successional forest stages). These measures include: 1) CWD and snag retention, delayed 2) thinning in young foraging habitat, 3) retention of 10 percent of total lynx habitat as mature or young foraging habitat within grizzly bear BMU subunits, and 4) maintenance of habitat connectivity for all projects containing lynx habitat. Implementing these measures would also address PBF 1a.

DNRC's forest management program would not affect PBF 1b. The ARMs for den site attributes and CWD would address PBF 1c, including retention of snags and snag recruits, and maintaining adequate amounts of CWD in harvest units. The ARMs are expected to provide adequate habitat connectivity for Canada lynx, which would address PBF 1d. The ARMs that address connectivity include the SMZ law and those that require DNRC to consider habitat connectivity when assessing lynx habitat, minimize new road construction, and obliterate unnecessary roads in lynx habitat.

### *3.9.5 Affected Environment for Grizzly Bear*

The 2010 Final EIS (Chapter 4, Section 4.9.3.1, pp. 4-303 through 4-320) and the 2011 Biological Opinion, Chapter II, Section B and C. describe the affected environment, status, and baseline conditions for the grizzly bear. Those analyses are incorporated by reference. This section provides an update on the status of grizzly bears, habitat in the HCP project area considered in the 2010 Final EIS, and habitat on the added lands.

**Status of Grizzly Bears**

The status of grizzly bears in the CYE has improved since publication of the 2011 Biological Opinion. The USFWS determined in 1999 that grizzly bears in the CYE warranted a change to endangered status, but were precluded from up-listing due to other higher priorities. However,

for several recent years this population's status has been improving, and the USFWS determined in 2014 that the CYE population no longer warranted endangered status. This determination was vacated by a federal court on August 22, 2017 and the matter is currently remanded to the USFWS for further consideration. In brief, the latest published population data found that after known mortality was subtracted, a minimum of 41 grizzly bears were identified in the Cabinet-Yaak recovery zone during 2013-2015 based on captures, genetic information, mortality, and sightings of unique individuals (Kasworm et al. 2016). Kasworm et al. (2016) also concluded that there is a 61 percent probability that the CYE grizzly bear population is increasing, and the rate of that increase was estimated at 1.1 percent from 1983 to 2015. Kasworm et al. (2017) provides additional evidence of an improved baseline with the 2016 population at approximately 55 individuals.

Therefore, in recent years, the population trend has changed from declining to increasing. This trend is expected to continue because the U.S. Forest Service has established regulatory mechanisms for motorized access management and attractant storage, and researchers have documented some movement between the CYE and other populations in Canada. These improvements have reduced the threats to the small CYE grizzly bear population, but motorized access management on the Kootenai National Forest has not been fully implemented and therefore, more progress is expected (USFS 2015; USFWS 2013).

On June 22, 2017, the USFWS delisted the population of grizzly bears in the GYE, and they are now managed by multiple agencies under the protections contained in the final GYE Conservation Strategy (USFWS 2016). Grizzly bears in this ecosystem have exceeded 500 total bears since 2006 (USFWS 2016), and the current population is estimated to be approximately 700 individuals.

There are currently approximately 1,000 grizzly bears in the NCDE, and efforts are underway to delist grizzly bears within this ecosystem. Delisting metrics in this ecosystem continue to be met. During a 6-year window from 2011 to 2016, all bear management units (BMU) within the defined demographic monitoring area (DMA) were occupied by females with offspring (Costello and Roberts 2016). Of the 23 BMUs within the Primary Conservation Area (PCA), 17 were occupied by reproductive females with offspring in 2015. Twenty known mortalities occurred in

2015 within the DMA, of which 3 were independent females and 11 were independent males. The remainder were young, dependent bears. Considering these totals and estimated unreported mortalities in the ecosystem, approximately 28 independent grizzly bears died within the DMA. This level of mortality was well within average for recent years and declined from mortality observed in 2014 (Costello and Roberts 2016). Primary causes of mortality in 2015 were management removals and malicious killing.

## Status of Habitat in the HCP Project Area

Since implementation of the 2010 HCP in the Stillwater Block, DNRC constructed 8.7 miles of roads. The status of other roads in the Stillwater Block is summarized in Table 2-2; Figure 2-1. Within the Swan River State Forest, DNRC reduced total roads by 11.6 miles (DNRC 2016). On scattered parcels in grizzly bear recovery zones, total roads were reduced by 13.3 miles (DNRC 2016). Total roads in NROH across the HCP project area have increased by 16.3 miles (10.9 in the Northwestern, 5.4 in the Southwestern, and 0 in the Central land offices).

## Status of Habitat on the Added Lands

Grizzly bear habitat on the added lands includes 36,441 acres in the NCDE and CYE recovery zones and associated NROH (Table 3-14). The Swan, Chamberlain, and Upper Blackfoot added lands contain 17,995 acres in the NCDE recovery zone for grizzly bears and 18,446 acres of NROH associated with the NCDE recovery zone. None of the NCDE recovery zone acres on the added lands support active grazing licenses. The Lolo added lands support 200 acres in the CYE recovery zone (Table 3-14). None of the added lands contain areas with characteristics necessary to provide denning habitat for grizzly bears. The added lands do contain approximately 12,248 acres of spring habitat in grizzly bear recovery zones, and 12,234 acres of spring habitat situated within NROH (Table 3-14).

**Table 3-14. Total acres and acres of spring habitat on the added lands in grizzly bear recovery zones and non-recovery occupied habitat.**

| Location of the Added Lands | Total Acres | | Acres of Spring Habitat | |
|---|---|---|---|---|
| | RZ | *NROH | RZ | *NROH |
| **NCDE Recovery Zone** | | | | |
| **Swan** | 16,446 | 0 | 10,823 | 0 |

| | | | | |
|---|---|---|---|---|
| **Chamberlain** | 0 | 14,537 | 0 | 8,691 |
| **Blackfoot** | 1,549 | 3,909 | 1,225 | 3,543 |
| Subtotal | 17,995 | 18,446 | 12,048 | 12,234 |
| **CYE Recovery Zone** | | | | |
| **Lolo Exchange** | 200 | 0 | 200 | 0 |
| **Totals** | **18,195** | **18,446** | **12,248** | **12,234** |

## *3.9.6 Environmental Consequences for Grizzly Bears*

The 2010 Final EIS (Chapter 4, Section 4.9.3.2, pp. 4-320 through 4-356) and the 2011 Biological Opinion, Chapter II, Section D. describe the effects of the HCP and Permit issuance on grizzly bears. Those analyses are incorporated by reference.

Environmental consequences for bears were considered in terms of four categories of effects of forest management on grizzly bears: 1) effects of roads, 2) habitat modification from timber harvest, 3) disturbance and displacement, and 4) risks of human-grizzly bear conflicts.

### Effects of the Proposed Action

#### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

This section describes how management will change for the lands in the Stillwater Block as a result of the 2015 Settlement Agreement. Five areas of grizzly bear management are addressed: roads, modification of habitat, disturbance of habitat, helicopter use in the Stillwater Block, and risk of human-bear conflicts.

**Effects of Roads in the Stillwater Block**

Incorporating the 2015 Settlement Agreement into the hcp would not change the total road miles, temporary road mile allowances, or road restrictions in the 2010 HCP transportation plan for the Stillwater Block. Therefore, the road densities in grizzly bear BMU subunits in the Stillwater Block would be the same as those described in the 2010 Final EIS (USFWS and DNRC 2010, pp. 4-324 through 4-335). As previously discussed, the 2015 Settlement Agreement established 22,007 acres of grizzly bear security zones in the Stillwater Block. On these lands, no new permanent roads would be constructed. Access needed for management activities in the security zones would be allowed only by helicopter and/or from existing or temporary roads. This represents a net increase of 2,607 acres where no new permanent roads are allowed when

compared to the commitments of the 2010 HCP.

### Habitat Modification

Implementation of the 2015 Settlement Agreement would not change the 2010 HCP commitments (GB-PR6, GB-RZ2, GB-NR4, GB-RZ1, GB-NR3) limiting the likelihood that forest management would disturb or affect important grizzly bear habitat elements such as cover, avalanche chutes, riparian areas, berry fields, or spring habitat. Therefore, no adverse effects on bears are expected from habitat modification as a result of the 2015 Settlement Agreement.

### Habitat Disturbance

Under the 2015 Settlement Agreement, DNRC commercial forest management activities are allowed in the security zones only during the denning season below 6,300 feet. This measure greatly limits the extent of forest management that could occur on these lands due to the challenges associated with winter harvest on steep terrain. This approach is similar to the security core area approach implemented on Federal lands (i.e., USFS lands) and ensures that bears can access seasonally important habitats free from risk of human disturbance. The other measures in the 2010 HCP that limit the effects of habitat disturbance on bears include measures that inspect and repair road closures (GB-RZ3), limit management activities in the spring season (GB-NR3), and prohibit motorized activities in post-denning habitat from April 1 through May 31 (GB-RZ5). These measures would not change as a result of 2015 Settlement Agreement.

### Helicopter Use

Under the 2015 Settlement Agreement, HCP commitment (GB-PR8) was expanded to minimize not only the duration of air-based harvest activities but also ground-based activities to the extent practicable when DNRC is conducting commercial forest management activities near identified security zones (or known areas of seasonal importance for bears) during the non-denning season. Therefore, there would be a low likelihood of effects from helicopter use on grizzly bears and any effects that did occur would be short-term.

### Risk of Bear-Human Conflicts

The 2015 Settlement Agreement would not change the HCP commitments addressing risk of

bear- human conflicts, specifically including requirements for food storage and educational programs (GB-PR1), restrictions on firearms (GB-PR2), and restrictions on new grazing licenses in recovery zones (GB-RZ4). These measures reduce the risk of bear-human conflicts related to forest management by DNRC in the Stillwater Block.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

This section describes how management will change for the added lands once they are added to the amended HCP. Because the management varies based on its geographical location (i.e., on blocked lands or scattered parcels and in a recovery zone, NROH, or outside both areas), this discussion is organized accordingly.

Overall, added lands that are scattered parcels are expected to benefit grizzly bears through increased protection of special habitats (like spring forage areas or denning and post-denning habitat) and increased connectivity and integrity of linkage areas. The 2010 HCP commitments require DNRC to place greater conservation emphasis where it controls large blocks of lands. As such, the Proposed Action would promote more consistent management and application of conservation measures across a broader area on the Swan River State Forest. A consistent management approach in the Swan River State Forest along with the adjacency of federal lands managed for grizzly bear conservation enhances the benefit to bears in this location.

#### Effects on Grizzly Bears in the Swan River State Forest

The Proposed Action would implement the amended HCP on an additional 16,446 acres on blocked lands in the Swan River State Forest in the NCDE grizzly bear recovery zone. The discussion below considers implementation of the terms of the Swan conservation easement held by MFWP and the HCP commitments and - as envisioned in the 2010 HCP - assumes dissolution of the 1995 Swan Agreement between the USFS, Plum Creek, and DNRC (due to Plum Creek divesting of land, and the USFS amending or revising its Forest Plan).

**Roads -** Under the Proposed Action, road densities on the Swan added lands in the Swan River State Forest would be regulated by the existing conservation easement that requires DNRC to maintain the baseline miles of roads that were present upon acquisition. Some additional road reduction may occur in riparian management zones as specified by the Swan conservation

easement. Therefore, total road miles would be capped at 220.3 miles (Table 2-6). Of these total roads, just 8.9 miles are open roads. Since acquisition, DNRC has voluntarily reclaimed 22.0 miles of unneeded road on these lands, lowering the current amount to 189.4 miles. Reclaiming these roads provides DNRC some flexibility over the Permit term to construct a similar amount of road in other locations, should the need arise. The existing high road miles on the Swan added lands may displace individual adult female grizzly bears attempting to use this habitat over the Permit Term or may increase their risk of human-caused mortality. Both effects would potentially contribute to a loss of recruitment.

DNRC could construct up to 6.5 miles of temporary roads in the Swan; this represents an increase of 1.5-mile from the 2010 HCP. The 1.5-mile increase reflects an amount proportional to the total acreage of added lands in the Swan. Within the Swan River State Forest an annual temporary increase of 1.5 miles represents <0.02 miles per square mile. Thus, adverse effects to grizzly bears would be expected to be negligible and the benefits of using temporary roads greatly outweigh the long-term impacts associated with increased permanent restricted roads on the landscape as discussed in the 2010 Final EIS (USFWS and DNRC 2010) Section 4.9.3.2, Road-related Effects (p. 4-324).

Because site-specific conditions will vary over the years, and because individual grizzly bears respond differently to roads, the potential for and level of impacts would vary. Further, implementation of the 2010 HCP commitments would reduce the risk of adverse effects from human-grizzly bear encounters in the following ways: 1) by reducing the risk of conflicts with humans through retention of visual screening along open roads (GB-RZ2), 2) reducing risk of conflicts through vegetation retention in the riparian and wetland management zones and avalanche chutes (GB-PR6), 3) prohibiting DNRC employees and its contractors from carrying firearms (GB-PR2), and 4) requiring DNRC employees and its contractors properly store food (GB-PR3). Implementation of the 2010 HCP commitments would reduce the risk of displacement through: 1) limits on DNRC activities in the spring period in spring habitat (GB-NR3), 2) requirements for a 3-year active timber management/6-year rest rotation (GB-SW1), and 3) provisions for visual screening in clearcuts and seed tree harvest units such that grizzly bears are no more than 600 feet from cover (GB-NR4).

**Habitat Modification -** The Proposed Action would implement the HCP commitments (GB-PR6, GB- RZ2, GB-NR4, GB-RZ1, GB-NR3) limiting the likelihood that forest management would disturb or affect important grizzly bear habitat elements such as cover, avalanche chutes, riparian areas, berry fields, or spring habitat. These commitments would avoid most impacts on important grizzly bear habitat elements and no adverse effects are anticipated.

**Habitat Disturbance and Grizzly Bear Displacement -** Under the Proposed Action, the Swan acquisition area would be added to the five subzones of the Swan River State Forest. To limit habitat disturbance in the Swan, the subzones would be managed under a rest rotation approach. The rest rotation approach was originally described in interagency guidance called the "3:7 rule" (Harms 1990), which involved an allowable period of active forest management (3 years) followed by a rest period of 7 years. This rotation approach was designed to be applied in particular drainages or grizzly bear subunits (typically ranging from 32,000 to 96,000 acres, which is the size of an annual average female home range) (Harms 1990). The USFWS this 3:7 rule to evaluate the potential for impacts to grizzly bears in Montana under the ESA Section 7 consultation processes for Federal agencies.

The benefits of a rest rotation are explained by Harms (1990), and special consideration is given for females in the population because female mortality is a key population parameter. Grizzly bear cubs learn from their mother about resources available within her home range. Hence, long-term displacement of a female from a portion of her home range may result in that area being lost to future female bears since her offspring would not have a chance to learn the foraging opportunities in areas no longer used by her mother. If a female breeds at age five, gives birth to cubs at age six and is displaced by logging during the next four years, her first litter of female cubs will not have a chance to learn the habitat opportunities available in the area they were displaced from. However, the rotation provides sufficient time to ensure that the female cubs from second and third litters have opportunity to learn from their mother about habitat resources in the area being rested before being displaced by a future logging entry. Thus, under this rest rotation approach, twice as many female cubs will learn the habitat features than those affected by continuous management without rest. This approach assumes a 50:50 sex ratio wherein two litters learn about habitat opportunities and one litter does not.

Under the 2010 HCP, DNRC proposed a 4-year active timber management/8-year rest rotation approach, which is similar in proportion to the 3:7 rest rotation scenario. Both rest schemes provide ample rest to ensure that female grizzly bears could replace themselves over their lifetimes. However, during the first 5 years of HCP implementation, DNRC realized that management of the 5 subzones in the Swan River State Forest were not conducive to a 4-year active timber management/8-year rest rotation schedule. While DNRC can complete its timber management activities in 3 years, thereby reducing disturbance by 1 year, management requires more frequent entries to be able to consistently meet a planned rotation schedule, and move timber stands towards desired future conditions within the 5 subzones. Therefore, under the Proposed Action, in the Swan River State Forest, DNRC would retain the existing 3:6 rest rotation implemented under the Swan Agreement, to which bears in this landscape are adapted because it is already in place. Under a 3:6 rest rotation, female cubs would similarly have sufficient time to learn about habitat resources available to them in their mother's home range before being displaced by active commercial harvest, should displacement occur.

Under 3:6 rest rotation, if a female breeds at 5 years of age, gives birth to cubs at age 6 and is displaced by logging in years 1 through 3, her first litter of cubs will not have an opportunity to learn about habitat resources available in the area they were displaced from. However, the rotation provides sufficient time to ensure that the female cubs from second and third litters have some opportunity to learn from their mother about available resources in rested areas. More importantly, under the HCP, when timber harvest is allowed (i.e., when a subzone is active), commercial forestry in spring habitat in the spring period would still be prohibited, as well as public motorized access. Thus, under the HCP, female cubs from all litters could access and learn the habitat opportunities in spring habitat and be free from disturbance from DNRC commercial activities.

Further, components of commitments GB-ST2, GB-SW3, and GB-SC2 would restrict motorized activities above 6,300 feet, and GB-RZ5 would implement additional restrictions in post-denning habitat, further reducing potential for physiological stress to denning grizzly bears and females emerging from dens with young cubs. Overall, the extensive commitments of the HCP are expected to reduce the risk of displacement and disturbance of grizzly bears such that bears can

meet their breeding, feeding, or sheltering needs.

**Bear-Human Conflicts -** The existing conservation easement on the Swan added lands prohibits grazing licenses. Therefore, there would not be an increased risk of bear-human conflicts related to management activities associated with grazing for the added lands. The potential for bear-human conflicts would further be reduced for the Swan added lands through the HCP commitments, including requirements for food storage and educational programs (GB-PR1), restrictions on firearms (GB-PR2), restrictions on new licenses in recovery zones (GB-RZ4), vegetative screening (GB-PR6 and GB- RZ2), limits on harvest size units in grizzly bear habitats (GB-NR4), and limits on human presence during sensitive periods for bears (GB-NR3 and GB-RZ5). Overall, the comprehensive set of commitments in the HCP are expected to reduce the risk of mortality of bears from bear-human direct conflicts.

**Effects on Grizzly Bears on Scattered Parcels in Recovery Zones**

There are 1,549 acres and 240 acres of acquisition lands associated with scattered parcels in the NCDE and CYE recovery zones, respectively. These lands occur on the Blackfoot and Lolo added lands, respectively.

**Roads -** Adding lands to the HCP would require DNRC to examine open roads in the recovery zones during each project to determine if additional closures are possible (GB-SC1). The process of open road closures is expedited in the CYE under HCP commitment GB-CY4, and would be completed within 5 years of adopting the Amended HCP for the 240 acres in the Lolo acquisition occurring in the CYE. In addition, these lands would be subject to annual inspections of road closures, and DNRC would be required to correct any identified problems within 1 year following detection (GB-RZ3). Further, any new roads proposed on the 1,549 acres on the Blackfoot added lands would require review and approval by the USFWS prior to implementation. Therefore, there is limited potential for increases in baseline open road miles for these lands and limited potential for adverse effects on bears from increases in open roads.

**Habitat Modification -** For the 1,789 acres of scattered parcels in recovery zones, the Proposed Action would implement the HCP commitments (GB-PR6, GB-RZ2, GB-NR4, GB-RZ1, GB-NR3) minimizing adverse effects on important grizzly bear habitat elements such as cover,

avalanche chutes, riparian areas, berry fields, or spring habitat. These commitments would limit potential impacts on important grizzly bear habitat elements.

**Habitat Disturbance and Grizzly Bear Displacement -** To limit habitat disturbance and displacement of grizzly bears in the recovery zones, the Proposed Action would implement a 4-year active timber management/8-year rest rotation for scattered parcels in recovery zones at the administrative unit level. Disturbance of grizzly bear habitat would be further minimized by timing restrictions applied to spring habitat on scattered parcels (GB-NR3), including those that are in active management. Further, commitment GB-RZ5 would implement additional restrictions in post-denning habitat, reducing potential for physiological stress to female bears emerging from dens with young cubs. These commitments would reduce the risk of disturbance and displacement of bears from important seasonal habitats compared to the Forest Management ARMs that would be implemented under the No Action Alternative, which does not specifically address DNRC actions in spring habitat or post-denning habitat.

The application of the HCP commitments on the added lands would ensure: 1) visual screening in RMZs and WMZs (GB-PR6), 2) visual screening along open roads in grizzly bear habitat in recovery zones (GB-RZ2), and 3) limits on the distance to cover in harvest units in NROH and recovery zones (GB-NR4). Collectively, these measures would provide visual screening in important foraging areas, near harvest openings, and along open roads, potentially increasing habitat effectiveness, such that bears could access habitat requirements to breed, feed, and shelter with lowered risk of human disturbance and reduced risk of direct bear mortality from human encounters.

**Human-Bear Conflicts -** The risk of bear-human direct conflicts would be reduced for the scattered parcels in recovery zones by the HCP commitments, including requirements for food storage and educational programs (GB-PR1), restrictions on firearms (GB-PR2), and restrictions on new licenses in recovery zones (GB-RZ4). Overall, the extensive commitments of the HCP are expected to reduce the risk of mortality of bears from bear-human direct conflicts.

**Effects on Scattered Parcels in Non-Recovery Occupied Habitat**

The added lands contain 18,446 acres of NCDE NROH.

**Roads -** Adding scattered parcels within NROH to the HCP would not change DNRC's road management on these lands. As under the No Action Alternative, DNRC would minimize the miles of road needed for active timber management when planning road systems (ARM 36.11.421) and prohibit increases in open road density on parcels with greater than one mile of open road [36.11.433(1)(a)]. There is no numerical constraint in ARMs or in the HCP commitments that limit the miles of restricted roads that can be constructed on these scattered lands. The existing high road density on the added lands may displace individual adult female grizzly bears attempting to use this habitat over the Permit Term or may increase their risk of human-caused mortality. Both effects would potentially contribute to a loss of recruitment.

**Habitat Disturbance -** Adding the scattered parcels of the added lands within NROH to the HCP would implement measures that limit management activities in the spring season (GB-NR3), ensure visual screening in RMZs and WMZs (GB-PR6), and limit the distance to cover in harvest units in NROH and recovery zones (GB-NR4). The measures increase the value of habitat to grizzly bears by increasing the security of these lands for bears to feed, breed, and acquire shelter. Collectively, these measures would provide visual screening in important foraging areas, near harvest openings, and along open roads, potentially increasing habitat effectiveness, such that bears can access habitat requirements with lowered risk of human disturbance and reduced risk of direct bear mortality from human encounters. Overall, the comprehensive set of commitments in the HCP for scattered parcels in recovery zones are expected to reduce the risk of displacement and disturbance of grizzly bears such that bears can meet their breeding, feeding, or sheltering needs.

**Bear-Human Direct Conflicts -** The risk of bear-human direct conflicts would be reduced for the added lands in NROH through the implementation of the HCP commitments, including requirements for food storage and educational programs (GB-PR1), restrictions on firearms (GB-PR2), and restrictions on new grazing licenses in recovery zones (GB-RZ4).

The Potomac, Southern Bitterroot, and Upper Blackfoot added lands currently support grazing licenses that were renewed upon DNRC's acquisition of the lands. There are no recorded livestock/grizzly bears conflicts from the added lands resulting in the mortality of a grizzly bear. Therefore, with implementation of the HCP, the risk of conflict is expected to remain low. The

conservation easements on the Swan and Chamberlain added lands restrict grazing licenses on 16,466 acres and 11,083 acres, respectively. Therefore, there would be no added risk of direct human bear conflicts from management activities associated with grazing. On the remaining added lands, DNRC could lease lands for grazing, subject to the terms of the HCP that limit grazing in grizzly bear recovery zones and NROH (GB-RZ4 and GB-NR5). With implementation of the HCP commitments, and because there is no record of livestock/grizzly bear conflicts resulting in the mortality of a grizzly bear on DNRC grazing licenses, the risk of conflict and resulting mortality is low.

**Summary of Effects of the Proposed Action**

As described above, managing the added lands under the HCP would reduce the potential for adverse effects for bears. However, as discussed in the 2010 Final EIS, high road densities under the Proposed Action does have the potential to adversely affect grizzly bears. The increasing population of bears in the NCDE combined with the additional acreage of DNRC lands could increase the potential for grizzly bear-human direct conflicts.

Overall, the Proposed Action would not change total or open road densities in the Stillwater Block or Swan River State Forest predicted from the effects disclosed in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-324 through 4-335). That is, the BMU subunits with high total and open road densities in the Stillwater Block or Swan River State Forest identified in the 2010 Final EIS would retain those high road densities under the Proposed Action. However, habitat security for bears would be increased in the Stillwater Block by implementation of the seven security zones under the terms of the 2015 Settlement Agreement, which would at least partially offset some of the adverse effects of high road densities on bears by providing ample opportunities for grizzly bears to meet their habitat requirements without risk of disturbance from commercial forest management activities in those areas. Habitat security in the Swan River State Forest would be achieved by continued implementation of the 3-year active timber management/6-year rest rotation. Recent synthesis of telemetry data collected from 24 grizzly bears in the Swan-Clearwater drainages from 2000 to 20121 demonstrated that these grizzly bears neither avoided roads nor avoided active subunits (Ruby 2014). Bears in the Swan have suffered periodic high mortality from malicious human behavior, bear conflicts near human

dwellings, and highway vehicle fatalities -- not from roads supporting forest management. The other HCP commitments for habitat security would also at least partially offset the effects of high road densities outside the Stillwater Block security zones and on the Swan River State Forest by limiting management in spring habitat (GB-NR3 and GB-SW1), by protecting important habitat elements and retaining visual screening (GB-RZ1 and GB-RZ2), and through implementation of transportation plans that limit public access on roads. Nevertheless, high road densities may displace a few female grizzly bears in a limited number of instances from habitat and potentially lead to a failure to reproduce or reduced recruitment of cubs. However, overall, the Proposed Action would sustain grizzly bears using blocked lands by ensuring ample opportunities to feed, breed, and find shelter through the following measures: transportation plans, security zones in the Stillwater Block, rest rotation in the Swan River State Forest, and limited management in spring habitat.

Implementing the Proposed Action across the HCP project area is expected to reduce the risk of bear human direct conflicts for the reasons described above. However, the Proposed Action would increase the HCP project area by 81,416 acres. Further, as discussed in the 2010 Final EIS and 2011 biological opinion, the NCDE population of grizzly bears continues to increase in numbers and occupy new geographical areas. Further, the permit spans a 50-year period. Therefore, there is a low likelihood that bear-human conflicts on the HCP project area could result in the mortality of a grizzly bear over the Permit Term.

## Effects of the No Action Alternative

### Effects on Grizzly Bears in the Stillwater Block and Swan River State Forest

The effects on grizzly bears under the No Action Alternative in the Stillwater Block would be the same as those described for the Proposed Action.

With the pending amendment of the Flathead National Forest Plan and the divestiture of lands in the Swan by Plum Creek (now Weyerhaeuser), the Swan Agreement is likely to dissolve in the foreseeable future. Therefore, the No Action alternative would likely implement two management schemes on DNRC lands in the Swan River State Forest: implementation of the HCP on the 2010 HCP project area and implementation of the ARMs on the added lands.

The existing conservation easement on the Swan acquisition would limit roads in the Swan River State Forest similar to the Proposed Action. Therefore, similarly high road densities may displace a few female grizzly bears in a limited number of instances from habitat. When this occurs it could lead to a failure to reproduce or reduced recruitment of cubs. The effects of high road densities in the Swan may be slightly higher under the No Action Alternative when compared to the Proposed Action, because the No Action Alternative does not include limitations on commercial forest management in spring habitat or post-denning habitat on the added lands.

### Effects on Grizzly Bears on Scattered Parcels in Recovery Zones

Implementation of DNRC ARMs that minimize roads and the Blackfoot conservation easement that requires approval of proposed new roads would limit new roads on scattered parcels in recovery zones under the No Action Alternative. Therefore, adverse effects on bears on these scattered parcels are not expected as a result of increased roads.

Nevertheless, the risk of disturbance or displacement of bears from habitat would be slightly higher under the No Action Alternative when compared to the Proposed Action, because the No Action Alternative would not: 1) implement a rest rotation, 2) limit commercial forest management in spring habitat, 3) require timelines for road closure inspections and correction, 4) prohibit motorized activities on slopes > 45 percent at elevations above 6,300 feet during post denning period (GB-RZ5), and 5) accelerate closure of open roads (GB-SC1). When considered together, these measures reduce the risk of displacement from important habitats during important times of the year. Therefore, under the No Action Alternative, the risk of displacement from important habitats would be somewhat greater for the 1,789 acres of scattered parcels in recovery zones on the added lands.

### Effects on Grizzly Bears on Scattered Parcels in NROH and the HCP Project Area

Overall, high road densities under the No Action Alternative may displace a few female grizzly bears in a limited number of instances from habitat and lead to a failure to reproduce or reduced recruitment of cubs. The effects of high road densities are slightly higher under the No Action

Alternative when compared to the Proposed Action, which would implement limitations on commercial forest management in spring habitat on the added lands in NROH.

The risk of bear-human conflicts would be slightly higher for the added lands under the No Action Alternative when compared to the Proposed Action but would remain low. While the No Action Alternative would not require implementation of the range of commitments aimed at minimizing this risk on HCP lands, there is no history of bear-human conflict between DNRC staff (or its contractors) resulting in mortality of a grizzly bear.

## 3.10 Transition Lands Strategy

Under the Proposed Action, DNRC would retain its Transition Lands Strategy in the 2010 HCP, allowing for the addition and/or removal of lands from the HCP. However, the Proposed Action includes some clarifications to the Transition Lands Strategy (Attachment A). Additionally, with the addition of lands, there would be some adjustment in caps on removal of lands as described below.

Under the original HCP, the removal of lands was capped at 5 percent of the HCP project area lands in key habitats for the 50-year Permit term (i.e., the NCDE and CYE grizzly bear recovery zones, CYE grizzly bear NROH, LMAs, and bull trout core habitat areas [as defined in MBTRT 2000]). For all other HCP project area lands, the removal of lands was capped at 10 or 15 percent of the original baseline for the 50-year Permit term.

The cap was 10 percent of the original baseline acres until DNRC added at least 15,000 acres to the HCP project area. Following a land addition of this size, the cap was allowed to increase from 10 to 15 percent. Therefore, under the Proposed Action, the cap on the removal of lands outside key habitats (NCDE and CYE grizzly bear recovery zones, CYE grizzly bear NROH, LMAs, and bull trout core habitat areas) would be increased to 15 percent.

Under the Proposed Action the acreages subject to these caps would increase to 15,434 acres, which is 5 percent of 308,687 acres of key habitat, and 48,184 acres, which is 15 percent of 321,229 acres or the remainder of the HCP project area lands for a total of 63,618 acres that

could be removed from the amended HCP over the remaining permit term. There is no cap on the amount of lands that could be added to the HCP.

### *3.10.1 Environmental Consequences for the Removal of Lands*

**Effects of Removal of Lands Under the Proposed Action**

Under the amended HCP, DNRC could remove a total of 63,618 acres from the HCP. However, in addition to the 81,416 acres proposed for addition to the HCP under this amendment, DNRC anticipates it could add more acres to the HCP project area over the remainder of the permit term. Therefore, as lands are added to the HCP, the acres of lands subject to the 5 percent and 15 percent cap and that could be removed from the HCP would similarly increase (presuming there is no substantial removal of lands). Lands removed from the HCP may be disposed to other land owners or managed under another program within DNRC (e.g., minerals, agriculture, or real estate).

The effects of removal of lands from the HCP would vary based upon the proposed management of the lands. The lands could continue to be managed for timber production by a different land manager, managed for multiple uses by a different land manager, or developed into commercial, residential, or recreational uses. Most disposals from DNRC ownership or removal of lands from the HCP for DNRC real estate development projects would be subject to MEPA analysis. The effects of the removal of lands on the covered species under the DNRC transition lands strategy was analyzed in the Final EIS (USFWS and DNRC 2010, Chapter 4, p. 4-381 through 4-388) and is hereby incorporated by reference. Overall, the removal of lands from the HCP is not expected to result in substantial effects on the HCP-covered species for the following reasons:

- The removal of lands from key habitats for the HCP-covered species is capped at 5 percent of the HCP project area, which is 15,434 acres under the proposed Amended HCP.
- DNRC expects to add more lands to the HCP than it expects to remove from the HCP, thereby increasing total lands managed under the HCP to benefit the HCP-covered species.

- For removal of lands leading to real estate projects within DNRC's real estate program, conservation measures designed to address effects on the habitat of grizzly bears, lynx, and/or other relevant wildlife and aquatic species would be considered at the project level prior to the removal of the lands from the HCP.

- Under the transition lands strategy, parcels identified as important for habitat linkage would receive special consideration for deed restrictions or other binding conservation measures prior to their removal from the HCP and ultimate disposal to another land manager, which may minimize risks to fish and wildlife from human disturbance.

- Under the transition lands strategy, the USFWS and other conservation groups would be notified before parcels are removed from the HCP project area, thereby giving them a chance to purchase or otherwise conserve these lands. DNRC could also consider the application of deed restrictions to land disposals as long as the value of the land is not reduced.

- In the Swan River State Forest and Stillwater and Coal Creek State, where enhanced grizzly bears conservation is applied, DNRC is extremely unlikely to dispose or remove lands from the HCP because maintaining or increasing the size of these areas facilitates and improves the efficiency of DNRC's forest management program.

In summary, any lands removed from the HCP project area would be subject to the HCP's transition lands strategy. Removal of lands would be processed by the USFWS as a minor amendment – in most cases requiring a simple revision to the list of parcels covered on the Permit.

### Effects of Removal of Lands Under the No Action

Under the No Action Alternative, the transition lands strategy would remain the same and would continue to apply to the original HCP as analyzed in the 2010 Final EIS. The caps on the removal of lands would remain at 5 percent of the original HCP key habitats for the HCP-covered species. The 5 percent of the original HCP was identified as 10,880 acres in the 2010

HCP, but is corrected in this document as 11,363 acres. Because there would be no net increase in lands managed under the HCP, the remainder of the HCP project area would continue to be subject to a 10 percent cap on removal of lands. This value has also since been corrected to 32,221 acres; the original HCP reported 33,090 acres. Any lands removed from the HCP project area would be subject to the HCP's transition lands strategy.

### 3.10.2 Environmental Consequences for the Addition of Lands to the HCP and 10(a)(1)(B) Permit

If the state of Montana acquires forested trust lands with habitat for HCP species, DNRC would consider adding the parcels to the HCP project area. The analyses of effects in the original 2010 Final EIS and 2011 biological opinion strived to include all the potential effects of implementing this transition lands program on factors of the human and natural environment, including the covered species. Thus, if potential effects of future additions of lands to the HCP were already analyzed in these and subsequent supplemental analysis documents (USFWS and DNRC 2010, 2017, and 2018), the USFWS may not need to conduct further NEPA analysis. Upon receipt of the information required as outlined in HCP Chapter 3 for each future proposal to add lands to the HCP, the USFWS will determine whether the potential effects were already analyzed or if further NEPA/MEPA and ESA analyses are necessary. If the USFWS determines that a major amendment to the Permit requires additional NEPA analysis, the USFWS would conduct the appropriate level of analysis and provide the NEPA document for public review. Further, the USFWS must determine whether all ESA section 10(a)(1)(B) permit issuance criteria would be met when evaluating each proposal before amending the Permit. Section 10 requires that the USFWS provide public notice regarding amendments to the Permit for 30 days, regardless of the level of NEPA/MEPA analysis.

The following information regarding the baseline condition of the added lands was considered when conducting this analysis:

- The added lands occur within the original EIS planning area, and are similarly juxtaposed in the same grizzly bear management subunits, lynx analysis units and management

areas, and bull trout core areas analyzed in the 2010 Final EIS and this Supplemental EIS.

- The added lands are composed of similar forest community types and vegetation as those in the HCP project area.
- The added lands are forested habitat, most of which were previously managed for industrial timber production or multiple uses.
- The added lands are primarily in the Northwestern or Southwestern land offices.
- A large increase of DNRC statewide lands could result in the reanalysis of the SYC, A recalculation of the SYC could increase the statewide volume of timber harvested by DNRC in proportion to the added lands. However, as observed in the calculation of the 2015 SYC, despite the increase in statewide lands, changing forest conditions (increased burned and disease-killed trees) may decrease the statewide SYC.
- Added lands that were formerly managed for timber production are largely roaded.
- Total road densities on private industrial forests are high (greater than 4 miles per square mile) in grizzly bear recovery zones and largely exceed federal guidelines for total road densities in grizzly bear BMUs and subunits.
- Where total road densities on added lands in grizzly bear recovery zones are high, management under the HCP would likely continue to exceed federal guidelines for total road densities in grizzly bear BMUs and subunits, but under the HCP would be subject to the caps required by the HCP commitments.
- Where open road densities on added lands in grizzly bear recovery zones are high on individual parcels, management under the HCP would reduce miles of open road consistent with commitment (GB-SC1); however where public access cannot be feasibly restricted, some areas may continue to exceed federal guidelines for open road densities in grizzly bear BMUs and subunits.
- The existing miles of roads on private industrial forests are high within NROH.

- Existing miles of roads on private industrial forests are high on scattered parcels that are outside of grizzly bear recovery zones and outside of NROH.

- The proportion of roads within 300 feet of a stream supporting HCP fish species is up to 9 percent of the total road miles, which is similar to the added lands (6.5 percent) and original HCP project area (9 percent).

- The added lands include some barriers to fish passage on HCP fish-bearing streams. Over the HCP term an additional approximately 38 percent of all culverts on HCP fish-bearing streams, could become barriers to fish passage and require replacement under the HCP fish connectivity conservation strategy (AQ-FC1).

- Because most private industrial forests are now managed under aquatic species HCPs and federal lands are subject to ESA requirements protective of listed fish species, approximately 5 percent of the roads on added lands may not meet BMPs and therefore require corrective actions.

- Approximately 40 percent (25,448 acres) of the 63,622 added lands support grazing licenses in grizzly bear recovery zones, associated NROH, or HCP fish-bearing watersheds.

- The added lands could increase the boundaries and acreages of the existing LMAs or create new LMAs.

- Added lands in LMAs would likely increase lynx potential habitat and therefore, the total number of acres managed by DNRC as lynx suitable habitat and winter foraging habitat.

- The added lands could increase total potential lynx habitat on scattered parcels managed by DNRC.

- The condition of the lands and proportion of resources such as cultural resources, surface waters, recreational opportunities, visual qualities, etc., are similar to those described for the 2010 Final EIS Planning Area.

## Effects on Geology and Soils, Water Resources, Plant SOC, Noxious Weeds, and Wetlands; Recreation, Visual Resources and Cultural Resources from Adding Lands to the HCP and Section 10(a)(1)(B) Permit

The analysis of the effects of implementing the 2010 HCP and this Amended HCP on Forest Vegetation; Geology and Soils; Water Resources; Plant SOC, Noxious Weeds, and Wetlands; Recreation; Visual Resources; and Cultural Resources, as presented in the 2010 Final EIS and in this Supplemental EIS is largely described in terms of the amount of land harvested, (i.e., the SYC), miles of road constructed, acres of grazing licenses, and to a lesser degree, rate of prescribed and pile burning. Therefore, the effects of the addition of lands on these elements of the environment are grouped and discussed below.

In the next 10 years, the existing conditions for forest vegetation; geology and soils; water resources; plant SOC, noxious weeds, and wetlands; and cultural resources are expected to be similar to those described in the 2010 Final EIS and this Supplemental EIS. Forest vegetation conditions will continue to be subject to timber harvest, wildfires, and insect and disease outbreaks, as well as natural disturbances and the effects of climate change. It is expected that over the next 10 years for the HCP project area there would be a net decrease in sediment yield reaching HCP fish-bearing streams as described in Section 3.6. Similar improvements in sedimentation are anticipated for those industrial forests managed under an HCP for aquatic species. With the maintenance of managed forested habitats in Montana, which resulted from the extensive Plum Creek land acquisition as described in Section 3.1, substantial changes in plant SOC populations, and abundance and distribution of wetlands are not anticipated; however, noxious weeds control is challenging and weeds could continue to spread. With a growing human population in Montana, there is a low risk of exploitation of cultural resources, because those resources on forested habitats are less likely to be discovered. In the next 10 years, the existing condition for recreation and visual resources would also be similar to that described in the 2010 Final EIS and this Supplemental EIS. However, the increasing human population and increasing tourism in Montana is likely to increase private developments, potentially including recreational facilities. Increased recreational facilities on public lands are also expected and would benefit recreational access and use. Some facilities though, may have adverse effects on views from roads by recreationists and the general public.

The potential acquisition of additional industrial timberlands by DNRC and subsequent management under the HCP would not substantially affect forest vegetation; geology and soils; water resources; plant SOC, noxious weeds, and wetlands; recreation, visual resources, and cultural resources. Based on the assumptions listed above, effects similar to those described in the original HCP and this Supplemental EIS are likely to include the following:

- The acres of timber harvested by DNRC would potentially increase. However, the rate of timber harvest across the greater landscape would be similar because acquired lands were previously managed for industrial timber production.

- HCP forests would be subject to rotational harvest in a manner regulated by the HCP, ARMs, and SYC. Stands would also be subject to treatments to improve regeneration, encourage multiple stand age classes across the forest, and diversify species composition of the forest.

- Substantial amounts of new roads would not be expected. Therefore, there would not be substantial new effects on geology and soils, water resources, plant SOC, noxious weed spread, or wetlands, recreational access, visual resources, or access to or disturbance of cultural resources.

- Some disturbance effects on soils and geology, water resources, wetlands, and weeds may occur in association with limited road relocations, reclamation, and minor new construction. These activities may also have minor and temporary effects on recreation access or experience and visual resources.

- Existing sources of sedimentation associated with roads, passage barriers, and grazing licenses would be inventoried and corrected, such that a net reduction in sedimentation to surface waters, particularly HCP fish-bearing streams, would be anticipated.

- Surface water quality would be maintained through implementation of the SMZ law, BMPs to control erosion and potential sedimentation to surface waters, and grazing license inspections.

- Limited road construction, new culverts, or culvert replacements or removals could generate pulses of sediment inputs to surface waters and HCP fish-bearing streams. Therefore, temporary reductions in water quality may occur in localized areas.

- Management under an HCP would maintain the visual and recreational experiences associated with a managed landscape on working forest lands.

- Some HCP commitments would benefit visual resources by limiting harvest in-stream corridors (AQ-RM1), retaining visual screening along open roads (GB-RZ2 and GB-PR6), and limiting timber harvest unit size (GB-NR4).

- Management under an HCP would maintain a variety of recreational opportunities for the public, though some open roads could be restricted to motorized access.

### Effects on Air Quality from Adding Lands

Based on the assumptions listed above, the air quality conditions on lands proposed for addition to the HCP would be similar to those described for the 2010 Final HCP and this Supplemental EIS. Overall, managing additional lands under the HCP would not result in a measurable change in air quality because the added lands were previously managed for industrial timber production, would not require substantial new roads, and would maintain or decrease acreage of existing grazing licenses.

### Effects on Transportation from Adding Lands

Based on the assumptions listed above, the transportation conditions on future lands proposed for addition to the HCP would be similar to those described for the 2010 Final HCP and this Supplemental EIS. Overall, managing additional lands under the HCP would likely maintain or slightly reduce total road miles on these lands through implementation of the HCP commitments. These include GB- SC1(1), which requires open roads on scattered parcels in recovery zones to be evaluated for potential closure, and GB-SC1(2), which prohibits any increases in baseline open road amounts at the administrative unit level for conducting forest management activities.

### Effects on Socioeconomics and Environmental Justice from Adding Lands

Trends in socioeconomic and environmental justice conditions on future lands proposed for addition to the HCP would be similar to those described for the 2010 Final HCP and this Supplemental EIS. Similar to other lands in the EIS planning area, future lands proposed for addition to the HCP would likely contribute forestry jobs and wages for the localized areas, as well as contribute to the forested landscape that composes the natural environment and quality of life in these communities.

Based on the assumptions listed above, managing additional lands under the HCP is expected to result in a socioeconomic benefit through greater assurances for a long-term, uninterrupted stream of wood products to supply small and large forestry businesses and the revenue stream that comes from state trust lands in Montana. Greater assurances are provided to the DNRC Forest Management Program by having in place predictable measures that protect federally listed species, which thereby provide legal protections for the program and its trust beneficiaries.

Managing additional lands under the HCP is not expected to result in disproportionate effects on minority or low-income populations, because the HCP commitments would serve to protect and enhance a wide range of habitat supporting traditional properties and usual and accustomed use areas of local Native American peoples.

## Effects on the Covered Species from Adding Lands

When DNRC acquires lands, these lands may often have existing degraded habitat conditions for HCP-covered species. For HCP-covered fish species these degraded conditions may include sediment sources and fish passage barriers; for Canada lynx, there may be an imbalance in forest structural stages or amounts; for grizzly bears, there may be high road densities. These exiting baseline conditions may constitute adverse effects potentially affecting the species' ability to meet their feeding, breeding, and/or sheltering needs. If such lands are added to the HCP, these conditions are expected to continue over the Permit term, but the impacts would be offset by other HCP commitments or conditions would be improved by long-term implementation of the HCP commitments.

### Effects on the HCP-covered Fish Species

Overall, applying the HCP aquatic conservation strategy to additional lands is expected to benefit

the HCP-covered fish species by reducing sediment to HCP fish-bearing streams delivery from forest management and grazing licenses. The grazing and timber harvest conservation strategies would protect the integrity of riparian vegetation, which would contribute to the maintenance of habitat complexity and stream temperatures to support HCP-covered fish species on the added lands. The addition of lands with existing culvert barriers that would be replaced or removed under the HCP could also increase HCP-covered fish access to habitats presently blocked by culvert barriers.

Existing and proposed roads on the added lands within 300 feet of an HCP fish-bearing stream, existing and proposed stream crossings, and grazing licenses would likely contribute adverse effects on HCP fish species due to sediment increases related to construction, culvert replacement or removal, and soil erosion that degrade spawning and rearing habitat or impair normal feeding, breeding, and sheltering behavior.

Added lands would likely require some limited amount of new roads and/or new stream crossings. In addition to new crossings, some existing culverts on the added lands are likely to fail over the remainder of the Permit term and require replacement or removal (the estimated average functional life of a culvert is about 35 years). New culvert installations would be designed using current stream crossing criteria, design, and installation procedures (Bates et al. 2003; HCP commitment AQ-FC1). Nevertheless, some percentage of future culvert installations on the added lands may not adequately provide fish passage and would remain barriers until discovered during effectiveness monitoring reviews and rescheduled for replacement.

Overall, applying the HCP aquatic conservation strategy to added lands is expected to benefit the HCP-covered fish species by: 1) reducing sediment to HCP fish-bearing streams by 10 percent per decade in those areas prioritized for corrective actions, 2) maintaining in-stream temperatures, 3) maintaining LWD contribution and channel form and function, 4) replacing fish passage barriers, and 5) tracking the cumulative watershed effects that represent collective aquatic impacts and addressing potential effects at the project level.

For added lands, the HCP is expected to result in a net reduction in sediment delivery to areas identified for corrective actions. The HCP grazing and timber harvest conservation strategies

would protect the integrity of riparian vegetation, which would contribute to the maintenance of habitat complexity and stream temperatures to support HCP-covered fish species on the added lands. The addition of lands with existing culvert barriers that would be replaced or removed under the HCP would ultimately increase HCP-covered fish access to habitats presently blocked by culvert barriers. The HCP commitments to identify parcels at risk for cumulative watershed effects would ensure that DNRC activities do not contribute additional cumulative impacts through project-specific measures.

### Effects on Canada Lynx from Adding Lands

Implementing the HCP commitments that address the key habitat attributes for lynx on additional lands composed of scattered parcels would primarily benefit dispersing lynx, lynx roaming beyond the normal home range in search of food, or lynx occupying lands where scattered parcels occur within lynx home ranges centered on adjacent federal lands providing habitat for lynx. The expansion of the HCP commitments to increased acreage would provide habitat connectivity, patches of foraging habitat, and an extension of habitat from adjacent federal lands to HCP lands where ownership patterns allow.

Adding lands to the HCP may result in the following adverse effects on Canada lynx: 1) reduction of winter foraging habitat for snowshoe hares – the primary prey of the lynx, 2) green harvest of live trees following a fire that would reduce winter foraging habitat below the required 20 percent in an LMA (which was identified and planned for as a changed circumstance in the HCP), and 3) pre-commercial thinning that limits a stand's ability to provide dense cover and future foraging habitat for snowshoe hares. The reduction of winter foraging habitat for snowshoe hares would most likely occur if added lands were acquired from Federal land managers. Added lands acquired from the private timber industry are more likely to incur an increase in winter foraging habitat under the HCP commitments.

If the added lands support an abundance of winter foraging habitat (as is present in the existing LMAs in the HCP project area and amended HCP project area), individual projects that treat substantial amounts of multistoried winter foraging habitat in LMAs, and/or the cumulative reduction in winter foraging habitat over the permit term, or harvest of winter foraging habitat under a changed circumstance, may result in adverse effects on lynx accustomed to the

abundance of winter foraging habitat in the area.

The potential for adverse effects from reduction of winter foraging habitat would be limited because the acres treated will be tracked and monitored by DNRC for the permit duration, and DNRC's harvest level is regulated by their sustainable yield. Further, most acquisitions are likely to be private industrial forest lands where HCP implementation would result in a net increase in winter foraging habitat. If DNRC reaches the 20 percent threshold for winter foraging habitat in LMAs, it would seek non-lynx habitat stands for harvest, or conduct light thinning treatments that would maintain habitat attribute levels and foraging habitat. Due to the large size of most of the LMAs and abundance of potential habitat within them, 20 percent of total potential habitat in LMAs maintained as winter foraging habitat would adequately sustain snowshoe hare densities to support lynx recruitment. The potential for adverse effects from green harvest following a changed circumstance that reduces winter foraging habitat is limited to 2,320 acres for the Permit term.

The potential for adverse effects on lynx from pre-commercial thinning would be limited by DNRC's operational constraints that limit the acres the agency can reasonably thin on an annual basis and the HCP commitments that: 1) retain 20 percent of thinning units in LMAs in an unthinned condition (LY-LM3, LY-HB4), 2) retain a component of shade tolerant tree species important for developing horizontal cover in regenerating stands (LY-HB4), and 3) accelerate development of multi-storied stands in LMAs and on scattered parcels (LY-LM3). Further, DNRC estimated that the acres treated annually would likely be replaced by habitat growing into summer foraging habitat across the HCP project area in the same year (USFWS 2011, Chapter III, p. III-62).

Overall, increasing the size of an LMA through the addition of lands and implementing the HCP LMA commitments would benefit lynx. The HCP LMA commitments include: 1) requiring that 65 percent of total potential lynx habitat be maintained as suitable habitat across the LMA (LY-LM1), 2) limiting the conversion of lynx suitable habitat over each 10-year period in the LMA (LY-LM3), and 3) requiring that at least 20 percent total potential lynx habitat be maintained as lynx winter foraging habitat across the LMA (LY-LM2). These benefits would improve lynx conservation through greater habitat stability and provisions for a continuum of forested stands

in various structural stages on increased acreage where lynx populations are known, or are most likely to occur. Further, implementing the HCP commitments that address the key habitat attributes for lynx on additional scattered parcels would benefit dispersing lynx or lynx roaming beyond their normal home range in search of food. Implementing HCP commitments would also benefit lynx occupying lands where scattered parcels occur within federally managed LAUs that provide habitat for lynx at a broad landscape scale. The expansion of the HCP commitments to increased acreage would provide habitat connectivity, patches of foraging habitat, and an extension of habitat from adjacent federal lands to HCP lands where ownership patterns allow.

### Effects on Grizzly Bears from Adding Lands

Overall, the addition of lands to the HCP would benefit grizzly bears by reducing open roads, ensuring key foraging and denning habitats are available to grizzly bears free from human conflicts, and maintaining habitat connectivity. Nevertheless, lands added to the HCP are likely to contain conditions that may adversely affect grizzly bears, primarily attributed to high road densities.

High road densities may displace a few female grizzly bears in a limited number of instances from habitat and potentially lead to a failure to reproduce or reduced recruitment of cubs. The risk of displacement is limited when newly acquired lands occur in blocked lands due to: 1) implementation of the transportation plans, 2) security zones in the Stillwater Block, 3) active timber management/rest rotation in the Swan River State Forest, and 4) limited management in spring habitat and denning habitat. High road densities on scattered parcels in NROH may persist under the HCP because there is no cap on total or open roads on these lands. The effects of high road densities on scattered parcels in recovery zones and associated NROH is limited by the HCP commitments that limit management activities in the spring season (GB-NR3), ensure visual screening in RMZs and WMZs (GB-PR6), and limit the distance to cover in harvest units in NROH (GB-NR4). The measures increase the security of these important habitats for bears to feed, breed, and acquire shelter.

Overall, the HCP would reduce the risk of displacement of bears from habitats with high road densities by reducing the miles of roads that are open to human motorized access by removing roads that are no longer necessary to meet forest management goals, buffering bears from human

presence, and maintaining vegetative screening along open roads. The HCP would reduce mortality risk for bears by decreasing the risk of personnel conflicts with grizzly bears through restrictions on firearms, requirements for proper sanitation and food storage, and providing rested areas where bears can retreat after a disturbance or choose to remain in order to meet their seasonal habitat needs to successfully raise young.

## 3.11 Other Fish and Fish Habitat

### *3.11.1 Affected Environment for Other Fish and Fish Habitat*

Fish and fish habitat in the HCP project area has not measurably changed from that described in the 2010 Final EIS (pp. 4-181 through 4-246). Other fish species and fish species of concern on the added lands are the same as those reported for the HCP project area in the 2010 Final EIS (pp. 4-245 through 4-246). In the state of Montana, MFWP identifies, detects, and establishes programs to address non-present aquatic invasive species that may become a threat to aquatic resources in Montana. Invasive fish species monitored by MFWP include: bighead carp (*Hypothalmichthys nobilis*), black carp (*Mylopharyngodon piceus*), grass carp (*Ctenopharyngodon Idella*), silver carp (*Hypophthalmichthys molitrix*), round goby (*Neogobius melanostomus*), ruffe (*Gymnocephalus cernua*), tench (*Tinca tinca*), zander (*Sander lucioperca*), and northern snakehead (*Channa argus*). To date, none of the invasive fish species monitored by MFWP have been detected in Montana (Schmidt and McLane 2017).

Several aquatic invasive parasites, mollusks, and plants are present or detected in the HCP project area and may have impacts on HCP-covered fish species and other fish or fish habitat. New Zealand mudsnails were first detected in the Madison River in 1995 and rapidly expanded in the upper Missouri River AAU. Currently, mudsnails are restricted to the Upper Missouri River AAU including populations in the Beaverhead, Ruby, Jefferson, Madison, and Missouri rivers. To date, MFWP management actions are focused on mitigation of the primary mechanism for dispersal of the species, which is generally through angling equipment (MFWP 2002).

In 2015, the Columbia River basin was the only major watershed in the United States where zebra and quagga mussels, hereafter Dreissenid mussels, were not found. In 2016, suspected Dreissenid mussels were detected in Tiber Reservoir on the Marias River, Canyon Ferry

Reservoir on the upper Missouri River, and in the Milk River basin (Schmidt and McLane 2017). Therefore, the Upper Missouri River AAU is the only location in the HCP project area affected by these species. In April 2017, the state established the Montana Mussel Response Team in order to develop a swift and comprehensive plan to prevent the spread of these invasive mussels.

Eurasian watermilfoil was first detected in Montana in Noxon Rapids Reservoir in 2007 in the Middle Clark Fork AAU. Subsequent detections in 2010 occurred in the Upper Missouri River AAU in the Jefferson River and upper Missouri River upstream from Canyon Ferry Reservoir (Schmidt and McLane 2017). The likelihood of establishment of Eurasian watermilfoil in the HCP-covered streams is relatively low due to the species' habitat requirements and preference for warmer water temperature, slow-moving water velocity and small substrates (Smith and Barko 1991).

### *3.11.2 Environmental Consequences for Other Fish and Fish Habitat*

#### Effects of the Proposed Action

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The benefits of the 2015 Settlement Agreement for HCP-covered fish species would also be realized for other cold water native fish, other fish species of concern, and fish habitat. Specifically, the benefits include completing corrective actions on high risk sediment sites within bull trout watersheds by 2027 and in bull trout critical habitat by 2024. For sites in bull trout critical habitat this is three years sooner than required by the 2010 HCP. Other benefits include limited forest management on 22,007 acres in the grizzly bear security zones for the remainder of the Permit term. Together, these changes would reduce localized adverse effects from sediment delivery associated with reactivated roads, timber harvest, and potential associated soil movement. The limited harvest in the security zones would also ensure recruitment of large woody debris to stream channels to support habitat complexity and maintain stream temperatures and stream-side shade.

Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

The effects of adding lands to the HCP for other native cold-water fish species would be the same as that described in the 2010 Final EIS (Chapter 4, pp. 4-246 through 4-300). Overall, the HCP commitments would benefit native cold-water fish species by maintaining stream-side shade and riparian cover; recruitment of large woody debris; reduction of sediment delivery from timber harvest, roads, and grazing licenses; and watershed-scale analysis of cumulative project effects. Further, native fish species are expected to benefit from the conservation easements on the Swan, Upper Blackfoot, and Chamberlain conservation easements that cap baseline levels of roads on 28,899 acres, restrict grazing licenses on 27,529 acres, and implement wider riparian buffers on important HCP fish-bearing streams in the Swan River State Forest.

**Summary of Effects of the Proposed Action**

The Proposed Action would benefit all native fish and fish habitat as described for the HCP-covered fish species in Sections 3.9.1 and 3.9.2.

#### Effects of the No Action Alternative

Under the No Action Alternative, the effects on native fish and fish habitat would be largely the same as those described for Proposed Action. If the added lands were not added to the HCP project area, some minor benefits would not be fully realized for those lands not included in a conservation easement. This is because these areas would not be subject to the HCP commitments for a 50-foot no- harvest buffer; extended buffers for CMZs; or have set timeframes to address sediment problem sites on roads, culvert barriers, or grazing corrective actions on HCP fish-bearing streams.

## 3.12 Other Wildlife and Wildlife Habitat

### *3.12.1 Affected Environment for Other Wildlife and Wildlife Habitat*

Wildlife and wildlife habitat in the HCP project area has not appreciably changed from that described in the 2010 Final EIS. Therefore, this section focuses on changes in status of Federal candidate species since publication of the 2010 Final EIS including: the yellow-billed cuckoo (*Coccyzus americanus*), wolverine (*Gulo gulo luscus*), fisher (*Pekania pennanti*), and gray wolf (*Canis lupus*).

## Yellow-billed Cuckoo

The yellow-billed cuckoo is a medium-sized bird that uses a variety of riparian habitats. Caterpillars and katydids are preferred food items, but they will also eat tree frogs, cicadas, and grasshoppers; particularly when feeding their young. Cottonwood and willow trees are an important foraging habitat in areas where the cuckoo has been studied in California. Western yellow-billed cuckoos appear to require large blocks of riparian habitat for nesting (81 FR 87246-87272). There are no records of direct breeding evidence in Montana. Of the 18 records of yellow-billed cuckoo occurrence in Montana, more than half of them are presumed to be transient (migrants) (Montana Bird Distribution Committee 2012).

On October 3, 2014, the yellow-billed cuckoo was listed as a threatened species under ESA (79 FR 59992-60038). In the HCP project area, records for yellow-billed cuckoo in Montana document their presence in Flathead, Glacier, Lake, Missoula, and Ravalli counties. There are just 18 records for Montana, the most recent in 2012. In the 2014 listing decision, the primary factors threatening the western DPS were identified as loss and degradation of habitat for the species from altered watercourse hydrology and natural stream processes, livestock overgrazing, encroachment from agriculture, and conversion of native habitat. On August 15, 2014, the USFWS proposed to designate of critical habitat for yellow-billed cuckoo in nine western states; Montana was not included (79 FR 48548-48652).

## Wolverine

The wolverine is a rare, medium-sized, wide-ranging carnivore. It is an opportunistic scavenger in the winter and opportunistic omnivore in summer consuming a wide range of prey including snowshoe hares, marmots, ground squirrels, red squirrels, salmon, porcupine, mice voles, and berries (USFWS and DNRC 2010, Chapter 4, p. 4-415). Wolverines do not appear to specialize on specific vegetation or geological habitat aspects, but instead select areas that are cold and receive enough winter precipitation to reliably maintain deep persistent snow late into the warm season (Copeland et al. 2010). The requirement of cold, snowy conditions means that, in the southern portion of the species' range (including Montana) where ambient temperatures are warmest, wolverine distribution is restricted to high elevations, while at more northerly latitudes, wolverines are present at lower elevations and even at sea level in the far north (Copeland et al.

2010).

The USFWS is currently in the process of determining the status of the distinct population segment (DPS) of the North American wolverine in the contiguous United States. On February 4, 2013, the USFWS published a proposed rule to list the DPS of wolverine occurring in the contiguous United States as threatened, under the ESA (78 FR 7864). On August 13, 2014, based on the USFWS' conclusion that the factors affecting the DPS as identified in the proposed rule were not as significant as believed at the time of the proposed rule's publication in 2013, the proposed rule to list the DPS of the North American wolverine as a threatened species under the ESA was withdrawn (79 FR 47522). In October 2014, complaints were filed in the District Court for the District of Montana by several organizations challenging the withdrawal of the proposal to list the North American wolverine DPS. As a result of the court order (issued April 4, 2016), the August 13, 2014, withdrawal was vacated, the status is now proposed and remanded to the USFWS for further consideration consistent with the order.

The USFWS is conducting a new review on the wolverine population to determine whether it is warranted for listing. As part of this process, the USFWS reopened the public comment period on the proposed rule to list the North American wolverine as threatened under the ESA on October 17, 2016. The comment period closed on November 17, 2016 and the USFWS continues to complete its review of the wolverine population.

### Fisher

The Northern Rocky Mountain fisher (hereafter NRM fisher) is a small, carnivorous mammal, similar to a pine marten (*Martes americana*). Fishers occupy low to mid-elevation conifer or mixed conifer forests with abundant physical structure near the ground. The NRM fishers are distributed across parts of western Montana and central Idaho. The NRM fisher was most recently petitioned for listing under the ESA in 2013. On January 12, 2016, the USFWS subsequently published substantial 90-day finding (81 FR 1368). On November 18, 2016, the USFWS notified its conservation partners that it is in the process of determining the status of the DPS of the fisher in its United States northern Rocky Mountain range (81 FR 87246-87272).

### Gray Wolf

Between 2003 and 2008, the USFWS once reclassified and twice delisted all or part of the NRM gray wolf population. These rules were overturned by various U.S. District Courts. In response, Congress adopted Section 1713 of the Department of Defense and Full-Year Continuing Appropriations Act of 2011, ordering the Secretary of the Interior to reissue the 2009 Rule without regard to the ESA and without judicial review. On May 5, 2011, USFWS complied with Section 1713 by reissuing the 2009 Rule. Environmental groups filed a lawsuit challenging the constitutionality of Section 1713 under the separation of powers doctrine. On August 3, 2011, the district court granted summary judgment to the government defendants. The Ninth Circuit Court of Appeals affirmed the district court judgement.

The wolf population in Montana remains healthy and thriving. Wolves are controlled through implementation of carefully regulated hunting and trapping seasons, and wildlife personnel as necessary. Annual wolf harvest from 2011 to 2015 averaged 207, and ranged from 166 to 230 individuals. During the last two years, the Montana minimum wolf count decreased by 18 wolves, from a minimum count of 554 in 2014 to a minimum count of 536 in 2015. This minimum count for 2015 was obtained with less personnel time than in recent years (MFWP 2016), suggesting that this lower count is likely conservative. The minimum number of packs statewide decreased from 134 at the end of 2014 to 126 at the end of 2015. The minimum number of known breeding pairs in Montana decreased from 34 at the end of 2014 to 32 at the end of 2015. The Montana wolf population is secure and far above the 150 wolf and 15 breeding pair minimums of the state plan, and it has been for over a decade (MFWP 2016).

DNRC ARMs include provisions for the management of wolves. These measures are expected to reduce the risk of adverse effects on wolves as a result of forest management. Further, given that wolves in Montana are delisted, their populations are thriving, they are under close management by MFWP, and that their numbers remain well above trigger levels for population status review by the USFWS, they are not addressed further in this analysis.

### *3.12.2 Environmental Consequences for Other Wildlife and Wildlife Habitat*

#### Effects of the Proposed Action and No Alternative

## Wolverine

The 2010 Final EIS concluded that the likelihood of den site disturbance for wolverines was low (p. 4- 419). The likelihood of effects in the Stillwater Block is further reduced under the 2015 Settlement Agreement because all timber harvest is prohibited above 6,300 feet elevation in winter. Although wide ranging, wolverines are associated with high elevation habitats typically above 6,000 feet elevation (Copeland et al. 2007), particularly when denning and rearing young. None of the added lands contain high elevation habitats used by wolverine and no measurable effects on wolverines are expected from management of the added lands under either the Proposed Action or No Action Alternative.

## Fisher

Fishers occur primarily in dense coniferous or mixed forests, including early successional forests with dense overhead cover. Forest structure, which affects prey abundance and vulnerability, and provides denning and resting sites for fishers, is probably more important than tree species composition. Under the Proposed Action, effects of timber harvest on fisher including thinning, reduction of habitat, and provisions for denning and resting sites would be addressed at the project level through ARM

36.11.440. The ARM emphasizes the maintenance of dense forest, snags, and LWD in riparian areas. The ARM also requires DNRC to manage for at least one forested patch providing connectivity between adjacent third-order drainages, preferably in saddles, where landscape conditions allow. Managing the added lands under the Proposed Action would implement the HCP commitments and conservation easement terms that reduce harvest in riparian areas which would minimize reductions in riparian forest canopy, which are used by fisher, as well as maintain forest structure and connectivity, other important habitat components for fisher. The No Action Alternative would similarly implement ARM 36.11.440, but would not require the 50-foot no-harvest buffer on Class 1 streams on the added lands. Nevertheless, implementation of the DNRC ARMs and the Swan, Chamberlain, and Blackfoot conservation easements would reduce the risk of effects by limiting harvest in riparian areas in fisher habitat under the No Action Alternatives.

## 3.13 Recreation

### *3.13.1 Affected Environment for Recreation*

Across the 2010 EIS planning area and HCP project area, recreational use on public and private lands continues to increase. Hunting, fishing, and wildlife-associated recreation continue to be the most popular recreational activities on DNRC trust lands. Other popular recreational activities include motorized recreation, bicycling, hiking, cabin leases, camping, and outfitting. Popular winter sports include snowmobiling, skiing, snowshoeing, and ice fishing.

The Swan added lands provide seasonal access to high elevation lakes in summer and to designated public trails. Some parcels in the Blackfoot added lands are enrolled in a MFWP block management hunting area, and some of the Blackfoot parcels are likely to receive some snowmobile use. The added lands also provide opportunities for hunting, fishing, wildlife-associated recreation, dispersed camping, and winter sports.

### *3.13.2 Environmental Consequences on Recreation*

The analysis of effects of forest management and associated HCP on recreation considers access and factors that affect the quality of the recreational experience (e.g., visual considerations and disturbance).

#### Effects of the Proposed Action

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The 2015 Settlement Agreement would retain the Stillwater Transportation Plan described for the 2010 HCP. Therefore, the increased recreational access opportunities described for the Stillwater Block in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, p. 4-451) would be maintained by this alternative.

Opportunities for hunting, berry picking, and other activities in young, open-canopy forest described for the Stillwater Core under the 2010 HCP (most of which now occurs in established security zones) would essentially remain unchanged, as these areas would continue to allow year-round non-motorized access for recreational use. The 2010 Final EIS stated that a decreased quality in the recreational experience may occur for recreational users in the Stillwater due to

increased management in the Stillwater Core (USFWS and DNRC 2010, Chapter 4, p. 4-452). This potential negative effect would be reduced under the Proposed Action Alternative because 22,007 acres would be subject to limited harvest opportunities.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Adding lands to the HCP would have limited effects on recreation. The HCP has the potential to affect levels of recreation access and quality of the experience on the added lands. The added lands are already roaded and DNRC anticipates it would add limited new miles of roads over the Permit term. Existing open roads on scattered parcels in the Upper Blackfoot and Lolo Land Exchange added lands (1,789 acres in the grizzly bear recovery zones) would be subject to further scrutiny once included in the HCP (GB-SC1). This could reduce the availability of open roads to the public in this localized area in the future.

The majority of existing roads on the added lands are restricted from year-round motorized public access (712 miles of the existing 805 miles []) and the HCP commitments would similarly limit public motorized access on any new roads constructed. Therefore, there would be little change in motorized access for recreational activities on the added lands, but existing opportunities for non- motorized access including hunting, fishing and wildlife-associated recreation, dispersed camping, and winter sports would remain.

Given the history of timber management on the added lands, minor negative effects on quality of experience for recreationists using areas undergoing active harvest would persist. The anticipated effects would likely occur periodically, be localized and temporary in nature.

**Summary of Effects of the Proposed Action**

DNRC lands provide a variety of recreational opportunities for the public. Under the Proposed Action, this trend would continue and very few adverse effects on access or quality of experience are anticipated.

## Effects of the No Action Alternative

The effects on recreation from implementing the 2015 Settlement Agreement in the Stillwater Block would be the same as those described for the Proposed Action Alternative.

The effects on recreation from implementing the Forest Management ARMs on the added lands would be largely the same as described for the Proposed Action. While the added lands would not be subject to the terms of the HCP, DNRC ARMs still minimize roads. Any new roads constructed would likely be restricted from public access year-round or seasonally for wildlife or cost benefit. As such, the existing levels of access and types of recreational uses on the added lands are likely to be maintained.

Existing open roads on scattered parcels in the Upper Blackfoot and Lolo Land Exchange added lands (1,789 acres in the grizzly bear recovery zones) would not be subject to potential closure under the No Action Alternative.

Overall, like the Proposed Action Alternative, DNRC lands are expected to continue to provide a variety of recreational opportunities with limited effects for the public under the No Action Alternative.

## 3.14 Visual Resources

### *3.14.1* Affected Environment for Visual Resources

The added lands are located within the planning area analyzed in the 2010 Final EIS, and the landscape characteristics described for the planning area in the 2010 Final EIS, including mountain ranges, forest conditions, and riparian corridors have not measurably changed over the past six years.

### *Environmental Consequences for Visual Resources*

The effects of forest management and the associated HCP on visual resources considers miles of new road on the landscape and acres of timber harvest.

#### Effects of the Proposed Action

Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The 2010 Final EIS concluded that the increased SYC under the 2010 HCP would result in some localized effects on visual resources in the Stillwater Block where increased acreage was opened to harvest. With implementation of the 2015 Settlement Agreement, the extent of increased

harvest in the Stillwater Block is not expected to occur, because harvest in the seven security zones is limited to the winter period and the challenges associated with winter harvest on steep terrain limit the likelihood of harvest in most areas. Therefore, the minor negative effects on visual resources in the Stillwater Block described in the 2010 Final EIS (i.e., vegetation clearing for roads and timber harvest) are less likely to occur.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Adding the lands to the HCP would have limited effects on visual resources. The HCP would maintain the visual experience associated with a managed landscape on working forest lands. Road building and timber harvest would periodically generate localized effects on visual resources, primarily for recreationists on state trust lands. The 2010 Final EIS stated that DNRC does not specifically implement measures to manage changes to visual resources, but noted that DNRC ARMs allow for site-specific prescriptive measures to reduce effects of timber harvest projects on visual resources. In addition to the ARMs, some measures included in the HCP would also benefit visual resources by limiting harvest in-stream corridors (AQ-RM1), retaining visual screening along open roads (GB-RZ2 and GB-PR6), and limiting timber harvest unit size (GB-NR4). These combined with the terms of the conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands (that limit roads and increase the riparian buffer on the Swan and Chamberlain) would further protect vistas and visual resources. Adding the lands to the HCP would not generate appreciable increases or decreases in visual impacts on the added lands.

## Summary of Effects of the Proposed Action

As described in the 2010 Final EIS, road building and timber harvest under the Proposed Action would result in localized effects on visual resources, primarily for recreationists on state trust lands (USFWS and DNRC 2010, Chapter 4, pp. 4-460 through 4-461). Some changes would also be visible from roads and scenic vistas at the landscape scale and would shift over time with forest succession. All such changes are within the range of expected effects in a managed landscape. Collectively, the HCP commitments that would partially offset negative effects on

visual resources include: 1) creating visual screening through limitations on harvest in-stream corridors (AQ-RM1) and along roads (GB-RZ2 and GB- PR6), and through limits on unit size (GB-NR4), 2) site-specific prescriptive measures allowed through the ARMs, and 3) the requirements of the conservation easements. Therefore, the Proposed Action would limit the extent and severity of localized effects on visual resources in this managed landscape.

#### Effects of the No Action Alternative

The effects on visual resources from implementing the 2015 Settlement Agreement in the Stillwater Block would be the same as those described for the Proposed Action Alternative.

Under the No Action Alternative, the effects of timber harvest on visual resources for the added lands would be partially reduced by DNRC ARMs that allow for site-specific prescriptive measures designed for this purpose. Further the conservation easements on the Swan, Chamberlain, and Blackfoot added lands as well as the application of the SMZ law (that provide residual tree densities along streams) would reduce visual resources for the viewing public and localized recreationists using stream-side corridors. Nevertheless, timber harvest would generate minimal localized adverse effects on visual resources. All such changes in visual resources are within the range of expected effects in a managed landscape.

## 3.15 Cultural Resources

### *3.15.1 Affected Environment for Cultural Resources*

Given the extent of Federal and State laws that govern and protect cultural resources, no substantial changes in the affected environment have occurred since 2010. Therefore, the affected environment for cultural resources on the HCP-covered lands including the added lands is largely the same at that described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-463 through 4-473).

### *3.15.2 Environmental Consequences for Cultural Resources*

The effects of a forest management program and associated HCP on cultural resources was assessed based on miles of road added to the landscape, access management, acres of grazing licenses, and acres of timber harvest.

## Effects of the Proposed Action

### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

The 2010 Final EIS concluded that increased access (miles of new road) and increased timber harvest under the 2010 HCP could expose areas of DNRC trust lands to increased risk of unauthorized entry or disturbance of cultural resources or traditional cultural properties in the Stillwater Block by increasing harvest opportunities on 19,400 acres. Implementing the 2015 Settlement Agreement would reduce the likelihood of this potential effect on the 22,007 acres in the security zones because harvest is limited to the grizzly bear denning period below 6,300 feet (i.e., in winter when conditions and steep terrain limit the ability to harvest).

Nevertheless, as discussed in the 2010 Final EIS, increased public access on the Stillwater Block could expose the area to greater risk of adverse effects on cultural resources and traditional cultural properties. In support of the 2010 Final EIS, all affected tribal governments were contacted and a Programmatic Agreement outlining DNRC's program to address this increased risk within the Stillwater Block was developed. Just one tribal government is signatory to the Programmatic Agreement: The Blackfeet Tribe. The 2015 Settlement Agreement would maintain the Programmatic Agreement such that the potential for adverse effects on cultural resources is low.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Adding the lands to the HCP would not change the likelihood or type of effects on cultural resources for these lands. This is because DNRC's program to avoid and minimize potential effects on cultural resources (described in the Final EIS on pp. 4-465 through 4-466) is robust and complies with all state laws governing the protection of cultural resources including: Montana State Antiquities Act, Montana Environmental Policy Act, and Montana Human Remains and Burial Site Protection Act. The only additional beneficial effect of the HCP commitments on cultural resources on the added lands would be implementation of a 50-foot no-harvest buffer in RMZs for Class 1 lakes and streams, which would provide increased protection for cultural resources adjacent to streams. The conservation easements on the Swan, Chamberlain, and Blackfoot added lands would further reduce the risk of adverse effects on cultural resources by: prohibiting grazing leases on 27,529 acres, prohibiting increases in

baseline road miles on 29,899 acres, and increasing the no-harvest buffer on important HCP-covered fish- bearing streams on the Swan acquisition.

**Summary of Effects of the Proposed Action**

Under the Proposed Action, DNRC would implement its cultural resource management procedures for all covered lands. Further, commitment AQ-RM1 (which applies a 50-foot no-harvest buffer in RMZs for class 1 lakes and streams) would provide increased protection for cultural resources adjacent to streams. The conservation easements on the Swan, Chamberlain, and Blackfoot added lands would also further reduce the risk of adverse effects on cultural resources. Therefore, implementation of the Proposed Action would reduce the potential for DNRC activities to generate adverse effects on cultural resources or to affect tribal access to traditional cultural properties. DNRC's existing program would address any risks or effects anticipated for cultural resources or tribal access to traditional cultural properties.

**Effects of the No Action Alternative**

Effects on cultural resources in the Stillwater Block would be the same as those described for the Proposed Action Alternative. For the remainder of the 2010 HCP project area and the added lands, DNRC would implement its existing cultural resource management procedures for all covered lands, which would address the potential for effects on cultural resources or tribal access to traditional cultural properties. Under the No Action Alternative, the benefits of commitment AQ-RM1 would not be realized, but conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands would further reduce the risk of adverse effects on cultural resources from road building and grazing licenses and for riparian areas in the Swan added lands. DNRC's existing program would address any risks or effects anticipated for cultural resources or tribal access to traditional cultural properties.

## 3.16 Socioeconomics and Environmental Justice

### *3.16.1 Affected Environment on Socioeconomics and Environmental Justice*

The affected environment for socioeconomics and environmental justice on the HCP-covered lands including the added lands is similar to, and has not substantially changed from, that

described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-481 through 4-493 and pp. 4-500 through 4-504).

The 2010 Final EIS identified Glacier and Lake Counties with the highest unemployment rates in the planning area, with the Blackfeet Indian Reservation likely contributing to the low employment rate in Glacier County. High unemployment persists in Glacier County and has also increased in Sanders, Lincoln, and Mineral Counties (MDLI 2016). The added lands are located in Missoula, Ravalli, Powell, Mineral, Lake, Sanders and Lincoln counties of which three report high unemployment rates. The primary minority populations in the affected environment remain the American Indians living in and near the Blackfeet and Flathead Indian Reservations (USFWS and DNRC 2010, Chapter 4, p. 4-502).

Prior to acquisition by DNRC, the added lands were mostly managed for industrial timber harvest, contributing forestry jobs and wages for the local areas. These lands also contribute to the forested landscape that composes the natural environment in these communities.

## *3.16.2 Environmental Consequences on Socioeconomics and Environmental Justice*

The effects of a forest management program and associated HCP on socioeconomics was assessed based on quality of life factors and the annual SYC and the resulting jobs and wages generated by DNRC's forest management program.

### Effects of the Proposed Action

#### Effects of Incorporating the Terms of the 2015 Settlement Agreement in the HCP

Implementing the 2015 Settlement Agreement would decrease the SYC in the Stillwater Block by 900,000 board feet for the Proposed Action (Table 3-1). The negotiated 2015 Settlement Agreement does allow for potential increased harvest over the amount imposed by the injunction filed by the Federal Court. The 2010 Final EIS stated that the biggest difference in forestry employment would occur in the area of the Northwestern Land Office due to changes in access in the Stillwater Block that opened new areas to timber harvest that would generate localized increases in employment (p. 4-496). This effect would only be partially realized under the 2010 Settlement Agreement due to the decrease in the SYC, which would result in a corresponding

potential reduction in employment. This loss of local employment would be partially offset by an increase in timber harvest of 1.2 MMBF for the Swan River State Forest in the Northwestern Land Office and an increase in timber harvest of 4.1 MMBF for the scattered lands of the Southwestern Land Office.

The Stillwater Block is located in Flathead County and likely draws employees from both Flathead and Lake Counties. Because the unemployment rate is low for both counties, the potential for disproportionate effects on minority or low-income populations is low.

### Effects of Adding Lands to the HCP-Covered Lands and Section 10(a)(1)(B) Permit

Adding lands to the HCP would not substantially change anticipated harvest levels or resulting employment opportunities or associated wages compared to the No Action Alternative. While the HCP places additional constraints on management of the added lands, the lands would continue to be managed for timber production and, thus, continue to generate jobs and forestry wages, benefiting local socioeconomics and potential minority and low-income populations in the region. As described in the 2010 Final EIS, the primary benefit to socioeconomics of managing the added lands under the HCP is the assurance that a long-term uninterrupted stream of wood products would continue to supply small and large forestry businesses (USFWS and DNRC 2010, Chapter 4, p. 4-496).

Implementing the HCP commitments on the added lands would benefit potential minority populations comprised of local Native American peoples by protecting and enhancing habitat for the HCP-covered species. Thereby, traditional places and the usual and accustomed use areas overlapping these habitats would also benefit from these protections. Adding the lands to the HCP is not expected to disproportionately affect minority or low-income populations.

### Summary of Effects of the Proposed Action

Under the Proposed Action, the 2015 SYC is within 1.2 percent of the 2010 SYC calculated for the 2010 HCP. The 2015 SYC is expected to generate between $19.7 and $21.5 million in annual forestry wages and between 507 and 553 jobs, which is within the range analyzed for the alternatives in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, Table 4.13-13). Anticipated gross revenues to the trust from the 2015 SYC are estimated to be in the range of

$12 million (Mason Bruce and Girard 2015). This amount of revenue is within the range of revenues estimated for the alternatives in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, Table 4.13-14). Therefore, the primary benefit of the Proposed Action is the greater assurance for a long-term, uninterrupted stream of wood products to supply small and large forestry businesses and the revenue stream that comes from state trust lands in Montana.

The Proposed Action is not expected to result in disproportionate effects on minority or low-income populations because the HCP commitments and conservation easements on the Swan, Chamberlain, and Upper Blackfoot added lands would serve to protect and enhance a wide range of habitat supporting traditional properties and usual and accustomed use areas of local Native American peoples.

**Effects of the No Action Alternative**

The effects of the No Action Alternative on socioeconomics are the same as those described for the Proposed Action. The effects of the No Action Alternative on social justice are also largely the same as those described for the Proposed Action. The ARMs and conservation easements on the Swan, Chamberlain, and Blackfoot added lands would also benefit minority populations comprised of local Native American people through protecting and enhancing habitat for the HCP and other species.

## 3.17 Short-term Uses and Long-term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by the Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

The premise of this HCP is the lawful operation of a forest management program on DNRC trust lands while ensuring the conservation of federally listed and candidate species. To that end, the

conservation strategies of the HCP would protect the long-term productivity of soil and water resources, rare plants, and forest vegetation.

## 3.18 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are decisions affecting non-renewable resources such as soils, wetlands, unroaded areas, and cultural resources. Such commitments are considered irreversible because the resource would be deteriorated to the point that renewal could only occur over a long period of time, or at great expense, or because the resource would be destroyed or removed. Irretrievable commitments of natural resources means loss of production or use of resources because of management decisions associated with an alternative. Irretrievable commitments represent opportunities foregone for the period of time that the resource cannot be used.

The Proposed Action and No Action alternatives represent programmatic plans for the management of forested trust lands in western Montana. The implementation of such plans is not in themselves a commitment of renewable or non-renewable resources. However, the plans dictate the management of renewable timber resources and such management does require the irretrievable commitment of resources (such as rock used in road beds and habitat loss from placement of new roads). Additionally, these management plans affect the amount of renewable timber harvested on an annual basis. The effects on such resources are analyzed in Sections 3.2 through 3.16 of this final Supplemental EIS. Decisions affecting renewable and nonrenewable resources would be analyzed and documented at the project-level for individually proposed projects.

## 3.19 Cumulative Effects

Council on Environmental Quality's NEPA regulations defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). MEPA defines cumulative effects as "the collective impacts on the human environment of the Proposed Action when considered in conjunction with other past, present, and future actions related to the

Proposed Action by location or generic type" (MCA 75-1-220 (3)).

As described throughout this Supplemental EIS analysis, the added lands have incurred similar past actions to those described in the 2010 Final EIS. Present and reasonably foreseeable future actions in the project area are largely the same as those described in the 2010 Final EIS, which is hereby incorporated by reference (USFWS and DNRC 2010, Chapter 5, pp. 5-1 through 5-18). More recent changes in the affected environment are described above in this final Supplemental EIS in Section 3.1 Affected Environment for the Planning Area and 2010 HCP Project Area. While climate change is not an action undertaken by an individual or agency, it is reasonably foreseeable and has far greater potential to influence future conditions for various aspects of the environment than any one individual action and is therefore discussed in this section.

### *3.19.1 Forest Vegetation*

Overall, implementing DNRC's HCP under its ongoing forest management program would contribute to healthy forest conditions by reducing diseased trees, reducing the risk of high-severity fires, and moving forested stands towards desired future conditions that are expected to be more representative of native forest conditions. Therefore, Proposed Action and No Action alternatives are not expected to result in adverse cumulative effects on forest vegetation. The projected increased temperatures and changes in precipitation patterns resulting from climate change will have positive or negative effects on trees based on local site and stand conditions. Increased wildfires, insect outbreaks, and periodic drought may contribute to premature die-off of trees, which may outpace forest growth and productivity over the long run, leading to a net loss of forested area in Montana.

### *3.19.2 Air Quality*

Changes in fire frequency, duration, and intensity as a result of climate change could increase the risk of temporarily reduced air quality in the region. Implementation of the Proposed Action and No Action alternatives would move DNRC forests toward healthier conditions. Healthier forest conditions could lower risk of severe wildfires, which could contribute to positive localized effects on air quality.

### 3.19.3 Transportation

Under the Proposed Action, and to a lesser extent under the No Action alternative, DNRC manages lands to limit motorized access, reduce miles of open roads, and remove roads no longer necessary to meet forest management objectives, which could contribute to a reduction in motorized public access on DNRC lands. Alternatively, where DNRC builds roads to access forested stands, non-motorized public access would increase. The primary effect of climate change on transportation is precipitation events (e.g. changes in timing, frequency, and duration of precipitation events) that may cause culvert washouts or road destabilization. Both the Proposed Action and No Action alternatives would potentially reduce the risk of culvert and road failures from these events due to DNRC's program that builds roads using Montana Forestry BMPs, SMZ law, and Forest Management ARMs for roads. Both alternatives also implement aquatic cumulative watershed effects (CWE) strategy which sets watershed-level thresholds to ensure compliance with water quality standards and protection of beneficial uses. The Proposed Action includes an adaptive management process and changed circumstances procedures that further provide opportunities to adapt the HCP measures.

### 3.19.4 Soils and Geology

New miles of roads and proposed culvert installations, replacements, and removals on the added lands under both alternatives would contribute to ongoing sediment delivery to the Amended HCP project area water resources. These effects would be partially offset by the anticipated Amended HCP-wide net reduction in sediment delivery from existing roads, as well as the conservation easements on the Swan and Chamberlain added lands, which prohibit livestock grazing and increases in road amounts above established baseline levels.

Across the planning area, ongoing residential, commercial, and public developments contribute to the natural process of erosion. Private projects are required to protect soils and waters during construction in order to reduce the risk of erosion and resulting sediment delivery to streams. Land managers similarly implement best management practices for a wide range of actions to reduce the risk of erosion and resulting sediment delivery to streams. The Proposed Action and No Action Alternatives are expected to contribute to a positive trend toward reduction of erosion and sediment delivery from chronic sources. These cumulative benefits may take longer to

realize under the No Action Alternative because there would be no timelines for corrective actions or culvert replacements.

Under the Proposed Action and No Action alternatives, effects of climate change (such as changes in the amount or form of precipitation) on soils and geology would be similarly addressed through DNRC's BMP monitoring program and project specific mitigation measures applied through the CWE assessment and MEPA processes. The Proposed Action includes an adaptive management process and changed circumstances procedures that further provide opportunities to adapt the HCP measures.

### *3.19.5 Water Quality and Quantity*

The 2010 Final EIS stated that the implementation of the 2010 HCP would contribute to a cumulative reduction in sediment delivery thereby contributing to cumulative improvements in water quality in HCP fish-bearing streams. The 2010 Final EIS also stated that gradual improvements in water quality were expected due to planning area-wide regulations dictating new road construction and maintenance, riparian area management, and land use planning. The Proposed Action is expected to contribute similar cumulative effects as those described for the 2010 Final EIS. That is, implementation of the HCP on an increased acreage would contribute to a net reduction in sediment delivery thereby improving water quality in the HCP project area. These cumulative benefits would similarly be realized for the No Action Alternative, although the improvements may take longer to achieve because there would be no timelines for corrective actions or culvert replacements.

As climate change contributes to regional and localized changes in baseline conditions, both the Proposed Action and No Action alternatives would respond through the CWE strategy, SMZ law, and Montana Forestry BMPs. The Proposed Action includes an adaptive management process and changed circumstances procedures that further provide opportunities to adapt the HCP measures.

### 3.19.6 Plant Species of Concern, Noxious Weeds, and Wetlands

Under the Proposed Action, the HCP commitments that reduce miles of roads, restrict timber harvest from spring grizzly bear habitat, restrict timber harvest along streams, require DNRC to address sediment delivery, and restrict motorized access would cumulatively benefit plant SOC by reducing the risk of direct impacts and would reduce the risk that noxious weed would spread. As stated in the 2010 Final EIS, the factors contributing to the spread of noxious weeds may overwhelm the beneficial effects over time. The Proposed Action and No Action Alternatives also similarly address the potential for cumulative effects on wetlands through implementation of ARMs and the terms of the conservation easements in the Swan and Chamberlain added lands that prohibit adverse effects on wetlands.

Climate change is likely to affect the floral composition of the western Montana landscape over time as described in the 2010 Final EIS (USFWS and DNRC 2010, pp. 4-163 through 180). As such, some native species may become increasingly rare and non-native species increasingly problematic. Species composition and indicator status of wetlands may also change. As evaluated in the 2010 Final EIS, DNRC's ARMs (36.11.428 and 36.11.436, 36.11.445, and 36.25.159), implemented for both the Proposed Action and No Action alternatives, provide the means to identify and adapt to these changes over time to ensure that forest management does not contribute adverse effects on these changing resources.

### 3.19.7 Fish and Fish Habitat

Over time, implementation of the Proposed Action and No Action Alternatives would contribute to a cumulative reduction in sediment delivery to streams and rectify culvert barriers to fish passage. The amount of time to realize these benefits may be greater under the No Action Alternative. Climate trends and its effects on water described in Section 3.2 would have varying effects on fish and fish habitat depending on species' habitat requirements. Increased drought, higher demand for surface and groundwater resources, and seasonal changes in availability of water are likely to contribute to negative effects for Montana's native fish. As discussed for Water and Water Quality, the Proposed Action includes an adaptive management process and changed circumstances procedures that further provide opportunities to adapt the HCP measures, which may benefit fish and fish habitat.

### 3.19.8 Wildlife and Wildlife Habitat

Overall, the Proposed Action and No Action Alternatives would benefit wildlife and wildlife habitat by maintaining a healthy, working forest structure that provides a range of habitat types, age classes, size classes, and structural compositions contributing to the cumulative availability of habitat in the planning area. Climate change is likely to change the distribution and composition of wildlife habitat and associated wildlife over time as plants and animals adapt to changing conditions.

### 3.19.9 Recreation and Visual Resources

The Proposed Action and No Action Alternatives would maintain increased public access to seasonally popular areas in the Stillwater Block described for the 2010 HCP, thereby generating a cumulative benefit to the recreating public. Recreational and visual resources may be affected by climate in a variety of ways as described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4- 441 through 4-454 and 4-455 through 4-462). Climate change could change the form of public motorized or non-motorized public access (e.g., more wheeled access/less snowmobile access). Climate may contribute to fire severity or other visual effects that, when added to the effects associated with timber harvest, decrease the quality of the recreational experience for those accessing the HCP project area or viewing it from the road. These effects would not vary between the Proposed Action and No Action Alternatives and are expected to be within the range of effects expected in a forested environment and would not represent a cumulative adverse effect.

### 3.19.10 Cultural Resources

The Proposed Action and No Action alternatives would implement the Programmatic Agreement to address potential adverse effects on cultural resources in the Stillwater Core as described for the 2010 HCP. Implementation of the Programmatic Agreement along with implementation of DNRC ARMs, are expected to reduce the likelihood that the alternatives would contribute cumulative effects on cultural resources. Archaeological, historical, cultural, and tribal trust resources may be affected by climate in a variety of ways as described in the 2010 Final EIS (USFWS and DNRC 2010, Chapter 4, pp. 4-473 through 4-474 and 4-478 through 4- 479). Implementation of the Proposed Action and No Action alternatives is not

expected to contribute to cumulative effects on cultural resources realized by climate change.

### *3.19.11 Socioeconomics*

The Proposed Action provides the same assurances as the 2010 HCP that trust lands would continue to generate jobs and wages as well as revenues to the trust beneficiaries. The Proposed Action and No Action Alternatives would maintain a timber harvest program generating jobs and wages as well as revenues to the trust beneficiaries and are not expected to contribute to cumulative effects on socioeconomics. DNRC Trust Lands Management Division is tasked with producing revenues to the trust beneficiaries while considering environmental factors and protecting the future income-generating capacity of the land. Therefore, any effects of climate changes on harvest volumes that reduce revenues and jobs are expected to be made up through other industry.

# CHAPTER 4: CONSULTATION AND COORDINATION

## 4.1 Preparers and Contributors

The following individuals contributed to the development of this final Supplemental EIS.

### USFWS Contributors

Ben Conard, Supervisory Fish and Wildlife Biologist, Ecological Services

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### DNRC Contributors

Gary Frank, Deputy Bureau Chief, Forest Management Bureau

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Jeff Schmalenberg, Supervisor, Resource Management and Planning Section, Forest Management Bureau

Jessica Thiel, Planner, Forest Management Bureau

Tim Spoelma, Silviculturist, Forest Management Bureau

### Private Contractor

The following contractor staff also contributed to preparation of this Supplemental EIS:

Kathleen Ports, Ports Consulting

## 4.2 Distribution of the Supplemental Environmental Impact Statement

Upon publication of this final Supplemental EIS, the Notice of Availability (NOA) will be distributed to the Federal agencies, Federally recognized tribes, State and local governments, and organizations and individuals identified in Table 4-1. The document will also be available on the federal regulations website: https://www.regulations.gov/docket?D=FWS-R6-ES-2017-0044 and the DNRC website along with an opportunity to submit electronic comments: http://dnrc.mt.gov/divisions/trust/forest- management/hcp/hcp-announcements .

**Table 4-1. Distribution List for the final Supplemental EIS**

| | | |
|---|---|---|
| Al Christophersen | Jane Adams | Rich Furman |
| Alec N. Hansen | Jeff Juel | Selkirk Conservation Alliance |
| Andy Brummond | Jim Williams | Ann Hedges |
| Angela Daenzer | John Camden | Susan Briggs |
| Arlene Montgomery | Katherine Jasper | Teton County |
| Ben Deeble | Keith Hammer | Tom Carlsen |
| Benton Lake National Wildlife Refuge | Keith Olson | Tom Lemke |
| Beth Dodson | Kristen Baker | Toole County Commissioners |
| Bowdoin National Wildlife Refuge | Lee Metcalf National Wildlife Refuge | Sonoran Institute, Northern Rockies Office |
| Broadwater County Commissioners | Lewis Young | Nancy Kostman |
| Cascade County | Linda Cardenas | Alliance for the Wild Rockies |
| Cascade County Commissioners | Mary Scurlock | Pat Seymour |
| Charles M. Russell National Wildlife Refuge | Medicine Lake National Wildlife Refuge | Northwest Montana Wetland Management District |
| Chris Frissell | Minette Johnson | David Groeschl |
| Chuck Roady | Montanans for Multiple Use | Francis Auld |
| Craig Fager | National Bison Range | Darrell “Curley” Youpee |
| Dan Pletscher | Northern Plains Resource Council | Emerson Bull Chief |
| David Gaillard | Northwest Connections | John Grassy |
| Debbe Merseal | Margaret Spence | Mike Atwood |
| Fred Samson | Patrick Seymour | Harold Blattie |
| Gary Carnefix | Powell County Commissioners | Julia Altemus |
| Gary Hammond | Ravalli County | Noel Williams |
| Harold Blattie | Red Rock Lakes National Wildlife Refuge | Tom Weaver |
| Teanna Limpy | Jonathon Proctor | Mike Lilly |
| Kevin Chappell | Nancy Ivy | Alvin Windy Boy Sr. |
| Patrick Rennie | Sharon Rose | Kim Swaney |
| Jessica Brown | Morris E. Belgarde | Michael Black Wolf |
| Paige Goveia | Kelsey Myers | Kyle Felsman |

## 4.3 Public Comment Process

The draft Supplemental EIS was released for a 45-day public comment period that began August 29 and ended on October 13, 2017. During this time, the USFWS and DNRC received 13 comment letters and emails on the draft Supplemental EIS.

Each public comment letter was assigned a unique identifying number, and then individual comments within each letter were identified. There were 48 individual comments identified from the comment letters. A team was formed consisting of several individuals from the USFWS and DNRC to respond to public comments.

## 4.4 Public Comments on the Draft Supplemental EIS

Table 4-2 identifies each numbered public comment letter and the name of the individual or organization that submitted the letter. This table also informs readers where to find responses to the comments contained in each letter. All letters were reviewed by the Project Team, but some letters did not require response because the comments were not applicable to the Project or action under consideration. The USFWS encourages everyone to read the responses to comments in their entirety for a full understanding of all the comments received and the USFWS' responses to these comments.

**Table 4-2. Unique Public Comment Letters Received**

| Letter # | Name / Organization | Comment Number with USFWS Response |
|---|---|---|
| 1 | United States Environmental Protection Agency | 1, 2 |
| 2 | Montana Fish, Wildlife, and Parks | 3 |
| 3 | Friends of the Wild Swan | 4-40 |
| 4 | Kate Cremer-Vogel | 41, 42, 43 |
| 5 | Katelyn Newman | 44 |
| 6 | Robert Kobza | 45 |
| 7 | Millie Carson | 46 |
| 8 | Jean Publieee | Letter considered but dismissed. |
| 9 | Brian Wing | Letter considered but dismissed. |
| 10 | Anonymous | Letter considered but dismissed. |
| 11 | Anonymous | Letter considered but dismissed. |
| 12 | Anonymous | Letter considered but dismissed. |
| 13 | Anonymous | Letter considered but dismissed. |

## 4.5 Responses to Comments

Below are the USFWS' and DNRC's responses to comments on the draft Supplemental EIS.

### *Comments Received from the EPA*

**Comment 1**. "We recommend that the Final EIS provide clarification to Section 3.7, Water Resources, regarding the effects of applying the HCP commitments associated with forest management activities to newly acquired lands. Specifically, we recommend reiterating the conservation easement terms that will be implemented with respect to the size of riparian buffers to protect streams, riparian areas and wetlands. Although these terms are briefly discussed in Chapter 2, Alternatives, the direct link to mitigation of water resource impacts is most relevant to the Section 3.7 analysis."

**Response:** The final Supplemental EIS incorporates your recommended edits to Section 3.7.

**Comment 2**. The EPA commented: "The EPA is rating the Preferred Alternative as Lack of Objections (LO). The "LO" rating indicates that the EPA has not identified any potential environmental impacts requiring substantive changes to the proposal."

**Response:** Your comment is noted.

### *Comment Received from MTFWP*

**Comment 3.** "FWP supports DNRC's proposal to apply fish and wildlife protections afforded by its existing HCP to additional lands DNRC acquired. FWP recognizes this effort as one that institutes minimum protections upon lands and does not limit DNRC's ability to work with FWP on individual projects or employing additional or customized protections."

**Response:** Your comment is noted.

### *Comments Received from Friends of the Wild Swan*

**Comment 4**. "The SEIS analysis does not reflect new science since the 2010 Final Environmental Impact Statement such as: No analysis of change in CYE grizzly bear status."

**Response:** The Final Supplemental EIS was revised in response to this comment to include

updated information on the status of grizzly bears for the NCDE, GYE, and CYE (See Section 3.9.5 Affected Environment for Grizzly Bears, Status of Grizzly Bears). Regarding the CYE, the amended 2010 HCP (Amended HCP) would add 200 acres to the CYE, and the HCP commitments would be applied to the 200 acres that are added in the CYE. Nevertheless, the environmental baseline for grizzly bears in the CYE has improved since publication of the 2011 Biological Opinion and is summarized below.

Up until 1999, the USFWS determined multiple times that grizzly bears in the CYE warranted a change from threatened to endangered status, but were precluded from up-listing. However, for several years since then, this population's status has been improving, and the USFWS determined in 2014 that the CYE population no longer warranted endangered status. This determination was vacated by a federal court on August 22, 2017, and the matter is currently remanded to the USFWS for further consideration.

Kasworm et al. 2016 found that after known mortality was subtracted, a minimum of 41 grizzly bears were identified in the Cabinet-Yaak recovery zone during 2013-2015 based on captures, genetic information, mortality, and sightings of unique individuals. Kasworm et al. (2016) also concluded that there is a 61 percent probability that the CYE grizzly bear population is increasing, and the rate of that increase was estimated at 1.1 percent from 1983 to 2015. Kasworm et al. (2017) provides additional evidence of an improved baseline: “During 2012 the USGS used mark-recapture techniques to estimate the CYGBRZ (generally the CYE) grizzly bear population at 48-50 (Kendall et al. 2016). This was the best recovery area wide population estimate. Using the midpoint of this starting estimate, the calculated rate of increase (1.6%), and the numbers and fates of individuals in the augmentation program (five additions but two mortalities = net gain of three) we estimate the 2016 population at approximately 55 individuals.”

In summary, in recent years, the population trend has changed from ‘declining’ to ‘increasing.’ This trend is expected to continue because the U.S. Forest Service has established regulatory mechanisms for motorized access management and attractant storage, and researchers have documented some movement between the CYE and other populations in Canada. These improvements have reduced the threats to the small CYE grizzly bear population, but motorized

access management on the Kootenai National Forest has not been fully implemented and therefore, more progress is expected (USFS 2015; USFWS 2013). This information will also be incorporated into the amended biological opinion.

**Comment 5.** "The SEIS does not include threats from the Lynx Conservation Assessment and Strategy". The letter then specifically references threats to lynx related to climate change, timber harvest, and fragmentation.

**Response:** The 2013 Lynx Conservation Assessment and Strategy (LCAS) was developed to provide a consistent and effective approach to conserve Canada lynx (Lynx canadensis), and to assist with Section 7 consultations under the ESA on federal lands in the contiguous United States. We acknowledge the revised 2013 version of the LCAS and associated changes in the SEIS. Many of the habitat-related threats identified by the commenter were addressed in the development of the DNRC HCP lynx conservation strategy and analyzed in the 2010 Final EIS and 2011 Biological Opinion. Maintaining interconnected mature and sub-mature spruce-fir forest with high horizontal cover is key for conserving lynx in Montana, and both the 2010 Final EIS (Chapter 4-370) and 2011 Biological Opinion (Chapter III, p. III-94) as well as the draft Supplemental EIS (Section 3.9.4 Environmental Consequences for Canada Lynx, Summary of Effects on LMAs, pp. 86 and 87) concluded that these attributes are maintained by the 2010 HCP lynx conservation strategy

While we are gaining an improved understanding of lynx habitat requirements (Squires et al. 2013; Kosterman 2014) and the threats on lynx associated with climate change (Interagency Lynx Biology Team 2013), our current understanding of the habitat needs of lynx has not changed since the 2011 Permit issuance. The HCP includes adequate mechanisms to consider new scientific findings on the habitat requirements of lynx, address future climate-related lynx habitat changes, or address other emerging habitat-related threats to lynx through annual meetings between the USFWS and DNRC and in accordance with the procedures outlined in the 2010 HCP Chapter 4, Section 4.2 Modifying the HCP and Chapter 6: HCP Changed Circumstances.

**Comment 6.** "The SEIS discloses that there are 805 miles of existing roads on added lands, of these 224 miles are within 300 feet of a stream and 52 miles are within 300 feet of a fish bearing stream; hence the proportion of roads within 300 feet of a stream supporting HCP fish species on added lands (6.5%) is less than the HCP project area (9%) (SEIS p 62.) This is misleading, the proportion is less but there are more road miles. There is no analysis of the impacts to fish from the road system."

**Response:** The impacts of roads on fish are identified in the 2010 Final EIS as sediment generation and passage barriers (Chapter 4, pp. 4-188 through 4-189 and 4-210) and as stated in the document, that information is incorporated into the Final Supplemental EIS by reference. The draft Supplemental EIS also includes an analysis of the effects of roads on fish in Chapter 3, pp. 62 through 64 and 60 through 70. As discussed under "Effects of Adding Lands to the HCP Covered Lands and Section 10(a) (1) (B) Permit – Sediment Delivery" on page 64 and the "Sediment Delivery Summary" on page 66 of the draft Supplemental EIS, the implementation of the 2010 HCP commitments for reduction of sediment delivery is expected to result in an overall net reduction in sediment delivery for all the affected Aquatic Analysis Units (AAUs).

Despite the overall reductions in sediment delivery anticipated under the Proposed Action, the draft Supplemental EIS (Chapter 3, pp. 64 and 66) analysis discloses that HCP fish-bearing streams located within 300 feet of roads are likely to be adversely affected by sediment delivery at some time over the Permit term either from new construction, culvert replacement or removal, damage to channel form and function, or natural events that generate sediment delivery.

**Comment 7.** "The revised HCP extends corrective actions for sediment on fish-bearing streams for added lands which would start upon issuance of the new Permit (15 years), not the deadlines in the current HCP. (draft Supplemental EIS page 10, 14) There is no analysis of how this extended deadline will impact fish and fish habitat, or a comparison to having corrective actions on added lands run on the current schedule."

**Response:** The proposed timeframes for completing sediment corrective actions on the added lands are the same as those in the 2010 HCP. However, the timeline starts for the added lands when the amended Permit is issued (not when the original Permit was issued). Although it is

likely that corrective actions for sediment will be completed on the added lands prior to the deadlines included in the proposed action, the timeline was not shortened to the same initiation date contained in the original Permit because of the time span needed to inventory, assess, and complete corrective actions on newly acquired road systems.

Regarding the statement that there is no analysis of the impact of the extended deadline on fish, the analysis of the effects of sediment corrective actions program is analyzed in the 2010 Final EIS, Chapter 4, pp. 4-256 through 257 and Chapter 3, Section 3.9.2, p. 62 through 66 of the draft Supplemental EIS in the subsection addressing "Effects of Adding Lands to the HCP Covered Lands and Section 10(a) (1) (B) Permit." These documents conclude that some although implementation of the HCP commitments for corrective actions would contribute to an overall reduction in sediment delivery for the affected Aquatic Analysis Units, adverse effects on HCP fish-bearing streams within 300 feet of roads are likely to occur at some time over the Permit term for the added lands.

**Comment 8.** "The SEIS discloses that despite anticipated reductions in sediment delivery HCP fish bearing streams within 300 feet of roads and some streams within grazing licenses are likely to suffer adverse effects from sediment delivery at some time over the HCP term which will fill pools, embed substrate, increase turbidity, and deteriorate in-stream habitat.

- This will result in fish being unable to meet their feeding, breeding, and/or sheltering needs. (SEIS p 66)
- In addition, 13.7 miles of new roads would be built on the added lands but with BMPs sediment delivery risk will be reduced. (SEIS p 71)

There were no alternatives offered to eliminate these impacts, no analysis of the impact to the populations of fish at risk or disclosure of where these streams that will be impacted are located."

**Response:** Regarding the comment that there were no alternatives that eliminate the impacts of roads, the alternatives analyzed in the draft and final Supplemental EIS are the Proposed Action (extending the HCP conservation strategies to the added lands) and the No Action (applying the DNRC Forest Management ARMs to the added lands). The supplemental EIS is a supplement to

the 2010 Final EIS, which did examine various HCP alternatives, including accelerated timelines to address sediment.

Regarding the comment that there is no analysis of the impact on fish populations or disclosure of the streams affected, the draft Supplemental EIS discloses the AAUs where new roads, new roads within 300 feet of a stream, and stream crossings could be built. The affected AAUs are presented in Table 3-6. The amended Biological Opinion gas examined the effects of these new roads on the fish populations within the affected AAUs.

**Comment 9.** "In response to comments on the DEIS regarding bull, cutthroat, and redband trout redds being trampled by grazing, DNRC was to initiate a pilot study to develop a better understanding of the prevalence of this issue on HCP project area lands. What are the results of that pilot study? What changes need to be made to grazing on school trust lands?"

**Response:** During DNRC's second annual review with the USFWS, a cooperative management response was agreed upon that takes a different approach to addressing the issue of redd trampling within the HCP project area than initially described in the 2010 HCP. The best available science indicates there is a high probability that redd trampling is occurring in the 2010 HCP project area, though the spatial extent was unknown. DNRC inventoried all classified forest grazing licenses in the HCP project area where HCP fish species were present by the end of 2016. A "Redd Risk" rating was developed by DNRC to communicate the existence of spawning habitat on the parcel, as well as ease of livestock access to the stream.

Based on this inventory, 39 of 118 parcels (31%) were classified as Priority 1, meaning spawning habitat was present and livestock had easy access to the stream. Mitigation measures to address livestock access on these parcels are currently being developed and will be presented to the USFWS, along with an implementation plan, at DNRC's 5-year review meeting (to be held in 2018). The subsequent annual monitoring reports will describe the agreed upon mitigation measures and implementation plan.

**Comment 10.** "The SEIS states that there would be no measurable change in stream temperatures on HCP fish-bearing streams from timber harvest but it allows a 1 degree F increase in stream temperatures from existing levels. There is no analysis of how this will impact

fish especially with the cumulative effects of climate change. (SEIS p 73)The SEIS also discloses that the 2010 Final EIS modeled scenarios demonstrated the amount of shade was expected to initially decrease for all modeled streams with shade increasing at approximately year 20. (SEIS p 77) It relies on monitoring to ensure that forest management activities did not generate measurable changes in HCP fish bearing streams on added lands. Decreasing shade leads to increasing water temperatures, monitoring will only tell you that you have increased temperatures after it is too late. There is no analysis in the SEIS of how fish will be impacted.

**Response:** We do not expect a measurable change in stream temperature on HCP fish-bearing streams from timber harvest for the duration of the Permit. The 2010 HCP established stream temperature monitoring thresholds as a mechanism to evaluate the efficacy of riparian management zone harvest strategies at preventing adverse impacts on the aquatic environment, as well as to consider the effects of climate change. Two separate thresholds were established, chronic exceedance thresholds evaluate low intensity, long duration impacts, while acute exceedance thresholds evaluate high intensity, short duration impacts. Chronic and acute thresholds were established specifically to mitigate stream temperature increases based on pre-harvest temperature data. Both thresholds identify exceedance based on three temperature tiers ranging from 15.5 – 18.0°C depending on pre-harvest peak mean weekly maximum temperatures (Table 4.8; 2010 Final EIS).

Post-harvest stream shade monitoring has been conducted at 12 riparian management zone sites as a part of the monitoring commitments outlined in the 2010 Final EIS. Assessment of changes in stream shading following riparian management zone harvest have indicated minimal reduction in stream shading resulting from timber harvest, with average reduction in monthly shading between June and September ranging from 5% to 7% across twelve timber harvest sites. Pre-harvest shading at these sites averaged 75% (Range = 48-93%) while post-harvest shading averaged 69% (Range: 45–89%). Analysis of the relationship between pre- and post-harvest shade monitoring, and resultant changes in stream temperature has shown strong ability to predict water temperature changes based on the amount of shade in a stream reach in a timely fashion. This information will be used to inform timber harvest practices in riparian management zones in future timber sales.

The effects of stream temperature on fish are described in the 2010 Final EIS (Chapter 4, Section 4.8.2.3 and in the 2011 Biological Opinion (Chapter IV, pp. IV-173 through IV-194). The 2010 Final EIS, 2011 Biological Opinion, and the draft Supplemental EIS also addressed potential impacts of climate change on the riparian and aquatic environments. For example, the 2010 HCP includes a framework to respond to the effects of climate change through effectiveness monitoring and the adaptive management program and changed circumstances procedures (Section 4.6 and Section 6.2.4, respectively). Specifically, the adaptive management program in the 2010 HCP addresses large woody debris (LWD) recruitment and stream temperatures (Section 4.6.1.3).

**Comment 11**. "The SEIS does not include analysis of increased water temperatures and hybridization of westslope cutthroat trout. Muhlfeld, et al. (2009) evaluated the association of local habitat features (width, gradient, and elevation), watershed characteristics (mean and maximum summer water temperatures, the number of road crossings, and road density), and biotic factors (the distance to the source of hybridization and trout density) with the spread of hybridization between native westslope cutthroat trout (*Oncorhynchus clarkii lewisi)* and introduced rainbow trout (*O. mykiss)* in the upper Flathead River system in Montana and British Columbia. They found that hybridization was positively associated with mean summer water temperature and the number of upstream road crossings and negatively associated with the distance to the main source of hybridization. Their results suggest that hybridization is more likely to occur and spread in streams with warm water temperatures, increased land use disturbance, and proximity to the main source of hybridization."

**Response:** The 2010 Final EIS (Chapter 4, Section 4.3.8.1) and the 2011 Biological Opinion (Chapter IV, Factors Affecting Status of Bull Trout. Status of the Species – Westslope Cutthroat Trout, and Climate Change Influence on the Status of HCP Fish Species and Their Habitats) discuss the effects of water temperature and hybridization on the HCP aquatic species. The final Supplemental EIS was revised in response to this comment to incorporate the most recent literature on the relationship between stream temperatures and hybridization (Section 3.2.1, Climate Change Influence on the Status of HCP Fish Species and Their Habitats). In addition to stream temperature, a variety of other biotic and abiotic factors contribute to the likelihood of

hybridization between westslope cutthroat trout and rainbow trout, including: stream gradient (Muhlfeld et al. 2009, Carim et al. 2015), proximity to nonnative source population (Rubridge and Taylor 2005, Gunnell et al. 2008, Muhlfeld et al. 2009, Loxterman et al. 2014), and watershed position (McKelvey et al. 2016).

Thus, stream temperature alone is not an accurate predictor of the likelihood of a population becoming hybridized. Muhlfeld et al. (2017) found hybridization across a broad spectrum of stream temperatures, with 58% of the observed hybrid populations occurring at temperatures less than 11°C, which is within the range suggested by Isaak et al. (2015) as a limiting factor for rainbow trout. Because the risk of hybridization in native trout streams is high, DNRC is committed to protecting isolated pure populations of westslope cutthroat in cooperation with Montana Fish, Wildlife & Parks (MTFWP) (ARM 36.11.427 [3c]) and through the HCP Commitment AQ-FC1 (1) Allowance (A).

Please refer to the response to comment 21 for more information.

**Comment 12.** "There was no analysis of the impact that climate change will have by increasing rain on snow events resulting in stream scour. Shellberg et al's (2010) study of bull trout redd scour emphasized the importance of habitat heterogeneity and refugia availability in sustaining salmonid populations at multiple spatial scales. Loss of complex fluvial spawning habitat such as large woody debris contributes to redd scour after rain on snow events. They conclude: 'Processes that form complex habitat in association with LWD may partially mitigate against unfavorable discharge regimes, water and sediment yield alterations due to land-use, or future climate change.'"

**Response:** The effects of rain on snow events are discussed throughout the 2010 Final EIS relative to geology and soils, water quality and quantity, and the HCP covered fish species. The Supplemental EIS was revised in response to this comment to include relevant aquatic-related trends associated with climate change (see Section 3.2). As the commenter states, LWD is an important stabilizing factor in stream environments largely due to its capacity to moderate effects of increased discharge events as well as influencing habitat complexity (Montgomery et al. 1997). Luce et al. (2012) indicated that the likely outcomes of climate change on LWD included

alterations to input due to wildfire or blow-down, changes in size and species of trees available to recruit LWD, and change in transport and redistribution due to altered flow regime.

Shellberg et al. (2010) identified 2-year recurrence interval discharge events were capable of mobilizing sediments at a level that could significantly impact bull trout redds. Based on the analysis of effects of climate change on Montana water resources (Whitlock et al. 2017), there is a high likelihood of earlier spring runoff conditions resulting from rain-on-snow events. In a review of flood history in Montana (1908–2011; Table 3.3, Whitlock et al. 2017), nine rain-on-snow events were noted to cause flooding at or above the 10-year recurrence interval. While this is not an exhaustive list, the review provides background for the assessment of increased risk as precipitation patterns are altered due to climate change. On a smaller watershed scale, rain-on-snow events have been identified as the most frequent cause of peak discharge in northwest Montana.

The importance of LWD as a stabilizing factor in stream environments is acknowledged by the 2010 HCP aquatic conservation commitments that address riparian timber harvest and require a 50-foot no-harvest buffer on HCP fish-bearing streams. Riparian buffer widths exceeding 50 feet have generally been shown to mitigate the effects of timber harvest on recruitment of LWD (McDade et al. 1990, Robinson and Beschta 1990, Van Sickle and Gregory 1990, Wenger 1999, Martin and Grotefendt 2006, Bahuguna et al. 2010). Recruitment of LWD in post-harvest stands typically occurs as windthrow and subsequent breakage, which occurs over a long duration, and incorporation of material to the stream channel may occur over several decades following harvest (Bahuguna et al. 2010).

To date, thirteen sites have been assessed by DNRC under AQ-RM1 effectiveness monitoring to determine the difference between pre-harvest and post-harvest LWD. All 13 monitoring sites indicated that post-harvest LWD loading rates were greater than target levels identified during modeling efforts presented in the 2010 Final EIS (Figures 4.8-11 through 4.8-13).

Based on annual monitoring of the 2010 HCP covered lands and as reported in annual monitoring reports, the 2010 HCP conservation strategy for riparian timber harvest is adequately maintaining in-stream habitat complexity that will be resilient to potential increased discharge

events which may be associated with future climate change. Further, as discussed in the draft Supplemental EIS for bull trout streams in the Swan, the riparian buffers are increasing, providing additional assurance that LWD is available to provide habitat complexity to stabilize streams during rain-on-snow events (Chapter 3, Section 3.9.2, pp. 67 and 68).

**Comment 13.** "The SEIS did not analyze how intact forests, which provide bank stability, shade and woody debris for formation and maintenance of pool habitat, are essential. Climate change will have implications for species such as bull trout because they require cold, clean water. Isaak et al (2010) state: 'Riparian vegetation, for example, strongly affects near stream microclimates and minimizing near-stream disturbances associated with grazing, roadbuilding and timber harvest, or facilitating rapid vegetative recovery after these disturbances, could help buffer many streams from additional warming.'"

**Response**: The 2010 Final EIS (Chapter 4, Section 4.8.2, Key Aquatic Habitat Factors) and the 2011 Biological Opinion (Chapter IV, Importance of the Role of Key Aquatic Habitat Components to HCP Fish Species) describe the importance of forests in the maintenance of channel stability, complexity, temperature, microclimate, etc. These documents also acknowledge the threat of climate change on the HCP aquatic species. As discussed in our responses to comments 7 and 9 above, the modeled projections of LWD and stream temperatures presented in the 2010 Final EIS have generally been verified through effectiveness monitoring under AQ-RM1 (see annual monitoring reports available at *http://dnrc.mt.gov/divisions/trust/forest-management/hcp/hcp-implementation-and-monintoring*).

The Supplemental EIS was in response to this comment to incorporate the latest research and findings relative to the effects of climate change on the covered lands and species (see Section 3.9.2 Climate Change and Section 3.19 Cumulative Effects). As described in our response to comment 7, the HCP includes processes to adapt the commitments in response to the effects of climate change.

**Comment 14.** "The SEIS discloses that 4.5 miles of new road will be built within 300 feet of fish bearing streams. Some adverse effects are likely to occur at some time over the Permit term for added lands. (SEIS p 64) However, there is no disclosure of where those roads are or the

impacts. Saying that some adverse effects are likely to occur at some time is not analysis and disclosure required by the National Environmental Policy Act."

**Response:** Table 3-6 on page 63 of the draft Supplemental EIS identifies the location of the proposed 4.5 miles of new road by AAU. The impacts on the HCP-covered fish of sediment delivery from roads is discussed in the draft Supplemental EIS, Chapter 3, Section 3.9.2, under the Sediment Delivery Summary on p. 66. Please also refer to the responses to comments 6 and 8, above, for more information.

**Comment 15.** "The SEIS states that the extensive road base of 805 miles on acquired lands subject to HCP standards will reduce risk of erosion ostensibly because corrective actions will be implemented. (SEIS p 48) Yet there is no analysis or alternative that reduces the road miles."

**Response:** The action analyzed in the draft Supplemental EIS is the implementation of the 2010 HCP commitments on added lands. This action is expected to result in a decrease in roads over existing conditions. For example, to date, DNRC has voluntarily reclaimed 30.1 miles of road on the proposed added lands. In addition, under the Multi-Resource Management Plans developed under the Swan Conservation Easement, and the Standards for Forest Management developed for the North Chamberlain Conservation Easement, DNRC will be coordinating with MTFWP to develop targeted net reductions in roads located within Riparian Management Zones. The final Supplemental EIS is updated to include the effects of these measures on the added lands. Please refer to the responses to comments 6 and 8, above, for more information.

**Comment 16.** "New roads on Blackfoot added lands would require USFWS review and approval, but the SEIS doesn't disclose what the current road densities are, where they are, what the impacts are, etc. (SEIS p 98)"

**Response:** There are 5,458 acres included in the Blackfoot acquisition area (draft Supplemental EIS, Figure 1-6). Total road densities for the acquisition lands in the Blackfoot are approximately 5.8 miles per square mile (draft Supplemental EIS, Table 3.3, p. 42). The effects of high road densities on bears are discussed in detail in both the 2010 Final EIS, Chapter 4, Road Related Effects and 2011 Biological Opinion, Chapter II, Road Densities. The draft Supplemental EIS also discusses the effects of roads on grizzly bears on pp. 93, 95, 97, 99, 101, and 102. Of the

5,458 acres in this acquisition area, 1,549 acres occur in the NCDE grizzly bear recovery zone, which equates to 2.4 square miles of land. These 1,549 acres are intermingled with private lands and total road density is relatively high at 6.4 miles per square mile. As stated in Chapter 3 pp. 97 and 98 of the draft Supplemental EIS, adding these lands to the HCP will ensure that under commitment GB-SC1 all roads on added lands will be further reviewed for opportunities for additional closures.

**Comment 17.** "The HCP relies on heavily on BMPs to protect water quality and fish habitat but doesn't indicate how often they are applied or upgraded (most likely only when there is a project). (SEIS p 71) First, there is no evidence that application of BMPs actually protects fish habitat and water quality. Second, BMPs are only maintained on a small percentage of roads or when there is a logging project. BMPs fail to protect and improve water quality because of the allowance for "naturally occurring degradation." In Montana, "naturally-occurring degradation" is defined in ARM 16.20.603(11) as that which occurs after application of "all reasonable land, soil and water conservation practices have been applied." In other words, damage caused directly by sediment (and other pollution) is acceptable as long as BMPs are applied. The result is a never-ending, downward spiral for water quality and native fish. Here's how it works:

• Timber sale #1 generates sediment damage to a bull trout stream, which is "acceptable" as long as BMPs are applied to project activities.

• "Natural" is then redefined as the stream condition after sediment damage caused by Timber Sale #1.

• Timber sale #2 – in the same watershed – sediment damage would be acceptable if BMPs are applied again – same as was done before.

• "Natural" is again redefined as the stream condition after sediment damage caused by Timber Sale #2.

The downward spiral continues with disastrous cumulative effects on bull trout and most aquatic life. BMPs are not "reasonable." Clearly, beneficial uses are not being protected. In Montana, state water quality policy is not being followed. § 75-5-101 et seq. and ARM 16.20.701 et seq.

**Response:** BMPs are the primary mechanism identified in the Montana Nonpoint Source Management Plan strategies for reducing the effects of forestry on water quality (MT DEQ 2012 and MT DEQ 2017). These strategies not only include maintenance of the existing Forestry BMPs, but development and implementation of restorative BMPs that promote fully functioning aquatic conditions for historically impaired waterbodies. The corrective actions, site-specific BMPs, and other special mitigations required under the 2010 HCP, constitute these existing and restorative BMPs.

The effectiveness of Forestry BMPs in protecting water quality and fisheries habitat is well documented in the scientific literature (Burroughs and Kink 1989, Rashin et al. 2006, Sugden 2007). A comprehensive literature review of the effectiveness of forestry BMPs in the United States concluded that forestry BMPs minimize water quality effects when implemented as recommended by State Forestry agencies (Cristan et al. 2016).

DNRC's success in achieving an extremely high rate of BMP implementation has also been well documented in the published results of the Montana Forestry BMPs Field Reviews. BMP audits have been conducted by interdisciplinary teams comprised of individuals representing agencies and private forest landowners, and conservation groups on completed DNRC timber harvests since 1990. Results of these audits indicate that DNRC timber sales ranked highest among landowner groups in BMP application and effectiveness, averaging 98-99% effectiveness over the past 10 years. BMPs are not only utilized on timber sales, but are also implemented as the operational standards during ongoing road maintenance, stream and road restoration activities, and forest improvement projects.

The 2010 Final EIS determined that implementation of the 2010 HCP on covered lands would reduce the risks of adverse effects on water quality through the HCP commitments and we expect a similar reduction in risk of adverse effects on water quality for the added lands (Chapter 4, Section 4.6.2.3). The HCP requires DNRC to inventory all existing roads to determine risks of sediment delivery and to develop corrective actions designed to achieve sediment reduction targets. Inventories, implementation of corrective actions, and monitoring of implementation and effectiveness of BMPs are all prescribed in a timeline. Through monitoring, DNRC is required to demonstrate achievement of sediment reduction targets. The HCP also requires DNRC to

continue to implement inventories and corrective actions for the duration of the Permit term.

**Comment 18.** "The SEIS discloses that water quality and quantity conditions have not measurably changed over past 6 years so including the added lands is largely the same as described in FEIS. (SEIS p 49) Yet the SEIS doesn't disclose what measures have been implemented, whether they were successful and why there hasn't been improvement. Then the SEIS predicts improvement from corrective actions but doesn't disclose when that improvement might occur. (SEIS p 51)"

**Response:** The statement in the final Supplemental EIS is corrected to state: The water quality and water quantity conditions described in the 2010 Final EIS for the Planning Area, which includes lands to be added under the proposed action, (USFWS and DNRC 2010, Chapter 4, pp. 4-135 through 4-148) have not measurably changed over the past six years. Therefore, the affected environment for water resources on the added lands is largely the same at that described in the 2010 Final EIS.

Under the 2010 HCP, DNRC is completing road inventories in watersheds supporting HCP fish species to identify existing and potential sources of sediment delivery and is actively implementing corrective actions. While these measures have likely yielded changes at the localized level, they are unlikely to have yielded measurable changes at a larger scale. To date, DNRC has completed watershed inventories on 49.1 percent of the original HCP project area. Of those roads inventoried, approximately 4.5 percent do not meet BMPs, and 2.8 percent were found to have moderate to high risks of sediment delivery. As stated in the draft Supplemental EIS, approximately 15 percent of the roads on the lands to be added to the HCP have been inventoried. On the added lands, 5 percent of the road segments did not meet BMPs and approximately 2 percent were found to have moderate or high risks of sediment delivery. Therefore, the sediment delivery risks and conditions of the added lands are very similar to the original HCP project area and within the range of the analysis conducted for the 2010 Final EIS.

**Comment 19.** "The SEIS discloses that there will be likely impacts from grazing on 22.6 miles of streams in the Blackfoot, Middle and Lower Clark Fork. (p 65) But doesn't disclose or analyze where these roads and streams are, what the impacts will be, what measures will be

taken to eliminate the impacts, or why cattle aren't excluded."

**Response:** The draft Supplemental EIS discloses that approximately 21.3 of the 22.6 miles of stream where grazing impacts are expected are located on the Potomac acquisition (see Table 3-4, p. 59). Table 3-4 also discloses that within the Potomac acquisition, approximately 19.3 miles of the HCP fish-bearing streams that have grazing licenses are in the Blackfoot AAU, and 2 miles are in the Upper Clark Fork AAU. The remainder of the streams potentially affected by grazing are located on the Blackfoot acquisition (1.1 miles) also located in the Blackfoot AAU, and on the portion of the Lolo Land Exchange in the Middle Clark Fork AAU (0.2 miles). The draft Supplemental EIS states that the anticipated impacts are likely to occur in the form of increased sediment delivery where cattle have direct access to streams and disclose the effects of sediment on fish (pp. 65 and 71).

The draft Supplemental EIS also evaluates the effects of implementing the HCP commitments on the added lands including the effects on sediment delivery, riparian vegetation, stream temperatures, etc. The final Supplemental EIS was revised in response to this comment to describe the types of corrective actions implemented on grazing licenses to address sediment delivery (see Section 3.9.2 Environmental Consequences for HCP-covered Fish, Grazing). Corrective actions are developed on a site-specific basis best suited to the circumstances involved. In many cases, corrective actions simply require enforcement of existing grazing license terms and condition. In other cases, changes to the grazing license, such as carrying capacity, season of use, or installation of improvement will be utilized if determined to be appropriate or necessary. Frequently, stream grazing exclosures are utilized to address more sensitive streams or higher levels of impact. There are currently 11 different grazing exclosures containing approximately 2.66 miles of HCP fish-bearing streams that are maintained by DNRC on the Potomac acquisition parcels.

**Comment 20.** "We appreciate that the SEIS adequately characterized our settlement agreement and disclosed how it will benefit other species in addition to grizzly bears."

**Response:** Your comment is noted.

**Comment 21.** "The SEIS does not reflect new science since the 2010 Final Environmental

Impact Statement such as: No analysis of the cumulative impacts of aquatic invasive species on fish and habitat."

**Response:** New science is reflected in the final supplemental EIS. The HCP's Commitment AQ-FC1 (1) Allowance (A), which would also be implemented on added lands, addresses the potential risk of nonnative fish expansion from culvert barriers replacement and removal. The 2010 Final EIS, Cumulative Effects Analysis, p. 5-8 states: "The primary threat category that is clearly demonstrated to have increased significantly since the initial listing of bull trout is introduced non-native species, primarily other fish in the genus Salvelins (e.g. brook trout and lake trout) and other fish species that have high potential to be competitors or predators, which threaten bull trout even in areas of otherwise secure habitat (USFWS 2008)." The 2010 Final EIS Cumulative Effects Analysis is incorporated in the draft Supplemental EIS by reference as stated on p. 131. Further, this threat is discussed extensively in the 2011 Biological Opinion under the Status of the Species, Environmental Baseline, and Effects of the Action.

Please refer to the response to comment 11 for more information.

**Comment 22.** The SEIS does not reflect changed circumstances or new science since the 2010 Final Environmental Impact Statement such as: New science on climate change (the SEIS states that climatic trends have not changed since 2010 FEIS – p 30)

**Response:** No events that would trigger a changed circumstance under the HCP have occurred during the first six years of implementation. New science is reflected in the final supplemental EIS. New relevant science is discussed annually between USFWS and DNRC at required meetings. The HCP includes a mechanism to modify the HCP commitments for New Research (Chapter 4, 2010 HCP). While there is new information related to the HCP covered species, the USFWS and DNRC have determined that none of the research or findings would warrant changes in the HCP commitments associated with this proposed action. The Supplemental EIS was revised in response to this comment to incorporate new literature referenced by the commenter (Section 3.2 Climate).

**Comment 23.** "The SEIS amends the Swan River State Forest Transportation plan to include acquired Plum Creek Timber Company roads and increases the miles of temporary roads allowed

on the SRSF proportionately to the acreage of added lands. (SEIS p 16, 17) GB-SW1 (4)(b) Each operating season DNRC was allowed to construct and use up to 5 miles of temp roads, amended HCP allows up to 6.5 miles of temp roads. (SEIS p 18) There is no analysis of the impacts to grizzly bears, water quality or fish habitat from the increased roads on top of the already bloated road system."

**Response:** The effects of temporary roads are discussed in the 2010 Final EIS (USFWS and DNRC 2010) in Section 4.9.3.2, Road-related Effects (p. 4-324 lines 21 through 33). The final Supplemental EIS was revised in response to this comment to clarify that the analysis in the 2010 Final EIS is incorporated by reference and to incorporate the following additional analysis. The 1.5-mile increase reflects an amount proportional to the total acreage of added lands in the Swan. Within the Swan River State Forest an annual temporary increase of 1.5 miles represents <0.02 miles per square mile. Thus, adverse effects to grizzly bears would be expected to be negligible and the benefits of using temporary roads greatly outweigh the long-term impacts associated with increased permanent restricted roads on the landscape.

**Comment 24.** "The SEIS does not reflect new science since the 2010 Final Environmental Impact Statement such as: Climate affecting food sources for grizzly bears."

**Response:** The final Supplemental EIS was revised in response to this comment to incorporate the latest findings on climate change relative to the covered species (see Section 3.2 Climate). As discussed in the 2010 Final EIS (p. 4-318) and 2011 Biological Opinion, grizzly bears are opportunistic omnivores that have evolved versatile foraging strategies. Most of the recent analysis and literature regarding the effects of climate changes on food sources for grizzly bears do not describe this factor as a threat to grizzly bears. The GYE conservation strategy (USFWS 2016) identifies the grizzly bears' ability to shift its diet among various food sources as they are available through in space and time (Schwartz et al. 2003, 2013). Gunther et al. (2014) documented the diet of grizzly bears in the Greater Yellowstone Ecosystem (GYE) to include over 266 distinct plant and animal species. The trophic flexibility of grizzly bears allows them to opportunistically forage across diverse habitats. Their diverse diet serves as an adaptive mechanism that increases their ability to persist in instances of rapid and long-term changes in availability and abundance of foods. When opportunities arise, grizzly bears will shift their diets

to maximize weight gain by selecting nutritious foods such as ungulates, carrion, fish, whitebark pine seeds, moths, small mammals, and clover.

Despite the decline of whitebark pine in the GYE and the naturally variable availability of other food resources there, grizzly bears have shown considerable resilience by adjusting their use of habitats (Costello et al. 2014) and shifting their diets to maintain their body weight and condition (Schwartz et al. 2014, Ebinger et al. 2016). In a comprehensive study conducted by the Interagency Grizzly Bear Study Team (IGBST) of the GYE, findings did not indicate a strong dependence of GYE grizzly bears on whitebark pine seeds. Grizzly bears used whitebark pine seeds when and where they were available, as one component of their diverse and dynamic diets (IGBST 2013). This demonstrates the grizzly bears' versatile foraging strategies.

**Comment 25.** "The HCP allows the Swan River State Forest to reduce winter foraging lynx habitat by 40% down to 20% and 16% to 20% for the Garnet area. (SEIS p 88) What is the standard? Is it adequate? There was no analysis of the impacts to lynx. Lynx in the Garnet area have declined since agencies thinned in key areas, there was no analysis of the current population of lynx in the Garnets and how reducing winter forage habitat will impact them."

**Response:** There are currently no federal standards for the amount of lynx foraging habitat required to sustain lynx, per se. However, the LCAS requires federal land managers to maintain 70 percent of total potential habitat in a lynx analysis unit (approximate acreage of a lynx home range) as suitable habitat and convert no more than 15 percent of suitable habitat to nonsuitable per decade. Under the HCP, DNRC is required to maintain at least 20 percent of the total potential lynx habitat as winter foraging habitat in all LMAs, including the Swan and Garnet LMAs (draft Supplemental EIS p. 82). The 20 percent requirement was based on numerous regional studies representing the best available information and is consistent with the Washington Department of Natural Resources Lynx Habitat Management Plan (WADNR 2006) as discussed in the 2010 HCP, Chapter 2, pp. 2-60 and 2-61). Winter foraging habitat was considered the most important type of habitat for lynx, particularly during winter when conditions are most limiting (2010 HCP, Chapter 2, pp. 2-59 and 2-60) and the requirement was applied to all DNRC-managed LMAs. Based on current estimates of winter foraging habitat, over the Permit term winter foraging habitat in the Swan LMA could be reduced from 60 percent

to 20 percent, and in the Garnet LMA could be reduced from 36 percent to 20 percent. As discussed in the draft Supplemental EIS, Section 3.9.4, pp. 87 through 89, maintenance of 20 percent of total potential habitat as winter foraging habitat is expected to sustain lynx. The draft Supplemental EIS, Section 3.9.4, pp. 89 also states that the cumulative reduction in winter foraging habitat over the permit term could adversely affect lynx accustomed to the abundance of winter foraging habitat in the area.

The final Supplemental EIS is updated to provide the most recent population information for the Garnet LMA. From 2002 to 2010, 9 individual lynx were confirmed in the Garnets; 4 individual females, and 5 individual males (J. Zelenak, USFWS, pers. comm. 10/24/2017). More recent evidence (Squires 2015) suggests that fewer lynx may occur in the Garnet Range than estimated between 2002 and 2010. However, in 2016 tracks of one individual were noted (J. Zelenak, USFWS, pers. comm. 10/24/2017) and additional survey efforts are planned. The decline observed by Squires (2015) is not clear, but has not been specifically attributed to timber management. The HCP would maintain a continuum of forested stands in various structural stages that support snowshoe hare – the primary prey of lynx. Adding DNRC lands to the Garnet LMA would increase the total acres of lynx habitat managed for the benefit of lynx. A 16 percent reduction in winter foraging habitat over the remainder of the Permit term equates to approximately 660 acres. This is approximately 3 percent of a 20,000-acre lynx home range. Even if all 16 percent of winter foraging habitat is reduced, additional acreage would grow into winter foraging habitat over the Permit term and summer foraging habitat would continue to increase on DNRC lands.

**Comment 26.** "DNRC could add an additional 63,622 acres over the next 10 years. Assumptions were made regarding the baseline condition of the added lands. (SEIS p 105, 106, 107) Does this mean that there would be no supplemental analysis if these lands are added? Effects in the SEIS are speculative because it does not disclose where these lands are, what condition they are in and how HCP fish and wildlife would be impacted. (SEIS p 107 – 113)"

**Response:** During the development of the 2010 HCP, both the USFWS and DNRC acknowledged the dynamic nature of forest management and the changing Montana landscape and anticipated that over the Permit term, DNRC would desire to both remove and add lands to

the HCP. Therefore, the 2010 HCP includes a Transition Lands Strategy that allows for the addition and removal of lands from the HCP under certain circumstances. The effects of that strategy on the elements of the environment and the HCP-covered species were analyzed in the 2010 Final EIS, 2011 Biological Opinion, and this Supplemental EIS (Section 3.10 Transition Lands Strategy).

For any future proposal to add lands to the HCP, the USFWS would evaluate the proposal in the context of the Transition Lands Strategy, HCP Handbook, and Section 10(a)(1)(B) guidelines. At that time, the USFWS would determine the required level of analysis prior to amending the Permit. The 2010 HCP, Chapter 3, Transition Lands Strategy is amended to clarify this process and included in Attachment A of the final Supplemental EIS.

**Comment 27.** The SEIS fails to update the HCP's definition of blocked lands to include the large blocks of lands proposed to be added to the Clearwater and Missoula units. The HCP EIS defines "blocked lands" as follows: *Areas where parcels owned by DNRC are within proximity to one another. Blocked lands consisting of more than 15,000 acres, or a series of parcels in a checkerboard pattern, or parcels situated in proximity to one another or that lie adjacent to each other and form small to medium-sized blocks. For the purposes of this HCP, blocked lands refer to those lands exhibiting these characteristics within the Swan River, Stillwater, or Coal Creek State Forests.* (HCP EIS, Vol. II, p. 11-2) At least two sections of land proposed to be added to the HCP fit this definition—one in the eastern portion of the Missoula Unit, and one the western portion of the Clearwater Unit. Another section in the northwestern portion of the Missoula Unit may fit this definition as well. All are large sections of land situated in proximity to one another and that lie adjacent to each other and form small to medium-sized blocks. (SEIS, Fig. 1-1). This is an important omission because "[t]he 2010 HCP commitments require DNRC to place greater conservation emphasis where it controls large blocks of lands." (SEIS, p. 95; HCP EIS Vol. II, p. 2-1). By neglecting to include these added lands to the HCP's definition of blocked lands, the SEIS fails to acknowledge that greater conservation emphasis must be placed on those lands and the species occupying them.

**Response:** As stated by the commenter, the definition of blocked lands specifically identifies the Swan River, Stillwater, and Coal Creek State forests as blocked lands. The definition of blocked lands stated in the HCP (2010 HCP, Chapter 11, Glossary, p. 11-2) does not require revision. The term blocked lands applies solely to the Swan River State Forest and lands managed by the DNRC Stillwater Unit that occur within the NCDE grizzly bear recovery zone (Stillwater and Coal Creek State Forests), as stated in the current definition. Blocked lands were described in the 2010 HCP and 2010 Final EIS analysis for the purposes of developing a transportation plan and providing rest rotation on a large landscape controlled by DNRC that occur within a grizzly bear recovery zone.

The commenter refers to two areas of land the commenter believes fits this definition: an area in the Missoula Unit and an area in the Clearwater Unit. Presumably, the commenter is referring to the Potomac and Chamberlain acquisitions. The commenter also asserts that neglecting to include these areas as blocked lands fails to acknowledge that greater conservation emphasis must be placed on those lands (i.e., the added lands) and the species occupying them. However, the HCP places the highest conservation value on those areas known or required to sustain the terrestrial covered species and therefore requires enhanced conservation commitments in grizzly bear recovery zones and lynx LMAs. Neither of these areas (Potomac or Chamberlain acquisitions) occur within the grizzly bear recovery unit and therefore do not warrant enhanced measures pertaining to transportation planning and rest rotation. A portion of these acquisitions do occur within the Garnet LMA and therefore would be subject to the enhanced commitments required within DNRC LMAs.

**Comment 28.** "There are no constraints that limit roads outside recovery zone on scattered parcels. (SEIS p 99)"

**Response:** The commenter is correct, as stated in the draft Supplemental EIS on p. 99, the HCP has no quantifiable constraints (i.e., caps on miles or limits on road densities) on new roads in Non-Recovery Occupied Habitat (NROH). However, DNRC must minimize the construction of new open roads, and provide justification to the USFWS whenever they are constructed. Restrictions must also be maintained on closed roads. As stated in the original HCP (Vol. 2, p. 2-4), higher levels of commitments are applied to DNRC lands within the grizzly bear recovery

zones where grizzly bear are known to occur and where the USFWS has determined conservation is most needed to sustain and recover populations of grizzly bear. The draft Supplemental EIS pp. 99 and100 describe the effects on grizzly bears from high road densities in NROH and the conservation commitments that would be implemented to minimize, avoid, and mitigate adverse effects on bears.

**Comment 29.** "The FEIS identified 28 noxious weed species, now there are 33. (SEIS p 53) Obviously the weed strategy isn't working and needs to be modified/improved."

**Response:** The Montana Department of Agriculture currently recognizes 33 species of noxious weeds across the state of Montana; in 2010, the state recognized 28 species statewide. Weed control measures and practices will continue to be implemented under current procedures. Effectiveness of control measures will continue to be monitored and improved as possible at the project level (ARMs 36.11.445 and 36.25.159).

**Comment 30.** "The SEIS doesn't identify water howellia pond locations, buffers, monitoring, status, etc. (SEIS p 55)"

**Response:** It is standard practice not to disclose the locations of rare plant populations in public documents to reduce the likelihood of collections or destruction. Water howellia is a federally listed plant species that is restricted in Montana to ponds and depressional wetlands in the Swan Valley. The draft Supplemental EIS, page 60, states that two parcels within the Amended HCP Project Area support water howellia, but refrains from identifying specific locations. As stated in the draft Supplemental EIS (p. 55), DNRC implements conservation commitments for federally listed plants and plant SOC through its forest management ARMs (36.11.428 and 36.11.436). Under these rules, DNRC implements measures at the project level to identify, locate, and develop site-specific measures to avoid and minimize potential effects on listed plants including buffers, timing windows, etc. With implementation of the ARMs, HCP commitments, and conservation easements, no adverse effects on the population of water howellia on the Swan added lands are anticipated (draft Supplemental EIS p. 55).

**Comment 31.** "The SEIS does not include the best available science regarding lynx. This new information must be analyzed. The SEIS does not reflect changed circumstances or new science

since the 2010 Final Environmental Impact Statement such as: New science/surveys for lynx. For example, lynx have declined in the Garnets."

**Response:** The lynx analysis in the final Supplemental EIS was revised in response to this comment to include applicable to lynx (see Section 3.9.3 Affected Environment for Canada Lynx, Status of Canada Lynx and Habitat Connectivity and Linkage). Recent declines in lynx populations are reported for the Garnet Range (Squires 2015). The USFWS and DNRC reviewed these findings and the recently completed Lynx Status Assessment (USFWS 2018) and determined that changes in the HCP are not warranted at this time. New relevant science is discussed between USFWS and DNRC at required annual and 5-year meetings and the HCP includes a mechanism to modify the HCP commitments for new research (Chapter 4, 2010 HCP) and changed circumstances (Chapter 6, 2010 HCP), if appropriate.

**Comment 32.** "The SEIS does not reflect new science since the 2010 Final Environmental Impact Statement such as: Squires 2013 putative corridor for lynx connectivity that encompasses the western front of the Swan range to Seeley Lake."

**Response:** We are aware of the potential modeled lynx corridor described by Squires (et al. 2013). Under the Proposed Action, applying the HCP commitments to added lands in the Swan LMA would ensure that suitable habitat conditions would persist in the corridor described by Squires (et al. 2013).

**Comment 33.** "The SEIS is contradictory about the Swan Valley Conservation Agreement for Grizzly Bears. Pages 95 assumes dissolution of the Swan Agreement but on page 96 the Proposed Action would retain the 3 year active timber management/6 year rest rotation currently prescribed in the Swan Agreement. [The Swan Agreement does not prescribe a set number of years for rest in the bear management subunit.]"

**Response:** While the Swan Agreement (Agreement) would be dissolved, DNRC would elect to maintain the current rest rotation implemented by the Agreement Cooperators. Under section 3(b)(ii) of the Agreement, 7 BMU subunits are required to remain in inactive status for a minimum of 3 years under the established rotation system. Since 1997, the Agreement Cooperators have agreed to rotations that have allowed for 6 years of inactivity following 3-year

periods of active management.

**Comment 34.** "The SEIS does not provide any scientific basis or rationale for either the current HCP's 4 years of management followed by 8 years of rest or the proposed 3 years of management including salvage followed by 6 years of rest in a Bear Management Subunit. The 3 and 7 rule was developed so major activities like logging projects can only occur for 3 consecutive years out of 10, with 7 years of no such activity required to allow female bears to teach their young to utilize their home range habitats during periods free of major displacement. The proposed change to 3 and 6 is purely logistical because the 8 and 4 schedule was not conducive to DNRC's management."

**Response:** The final Supplemental EIS was revised in response to this comment to include an analysis of the effects of the proposed rest rotation in the Swan (see Section 3.9.6 Environmental Consequences for Grizzly Bears, Effects on Grizzly Bears in the Swan River State Forest, Habitat Disturbance and Grizzly Bear Displacement). The "3:7 rule" mentioned in this comment pertains to an allowable period of active forest management (3 years) followed by a rest period of 7 years in a particular drainage or grizzly bear subunit (typically ranging from 32,000 to 96,000 acres, which is the size of an annual average female home range) (USFWS 1990). This 3:7 rule has been used by the USFWS to evaluate the potential for impacts to grizzly bears in Montana under the ESA Section 7 consultation processes for Federal agencies.

Under the 2010 HCP, DNRC proposed a 4-year active timber management/8-year rest rotation. The 4:8 rule was originally incorporated into HCP commitments, because these active and rest periods were considered to have a low likelihood of appreciably altering any of the biological assumptions associated with the 3:7 rule. It was also recognized that the 3:6 and 4:8 management to rest ratios were the same proportion of time (i.e., 1:2) (2010 HCP, Chapter 2, p. 2-24). However, during the first five years of HCP implementation, DNRC realized that the 5 subzones in the Swan River State Forest are smaller than the BMU subunits where the rest rotation is typically applied and were not conducive to a 4-year active timber management/8-year rest rotation schedule. DNRC can complete its timber management activities in three years, but requires more frequent entries to meet desired future conditions and meet the rotation requirements of this 5-subzone system. This change would retain the existing rest rotation, which

bears in this landscape are adapted to. The 6-year rest windows would consistently allow ample time for two cub litters to be produced and forage with their mother in resting subzones with little logging disturbance as further explained under Section 3.9.6 Environmental Consequences for Grizzly Bears in the final Supplemental EIS.

Further, as stated in the draft Supplemental EIS (p. 97), components of commitments GB-ST2, GB-SW3, and GB-SC2 provide female bears with cubs secure habitat by restricting motorized activities above 6,300 feet, and implementing additional restrictions in post-denning habitat (GB-RZ5), further reducing potential for physiological stress to denning grizzly bears and females emerging from dens with young cubs. Overall, the extensive commitments of the HCP are expected to reduce the risk of displacement and disturbance of grizzly bears such that bears can meet their breeding, feeding, or sheltering needs.

**Comment 35.** "Ruby study of 24 bears in Swan-Clearwater forms the basis for the determination that grizzly bears neither avoided roads or active subunits. (SEIS p 101) Ruby 2015 cited in the SEIS is not included in the references. When I asked for the peer reviewed paper I was sent Mark Ruby's 2014 thesis which is not peer reviewed. Ruby's research looked at bear movement and habitat use in the Swan Valley. However, it did not examine mortality risk from bears living in a highly roaded environment, coming into contact with human settlement and attractants and having deficient security core. There is no scientific support for the SEIS statement: 'Bears in the Swan have suffered periodic high mortality from malicious human behavior, bear conflicts near human dwellings, and highway vehicle fatalities – not from roads supporting forest management.'"

**Response:** We added the complete citation for Ruby (2014) to the final Supplemental EIS, Chapter 6, References. The Ruby (2014) Master's thesis was referenced in the draft Supplemental EIS. The thesis received graduate committee review from the University of Montana prior to its completion. Thesis committee members included Dr. Chris Servheen, Dr. Richard Mace, and Dr. Brian Steele. We agree that Ruby's work did not specifically examine mortality risk, nor was it used in the draft Supplemental EIS to support statements about mortality risk. The draft Supplemental EIS noted that there have been periods of high mortality in the Swan Valley and the causes have been well documented during the last several decades

(draft Supplement EIS, p. 101). The USFWS and DNRC are not aware of any grizzly bear mortalities that have occurred on forest road systems by land managers conducting forest management activities.

**Comment 36.** "Only 16% of the Swan added lands support summer foraging habitat. The SEIS does not disclose what the standard is for foraging habitat, whether 16% is adequate and how more precommercial thinning over the next 20 years will impact lynx."

**Response:** During the decades prior to DNRC owning the Swan acquisition lands, the lands were managed for wood fiber production by a private timber company that did not implement any standards for lynx habitat. Under the HCP, any thinned areas would have to retain at least 20 percent in dense patches of unthinned young saplings to provide habitat for snowshoe hares and lynx, improving the long-term habitat trend for Canada lynx on such acquisition lands. Because Summer Foraging Habitat tends to be a young forest condition, it is highly ephemeral and therefore, there are no specific scientific standards for required amounts at a landscape scale. Given DNRC's mandate to manage timber resources under a sustainable yield, there would always be young forest stands present on this landscape, some albeit in a thinned condition. The draft Supplemental EIS, (pp. 85 and 86) concludes that additional thinning over the next 20 years would not adversely affect lynx. See response to comment number 28 for a discussion of the standards associated with winter foraging habitat for lynx.

**Comment 37.** "The SEIS did not include new research by Dr. John Squires regarding lynx connectivity that includes state lands in the HCP area. Research by Dr. John Squires et al. (2012) modeled movements that indicated lynx selected home ranges at mid-elevations with low surface roughness, high canopy cover and little open grassland vegetation. They found that connectivity between lynx habitat in Canada and the conterminous U.S. is facilitated by only a few putative corridors that extend south from the international border. They identified a primary lynx corridor from Canada that extends from the Whitefish Range, along the western front of the Swan Range ending near Seeley Lake. And a second corridor along the east side of Glacier National Park to the Bob Marshall Wilderness Complex."

**Response:** The final Supplemental EIS was revised in response to this comment and describes

the corridors modeled by Squires et al. (2013) (Section 3.9.3 Affected Environment for Canada Lynx, Status of Canada Lynx and Habitat Connectivity and Linkage). Note, 2013 is the correct year of the publication referenced.

**Comment 38.** Transition lands removed from HCP may be disposed to other land owners, developed by DNRC, or managed for timber harvest under Forest Management ARMs. Acreage would still count towards sustained yield calculation but the enhanced conservation of the HCP would no longer necessarily apply to removed lands. (SEIS p 103, 104) So it appears that DNRC could arbitrarily remove some lands from the HCP restrictions and continue to log them. There is no disclosure as to why DNRC would do this, where they contemplate doing this and the impacts to HCP covered fish and wildlife from such a decision.

**Response:** The wording in the draft Supplement EIS, as identified in this comment, was inadvertently erroneous and does not reflect the intent of the HCP transition lands program. The final Supplemental EIS was revised in response to this comment to correct the referenced wording (see Section 3.10.1 Environmental Consequences for Removal of Lands, Effects of Removal of Lands Under the Proposed Action).

**Comment 39.** "The SEIS failed to use the best available science on the impacts of climate change on water quality and quantity and forest ecosystems such as the Montana Climate Assessment (http://montanaclimate.org/). This information must be used in the analysis."

**Response:** The Montana Climate Assessment (Whitlock et al. 2017) was published after the Supplemental EIS was drafted. The final Supplemental EIS was revised in response to this comment to include a summary of the key findings of the Montana Climate Assessment and include a discussion of how the HCP will address and respond to climate change (Sections 3.2 Climate and 3.19 Cumulative Effects).

**Comment 40.** "There were no alternatives offered to eliminate the impacts of roads to the species covered under the HCP."

**Response:** The 2010 Final EIS analyzed the effects of the proposed action for the 2010 HCP and three other alternatives. That analysis included effects of the HCP's transition lands strategy. The

current Proposed Action addresses the implementation of the approved 2010 HCP on additional lands managed by DNRC, and revisions to several HCP conservation commitments associated with a 2015 legal settlement agreement.

## *Comments from Kate Cremer-Vogel*

**Comment 41**. "Alternative 3 provides enhanced mitigation for HCP species, which is crucial to establishing the long-sought-after wildlife corridor through Montana that is necessary for the future health of the populations of the endangered species affected by the HCP. Limited genetic diversity due to destruction of contiguous habitat, as well as increased incidental take numbers relative to the entire populations of these endangered species place the future of these species in jeopardy."

**Response:** The decision to be made regarding the draft Supplemental EIS and associated analysis is consideration of: 1) the Proposed Action to add lands to the HCP and 2) the No Action Alternative (draft Supplemental EIS p. 7). Alternative 3 referenced in this comment was an enhanced mitigation alternative considered under the 2010 EIS.

**Comment 42**. "Montana needs to increase contiguous habitat for endangered species rather than proceeding with rules that favor destruction of that habitat. Making careful plans to further protect these species, such as outlined in Alternative 3, would be in the long-term best interest of not only the species, but also of Montanans, who benefit from the robust and increasing recreational tourism that depends upon conservation of habitat and species which are found in the relatively few places still preserved from logging and development."

**Response:** The USFWS and DNRC acknowledge that tourism is an important component of Montana's economy (2010 Final EIS, Chapter 5, Cumulative Effects p. 5-15). We believe DNRC's forested trust lands contribute to the unique character of Montana and that DNRC can implement a successful forest management program on state trust lands while conserving the habitat of listed species. Alternative 3 referenced in this comment was an enhanced mitigation alternative considered under the 2010.

**Comment 43.** We must turn our attention to preserving habitat and species as being more

valuable than proceeds from logging, a focus which is an option in the Trust Land statute. Value needs to be taken in the form of preserving habitat and species for future generations of Montanans, which is much more valuable in the long run than proceeds from logging.

**Response:** Comment noted. There are numerous statutes that DNRC must follow regarding the generation of revenue on state trust lands. This draft Supplemental EIS is not designed to determine whether the state should: 1) harvest timber and build roads on state trust lands, 2) manage state trust lands for revenue generation, or 3) pursue revenue generation on state trust lands through other markets. These issues are outside the scope of this NEPA/MEPA Supplemental EIS analysis for the proposed action for adding lands to the HCP.

## *Comments from Katelyn Newman*

**Comment 44.** Something I would suggest putting some thought into is creating strong security guidelines for the seven zones. It is not discussed in the proposed action and I believe that is a very important piece of the puzzle. Some details of the guide line I would want to see put into place are. 1. having a watch near highly populated areas to know how many, if any, bears journey out of their zone. 2. Knowing how many bears are in the zone at the start and then recount after most cubs are born to know how many bears populate each zone; this will help know if the zone acreage needs to increase in the future. 3. Have rangers trained and assigned to a specific zone to have confidence in a dangerous or life-threatening situation. These suggestions will fit in well with the amendment because it is simply enhancing the details. The zones are secured from construction and from motorized vehicles but how is the outside zones and neighborhoods secure from the seven zones.

**Response:** Specific conservation requirements for the seven security zones in the Stillwater Block exist and are required by a federal court order in association with a settlement agreement issued on October 6, 2015 (Appendix B). These measures are currently being implemented by DNRC as a legal requirement of that order. In sum, the measures provide limits on the amounts of roads and restrictions on forest management activities during the seasons of the year when bears are not denning. Under the proposed action, the terms of the settlement agreement would become a part of the existing 2010 HCP.

Numerous grizzly bears freely roam the landscape in the vicinity of the security zones. Bear management specialists employed by Montana Fish, Wildlife, and Parks have management expertise and responsibilities for dealing with problem bears. No highly populated areas or urban neighborhoods occur adjacent to the security zones. Bear counts and tracking movements of specific grizzly bears are beyond the scope of this proposal.

## *Comment from Robert Kobza*

**Comment 45.** "Impacts to threatened and endangered species must be minimized and keep common species common and viable habitat. Must plan for all factors that will affect take, like climate change and increased demand for natural materials. Science should dominate the conversation and minimize political forces."

**Response:** Your comment is noted.

## *Comment from Mille Carson*

**Comment 46.** "Absolutely not!!! Canada lynx are threatened, and a hunting season will be opening on Grizzly bears. No extra incidental take is needed. Most animals are becoming threatened or endangered due to the hand of man. Enough is enough!!!! There are enough unmitigated deaths of grizzly bears each year due to hunting incidents, and vehicular traffic in Yellowstone National Park. Additional take could reverse the progress of Grizzly restoration with the additional deaths of more bears!!! One of the risk factors listed as a threat to Canada Lynx is shooting. Increase in incidental take could increase the risk of Canada lynx mortality!!!!"

**Response:** DNRC coordinated with the USFWS to develop an HCP so that its conservation strategies would protect and conserve the habitats of listed species within the context of the ESA Section 10 Process. As described in the executive summary to the HCP Handbook (USFWS and NMFS 2016), this permitting process is designed to establish a "creative partnership" as envisioned by Congress to achieve the dual purpose and need, as stated in the 2010 Final EIS (Section 1.4, Purpose and Need). The purpose and need is to provide broad protection and conservation for listed species while balancing DNRC's need for long-term regulatory certainty in managing its forested trust lands and meeting its trust mandate. The USFWS will take into

account the effects of incidental take in their Section 7 analysis as required under ESA for the listed species covered under the HCP, which includes grizzly bears, Canada lynx and bull trout.

# CHAPTER 5: GLOSSARY

This glossary is largely the same as that included in the 2010 Final EIS but includes and highlights any new terms introduced in the Supplemental EIS analysis.

**100-year site index tree height** – The average height predicted by site index curves for 100-year-old dominant or co-dominant tree species representative of the cover type in a given stand.

**124 permit** – A permit required under the Montana Stream Protection Act for any project that requires the construction of new facilities or the modification, operation, and maintenance of an existing facility that may affect the natural existing shape and form of any stream or its banks or tributaries. Montana Fish, Wildlife and Parks issues and administers the 124 permit under the regulatory authority of the Montana Stream Protection Act. The Act states that fisheries resources are to be protected and preserved in their natural state, except as may be necessary and appropriate after considering all factors involved. The 124 permit process ensures that plans to modify fisheries resources (e.g., stream channel, stream banks, etc.) either eliminate or diminish potential adverse effects on those fisheries resources.

**303(d) listings** – Section 303(d) of the federal Clean Water Act requires states to assess the condition of their waters to determine where water quality is impaired (does not fully meet standards) or threatened (is likely to violate standards in the near future). The result of this review is the 303(d) list, which must be submitted by each state to the U.S. Environmental Protection Agency every other year. The 303(d) list in Montana is administered by Montana Department of Environmental Quality.

**Abandoned road** – A road that is impassable due to effective closure, but has drainage structures that have not been removed. Under the proposed HCP (Alternative 2), an abandoned road would not receive motorized use for low-intensity forest management activities or commercial forest management activities.

**Active gravel pit** – Any gravel pit or rock source that has excavation, processing, hauling, and/or other uses in a given calendar year. Motorized use of active pits may vary considerably from very limited low use to continuous motorized operation and hauling.

**Active subunit** – A bear management unit subunit, in which DNRC is actively conducting commercial forest management activities.

**Adaptive management** – The process of monitoring the implementation of conservation measures, then adjusting future conservation measures according to what was learned. Adaptive management can also include testing of alternative conservation measures, monitoring the results, andthen choosing the most effective and efficient measures for long-term implementation.

**Administrative Rules of Montana (ARM)** – A codification of the general and permanent rules published in the Montana Administrative Register by the executive departments and agencies of the state of Montana.

**Allopatric redband trout** – Redband trout that evolved outside the historical range of steelhead. See also sympatric redband trout.

**Anadromous fish** – Those species of fish that mature in the ocean and migrate to freshwater streams to spawn. For example, salmon are anadromous fish.

**Animal unit** – An animal unit is one mature cow of approximately 1,000 pounds and a calf up to weaning, usually 6 months of age, or their equivalent.

**Animal unit month (AUM)** – The amount of forage required by an animal unit for one month.

**Bankfull depth –** The depth of water in a stream as measured from the surface to the channel bottom when the water surface is even with the top of the stream bank.

**Bankfull flows** – The bank full flow stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which moving sediment, forming or removing bars, forming or changing bends and meanders, and generally doing work that results in the average morphologic characteristics of channels.

**Bear** – The grizzly bear (*Ursus arctos horribilis*).

**Bear management unit (BMU)** – A federally defined sub-designation within a grizzly bear recovery zone used for habitat evaluation and population monitoring (*Grizzly Bear Recovery Plan*, 17 USFWS 1993).

**Bear-resistant** – Secured in a hard-sided camper, vehicle trunk, cab, hard-sided dwelling, hard-sided storage building, approved bear-resistant container, within an effective electric fence, or suspended with the bottom of the item at least 10 feet up and 4 feet out from an upright support.

**Best management practice (BMP)** – A practice or combination of land use management practices that are used to achieve sediment control and protect soil productivity and prevent or reduce non-point pollution to a level compatible with water quality goals. The practices must be technically and economically feasible and socially acceptable.

**Best management practice (BMP) audit** – An established monitoring and reporting process conducted both internally by DNRC (internal BMP audits) and by third parties (statewide BMP audits) to evaluate and document the implementation and effectiveness of BMPs applied on individual DNRC timber harvesting operations and associated site preparation, slash disposal, road construction, and road maintenance activities.

**Biological diversity (or Biodiversity)** – The variety of life and its processes. It includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

**Blocked lands** – Areas where parcels owned by DNRC are within proximity to one another. Blocked lands comprise greater than 15,000 acres, or a series of parcels in a checkerboard pattern, or parcels situated in proximity to one another or that lie adjacent to each other and form small to medium-sized blocks. For the purposes of the proposed HCP (Alternative 2), blocked lands refer to those lands exhibiting these characteristics within the Swan River, Stillwater, or Coal Creek State Forests.

**Bear management unit (BMU) subunit** – A federally defined sub-designation of a BMU that approximates a female grizzly bear's home range; BMU subunits are used for habitat evaluation and population monitoring.

**Board foot** – A unit for measuring wood volumes. One board foot is a piece of wood 1 foot long, 1 foot wide, and 1 inch thick (144 cubic inches). This measurement is commonly used to express the amount of wood in a tree, saw log, or individual piece of lumber. A thousand board feet is abbreviated mbf.

**Borrow (source or site)** – Small sources of gravel, rock, or fill material within 0.25 mile of open or restricted roads. Sizes of borrows can range from small, disturbed areas associated with the removal of several cubic yards of material up to larger areas of 1 acre. For the purposes of the HCP commitments, the number of borrows is not limited when associated with allowable road construction and/or road maintenance activities.

**Bottomless arch culvert** – A three-sided culvert that allows a natural stream bed in order to achieve substrate and stream flow conditions similar to undisturbed channel conditions.

**Box culvert** – A concrete (pre-cast or cast-in-place) or metal rectangular culvert, which can be countersunk in the stream bed to provide substrate that emulates natural conditions.

**Broadcast burning** (also referred to as slash burning) – A controlled burn, where the fire is intentionally ignited and allowed to proceed over a designated area within well-defined boundaries for the reduction of fuel hazard after logging or for site preparation before planting.

**Browse** (noun) – That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption.

**Buffer** – A forested area of trees left unharvested or harvested with site-specific or modified prescriptions during timber harvest to protect sensitive ecosystems or wildlife habitat, or potentially unstable slopes. Forest management activities may be allowed if consistent with the objectives for the buffer.

**Bull trout core habitat** – Bull trout core habitat is defined as habitat that contains, or if restored would contain, all of the essential physical elements to allow for the full expression of life history forms of one or more local populations of bull trout. A core habitat area represents the closest approximation of a biologically functioning unit for bull trout. Core habitat may include currently

unoccupied habitat if that habitat contains essential elements for bull trout to persist or is deemed critical to recovery (USFWS 2002a). See also **State of Montana bull trout core habitat**.

**Bull trout nodal habitat** – Bull trout nodal habitat is a designation developed by the Montana Bull Trout Restoration Team during preparation of the Restoration Plan for Bull Trout in the Clark Fork River *Basin and Kootenai River Basin* (MBTRT 2000). Nodal habitats are those used by sub-adult and adult bull trout as migratory corridors, rearing areas, and overwintering areas and for other critical life history requirements.

**Carrying capacity** – The maximum livestock stocking rate possible, without inducing permanent or long-term damage to vegetation or related resources. The stocking rate may vary from year to year in the same area as a result of fluctuating forage production.

**Changed circumstance** – Changed circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and/or NMFS and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events) (50 CFR17.3).

**Channel migration zone (CMZ)** – The width of the flood prone area at an elevation twice the maximum bank full depth.

**Classified forest trust lands** – Montana state trust lands are legally assigned to one of four land use classes. The four classes are grazing, agricultural, forest, and other (which includes administrative sites, cabin sites, commercial leases, military sites). The basis for classification is to ensure that lands are used to best meet the Land Board's trust and multiple-use responsibilities and that no lands are sold, leased, or used under a different classification than that to which they belong.

**Coarse-filter approach** (**terrestrial**) – An approach to maintaining biodiversity as described in the State Forest Land Management Plan (DNRC 1996) that involves maintaining a diversity of structures and species composition within stands and a diversity of ecosystems across the landscape. The intent is to meet most of the habitat requirements of most of the native species.

Compare with fine-filter approach.

**Coarse woody debris (CWD)** – Dead woody material such as stems or limbs, generally larger than three inches in diameter (ARM 36.11.403(19)).

**Code of Federal Regulations (CFR)** – A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

**Commercial forest management activities** – Timber harvest and salvage harvest activities (which includes logging, yarding – including tractor, cable and helicopter types – and hauling), road construction and road reconstruction.

**Commercial forestland** – Timber land capable of growing commercial crops of trees. Land that can grow 20 cubic feet of timber volume per acre per year.

**Compliance monitoring** – Monitoring conducted to determine the degree to which forest landowners and operators are adhering to regulatory policies for forest practices.

**Connectivity (fish)** – Connectivity is the capability of different life stages (e.g., adult or juvenile fish) of HCP fish species to move among the accessible habitats within normally occupied stream segments. For example, a culvert or dam may reduce connectivity by preventing or impeding upstream or downstream migration. For the proposed HCP, the objective for connectivity will focus exclusively on road-stream crossings.

**Connectivity (lynx)** – Stand conditions where sapling, pole, or sawtimber stands possess at least 40 percent crown canopy closure, in a patch greater than 300 feet wide.

**Conservation commitment** – Specific actions and requirements comprising conservation strategies.

**Conservation strategy** – A collection of conservation commitments intended to meet the goals

and objectives of an HCP.

**Contingency plan** – A response to a changed circumstance that will be collaboratively prepared by DNRC and the USFWS.

**Cooperative management response (CMR)** – A process by which minor adjustments can be made to improve the HCP or to clarify HCP language.

**Cost-share agreement** – An agreement between the State of Montana and the USFS Region 1 whereby both parties agree to share in the land costs and road construction and maintenance of mutually used roads in a manner commensurate to the amount of lands being accessed. The resulting agreement is formalized by an exchange of documents issued by each party. The agreement requires that the USFS determine the tributary area being accessed by said road system, and then picking up any third-party shares when there is third-party usage within said road system. Due to other applicable federal laws, the USFS becomes the controlling party of any roadway over trust lands, with an assumption of liability, maintenance, and future access requests to third parties. The cost-share agreement referred to herein is specifically applicable to the master cost-share agreement, known as the "Montana Master Share Agreement," and not any other cost-share agreement that the State of Montana or the USFS may periodically enter into independently.

**Covered activities** – Otherwise legal activities covered by an HCP and Permit. For the proposed HCP, covered activities include selected DNRC forest management activities related to timber harvest, roads, and grazing licenses. Covered activities include commercial forestry activities (e.g., timber harvest, salvage harvest, thinning, slash disposal, prescribed burning, site preparation, reforestation, weed control, fertilization, and inventory); forest management road construction, reconstruction, maintenance, use, and associated gravel quarrying for road surface materials; grazing licenses on classified forest trust lands (see definitions for **grazing license** and **grazing lease**); and roaded access.

**Critical habitat** – The specific areas occupied by the species at the time it is listed on which are found those physical or biological features that are (1) essential to the conservation of the species and (2) may require special management considerations or protection. Also, specific areas outside

the area occupied by the species at the time it is listed upon a determination that such areas are essential for the conservation of that species (summarized from the ESA).

**Crown closure** – The percentage of the ground surface covered by vertical projection of tree crowns. Synonymous with canopy cover and crown cover.

**Cumulative effects** – Per 40 CFR 1508.7, the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.

**Cumulative watershed effects (CWE)** – The collective impacts specifically affecting watershed resource features, such as water yield, flow regimes, channel stability, and in-stream, and upland sedimentation due to surface erosion and mass wasting.

**Den site (lynx)** – Natural or man-made piles at least 8 feet in diameter of slash and downed logs, which are at least 3 feet tall at their highest point will be considered as potential den sites. Potential den sites must be situated greater than 300 feet from open or restricted roads.

**Desired future condition (DFC)** – The land or resource conditions that will exist if goals and objectives are fully achieved (ARM 36.11.403 (24)).

**Diameter at breast height (dbh)** – The diameter of a tree, measured 4.5 feet above the ground on the uphill side of the tree.

**Disturbance regime** – A disturbance regime for an area comprises all of the various disturbances that may occur. There typically would be several types of disturbances, each characterized in terms of its type, size, spatial distribution, frequency, magnitude, and other spatial and temporal characteristics.

**Duff** – Decaying vegetable matter on the forest floor, such as leaves, twigs, and cones. Duff is important for soil production.

**Effectiveness monitoring** – Monitoring performed to determine whether the HCP conservation

commitments being implemented are having the desired biological effect on the given resource or species.

**Enabling Act** – The act by which land was granted by Congress to the State of Montana and held in trust for the support of common schools.

**Endangered species** – A species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

**Endangered Species Act (ESA)** – The Endangered Species Act, 16 USC 1531 et seq., as amended, and its implementing regulations. The ESA is federal legislation that provides a means to ensure the continued existence of threatened or endangered species and the protection of critical habitat of such species.

**Engineered substrate** – Stream bottom material, such as gravel and cobbles, mechanically placed within a stream channel or culvert to emulate the natural conditions upstream or downstream.

**Environmental assessment (EA)** – A concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact (40 CFR 1508.9). The appropriate level of environmental review for actions that either do not significantly affect the human environment or for which the agency is uncertain whether an environmental impact statement is required (Montana Environmental Policy Act).

**Environmental impact statement (EIS)** – A document prepared under the National or Montana Environmental Policy Acts to assess the effects that a particular action or program will have on the environment. An EIS addresses significant environmental impacts and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.

**Equivalent clearcut area (ECA)** – The total area within a particular watershed or sub-drainage that does or will exist in a clearcut condition. An ECA value is determined by adding the area actually in a clearcut condition with an equivalent clearcut area for roads, and partial or selective

cut units.

**Even-aged management** – Forest management prescriptions, such as clearcut, seed tree, and shelterwood harvests, that are designed to initiate the establishment of new stands of young trees. See also uneven-aged management.

**Fall period (grizzly bears)** – The period from September 16 through November 15.

**Federally listed species** – A species listed as threatened or endangered under the federal Endangered Species Act.

**Fine-filter approach** – An approach to maintaining biodiversity as described in the State Forest Land Management Plan (DNRC 1996) that is directed toward particular habitats or individual species that might not be adequately considered under a coarse-filter approach to management. The habitats may be critical in some way, and the species may be sensitive, threatened, or endangered. See also coarse-filter approach.

**Fishery** – An area of water where fish are caught for recreational or commercial purposes.

**Forage** (noun) – All browse and herbage that is available and acceptable to grazing animals or that may be harvested for feeding purposes.

**Ford** – A dip constructed in the roadbed at a stream crossing, instead of a culvert or bridge. The stream bed should be of erosion-resistant material, or such material must be placed in contact with the stream bed.

**Forest Management Administrative Rules (Forest Management ARMs)** – State rules that apply to forest management activities on all forested state trust lands administered by DNRC that provide field personnel with consistent policy, direction, and guidance for the management of forested state trust lands.

**Forested state trust lands (also referred to as forested trust lands)** – Forested state lands

managed by the Trust Land Management Division of DNRC for the economic benefit of the trust beneficiaries and endowed institutions of Montana. These lands, totaling approximately 727,000 acres, are currently managed under the State Forest Land Management Plan and the Forest Management Administrative Rules (ARMs 36.11.401 through 36.11.450). Forested state trust lands may include trust lands classified under any of the four land use classes.

**Fuel loading** – The mass of combustible materials available for afire.

**Full market value** – A real estate transaction whereby the purchase price of a property equals the appraised market value.

**Geographic information system** (**GIS**) – A computer system used to store and manipulate spatial data for the purposes of producing maps and performing analyses of spatial features. Spatial data maintained within a GIS can represent point, line, and area features on the ground, such as bald eagle nests (points), roads and streams (lines), and habitat types (areas).

**Gravel quarrying** – As a covered activity, includes DNRC's development and operation of gravel pits and borrow sites and DNRC's obtaining, stockpiling, hauling, and unloading gravel from DNRC or non-DNRC borrows or gravel pits. For the purposes of the HCP commitments, the number of borrows is not limited when associated with allowable road construction and/or road maintenance activities. Only medium and large gravel pits count against the allowable number of pits on a given administrative unit within grizzly bear recovery zones and non-recovery occupied habitat. See also borrow (source or site), medium gravel pit, and large gravel pit.

**Grazing lease** – A lease to graze livestock on trust lands that are classified grazing lands. The minimum rental rate for grazing leases is set by a formula that includes the average weighted price for beef cattle sold in Montana during the previous year. Because grazing leases are issued by the Agriculture and Grazing Management Bureau of DNRC and are not associated with DNRC forest management activities, they are not included as a covered activity under the proposed HCP.

**Grazing license** – A license to graze livestock on trust lands that are classified forest lands. Official written permission to graze a specific number, kind, and class of livestock for a specified period on a defined allotment or management area. Because grazing licenses are associated with

DNRC forest management activities, they are included as a covered activity under the proposed HCP.

**Green timber** – Live trees.

**Grizzly Bear Security Zones –** Seven land areas composed of 22,007 acres in the Stillwater Block managed under a unique set of conservation commitments.

**Habitat conservation plan (HCP)** – Under Section 10(a)(2)(A) of the Endangered Species Act, a planning document that is a mandatory component of an incidental take permit application. The HCP process is intended to provide a comprehensive, long-term management plan to protect and facilitate the recovery of threatened and endangered species and to provide a framework for creative partnerships between the public and private sectors in endangered species conservation.

**Habitat type group** – A system for stratifying the site potential of forest stands based on the habitat type climax vegetation classification system described by Pfister et al. (1977). The system was devised by Green et al. (1992) for the purposes of characterizing old-growth stands in the northern region of the USFS (comprising the Northern Rockies). Groupings reflect similarity of disturbance response, potential productivity, potential stocking density, potential for down wood accumulation, fire frequency, and tree species. The habitat types within each group also exhibit similar temperature and moisture regimes.

**Habitat types** – Forest vegetation types that follow the habitat type climax vegetation classification system developed by Pfister et al. (1977).

**Habitat conservation plan (HCP) fish species (HCP aquatic species)** – The fish (aquatic) species covered by an HCP and incidental take permit. For the proposed HCP, HCP fish species are bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*Oncorhynchus clarki lewisi*), and Columbia redband trout (*O. mykiss gairdneri*).

**Habitat conservation plan (HCP) species** – The aquatic and terrestrial species covered by an HCP and incidental take permit. For the proposed HCP, aquatic HCP species are bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*Oncorhynchus clarki lewisi*), and Columbia

redband trout (*O. mykiss gairdneri*). Terrestrial HCP species are grizzly bear (*Ursus arctos horribilis*) and Canada lynx (*Lynx Canadensis*).

**Habitat conservation plan (HCP) project area** – The lands (including lands added to the HCP pursuant to the transition lands strategy) where the covered activities occur and the lands to which the HCP's conservation commitments apply. For the proposed HCP, the HCP project area includes the blocked lands comprising the Stillwater, Coal Creek, and Swan River State Forests, as well as numerous scattered parcels throughout the Northwestern, Southwestern, and Central Land Offices of DNRC as depicted in HCP.

**Human environment** – The natural and physical environment and the relationship of people with that environment.

**Hydrologic unit code (HUC)** – For the purposes of watershed classification, a unique 11-digit number assigned to individual watersheds by the U.S. Geological Survey.

**Hyporheic flow** – The percolating flow of water through the sand, gravel, sediments, and other permeable soils, under and beside the open stream bed.

**Implementation monitoring** – Monitoring performed to determine whether the HCP conservation commitments are being implemented so that DNRC's covered activities remain in compliance with HCP requirements.

**Implementing Agreement** – Part of the application for an incidental take permit that specifies the HCP terms and conditions and legally binds the USFWS and permit holder (DNRC for the proposed HCP) to the requirements and responsibilities of the HCP and incidental take permit.

**Inactive subunit** – A bear management unit subunit in which DNRC is prohibited from conducting commercial forest management activities.

**Incidental take** – The taking of a federally listed wildlife species, when that taking is incidental to, but not the purpose of, carrying out otherwise legal activities.

**Incidental take permit (Permit)** – A permit that exempts a permittee from the take prohibition of Section 9 of the Endangered Species Act, provided that a conservation plan has been developed that specifies the likely take and steps that the applicant will use to mitigate and minimize the take. A Permit is issued by the USFWS or NMFS or both under Section 10 of the Endangered Species Act for non-federal applicants.

**In-stream shade** – The total solar energy affecting the surface of the stream in the stream reach adjacent to the timber harvest unit.

**Interdisciplinary (ID) Team** – A group of individuals, each with unique resource training, assembled to prepare an environmental assessment or environmental impact statement. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to prepare all resource sections (affected environment and environmental consequences) of the document. The project leader is responsible for coordinating the efforts of the team. Through interaction, participants bring different points of view to bear on the planning process and work together to develop project alternatives.

**Intermittent stream** – Any non-permanent (flows only for part of the year) flowing drainage feature having a definable channel and evidence of annual scour or deposition.

**Internal (DNRC) best management practice (BMP) audits** – An established monitoring and reporting process conducted internally by a DNRC water resource specialist, soil scientist, and fisheries biologist. The audit procedures are identical to those utilized by the third-party audits (statewide BMP audits) to evaluate and document the implementation and effectiveness of BMPs applied on individual DNRC timber harvest operations and associated site preparation, slash disposal, road construction, and road maintenance activities.

**Large gravel pit** – A source of gravel or rock that involves 5 to 40 acres of disturbed area. Large pits receive sporadic intensive levels of use that may be relatively continuous during some operating seasons. Large pits may be activated periodically or continuously to serve as sources for multiple road maintenance and/or construction projects in a given year or across multiple years. Large pits may involve mining, crushing, sorting, and/or asphalt operations over 1 or more years. Large

gravel pits are typically subject to rules, regulations, and permitting governed by the Montana Open cut Mining Act (ARMs 17.24.201 through 225) administered by the Montana Department of Environmental Quality.

**Large woody debris (LWD)** – Dead woody material, including logs, trees, or parts of trees that are greater than 4 inches (10 centimeters) in diameter and are located within a stream or river. LWD contributes to healthy aquatic systems by providing habitat for fish and aquatic insects, supplying nutrients to the stream, trapping sediment, forming pools, and stabilizing banks and stream channels.

**Legacy road** – an historical road constructed prior to best management practice development and implementation.

**Level 1 watershed analysis** – a watershed coarse-filter analysis relying primarily on existing data and information, and including documentation of rationale describing those variables that may contribute to cumulative watershed effects, an assessment of adverse cumulative watershed effects risk, and a description of additional detailed analysis, if required.

**Level 2 watershed analysis** – an evaluation of Level 1 watershed analysis results, field review of the project area, evaluation of baseline existing conditions, and a qualitative assessment of projected effects of Proposed Actions relative to the baseline existing conditions.

**Level 3 watershed analysis** – an evaluation of Level 1 and/or Level 2 watershed analysis results, field review of the project area, evaluation of baseline existing conditions, and a detailed quantitative assessment of projected effects of Proposed Actions relative to the baseline existing conditions.

**Listed species** – A species recognized as endangered, threatened, or sensitive by a federal or state agency. See also federally listed species.

**Low-intensity forest management activities** – Timber inventory, timber sale preparation, road location, road maintenance, bridge replacement, mechanical site preparation, tree planting, pre-commercial thinning, prescriptive and hazard reduction burning, patrol of fall and winter slash

burns, heavy and non-heavy equipment slash treatments, monitoring, data collection, and noxious weed management, but not commercial forest management activities.

**Lynx habitat** – Forestlands consisting of subalpine fir or hemlock habitat types, as described by Pfister et al. (1977). Forest types may be mixed species composition (subalpine fir, hemlock, Engelmann spruce, Douglas-fir, grand fir, western larch, lodgepole pine, and hardwoods), as well as stands dominated by lodgepole pine. Moist Douglas-fir, grand fir, cedar, and Engelmann spruce habitat types where they are inter-mixed with subalpine fir habitat types also provide habitat for lynx.

**Lynx management area (LMA)** – A key geographic area in the context of DNRC ownership that is of notable importance for lynx. LMAs are delineated zones that contain forested trust lands where increased levels of lynx conservation commitments are applied. Within these areas, records indicate that lynx are likely present (or have been in the relatively recent past) or lands are considered important for maintenance of resident lynx populations.

**Mass movement** – The downslope movement of rock and soil under the influence of gravity.

**Mass wasting** – A geologic term that can be used to describe multiple erosional processes acting in unison that contribute to base erosion rates of landscapes, watersheds, or similar geomorphic units.

**Medium gravel pit** – A source of gravel or rock that involves 1 to 4.9 acres of disturbed area. Medium pits receive intermediate levels of use and may be activated periodically to serve as sources for multiple road maintenance and/or construction projects in a given year or across multiple years. Medium pits may involve excavating, crushing, sorting, and/or asphalt operations.

**Microclimate** – The physical state of the atmosphere close to a very small area of the earth's surface, often in relation to living matter, such as forests or insects.

**Monitoring** – The process of gathering data that provides DNRC and the public with information on how plans are being implemented and whether they work as intended.

**Montana Environmental Policy Act (MEPA)** – Legislation that provides a public process

requiring the state government to make a deliberate effort to identify the impacts a decision may have on the human environment before that decision is made. This is the state equivalent of the federal National Environmental Policy Act.

**Motorized activities** – Motorized activities include chainsaw operation and timber felling, pre-commercial thinning, motorized vehicle trips associated with administrative uses, skidding and ground-based yarding operations, aerial yarding, motorized road construction and maintenance, log loading, log processing, and log hauling.

**Motorized trail** – A trail that is used by motorized vehicles.

**National Environmental Policy Act (NEPA)** – The law requiring all federal agencies to consider and analyze all significant environmental impacts of any action proposed by those agencies; to inform and involve the public in the agencies' decision-making processes; and to consider the environmental impacts in those processes.

**No Surprises regulation** – A regulation of the NMFS and USFWS providing regulatory assurances to an HCP incidental take permit (Permit) holder that no additional land use restrictions or financial compensation would be required with respect to species covered by the applicant's Permit, even if unforeseen circumstances arise after the permit is issued that indicate additional mitigation is needed to protect the species (50 CFR Part 17).

**Non-denning season** – The time of year when grizzly bears are out of hibernation and are active. On the Stillwater Block, this means April 1 through November 30. On all other forested trust lands, this means April 1 through November 15.

**Non-habitat areas (lynx)** – Permanent non-forested areas such as dry forest types, rock, lakes, meadows, etc.

**Non-recovery occupied habitat (NROH) (grizzly bears)** – The fixed land area outside the boundaries of established grizzly bear recovery zones where one would reasonably expect to find grizzly bear use occurring during any/most years, as of 2002, as defined by Wittinger (2002).

**Non-stocked stand** – A forest stand with fewer than 50 seedlings and saplings per acre, equivalent to the grass/forb habitat type.

**Non-vegetated gravel pit** – Previously forested areas that have fewer than 180 sapling trees per acre or less than 40 percent total stand crownclosure.

**Noxious weed** – An unwanted plant specified by federal, state, or local laws as being especially undesirable, troublesome, and difficult to control. It grows and spreads in places where it interferes with the growth and production of native plants or desired crops.

**Old-growth** – Forest stands that meet or exceed the minimum number, size, and age of those large trees as noted in Old-Growth Forest Types of the Northern Region by Green et al. (1992).

**Open road** – A road without limitation on motorized vehicle use. Some open roads could be restricted for specific management reasons other than the HCP (spring breakup for example). For the purpose of calculating open road density on scattered parcels, open roads include roads open year-long with uncontrolled public and administrative use; roads where status is currently unknown; roads restricted year-long or seasonally by other landowners where DNRC does not control access; and roads restricted during the winter period by DNRC that do not limit access during spring, summer, or fall periods.

**Ordinary high water mark (OHWM)** – The stage regularly reached by a body of water at the peak of fluctuation in its water level. The OHWM is generally observable as a clear, natural line impressed on the bank. It may be indicated by such characteristics as terracing, changes in soil characteristics, destruction of vegetation, presence or absence of litter or debris, or other similar characteristics.

**Other suitable habitat (lynx)** – Forested habitat within lynx habitat with at least medium stocking levels (at least 40 percent crown closure) in any combination of seedling/sapling, pole, or sawtimber size classes as identified in DNRC's stand level inventory database. Other suitable habitat also includes stands of saplings that contain at least 180 stems per acre that are greater than or equal to 6 feet tall. Other suitable habitat is a subset of suitable lynx habitat but does not contain the necessary attributes to classify as winter foraging habitat or summer foraging habitat. Under

current rules, other suitable habitat also includes foraging habitat as defined in the ARMs.

**Parcel** – A legally definable tract of land based on a 640-acre section. Portions of a legally described 640-acre section that are less than 640 acres but share a common boundary line (such as a NE 1/4 section and a SE 1/4 section; i.e., a 1/2 section in total) typically are considered as **one** parcel. Portions of a legally described 640-acre section that are less than 640 acres but share a common corner (such as a NE 1/4 section and a SW 1/4 section) typically are considered as **two** parcels. However, multiple 640-acre sections that share common boundary lines (or full 640- acre sections with adjoining smaller units such as an adjacent 40-acre tract) typically are considered as separate parcels. Two or more tracts within a section that are linked through boundary lines **(not** diagonally across corners) typically are considered as one parcel. Parcels may be more specifically defined for purposes such as establishing grazing animal unit months, or for identification in conjunction with acquisition, disposal, or special projects.

**Perennial stream** – A well-defined channel that contains water year round during a year of normal rainfall with the aquatic bed located below the water table for most of the year.

**Physiographic region** – A geographic region in which climate and geology have given rise to a distinct array of land forms that are notably different from those of surrounding regions.

**Planning area** – The geographic area potentially influenced by implementation of the proposed HCP. The planning area encompasses the HCP project area and all other lands in the three land offices containing the HCP project area. As such, the planning area includes trust lands managed by DNRC but not included in the HCP project area, as well as lands owned by other state, local, private, federal, and tribal entities.

**Poletimber** – Forest stands dominated by trees between 5 and 9 inches diameter at breast height.

**Present net value (PNV)** – Present net value is the difference between the present value of cash inflows and the present value of cash outflows. PNV is used in capital budgeting to analyze the profitability of an investment or project. PNV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account.

**Primary closure device** – A closure device (e.g., gate, berm, barricade, or tank trap) designed for restricting road access situated off an open road system that is primarily responsible for restricting access on a particular road or road system. Secondary closure devices (which can be structures similar to primary closure devices) may or may not be present on road segments behind primary closure devices.

**Proposed 4(d) special rule** – Refers to Section 4(d) of the federal Endangered Species Act. Pursuant to section 4(d), special rules may be promulgated "to provide for the conservation of [threatened] species." Such special rules may limit the application of the prohibition against take.

**Proposed threatened or endangered species** – Species proposed by the USFWS or NMFS for listing as threatened or endangered under the federal Endangered Species Act; not a final designation.

**Reciprocal access agreements** – The method established by MCA 77-1-617 whereby DNRC can acquire access to isolated trust lands by exchanging an equal right on trust lands. The tract(s) the state is acquiring access to must be isolated in either a legal sense (i.e., there is no legal access to the state land) or there are portions of the tract that have substantial physical restrictions that prevent access. A state tract may have legal access and be burdened by reciprocity as long as one or more state tracts obtain access through the reciprocal agreement. Rights do not have to be equal if the trust beneficiary burdened by reciprocity is compensated.

**Reclaimed gravel pit** – A gravel pit that has been made capable of supporting the uses those lands were capable of supporting prior to any mining activity, through any combination of the following or other means: backfilling, grading, stabilizing, or re-contouring, and re-vegetating.

**Reclaimed road** – A road that is impassable due to effective closure. It has been stabilized, and culverts and other structures, if present, have been removed, but the road prism may remain. A reclaimed road will not receive motorized use for low-intensity forest management activities or commercial forest management activities (as defined under the proposed HCP – Alternative 2).

**Resident lynx population** – A group of lynx that has exhibited long-term persistence in an area, as determined by a variety of factors, such as evidence of reproduction, successful recruitment into

the breeding cohort, and maintenance of home ranges (68 FR 40076-40101, July 3, 2003).

**Rest period** – A period during the non-denning season when project activities are restricted or prohibited to provide secure areas for grizzly bears.

**Restricted road** – A road that is managed to limit the manner in which motorized vehicles may be used. Restricted roads will have a physical barrier that restricts the general use of motorized vehicles. Restrictions will be man-made or naturally occurring (gates, barricades, earthen berms, vegetation that makes the road impassable, eroded road prism, rocks, etc.).

**Riparian area** – Areas of land directly influenced by water or that influence water. Riparian areas usually have visible vegetative or physical characteristics reflecting the influence of water. Riversides and lake shores are typical riparian areas. Commonly referred to as "riparian zone."

**Riparian exclusion areas** – Streamside buffers established under the North Swan Valley, West Swan Valley and Swan Valley Conservation Easements for Goat Creek, Squeezer Creek, South Woodward Creek, Woodward Creek and the Swan River. These buffers encompass the Channel Migration Zones (CMZ) of the stream, plus an additional 80' in width beyond the boundaries of the CMZ on each side of the stream. Under the terms of the Conservation Easements, timber harvest, operation of mechanical equipment off of established roads, and other timber management activities are prohibited within the Riparian Exclusion Areas.

**Riparian management zone (RMZ)** – Under the Forest Management Administrative Rules (ARMs 36.11.401 through 36.11.450), an RMZ refers to streamside buffer established when forest management activities are proposed on sites with high erosion risk or on sites that are adjacent to fish-bearing streams or lakes (ARM 36.11.425). For the purposes of the proposed HCP, under the aquatic conservation strategy, the combined streamside management zone (SMZ) and RMZ are referred to as an RMZ, as defined in the September 2003 version of the ARMs for the Streamside Management Zone (ARMs 36.11.301 through 36.11.312).

**Road** – Any created or evolved access route that is greater than 500 feet long and is reasonably and prudently drivable with a conventional two-wheel-drive passenger car or two-wheel-drive pickup. See also abandoned road, open road, reclaimed road, restricted road, and temporary road.

**Record of Decision (ROD)** – For a project that requires an environmental impact statement, a record of decision is required. This document states what the decision was, identifies all alternatives considered, and states whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they were not.

**Rosgen channel types** – A classification system for rivers based on channel morphology that was developed by Rosgen (1994). Stream reaches are divided into seven major stream type categories (Aa+, A, B, C, D, DA, E, F, and G) that differ in entrenchment, gradient, width/depth ratio, and sinuosity in various landforms. The major categories can be further broken down into sub-categories based on dominant channel materials.

**Salmonid** – Fish species belonging to the family Salmonidae, including trout, salmon, char, and whitefish species.

**Salvage harvest** – The removal of dead trees or trees damaged or dying because of injurious agents other than competition (such as fire, insects, disease, or blowdown) to recover the economic value that would otherwise be lost (ARM 36.11.403).

**Sawtimber** – Forest stands dominated by trees greater than 9 inches diameter at breast height; young sawtimber is generally less than 100 years old, and mature sawtimber is generally greater than 100 years old, but lacking some old-growth characteristics.

**Scattered parcels** (**scattered lands)** – Any DNRC section or parcel that is not part of blocked lands. For the purposes of the proposed HCP, blocked lands are identified within the Swan River, Stillwater, or Coal Creek State Forests.

**Scoping** – The process of determining the range of Proposed Actions, alternatives, and effects be discussed in a National Environmental Policy Act or Montana Environmental Policy Act document.

**Secondary closure device** – Any closure device (e.g., gate, berm, barricade, tank trap, etc.) that is secondarily restricting access and is situated on a restricted road or restricted road system behind a primary closure device.

**Secure habitat for grizzly bears** – Defined by the Interagency Grizzly Bear Committee (IGBC 1998) as areas that are a minimum distance of 0.3 mile from any open road or motorized trail and that receive no motorized use of roads or trails during the period they are considered core areas. It is recommended that core areas be established to encompass lands that meet the seasonal habitat needs of bears.

**Security core areas (grizzly bears)** – Areas typically greater than 2,500 acres that, during the non-denning period (1) are free of motorized access; (2) consider the geographic distribution of seasonal habitats important for grizzly bears; (3) remain in place for long periods, preferably 10 years; and (4) are at least 0.3 mile from the nearest access route that can be used by a motorized vehicle 5 (ARM 36.11.403).

**Security zones** – A distinct set of seven large land areas totaling 22,007 acres identified as a part of an HCP lawsuit settlement agreement in U.S. District Court for District of Montana, October 2015 (Case No. 9:13-cv-00061-DWM). The security zones occur in the Stillwater Block, as defined in the DNRC HCP, and are established as a long-term mitigation for grizzly bears.

Security zones are intended to provide large areas secure from human motorized disturbance during the non-denning period each year. All motorized activities including commercial logging are prohibited in these zones from April 1 to November 15. Commercial activities are allowed in security zones from November 16 to March 31 below 6,300 feet elevation, and no additional permanent road construction is allowed in them.

**Seedling/sapling** – Forest stands dominated by trees less than 5 inches diameter at breast height.

**Seral stages** – A temporal stage of vegetation development in the process of succession.

**Sight distance** – The distance at which 90 percent of an animal is hidden from view. On forested trust lands, this is approximately 100 feet, but may be more or less, depending on specific vegetative and topographic conditions.

**Site potential tree height (SPTH)** – The average maximum height for mature trees on a site, given the local growing conditions.

**Species of Concern (SOC)** – Taxa that are at risk or potentially at risk due to rarity, restricted distribution, habitat loss, and/or other factors.

**Spring habitat (grizzly bears)** – Low-elevation sites or other sites that maintain less snow during the spring period (e.g., avalanche chutes, riparian areas, wet meadows, swamps), which are particularly important for offsetting bears' nutritional stress following hibernation. On the Stillwater Block, spring habitat is modeled using habitat value functions following Mace et al. (1999) and occurs in areas associated with roads possessing restricted status during the spring period. Spring management restrictions apply to the Stillwater Block from April 1 until June 16 within non-spring habitat, and from April 1 until July 1 within spring habitat. Spring habitat on the Swan River State Forest includes all areas below 5,200 feet in elevation. Spring habitat on DNRC scattered parcels refers to lands below 4,900 feet in elevation.

**Spring period (grizzly bears)** – For the Stillwater Block, this is April 1 through June 15 for non-spring habitat and April 1 through June 30 for areas within spring habitat. For lands within the Swan River State Forest and DNRC scattered parcels in recovery zones, and non-recovery occupied lands this is April 1 through June 15.

**State Forest Land Management Plan (SFLMP)** – A programmatic plan, applicable to forested trust lands, which provides the philosophical basis and technical rationale for DNRC's forest management program.

**State of Montana bull trout core habitat** – A designation developed by the Montana Bull Trout Restoration Team (MBTRT), a state appointed entity, during preparation of the *Restoration Plan for* Bull Trout in the Clark Fork River Basin and Kootenai River Basin Montana (MBTRT 2000). Core habitat areas are watersheds (including tributary drainages and adjoining uplands) used by migratory bull trout for spawning and early rearing and by resident bull trout for all life history requirements. Core areas typically support the strongest remaining bull trout populations of spawning and early rearing habitat within a restoration/conservation area and usually occur in relatively undisturbed watersheds. Twelve restoration/conservation areas were established in Montana and delineated by the Montana Bull Trout Scientific Group. Restoration/conservation areas have been delineated largely because of fragmentation of historically connected stream

systems used by bull trout. These restoration/conservation areas essentially function as smaller, individual bull trout metapopulations. See MBTRT (2000) for additional information.

**Statewide best management practice (BMP) audits** – An established monitoring and reporting process conducted by third parties to evaluate and document the implementation and effectiveness of BMPs that are applied on timber harvest operations and associated site preparation, slash disposal, road construction, and road maintenance activities by various different landowner groups, including DNRC. Audits are conducted every 2 years by interdisciplinary teams composed of individual representing landowners, federal and state natural resource agencies, the timber industry, and conservation groups.

**Stillwater Block** – The blocked portions of the Stillwater and Coal Creek State Forests within the Northern Continental Divide Ecosystem recovery zone as identified in the Stillwater Block Transportation Plan Map.

**Stream order** – A stream numbering system ranging from 1 to 6 or higher, which ranks streams beginning from the headwaters to a river terminus, and designates the relative position of a stream or stream segment in a drainage basin network. First-order streams have no discrete tributaries; the junction of two first-order streams produces a second-order stream; the junction of two second-order streams produces a third-order stream; etc.

**Streamside management zone (SMZ)** – A stream, lake, or other body of water and an adjacent area of varying width where management practices that might affect wildlife habitat or water quality, fish, or other aquatic resources need to be modified. An SMZ encompasses a buffer strip at least 50 feet wide on each side of a stream, lake, or other body of water, measured from the ordinary high water mark, and extends beyond the high water mark to include wetlands and areas that provide additional protection in zones with steep slopes or erosive soils.

**Suitable lynx habitat** – Forest stands within habitat types considered to be preferred by lynx that possess at least a medium stocking level (at least 40 percent crown closure) in any combination of seedling/sapling, pole, or sawtimber size classes as identified in DNRC's stand level inventory

database. Suitable lynx habitat also includes stands that contain at least 180 stems per acre greater than or equal to 6 feet tall. On the Northwestern and Southwestern Land Offices, suitable lynx habitat includes the subsets of summer foraging habitat (or young foraging habitat defined in the Forest Management ARMs), winter foraging habitat, and other suitable habitat categories. On the Central Land Office, suitable lynx habitat is defined as stands occurring between 5,500 to 8,000 feet elevation that possess at least medium stocking levels (at least 40 percent stand crown closure) in any combination of pole timber and/or sawtimber size classes as identified in DNRC's stand level inventory database.

**Summer foraging habitat (lynx)** – Dense sapling stands and moderate to densely stocked pole timber stands within suitable lynx habitat that possess abundant horizontal cover.

**Summer period** – For the Stillwater Block, this is July 1 through September 15. For lands within the Swan River State Forest and DNRC scattered parcels, this is June 16 through September15.

**Sustainable yield** – Per MCA 77-5-221, the quantity of timber that can be harvested from forested trust lands each year in accordance with all applicable state and federal laws, including but not limited to the laws pertaining to wildlife, recreation, and maintenance of watersheds, and in compliance with water quality standards that protect fisheries and aquatic life and that are adopted under the provisions of MCA Title 75, Chapter 5, taking into account the ability of state forests to generate replacement tree growth.

**Swim performance** – A measure of the swimming ability of an individual fish species. Swim performance is compared to culvert water velocities to properly size culverts so they are passable for local fish species.

**Sympatric redband trout** – Redband trout that either occur within the range of steelhead or were evolved from steelhead populations. See also **allopatric redband trout**.

**Take** – Regarding federally listed species, take is defined by the Endangered Species Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The USFWS' implementing regulations define harm as "an act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to

significantly disrupt essential behavior patterns, which include, but are not limited to, breeding, feeding or sheltering; significant environmental modification or degradation which has such effects."

**Temporary non-suitable habitat (lynx)** – Recently harvested or naturally disturbed (e.g., burned) areas that have fewer than 180 saplings per acre that are at least 6-foot-tall, or less than 40 percent total stand canopy cover, but have the potential to be forested suitable lynx habitat over time.

**Temporary road** – A low-standard road that is used for forest management and that, following use, is treated so that it no longer functions as an open road, restricted road, or trail. Following their temporary usage, they may no longer be accessed for commercial, administrative, or public motorized use. Drainage structures may or may not be removed. The road prism may remain. Applicable best management practices would be implemented on these roads.

**Threatened species** – A species listed under the Endangered Species Act that is likely to become an endangered species within the foreseeable future through all or a significant part of its range.

**Timber permit** – A commercial timber sale that does not exceed 100,000 board feet of timber, or, in cases of an emergency, such as salvage sales, does not exceed 200,000 board feet of timber.

**Total maximum daily load (TMDL)** – Section 303(d) of the federal Clean Water Act directs states to develop TMDLs that regulate the amount of pollutants released to water quality limited water bodies. Use of TMDLs is incorporated into an overall state strategy for bringing a polluted water body into compliance with water quality standards.

**Total potential lynx habitat** – The total habitat acres that are within habitat types considered to be preferred by lynx. Preferred habitat structure may or may not be present on some acreage included under this designation. Total potential lynx habitat includes the habitat subsets of (1) suitable lynx habitat and (2) temporary non-suitable habitat.

**Trail** – Any route longer than 500 feet that does not qualify as a "road," including those routes that conventional four-wheel-drive trucks could negotiate.

**Transition lands strategy** – A process, which is included as part of the Implementing Agreement, by which DNRC can allow changes in land ownership and use within the HCP project area over the 50-year incidental take permit term.

**U.S. Fish and Wildlife Service (USFWS)** – The federal agency that is the listing authority for species, other than some marine mammals and most anadromous fish, under the federal Endangered Species Act.

**Uneven-aged management** – Forest management that involves the selective removal of single trees or groups of trees within a harvest unit. This results in a multi-age forest condition because regeneration is initiated after each entry. See also **even-aged management**.

**Unforeseen circumstances** – Changes in the circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the USFWS and/or NMFS at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species (50 CFR 17.3).

**Visual screening** – Vegetation and/or topography providing visual obstruction capable of hiding a grizzly bear from view. The distance or patch size and configuration required to provide effective visual screening depends on the topography and/or type and density of cover available.

**Watershed** – The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.

**Wetland** – An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include marshes, swamps, bogs, and similar areas.

**Wetland management zone (WMZ)** – A specified area adjacent to and encompassing an isolated wetland or adjacent to a wetland located next to a stream, lake, or other body of water where specific resource protection measures are implemented (ARM 36.11.403 (94)).

**Winter foraging habitat (lynx)** – Sawtimber stands within lynx habitat that possess multi-

layering of moderate- or well-stocked coniferous vegetation and horizontal cover. Winter foraging habitat consists of stands that must exhibit the following minimum structural characteristics: (1) stands must occur on habitat types preferred by lynx; (2) stands must have one or more of the following species present: subalpine fir, grand fir, or Engelmann spruce; (3) stands must have at least 10 percent canopy closure in trees greater than or equal to 9 inches diameter at breast height (i.e., sawtimber category in DNRC's stand level inventory database); (4) stands must have a minimum of 40 percent total stand crown density in understory and overstory combined; and (5) stands must not occur in big game winter areas.

**Winter period (bears)** – The bear denning season, November 16 through March 31.

**Young foraging habitat (lynx)** – Conifer seedling andsapling stands within lynx habitat with an average height greater than or equal to 6 feet and a density greater than or equal to 4,000 stems per acre (ARM 36.11.403(96)).

# CHAPTER 6: REFERENCES

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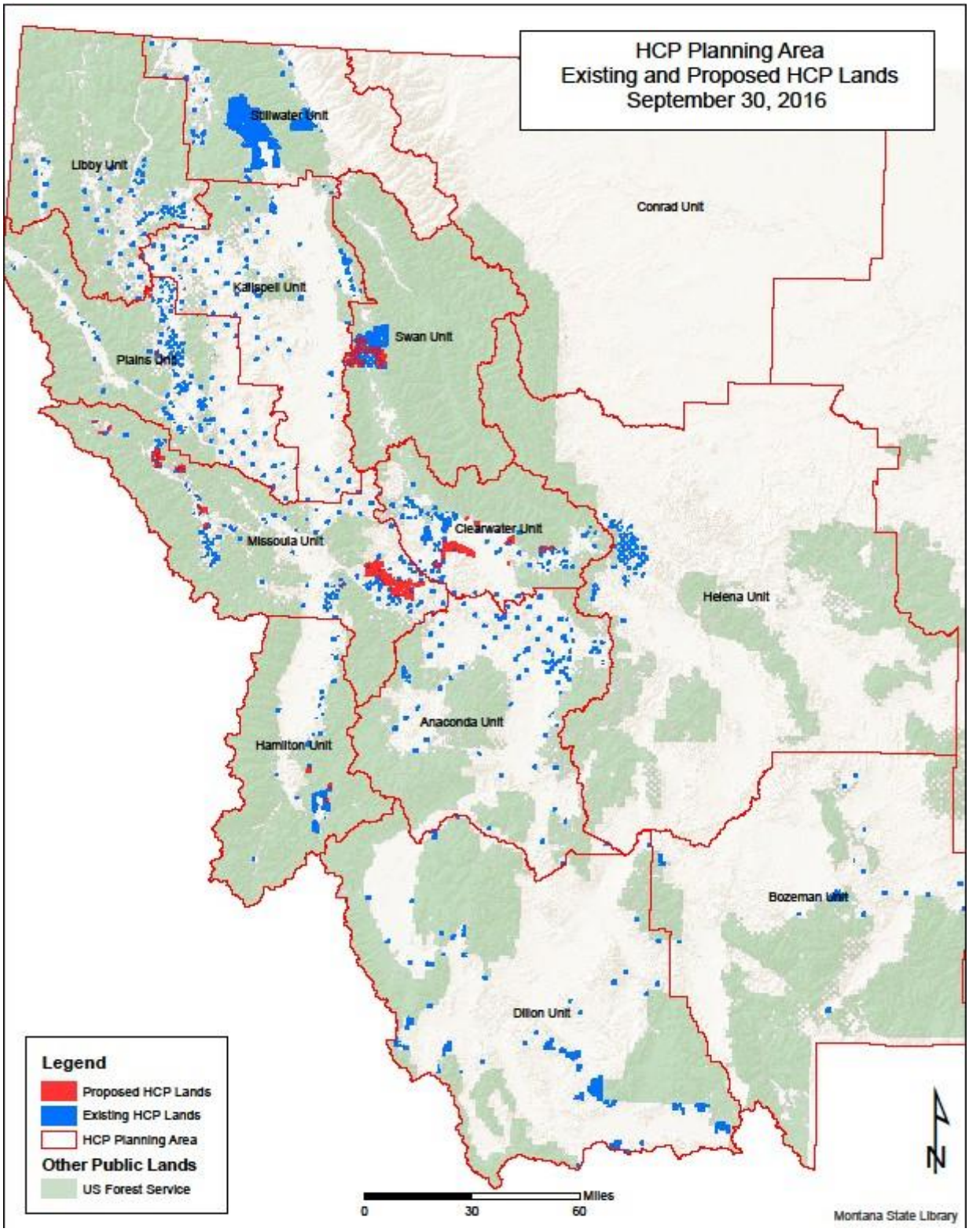
HCP Planning Area
Existing and Proposed HCP Lands
September 30, 2016
Stillwater Unit
Libby Unit
Conrad Unit
Kalispell Unit
Swan Unit
Plains Unit
Clearwater Unit
Missoula Unit
Helena Unit
Anaconda Unit
Hamilton Unit
Bozeman Unit
Dillon Unit
Legend
Proposed HCP Lands
Existing HCP Lands
HCP Planning Area
Other Public Lands
US Forest Service
Miles
0
30
60
Montana State Library

Figure 1-1

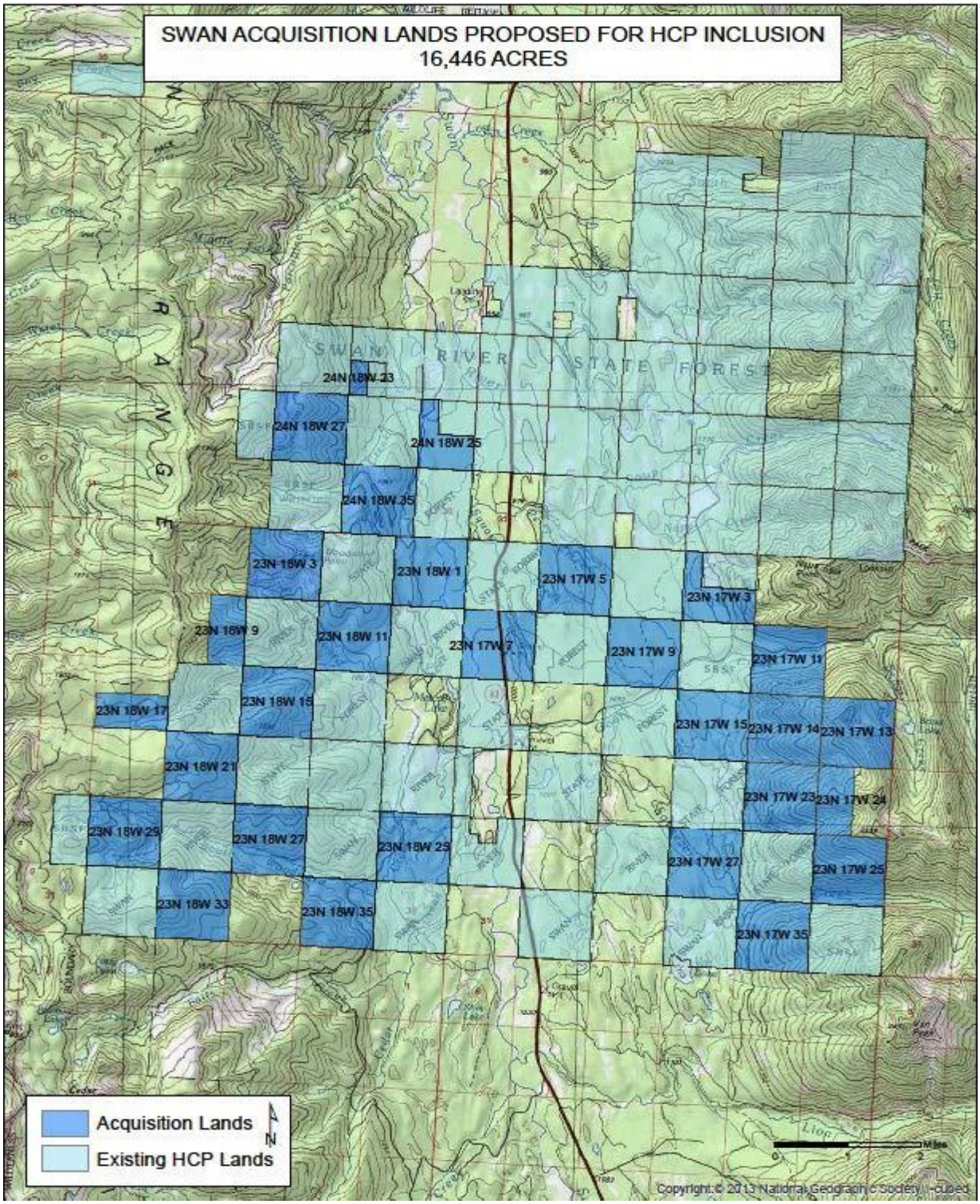
SWAN ACQUISITION LANDS PROPOSED FOR HCP INCLUSION
16,446 ACRES
SWAN RIVER STATE FOREST
24N 18W 23
24N 18W 27
24N 18W 25
24N 18W 35
23N 18W 3
23N 18W 1
23N 17W 5
23N 17W 3
23N 18W 9
23N 18W 11
23N 17W 7
23N 17W 9
23N 17W 11
23N 18W 17
23N 18W 15
23N 17W 15
23N 17W 14
23N 17W 13
23N 18W 21
23N 17W 23
23N 17W 24
23N 18W 29
23N 18W 27
23N 18W 25
23N 17W 27
23N 17W 25
23N 18W 33
23N 18W 35
23N 17W 35
Acquisition Lands
Existing HCP Lands
N
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Figure 1-2

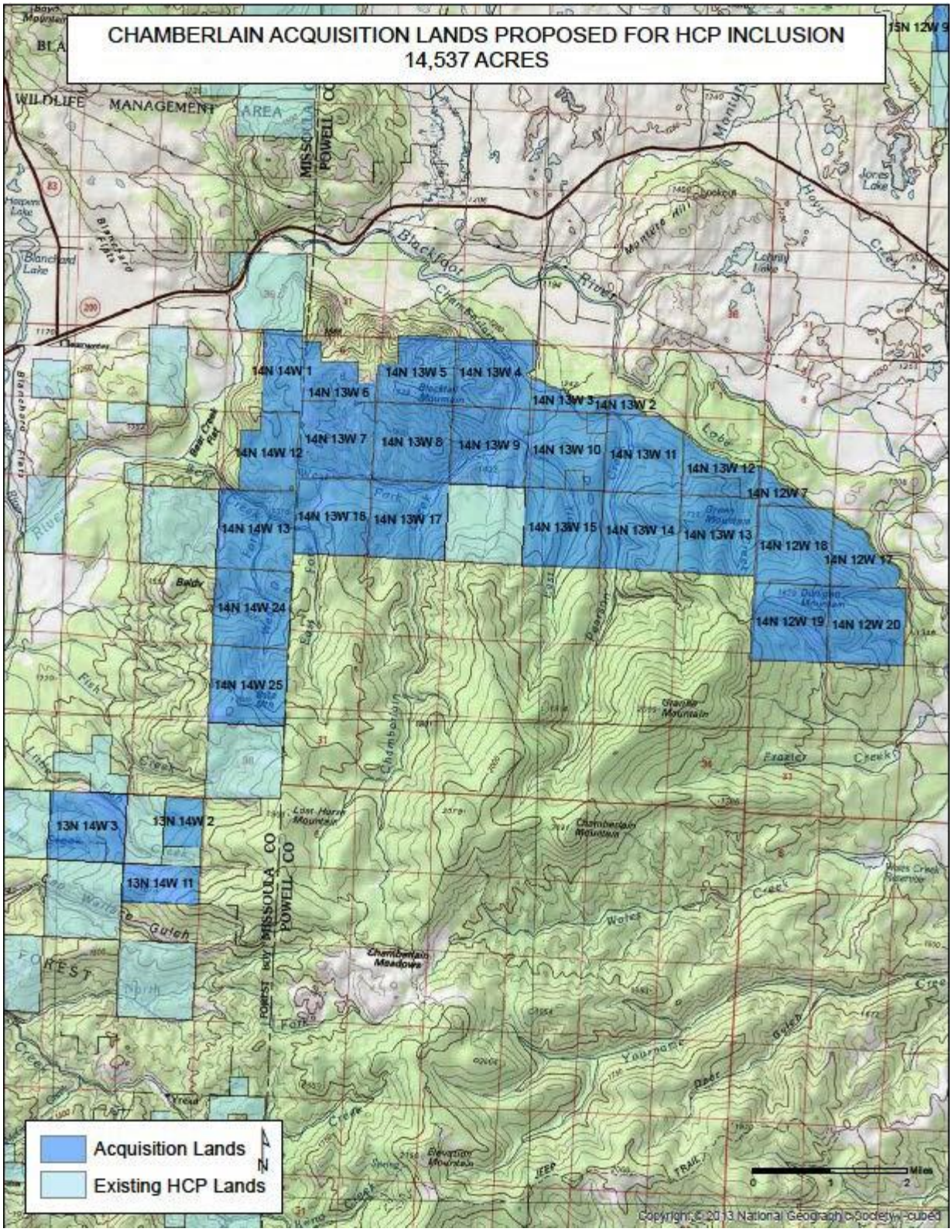
CHAMBERLAIN ACQUISITION LANDS PROPOSED FOR HCP INCLUSION
14,537 ACRES
14N 14W 1
14N 13W 5
14N 13W 4
14N 13W 6
14N 13W 3
14N 13W 2
14N 13W 7
14N 13W 8
14N 13W 9
14N 13W 10
14N 13W 11
14N 14W 12
14N 13W 12
14N 12W 7
14N 14W 13
14N 13W 16
14N 13W 17
14N 13W 15
14N 13W 14
14N 13W 13
14N 12W 18
14N 12W 17
14N 14W 24
14N 12W 19
14N 12W 20
14N 14W 25
13N 14W 3
13N 14W 2
13N 14W 11
Acquisition Lands
Existing HCP Lands
N
Miles
0
1
2
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Figure 1-3

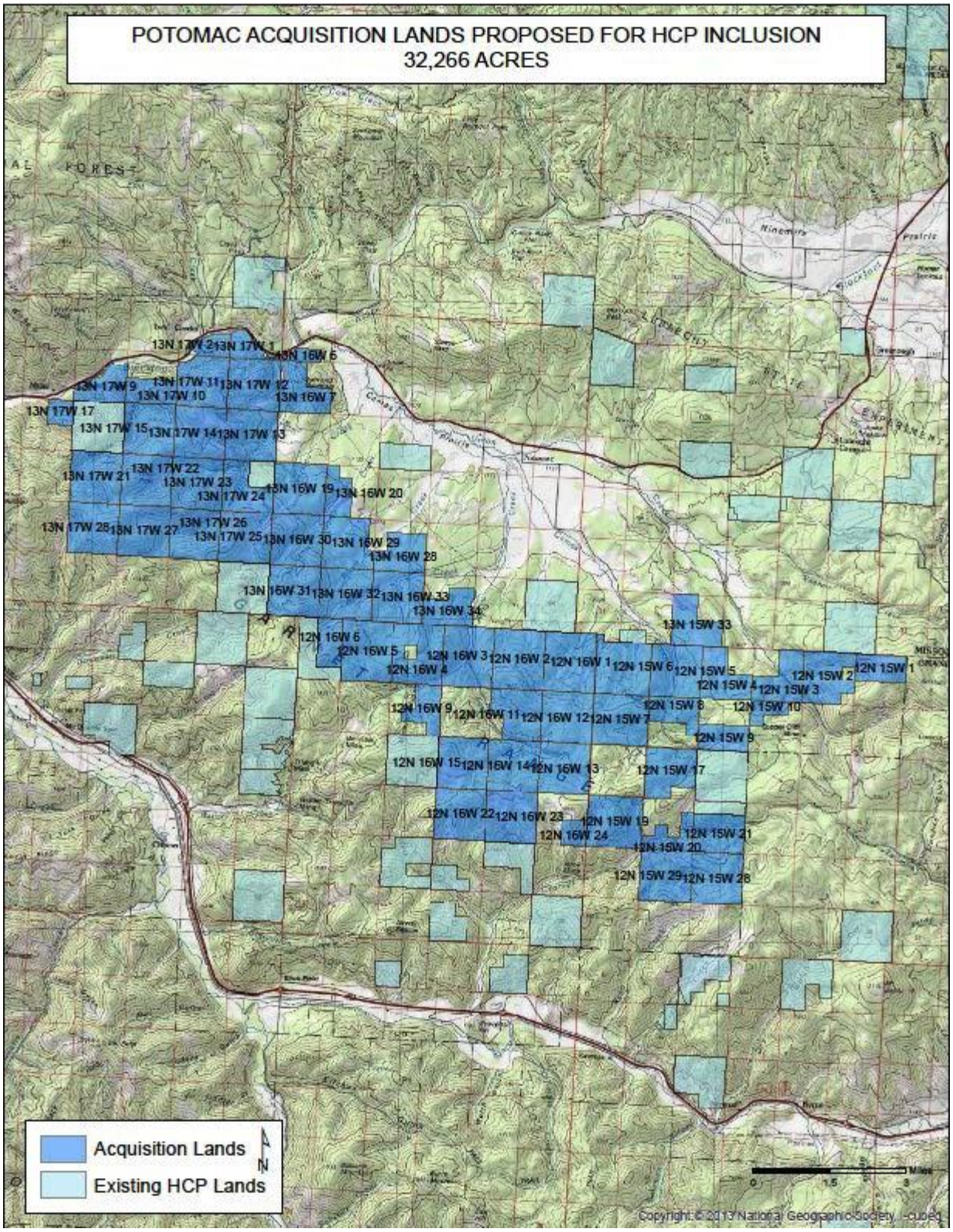
POTOMAC ACQUISITION LANDS PROPOSED FOR HCP INCLUSION
32,266 ACRES
13N 17W 2
13N 17W 1
13N 16W 6
13N 17W 9
13N 17W 11
13N 17W 12
13N 17W 10
13N 16W 7
13N 17W 17
13N 17W 15
13N 17W 14
13N 17W 13
13N 17W 21
13N 17W 22
13N 17W 23
13N 17W 24
13N 16W 19
13N 16W 20
13N 17W 28
13N 17W 27
13N 17W 26
13N 17W 25
13N 16W 30
13N 16W 29
13N 16W 28
13N 16W 31
13N 16W 32
13N 16W 33
13N 16W 34
13N 15W 33
12N 16W 6
12N 16W 5
12N 16W 3
12N 16W 2
12N 16W 1
12N 15W 6
12N 15W 5
12N 15W 2
12N 15W 1
12N 16W 4
12N 15W 4
12N 15W 3
12N 16W 9
12N 16W 11
12N 16W 12
12N 15W 8
12N 15W 10
12N 15W 7
12N 15W 9
12N 16W 15
12N 16W 14
12N 16W 13
12N 15W 17
12N 16W 22
12N 16W 23
12N 15W 19
12N 16W 24
12N 15W 21
12N 15W 20
12N 15W 29
12N 15W 28
Acquisition Lands
Existing HCP Lands
N
0
1.5
3
Miles
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Figure 1-4

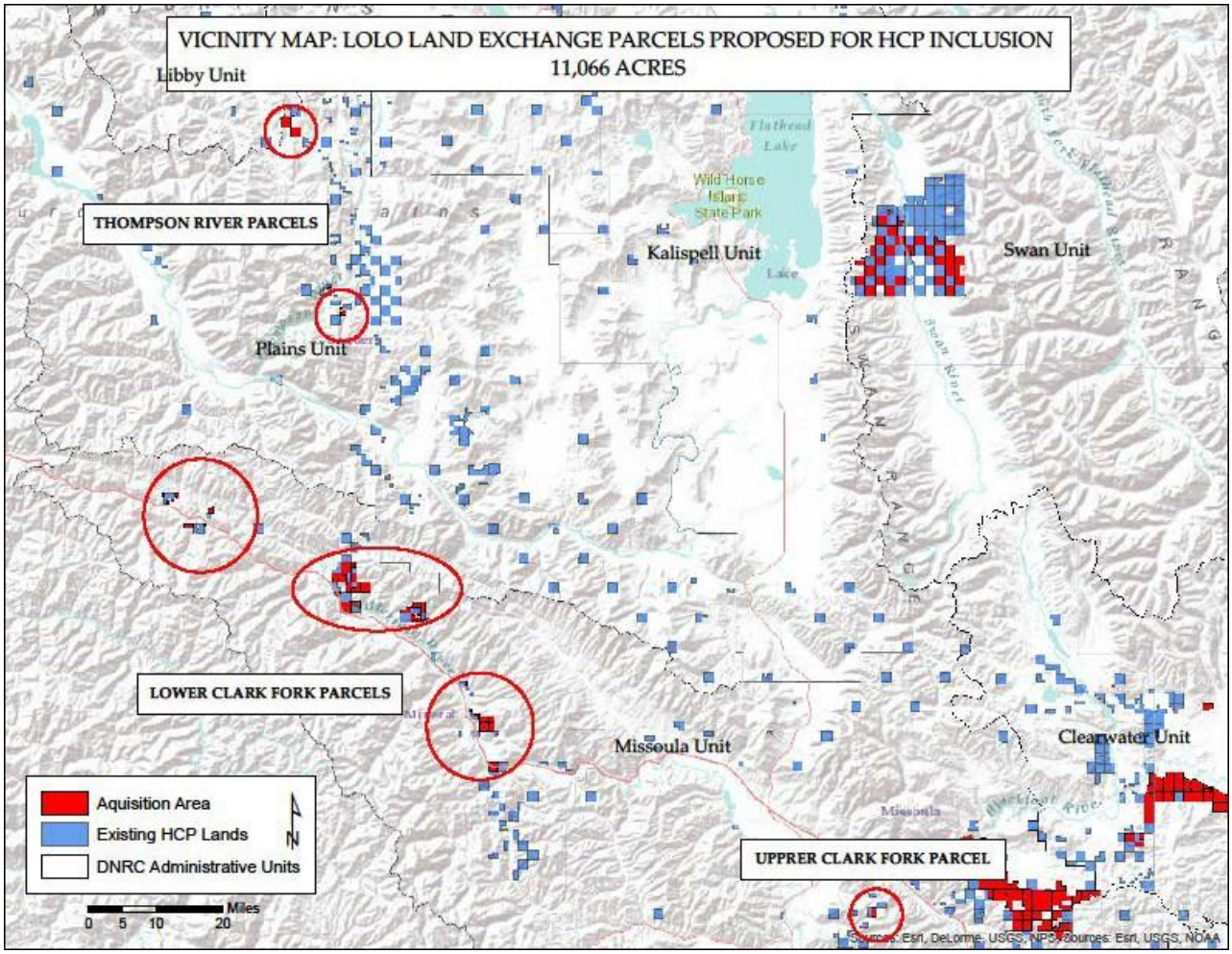
VICINITY MAP: LOLO LAND EXCHANGE PARCELS PROPOSED FOR HCP INCLUSION
11,066 ACRES
Libby Unit
THOMPSON RIVER PARCELS
Plains Unit
Kalispell Unit
Swan Unit
LOWER CLARK FORK PARCELS
Missoula Unit
Clearwater Unit
UPPRER CLARK FORK PARCEL
Aquisition Area
Existing HCP Lands
DNRC Administrative Units
N
Miles
0 5 10 20

Figure 1-5.

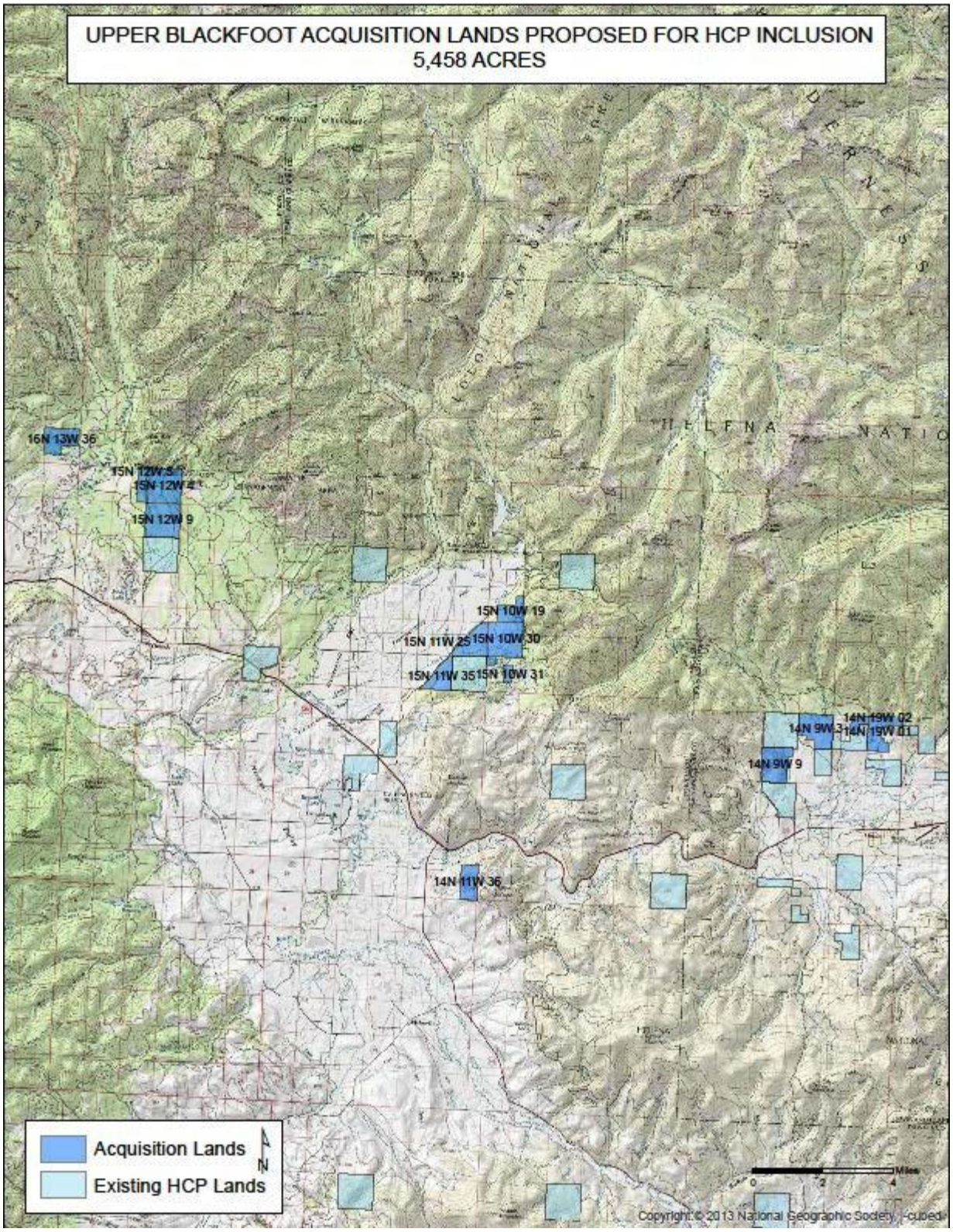
UPPER BLACKFOOT ACQUISITION LANDS PROPOSED FOR HCP INCLUSION
5,458 ACRES
16N 13W 36
15N 12W 5
15N 12W 4
15N 12W 9
15N 10W 19
15N 11W 25
15N 10W 30
15N 11W 35
15N 10W 31
14N 10W 02
14N 9W 3
14N 10W 01
14N 9W 9
14N 11W 36
Acquisition Lands
Existing HCP Lands
N
Miles
0
2
4
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Figure 1-6

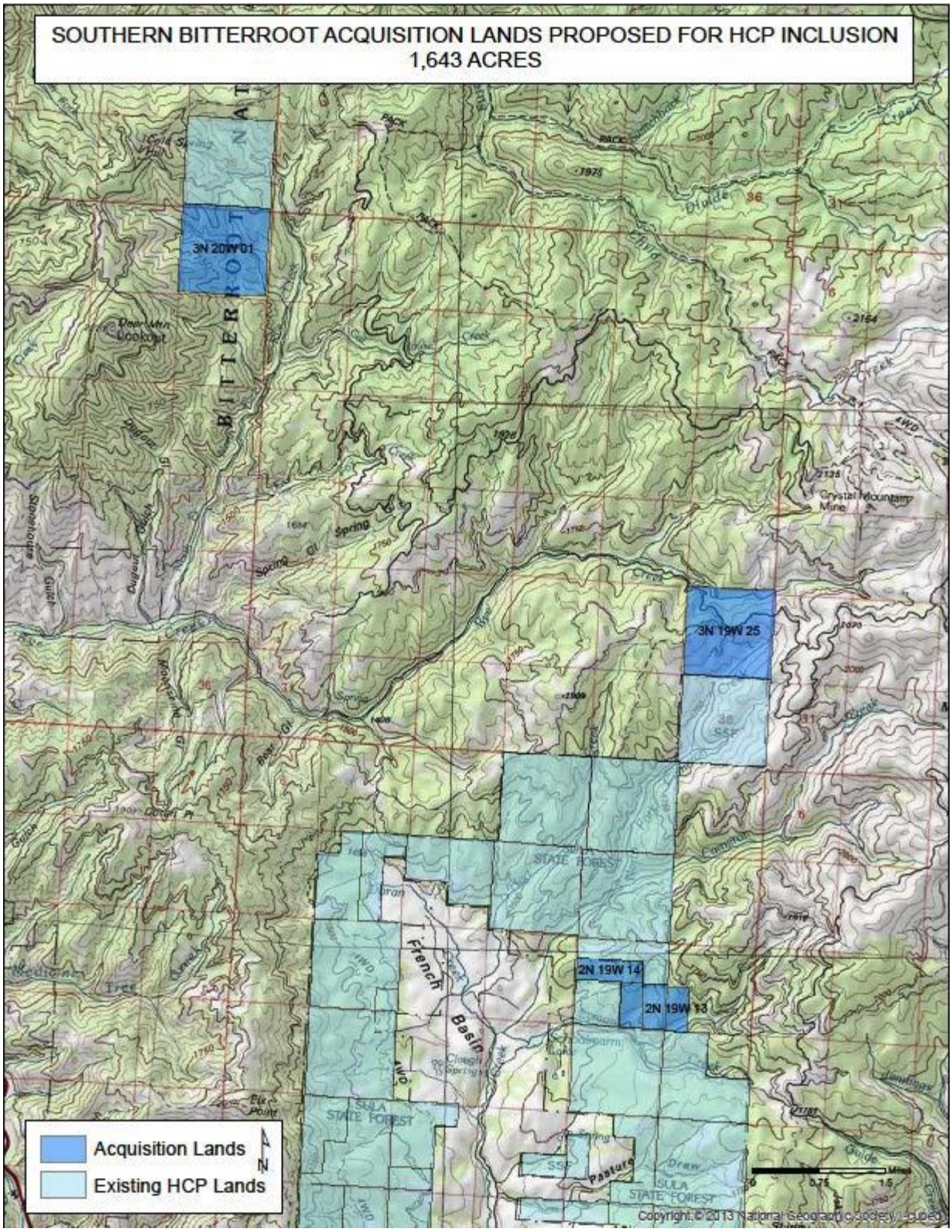
SOUTHERN BITTERROOT ACQUISITION LANDS PROPOSED FOR HCP INCLUSION
1,643 ACRES
3N 20W 01
3N 19W 25
2N 19W 14
2N 19W 13
BITTERROOT
French Basin
STATE FOREST
SULA STATE FOREST
Acquisition Lands
Existing HCP Lands
N
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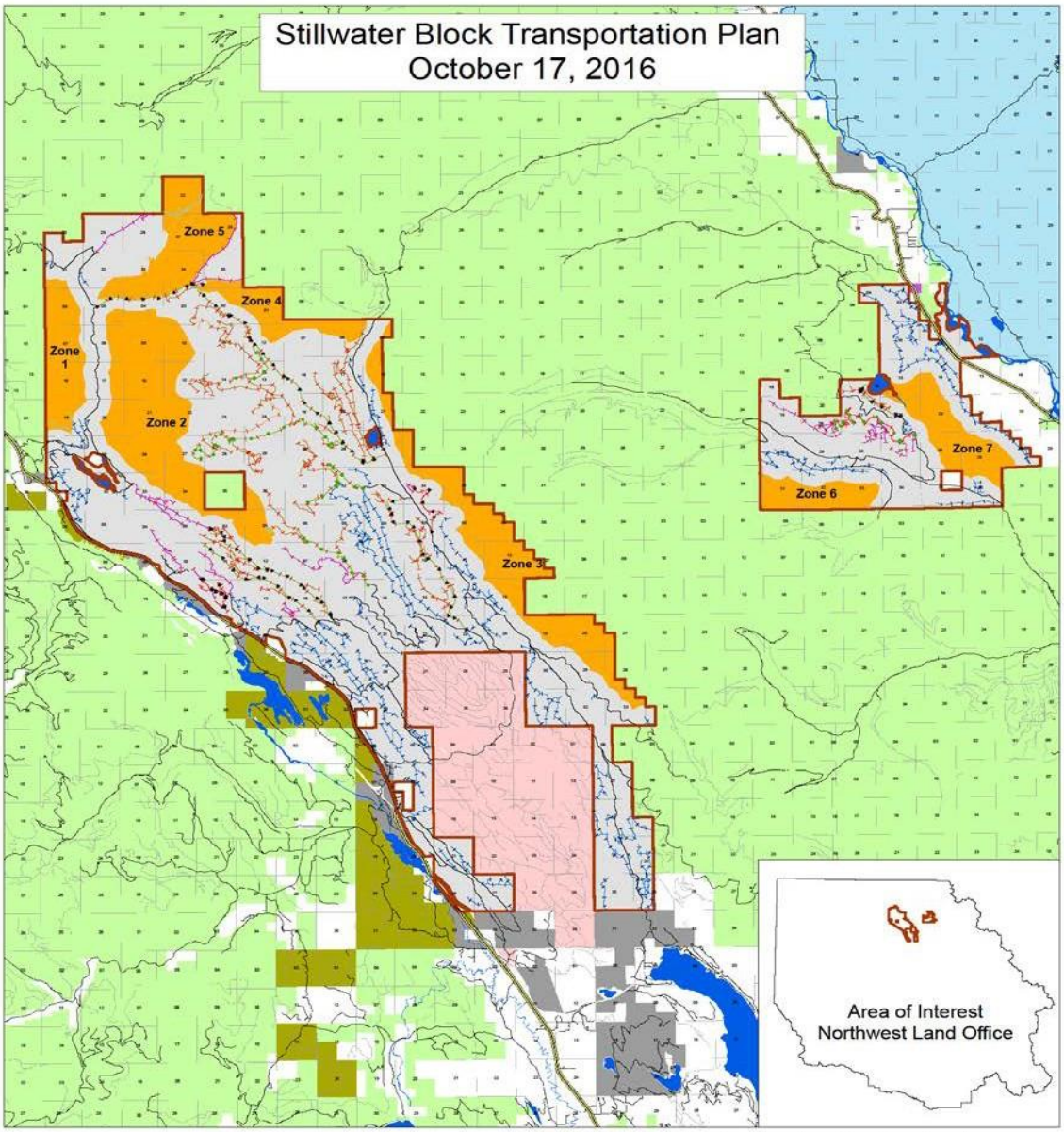
Figure 1-7




**DNRC Ownership**
- Stillwater Block
- Grizzly Bear Security Zones
- Class B Lands
- HCP Project Area: Non Stillwater Block
- DNRC Land not included in HCP

**Other Ownerships**
- Weyerhaeuser
- Private Land
- US Forest Service
- US National Park Service

**Road Classes**
- Restricted Roads (Non-Stillwater Block)
- Open Roads (Non-Stillwater Block)
- Proposed Restricted 021
- Proposed Restricted 025
- Proposed Restricted 027
- Existing Restricted 120, 121
- Existing Restricted 125, 126
- Existing Restricted 127, 128
- Existing Restricted 130
- Existing Restricted Spring 131
- Existing Restricted Non-Denning 132
- Existing Open Forest Road 190
- Highway

**DNRC Spring Restrictions**
- Spring Restriction (A) April 1 - June 15
- Spring Restriction (B) April 1 - June 30

**Public Spring and Fall Restrictions**
- Spring/Fall Restriction (C) April 1 to June 30 AND September 16 - November 30
- Spring Restriction (D) April 1 to June 30

Stillwater Block Transportation Plan: Existing and Proposed Road Class by Activity Category and Seasonal Restriction

| Road Class Number | Activity Category | | |
|---|---|---|---|
| | Motorized Public Access | Commercial Forest Management Activity | DNRC Low Intensity Forest Management Activity |
| **Existing Roads** | **Restriction Type** | **Restriction Type** | **Restriction Type** |
| Existing Open Forest Road (190) | Open Year-Round | Open Year-Round | Open Year-Round |
| Existing Restricted (130) | Restricted Seasonally (C or D) | Restricted Spring (B) | Open Year-Round |
| Existing Restricted Spring (131) | Restricted Spring (C or D) | Restricted Spring (B) | Restricted Spring (B) |
| Existing Restricted Non-Denning (132) | Closed Year-Round | Restricted Non-Denning (E) | Restricted Non-Denning (E) |
| Existing Restricted (120, 121) | Closed Year-Round | Restricted Spring (A) | Open Year-Round |
| Existing Restricted (127, 128) | Closed Year-Round | Restricted Spring (B) | Open Year-Round |
| Existing Restricted (125, 126) | Closed Year-Round | Restricted Spring (B) | Restricted Spring (B) |
| **Proposed Roads** | **Restriction Type** | **Restriction Type** | **Restriction Type** |
| Proposed (021) | Closed Year-Round | Restricted Spring (A) | Open Year-Round |
| Proposed (027) | Closed Year-Round | Restricted Spring (B) | Open Year-Round |
| Proposed (025) | Closed Year-Round | Restricted Spring (B) | Restricted Spring (B) |
| **Seasonal Restrictions** | **Restriction Timing** | | |
| DNRC Spring Restriction (A) | Spring Restriction April 1 to June 15 | | |
| DNRC Spring Restriction (B) | Spring Restriction April 1 to June 30 | | |
| Public Spring and Fall Restrictions (C) | Spring Restriction April 1 to June 30 AND Fall Restriction September 16 to November 30 | | |
| Public Spring Restriction (D) | Spring Restriction April 1 to June 30 | | |
| DNRC Non-Denning Restriction (E) | Non-Denning Restriction April 1 to November 15 | | |

NAD 1983 StatePlane Montana FIPS 2500
October 17, 2016 by Chris Forristal

Figure 2-1

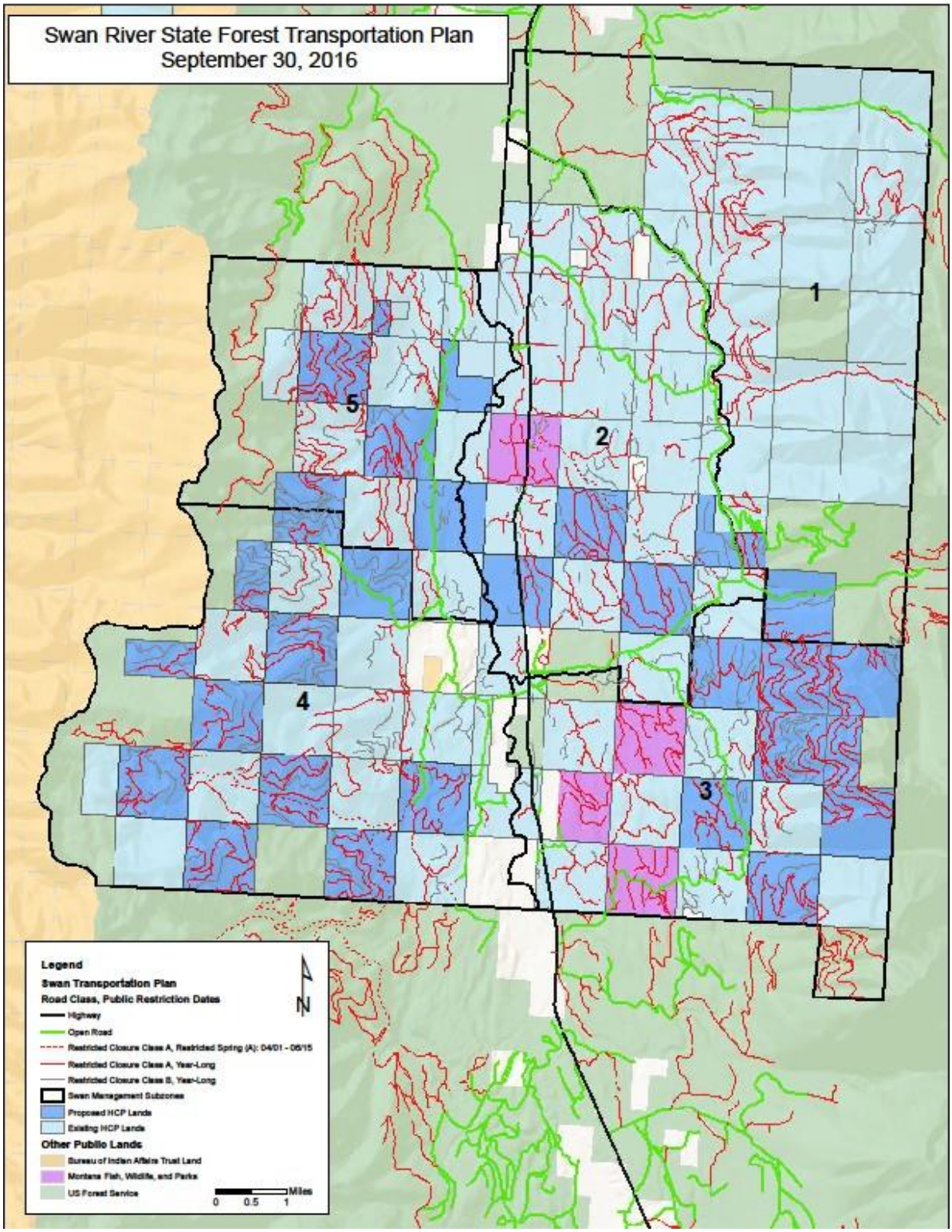

Swan River State Forest Transportation Plan
September 30, 2016
1
2
3
4
5
Legend
Swan Transportation Plan
Road Class, Public Restriction Dates
Highway
Open Road
Restricted Closure Class A, Restricted Spring (A): 04/01 - 06/15
Restricted Closure Class A, Year-Long
Restricted Closure Class B, Year-Long
Swan Management Subzones
Proposed HCP Lands
Existing HCP Lands
Other Public Lands
Bureau of Indian Affairs Trust Land
Montana Fish, Wildlife, and Parks
US Forest Service
N
Miles
0 0.5 1

Figure 2-2

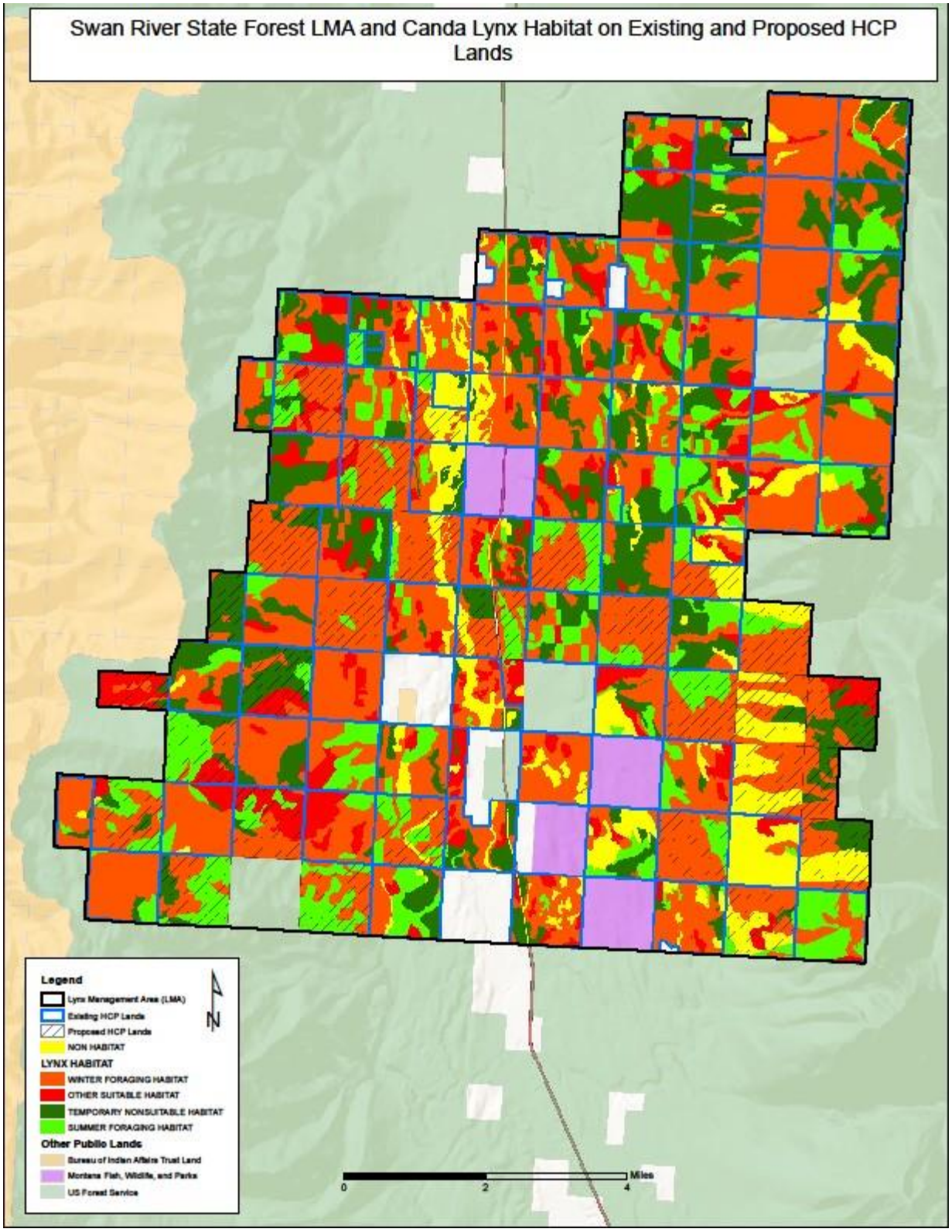

Swan River State Forest LMA and Canda Lynx Habitat on Existing and Proposed HCP Lands
Legend
Lynx Management Area (LMA)
Existing HCP Lands
Proposed HCP Lands
NON HABITAT
LYNX HABITAT
WINTER FORAGING HABITAT
OTHER SUITABLE HABITAT
TEMPORARY NONSUITABLE HABITAT
SUMMER FORAGING HABITAT
Other Public Lands
Bureau of Indian Affairs Trust Land
Montana Fish, Wildlife, and Parks
US Forest Service
N
0
2
4
Miles

Figure 2-3

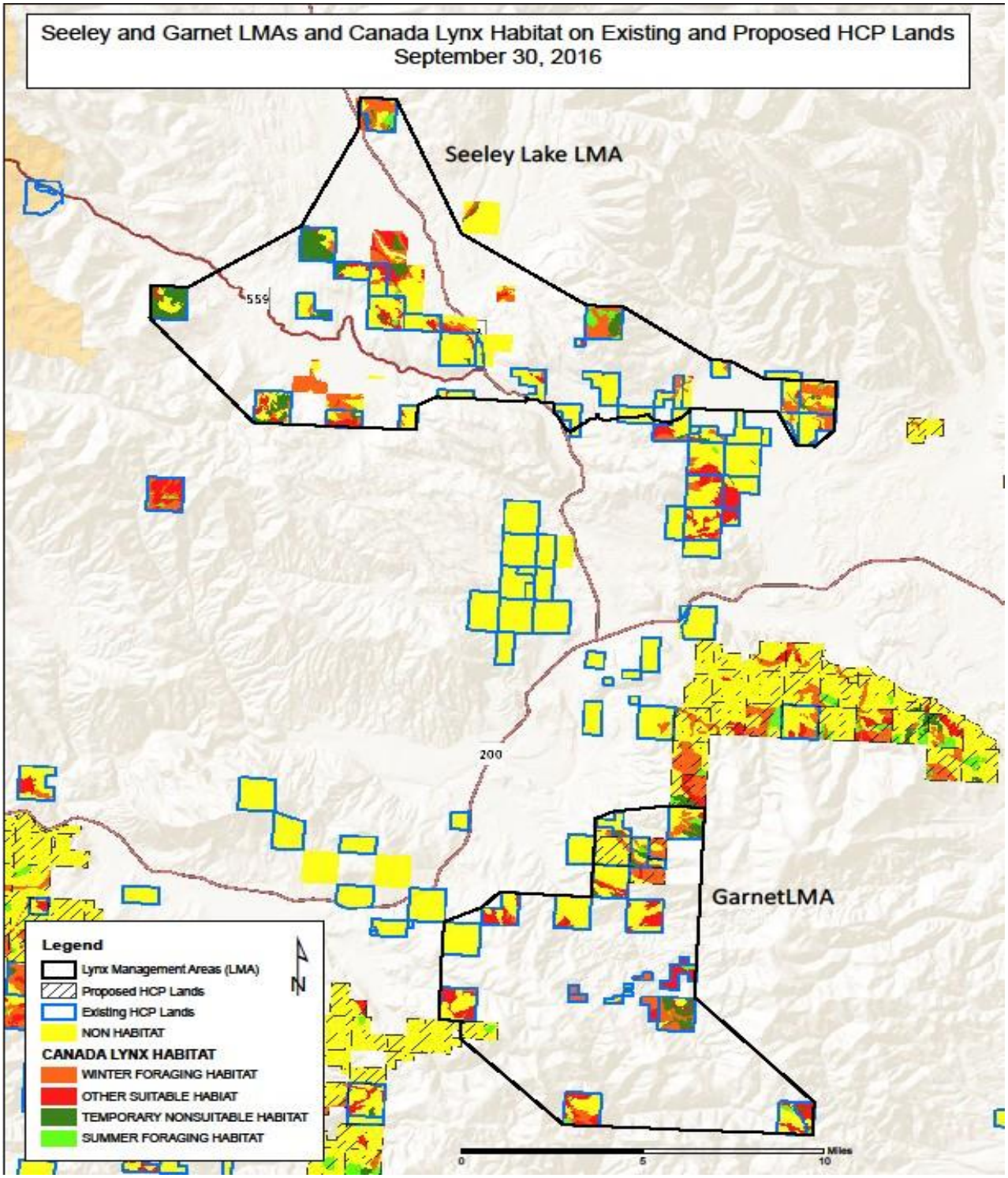

Seeley and Garnet LMAs and Canada Lynx Habitat on Existing and Proposed HCP Lands
September 30, 2016
Seeley Lake LMA
559
200
GarnetLMA
Legend
Lynx Management Areas (LMA)
Proposed HCP Lands
Existing HCP Lands
NON HABITAT
CANADA LYNX HABITAT
WINTER FORAGING HABITAT
OTHER SUITABLE HABIAT
TEMPORARY NONSUITABLE HABITAT
SUMMER FORAGING HABITAT
N
0
5
10
Miles

Figure 2-4

# APPENDIX A

Proposed Amendments to the 2010 HCP

# CHAPTER 2. AMENDED HCP COMMITMENTS

This Appendix uses ~~strikethrough~~ to identify the portions of the 2010 HCP commitments to be removed and insertion to show changes or additions to the commitments under the Proposed Action.

## Grizzly Bear: Programmatic Commitments

### GB-PR1 Information and Education

DNRC will provide the following:

1. Written brochures that describe risks and concerns regarding humans living and working in bear habitat to contractors and their employees conducting forest management activities prior to start of operations.
2. Bear encounter avoidance training for new DNRC personnel within 1 year of their employment date, refreshing the training for veteran employees every 5 years.

### GB-PR2 Firearms Restriction

DNRC employees and contractors and their employees are prohibited from carrying firearms while on duty, unless the person is specifically authorized to carry a firearm under DNRC Policy 3-0621.

### GB-PR3 Food Storage and Sanitation

DNRC personnel will adhere to the following requirements, and will incorporate these requirements in contracts for contractors and their employees who conduct forest management activities or camp in the HCP project area.

1. Human or pet food, livestock food, garbage, and other attractants will be stored in a bear-resistant manner.
2. Burnable attractants (such as food leftovers or bacon grease) will not be buried, discarded, or burned in an open campfire.

### GB-PR4 New Open Road Construction in Riparian Areas and Avalanche Chutes

DNRC will minimize construction of new open roads in riparian management zones (RMZs), wetland management zones (WMZs), and avalanche chutes.

**Allowance:** In instances where construction of a new open road in an RMZ, WMZ, or avalanche chute is necessary for project or near-term management objectives, DNRC will document the circumstances in the Montana Environmental Policy Act (MEPA) environmental analysis. The allowance to construct a new open road in an RMZ, WMZ, or avalanche chute would occur on no more than 10 percent of the DNRC projects averaged over a 5-year reporting period in the HCP project area.

**GB-PR5 Active Den Site Protection**

DNRC will suspend all motorized forest management activities within 0.6 mile (1 kilometer) of an active den site from the date of discovery through May 31.

**Allowance:** If DNRC confirms that bears have vacated the den site vicinity prior to May 31, DNRC may proceed with the suspended activities.

**GB-PR6 Retention of Visual Screening in Riparian and Wetland Management Zones**

DNRC will provide visual screening for grizzly bears in RMZs through the implementation of the HCP aquatic riparian timber harvest conservation strategy (see Section 2.2.3.1), and in WMZs through implementation of the Forest Management ARMs (ARM 36.11.426).

**GB-PR7 Noxious Weed Control at Gravel Pits**

DNRC gravel pits will comply with biennial agreements established with county weed boards. Noxious weeds will be managed using an integrated weed management approach.

Such practices include, but are not limited to:

(1) the use of weed-free equipment;
(2) re-vegetation of disturbed areas with site-adapted species, including native species as available;
(3) biological control measures;
(4) chemical methods as appropriate; and
(5) other stipulations and control measures included in timber sale contracts and Plans of Operations (as required under ARM 17.24.217).

Non-vegetated areas associated with large gravel pits may not exceed 40 acres.

**GB-PR8 Helicopter Use**

DNRC will design helicopter operations requiring flights less than 500 meters (1,640 feet) above ground level for forest management activities in a manner that avoids or minimizes flight time over known seasonally important areas in NROH or recovery zones, scattered parcels in rest in recovery zones, grizzly bear security zones ~~subzones in rest in recovery zones~~, and/or federally designated security core areas in recovery zones. Where practicable, DNRC will design flight paths less than 500 meters (1,640 feet) above ground level to occur at least 1 mile from such areas.

# Grizzly Bear: Non-Recovery Occupied Habitat Commitments

## GB-NR1 New Open Road Construction

DNRC will minimize construction of new open roads. New roads will only be managed as open when necessary to meet project or near-term management objectives. Existing roads that are restricted will generally remain restricted, except in cases where access easements are granted. There is no target or cap on total road densities.

## GB-NR2 Granting of Easements

DNRC will discourage granting of future easements that relinquish DNRC control of roads, except for reciprocal access agreements, cost share agreements, and other federal road agreements (e.g., with the BLM).

## GB-NR3 Spring Management Restrictions

These commitments apply during the spring period in spring habitat. In the Stillwater Block, spring restrictions would apply on all restricted roads during the spring period as indicated on the Transportation Plan.

1. Commercial forest management activities, including salvage harvests, are prohibited during the spring period in spring habitat.

   Spring habitat is defined as:

   - Areas associated with roads possessing restricted status during the spring period on the Stillwater Block
   - All habitat below 5,200 feet elevation in the Swan River State Forest
   - All habitat below 4,900 feet elevation on scattered parcels.

   Spring period is defined as:

   - April 1 through June 15 for non-spring habitat and April 1 through June 30 for areas within spring habitat for the Stillwater Block
   - April 1 through June 15 for lands within the Swan River State Forest and DNRC scattered parcels in recovery zones and NROH.
2. The following low-intensity forest management activities are prohibited during the spring period in spring habitat:

   - Pre-commercial thinning
   - Heavy equipment slash treatment.
3. **Allowance:** Each year, 10 days total are allowed on each administrative unit during the spring period in spring habitat for the purposes of mechanical site preparation, road maintenance, and bridge replacement. Any combination of these three activities, in aggregate, counts toward the 10-day limit.

4. DNRC will minimize motorized activities on restricted roads during the spring period in spring habitat.

   **Allowance:** Motorized use is allowed to conduct the following low-intensity forest management activities in spring habitat during the spring period:

   - Sale preparation
   - Road location
   - Tree planting
   - Prescribed burning
   - Data collection (including monitoring)
   - Non-heavy-equipment slash treatment (chainsaws allowed)
   - Patrol of fall/winter slash burns
   - Noxious weed management.

   Commitment GB-CY3 supersedes items (3) and (4) of this commitment in CYE.

5. **Allowance:** Commercial forest management activities (including salvage harvests) and low-intensity forest management activities are allowed within 100 feet of an open road during the spring period in spring habitat.

**GB-NR4 Distance to Visual Screening**

DNRC will design new clearcut and seed tree cutting units to provide topographic breaks in view or to retain visual screening for bears by ensuring that vegetation or topographic breaks be no greater than 600 feet in at least one direction from any point in the unit.

**Allowance:** Limiting new opening sizes may not be practical in situations involving steep, open faces; where broadcast burning is prescribed for post-harvest treatment; or where insects, disease, prescribed fire, or wildfire have hampered retention of live vegetation. In instances of impracticability, DNRC will document the circumstances in the MEPA environmental analysis.

**GB-NR5 Grazing Restrictions**

1. DNRC will submit a weed grazing mitigation plan for the use of small livestock on NROH lands to the USFWS for review 30 days prior to a decision to grant a grazing license or lease for the purpose of weed control. The weed grazing mitigation will include a description of the location of the project and documentation identifying known activity by bears in the area. The plan will document whether DNRC followed the USFWS's suggestions (if any were submitted) and if not, which measures were selected instead and why. The intent of this review is to give the USFWS an opportunity to provide DNRC with relevant information regarding site-specific bear use in the area and/or new mitigation measures. If the USFWS does not respond within 30 days, DNRC may proceed with issuance of the license or lease and implement the mitigation plan. Mitigation measures in the plan may include, but are not limited to, requirement of a full-time shepherd, guard dogs, nighttime electric pens, lessee assuming cost of losses incurred by predators, prohibition of grazing in

spring habitat during spring periods, attending training on hazing techniques, and maintaining a list of professionals providing hazing services.

2. DNRC will cooperate with other parties, agencies, and bear management specialists on a case-by-case basis to address prompt removal of livestock carcasses in the HCP project area that have been identified as creating the potential for bear-human encounters.

### GB-NR6 Gravel Operations

The following measures supplement commitment GB-PR7, and are further supplemented by commitments GB-ST5, GB-SW5, and GB-SC4.

Third-party gravel pit operators and gravel permit holders using DNRC pits authorized under this strategy will not be covered for incidental take under this Permit. However, these operations will be subject to the limitations on the number of allowable pits and season of use as described below in this commitment.

1. For each DNRC administrative unit, three specific pits may be considered active for a particular calendar year within the combined geographic area bounded by the grizzly bear NROH and grizzly bear recovery zone boundaries. No more than two active pits may be large pits. There is no restriction on the number of pits on scattered parcels outside of these distinct geographic areas.
2. When counting active pits, those pits used for state and federal road projects that are more than 0.25 mile from an open road will be counted in the number of allowable active pits at the administrative unit level. Gravel pits used for state and federal road projects that are within 0.25 mile of an open road will not be counted in the total number of allowable active pits and will not be subject to restrictions on season or duration of use (see item (4) below).
3. Gravel pits situated within 0.25 mile of an open road may be developed and operated without restrictions on season of use and duration of motorized activity. For gravel pits within 0.25 mile of seasonally restricted roads, operations may occur only during the season(s) they are not restricted under transportation planning.
4. **Allowance:** Limited gravel pit operations may occur during the spring period in pits more than 0.25 mile from an open road, but the operating days will count against the 10-day allowable operating days for low-intensity forest management activities during the spring period (see commitment GB-NR3).
5. **Allowance:** Gravel development and use associated with borrows is considered a normal and necessary component of road construction and road maintenance. Development and use of borrows is allowed unconstrained when associated with allowable road construction and/or road maintenance activities.

## Grizzly Bear: Recovery Zone Commitments

### GB-RZ1 Habitat Considerations

When designing timber sale projects in recovery zones, DNRC will assess impacts to important grizzly bear habitat elements. Examples of such habitat elements include important berry fields,

avalanche chutes, riparian areas, wetlands, white bark pine stands, and unique congregation or feeding areas. DNRC will develop site-specific mitigation measures that minimize impacts to these elements. Mitigation measures would typically involve scheduling activities to occur while bears are not likely to be using an area or locating roads or skid trails to conserve important vegetative features, such as dense stands or thickets that provide visual screening.

**Allowance:** In instances where habitat elements cannot be incorporated into project designs for practicability reasons, DNRC will document the circumstances in the MEPA environmental analysis.

**GB-RZ2 Visual Screening**

DNRC will leave up to 100 feet of vegetation between open roads and clearcut or seed tree harvest units. Open roads where visual screening must be retained are considered those accessible to the general public during any portion of the grizzly bear non-denning season.

**Allowance:** Leaving vegetation will not be practicable in some areas, such as, but not limited to, where landings and skid trails intersect or are adjacent to roads, in visual clearings for traffic safety at intersections, in localized fuels reduction areas, in units harvested by aerial cable, in salvage units with limited standing live vegetation near the roadway, and in prescribed burn units where the open roads serve as the control boundary. In instances of impracticability, DNRC will document the circumstances in the MEPA environmental analysis.

**GB-RZ3 Road Closure Maintenance**

DNRC will examine all primary road closures in recovery zones annually and repair ineffective closures within 1 year of identifying the problem.

**GB-RZ4 Grazing Restrictions**

For projects in the recovery zone, this commitment supersedes commitment GB-NR5.

1. DNRC will prohibit authorization of any new small livestock (smaller than a cow) grazing licenses, including those for the purposes of weed control, and will also not convert existing licenses to allow the grazing of small livestock.
2. DNRC will not initiate establishment of new grazing licenses. Proposals initiated by the public for larger, less vulnerable classes of livestock (such as cows and horses) may be considered and allowed by DNRC.

**GB-RZ5 Post-Denning Mitigation**

DNRC will prohibit motorized activities at elevations above 6,300 feet on slopes greater than 45 percent from April 1 through May 31.

<u>In the Stillwater Block Security Zones, DNRC commercial forest management activities will be allowed during the denning season below 6,300 feet elevation.</u>

### GB-RZ6 Granting of Easements

This commitment supplements GB-NR2.

1. The FMB will have an active role in the review and authorization of future easements across the HCP project area in a recovery zone.
2. Easements granted for existing restricted routes or newly proposed routes will require the applicant to demonstrate that all other access possibilities have been explored prior to DNRC considering the application for access across trust lands.
3. When granting easements for motorized access in recovery zones, DNRC will work with easement applicants to incorporate measures to avoid or mitigate impacts to bears. Easement terms may include, but are not limited to, gated entry, maintenance of visual screening along routes, and absorbing costs of gating associated with secondary and primary access routes.
4. For each access easement granted in a recovery zone, DNRC will provide the USFWS with documentation on how the granting of the easement was evaluated, how alternative routes were considered, and how mitigations were considered and/or applied.
5. Pertaining to access agreements on roads in grizzly bear recovery zones, the following shall occur where DNRC is the Grantor. In the development of new reciprocal access agreements and during the reassignment of easement rights under existing reciprocal access agreements, DNRC will attempt to work with the existing and future grantees to avoid or mitigate impacts to grizzly bears associated with motorized use.

This commitment does not apply to road agreements with federal agencies (e.g., cost-share agreements with the USFS or road agreements with the BLM), because the federal agencies retain jurisdiction of the roads, and those agencies are required to comply with Section 7 of the ESA.

## Grizzly Bear: Stillwater Block Commitments

### GB-ST1 Transportation Management

1. DNRC commits to transportation management in the Stillwater Block as identified in Table 2-2 and the transportation plan maps (Appendix C, Figures C-4A and C-4B). This transportation plan identifies:
    - Road miles by road class, activity category, and restriction type under current management strategies (Table 2-2 and Figure C-4A) and estimated under the HCP (Table 2-2 and Figure C-4BR).
    - Permanent routes needed but not yet constructed by DNRC to fulfill agency responsibilities for the 50-year Permit term (see Proposed Roads in Table 2-2 and Figure C-4B).
2. If a road is encountered that is not in the transportation plan, and evidence suggests that the road existed prior to the signing of the HCP, DNRC will promptly notify the USFWS of the road being added to the transportation plan. The road would be considered part of the original baseline.

3. In addition to the permanent roads identified in the transportation plan, DNRC may maintain up to 8 miles of temporary roads at any one time. These roads will be built to a minimum standard and abandoned or reclaimed within one operating season following completion of project-related activity.

4. If a DNRC parcel in the Stillwater Block is sold or traded, the numbers in Table 2-2 will be adjusted to accurately reflect baseline road amounts. The numbers will also be adjusted as needed if parcels are added to the Permit following a land exchange or purchase. Future open road needs on acquired parcels will be scrutinized, added to the table, and reported to the USFWS as described in the transition lands strategy (Chapter 3).

5. DNRC will install signs indicating bear presence on the main open roads (portal roads) entering the Stillwater and Coal Creek State Forests. DNRC will determine the exact number and locations of signs to post, and will be responsible for keeping signs in good repair. Repairs will be integrated into the normal course of seasonal maintenance activities. DNRC will have 2 years from the issuance of the Permit to install the signs.

**GB-ST2 Security Zones ~~Class A Lands~~**

The following commitments will apply to 22,007 acres of Security Zones comprised of 7 different land areas in the Stillwater Block (Figure C-4BR). ~~Class A Lands in the Stillwater Block.~~

All lands outside security zones shall be managed in accordance with the HCP Commitments for Class B lands:

1. **No New Permanent Roads.** No additional permanent roads, beyond those that currently exist, will be constructed in Security Zones ~~on Class A lands~~ for the duration of the Permit. ~~Access needed for management activities would be from existing or temporary roads.~~ Access needed for management activities would be from existing or temporary roads.

2. **Active Management ~~Followed by Rest~~.** ~~Motorized activities are allowed only during the grizzly bear denning season from November 16 – March 31. All m~~

**a.** Motorized activities including public, DNRC administrative, and DNRC commercial forest management activities are prohibited during the grizzly bear non-denning season from April 1-November 15 each year. ~~Class A lands are divided into four geographic subzones, as depicted in the transportation plan maps (Appendix C, Figure C-4B). In each subzone, DNRC may conduct commercial forest management activities including salvage harvest for a maximum management period of 4 years, followed by a mandatory rest period of at least 8 years. Each subzone will have its own management/rest period schedule independent of the other subzones.~~

b. DNRC commercial forest management activities will be allowed during the denning season below 6,300 feet.

c. DNRC shall construct and reclaim any temporary roads and skid trails after completion of project activities in a manner that ~~to~~ prevents future use by motorized vehicles, including off-road vehicles, during the non-denning season. ~~period after completion of project activities~~.

3. **Actions Near Security Zones.**

a. When conducting DNRC commercial forest management activities near identified security zones during the non-denning season, DNRC will minimize the duration of ground-based harvest activities to the extent practicable, particularly in known areas of seasonal importance for bears. ~~For project related activities within or immediately adjacent to security core areas, DNRC will make efforts to conduct human activities during the denning period.~~

b. DNRC will minimize the duration of low intensity forest management activities (i.e., administrative activities) ~~administrative activities~~ near Security Zones to the extent practicable.

4. **Helicopter Use.** This commitment supplements GB-PR8.

a. DNRC shall make efforts to design helicopter flight routes in a manner that avoids and/or minimizes flight time across Security Zones during the non-denning season, and/or known seasonally secure areas.

b. When conducting DNRC commercial forest management activities near identified Security Zones during the non-denning season, the DNRC will minimize the duration of air-based harvest activities to the extent practicable, particularly in known areas of seasonal importance for bears.

c. Where practicable, DNRC shall design flight paths to occur greater than one mile from potentially affected Security Zones and/or areas of known seasonal importance during the non-denning season.

5. **Allowance:** Short-term disturbance will be allowed in any Security Zones at any time and for the necessary duration to address road sedimentation issues required by the HCP Aquatic Conservation Strategies and Forest Management ARMs. ~~**Allowance:** The 4-year management period may be extended due to management delays beyond the control of DNRC, such as extreme weather events, fire events, area closures due to fire danger, or legal injunction. In such cases, DNRC will write an explanation of the extension and submit it to the USFWS at the time the extension is invoked. Contractor equipment failure and extensions to address market fluctuations are not considered allowable delays.~~

~~**Management Activities Allowed During Rest.** The following activities will be allowed in rested subzones.~~

~~c. Rest is intended to be a mitigation measure for the period when bears are active. Therefore, the rest status does not apply during the winter period (November 16 through March 31), and commercial forest management activities are allowed in winter below 6,300 feet without limitation during rest periods.~~

~~d. Low-intensity forest management activities will be allowed during the rest period, except for restrictions during the spring period, as described in commitment GB-NR3, Spring Management Restrictions. Spring restrictions and allowable road use on the Stillwater Block are built into the transportation plan.~~

~~e. Commercial forest management activities will be allowed for minor projects, including salvage, after the spring period in the Stillwater Block. A total of 30~~

~~operating days in aggregate are allowed per year, per rested subzone (days can only be used June 16 through November 15 in non-spring habitat and July 1 through November 15 in spring habitat). This 30-day **allowance** may also be applied to resting subzones that have exceeded rest beyond 8 years that are not yet ready for large-scale planned commercial harvest. When tracking the number of operating days allowed for minor projects:~~

~~i. Two commercial operations within 0.5 mile of one another count as one operation for those days both are active. Operations more than 0.5 mile apart are considered distinct, and operating days must be considered additive and tallied separately.~~

~~ii. Commercial forest management activities within 100 feet of an open road do not count toward the allowable operating day limits.~~

**GB-ST3 Salvage in Security Zones ~~on Rested Class A Lands~~**

1. DNRC commercial forest management activities (including salvage) are allowed during the winter period (November 16 – March 31) below 6,300 feet. ~~will conduct salvage harvest activities under the following order of preference, when economically and operationally practicable:~~

   ~~a. Conduct salvage during the winter period~~

   ~~b. For salvage harvest that must occur outside of the winter period, conduct the harvest in an expedient manner~~

   ~~c. Days used for operating salvage harvest from June 16 through November 15 shall count toward the 30 days allowed for minor projects (described in commitment GB-ST2)~~

   ~~d. DNRC will forgo unused annual operating days in other inactive subzones to compensate for the number of days required to complete such projects.~~

   ~~**Allowance:** Salvage projects that cannot be accomplished using the four approaches above may be extended between 31 and 150 days during the non-denning period. The following conditions would apply:~~

   ~~e. Following a 31- to 150-day extension for salvage, DNRC would be required to restart a new 8-year rest period. In this situation, a full uninterrupted 8-year rest period must be achieved before allowing another 31- to 150-day interruption. If a salvage harvest during the restarted rest period requires more than 30 days to complete, the action would be processed as a changed circumstance (see Chapter 6 in the HCP).~~

   ~~f. DNRC will document the necessity for interrupting the rest period. A DNRC wildlife **biologist** will develop a site-specific mitigation plan addressing potential effects on grizzly bears through habitat considerations, timing restrictions, and transportation management and access.~~

~~Examples of habitat considerations include important secure areas, berry fields, avalanche chutes, riparian areas, wetlands, white bark pine stands, and unique congregation or seasonal feeding areas.~~

~~The DNRC project leader and DNRC decision maker will consider the input from the biologist. A copy of the mitigation documentation highlighting those measures implemented by the project leader and decision maker (Appendix B, Document B-1 – HCP Checklist for Salvage Projects Proposed for Parcels in Rest within Grizzly Bear Recovery Zones) will be submitted to the USFWS prior to a project decision.~~

**GB-ST4 ~~Class B~~ Lands Outside Security Zones (Predominantly those lands previously described as Class B Lands)**

The following commitments will apply to all lands located outside of Security Zones ~~Class B Lands~~ in the Stillwater Block:

1. Additional roads necessary to access DNRC lands to conduct forest management activities in the future are identified in the transportation plan. Access needed to conduct management activities would be from existing, proposed, or temporary roads. DNRC is committing to the total number of proposed road miles and approximate locations as identified in the transportation plan map (Appendix C, Figure C-4B) and as shown in Table 2-2. Individual road locations and distances may vary when project-level engineering and design occur.
2. Specific seasonal restrictions are also identified in the transportation plan (Table 2-2, Appendix C, Figure C-4B). Additional year-round restricted roads are identified with specific seasonal restrictions on DNRC commercial forest management activities during appropriate periods. The intent of these restrictions is to increase the level of security for grizzly bears during important seasons and in key locations.
3. DNRC will prohibit commercial forest management activities and motorized use associated with low-intensity forest management activities during the spring period on a total of 39.6 miles of road identified as restricted in the transportation plan (Appendix C, Figure C-4B). Various individual roads may move in or out of this subset, but the 39.6-mile total will not change.

   **Allowance:** Low-intensity forest management activities conducted without motor vehicles or motorized equipment are allowed on the 39.6 miles.
4. On roads where spring restrictions are identified on the transportation plan map (Appendix C, Figure C-4B), the spring habitat restrictions (commitment GB-NR3) extend through June 30. On all other roads on Class B lands that do not have spring restrictions identified on the transportation plan map (i.e., those in non-spring habitat), spring habitat restrictions would extend through June 15.
5. A general description of the location and length for proposed road segments is provided in the transportation plan map (Appendix C, Figure C-4B). Estimated road lengths are rounded to within 0.1 mile (see Table 2-2). Precise miles and locations may vary slightly during construction.

### GB-ST5 Gravel Operations

The following commitments supplement commitments GB-PR7 and GB-NR6.

1. DNRC will limit the number of active gravel pits on the Stillwater Block as follows: five specific pits may be considered active for a particular calendar year (no more than three may be large).
2. Gravel pits situated within 0.25 mile of an open road outside the Security Zones may be developed and operated without restrictions on season of use and duration of motorized activity.
3. ~~Large gravel pits more than 0.25 mile from an open road are prohibited on Class A lands.~~ Gravel pits requiring motorized equipment for development and use during the non-denning season are prohibited in Security Zones.
4. ~~During the 4-year window for commercial forest management in active subzones on Class A lands, gravel pits that are more than 0.25 mile from an open road may be developed and operated outside of the spring period without restriction on amount and duration of activity.~~Only one gravel pit may be operated more than 0.25 mile from an open road on lands outside Security Zones ~~Class B lands~~. Operations and duration of use will be conducted in accordance with the transportation plan. Such pits requiring more than 2 consecutive years of frequent motorized activity (average of one or more trips per week) will require an amendment to the transportation plan to accommodate the associated road system, which will be managed as functionally open.
5. One gravel pit may be operated more than 0.25 mile from an open road on ~~Class B~~ lands outside Security Zones without following transportation plan restrictions if: (1) DNRC minimizes the distance of the pit from an open road, and (2) to the extent possible, DNRC ceases activities on all allowable remaining pits while the gravel pit is active. Purchasers or other licensed third parties will be allowed to continue to operate within the active pits that have legally defined operating periods by license or contract.

## Grizzly Bear: Swan River State Forest Commitments

### GB-SW1 Transportation Management

1. DNRC commits to transportation management in the Swan River State Forest as amended ~~identified~~ in Table 2-3 and the transportation plan maps (Appendix C, Figures C-6A and C-6B). The map identifies five management subzones, existing road segments by road class, and their restriction type, which establishes the basis for quantifying commitment thresholds and compliance for the original 39,699-acre Swan River State Forest Land base and the 16,446-acre subset of recently acquired lands. Any additional permanent roads needed, but not yet constructed shall be updated and included in revisions to the transportation plan map on an annual basis and discussed with the USFWS in annual meetings.

   ~~Road miles by road class, activity category, and restriction type currently under the Swan Agreement (Table 2-3 and Figure C-6A), estimated under the future Swan Agreement (Table 2-3), and estimated under the HCP (Table 2-3 and Figure C-6B).~~

2. ~~Permanent routes needed but not yet constructed by DNRC to fulfill agency responsibilities for the 50-year Permit term (see Proposed Roads in Table 2-3 and Figure C-6B).~~ If a road is encountered that is not in the transportation plan, and evidence suggests that the road existed prior to the signing of the HCP, DNRC will promptly notify the USFWS of the road being added to the transportation plan. The road would be considered part of the original baseline.

3. If a Swan River State Forest parcel is sold or traded, the numbers in Table 2-3 will be adjusted to accurately reflect baseline road amounts. The numbers will also be adjusted as needed if parcels are added to the Permit following exchange or purchase. Future open road needs on acquired parcels will be scrutinized, added to the table, and reported to the USFWS.

4. To minimize the risk of death or injury to bears, and to reduce displacement of bears due to the presence of roads, DNRC makes the following commitments.

    a. DNRC will limit new road construction to the approximate locations and lengths indicated on the transportation plan map (Appendix C, Figure C-6BR). This includes approximately 46.2 miles of the original required commitment of 70.3 miles of new road, which will become part of the permanent road system, but not open for public use (Table 2-4). Note: As of 2016, approximately 24.1 miles of new permanent road have been constructed of the allowed 70.3 mile commitment limit. ~~Some slight variation in precise road locations will be needed to better accommodate BMPs and logging system design.~~

    b. In addition to roads indicated on the transportation plan map (Appendix C, Figure C-6BR), total temporary roads will not exceed 6.5 miles in length in any given year. These roads will be built to a minimum standard and reclaimed within one operating season following completion of project-related activity.

    c. Except where commercial forest management activities are occurring, DNRC expects that all other road use on restricted roads it controls will conform to the "low use" (less than one vehicle per day) category of Mace et al. (1999).

    ~~Some roads that are currently restricted to the public under the Swan Agreement would not be under the sole jurisdiction of DNRC and therefore may receive more use than earlier envisioned. These roads may receive use by other adjacent landowners or those with access or ownership rights. These roads are indicated as open in the transportation plan map (Appendix C, Figure C-6B).~~

    d. DNRC will limit the amount of new road construction on the Swan River State Forest to those approximate amounts estimated by decade in Table 2-4.

5. DNRC will install signs indicating bear presence on the main open roads (portal roads) entering the Swan River State Forest. DNRC will determine the exact number and locations of signs to post and will be responsible for keeping signs in good repair. Repairs will be integrated into the normal course of seasonal maintenance activities. DNRC will have 2 years from the issuance of the Permit to install the signs.

**Table 2-4. Estimated Miles of New Road Construction by Decade for the Swan River State Forest.**

| Decade | Miles of New Road Construction[1] |
|---|---|
| ~~2004–2007~~ | ~~8.9~~ |
| ~~2008–2017~~ | ~~18.6~~ |
| 2017~~8~~–2027 | 14.4~~11.0~~ |
| 2028–2037 | 15.7 |
| 2038–2047 | 9.1 |
| 2048–2057 | 7.0 |

[1] These estimates do not include temporary roads that may be constructed during the Permit term.

### GB-SW2 Adjacent Landowners

DNRC will consider opportunities to work with adjacent landowners in a cooperative manner to support grizzly bear conservation efforts.

### GB-SW3 Active Management Followed by Rest

1. **Active Management Followed by Rest.** The Swan River State Forest is divided into five geographic subzones, as depicted in Appendix C, Figure C-6BR ~~C-7~~. In each subzone, DNRC may conduct commercial forest management activities, including salvage harvest for a maximum management period of 3~~4~~ years, followed by a mandatory rest period of at least 6 ~~8~~ years. Each subzone will have its own management/rest period schedule independent of the other subzones. The 3~~4~~-year management period may be extended due to management delays beyond the control of DNRC, such as extreme weather events, fire events, area closures due to fire danger, and legal injunction. In such cases, DNRC will write an explanation of the extension and submit it to the USFWS at the time the extension is invoked. Contractor equipment failure and extensions to address market fluctuations are not considered allowable delays.
2. **Management Activities Allowed During Rest.** The following activities will be allowed in rested subzones.
    a. Rest is intended to be a mitigation measure for the period when bears are active. Therefore, the rest status does not apply during the winter period (November 16 through March 31), and commercial forest management activities are allowed in winter below 6,300 feet without limitation during rest periods.
    b. Low-intensity forest management activities will be allowed during the rest period, except for restrictions during the spring period, as described in commitment GB-NR3, Spring Management Restrictions.
    c. Commercial forest management activities for minor projects, including salvage, will be allowed for a limited number of days after the spring period. For the Swan River State Forest, a total of 30 operating days in aggregate are allowed per year, per rested subzone (days can only be used June 16 through September 15). DNRC will limit the allowable annual operating days to 30 in aggregate per inactive subzone to conduct minor projects. This 30-day **allowance** may also be applied to

resting subzones that have exceeded rest beyond 6 ~~8~~ years and are not are not yet ready for large-scale planned commercial harvest. When tracking the number of operating days allowed for minor projects:

i. Two commercial operations within 0.5 mile of one another count as one operation for those days both are active. Operations more than 0.5 mile apart are considered distinct, and operating days must be considered additive and tallied separately.

ii. Commercial forest management activities within 100 feet of an open road do not count toward the allowable operating day limits.

**GB-SW4 Salvage on Rested Subzones**

1. DNRC will conduct salvage harvest activities under the following order of preference, when economically and operationally practicable:

    a. Conduct salvage during the winter period

    b. For salvage harvest that must occur outside of the winter period, conduct the harvest in an expedient manner

    c. Days used for operating salvage harvest from June 16 through September 15 shall count toward the 30 days allowed for minor projects (described in commitment GB-SW3)

    d. DNRC will forgo unused annual operating days in other inactive subzones to compensate for the number of days required to complete such projects.

2. Salvage projects that cannot be accomplished using the four approaches above may be extended between 31 and 150 days during non-denning period. The following conditions would apply:

    a. Following a 31- to 150-day extension for salvage, DNRC would be required to restart the rest period. In this situation, a full uninterrupted 6 ~~8~~ year rest period must be achieved before allowing another 31- to 150-day interruption. If a salvage harvest during the restarted rest period requires more than 30 days to complete, the action would be processed as a changed circumstance (see Chapter 6).

    b. DNRC will document the necessity for interrupting the rest period. A **DNRC wildlife biologist** will develop a site-specific mitigation plan addressing potential effects on grizzly bears through habitat considerations, timing restrictions, and transportation management and access. Examples of habitat considerations include important secure areas, berry fields, avalanche chutes, riparian areas, wetlands, white bark pine stands, and unique congregation or seasonal feeding areas. The DNRC project leader and DNRC decision maker will consider the input from the biologist. A copy of the mitigation documentation highlighting those measures implemented by the project leader and decision maker (Appendix B, Document B-1) will be submitted to the USFWS prior to a project decision.

### GB-SW5 Gravel Operations

The following commitments supplement commitment GB-NR6:

1. DNRC will limit the number of active gravel pits on the Swan River State Forest: four specific pits may be considered active for a particular calendar year (no more than three may be large).
2. Gravel pits situated within 0.25 mile of an open road may be developed and operated without restrictions on season of use and duration of motorized activity.
3. During the 3~~4~~-year window for commercial forest management in active subzones, gravel pits that are more than 0.25 mile from an open road may be developed and operated outside of the spring period without restriction on amount and duration of activity.
4. One gravel pit more than 0.25 mile from an open road may be operated in one selected resting subzone on the Swan Unit. When the pit is operated more than 0.25 mile from an open road in a resting subzone, DNRC will: (1) minimize the distance of the pit from an open road, and (2) to the extent possible, cease activities on all allowable remaining pits while the gravel pit is active. Purchasers or other licensed third parties will be allowed to continue to operate within the active pits that have legally defined operating periods by license or contract.

## Grizzly Bear: Commitments for Scattered Parcels in Recovery Zones

### GB-SC1 Open Roads

For projects on scattered parcels in recovery zones and for projects in the NROH associated with the CYE, this commitment supplements commitment GB-NR1.

1. DNRC will evaluate each open road segment occurring within a forest management project to assess the potential to restrict access on that segment. DNRC will describe, through written rationale on a checklist form, why open roads were left open (Appendix B, Document B-2 – Open Road Reduction Checklist for Projects on Scattered Parcels in Grizzly Bear Recovery Zones).
2. DNRC will not exceed the HCP baseline open road amounts (total length), at the administrative unit level, for the purpose of conducting forest management activities. Accounting will be accomplished project by project, with open road densities being tallied at the unit level. HCP baseline data and maps and subsequent maps will be archived by the DNRC FMB.

**Allowance:** Increases in open road densities at the project level to address road relocation considerations, when there are riparian areas or BMP concerns, would not count against the unit-level cap. These circumstances would be documented in the HCP implementation checklist (Appendix B, Document B-2).

3. To improve accuracy over time, the DNRC GIS road layer will be updated by project-level road assessments that consider road classifications, locations, and amounts.

**GB-SC2 Active Management Followed by Rest**

1. **Active Management Followed by Rest.** For each scattered parcel in a recovery zone, DNRC may conduct commercial forest management activities and salvage harvest for a maximum management period of 4 years, followed by a mandatory rest period of at least 8 years. Each parcel will have its own management/rest schedule independent of other parcels.

   **Allowance:** The 4-year management period may be extended due to management delays beyond the control of DNRC, such as extreme weather events, fire events, area closures due to fire danger, and legal injunction. In such cases, DNRC will write an explanation of the extension and submit it to USFWS at the time the extension is invoked. Contractor equipment failure is not considered an allowable delay.

2. **Allowance: Management Activities Allowed During Rest.** The following activities will be allowed in rested subzones.

   a. Rest is intended to be a mitigation measure for the period when bears are active. Therefore, the rest status does not apply during the winter period (November 16 through March 31), and commercial forest management activities are allowed in winter below 6,300 feet without limitation during rest periods.

   b. Low-intensity forest management activities will be allowed during the rest period, except for restrictions during the spring period, as described in commitment GB-NR3, Spring Management Restrictions.

   c. Commercial forest management activities for minor projects, including salvage, will be allowed for a limited number of days after the spring period (i.e., useable between June 16 and November 15). For scattered parcels in recovery zones, each administrative unit has a specific maximum number of allowable operating days per year on rested parcels, as identified in Table 2-5. When tracking the number of operating days allowed for minor projects:

      i. Two commercial operations within 0.5 mile of one another count as one operation for those days both are active. Operations more than 0.5 mile apart are considered distinct, and operating days must be considered additive and tallied separately.

      ii. Commercial forest management activities within 100 feet of an open road do not count toward the allowable operating day limits.

| Table 2-5. Annual Limits for Commercial Forest Management Activities for Minor Projects in 8-year Rest Periods on Scattered Parcels in Recovery Zones | |
|---|---|
| **Administrative Unit[1]** | **Annual Maximum Operating Days[2]** |
| **Clearwater** | **45** |
| **Helena** | **45** |
| **Kalispell** | **60** |
| **Missoula** | **45** |
| **Stillwater Unit** | **45** |

[1] **The allowable operating days for the Libby and Plains Units are presented in Table 2-6.**

[2] **Indicates days allowed for use after the spring period during the remainder of the non-denning season.**

### GB-SC3 Salvage Projects on Rested Parcels

The following commitments supplement commitment GB-NR6.

1. Prior to implementing a salvage harvest, DNRC will conduct salvage harvest activities under the following order of preference, when economically and operationally practicable:
    a. Conduct salvage during the winter period.
    b. For salvage harvest that must occur outside of the winter period, conduct the harvest in an expedient manner.
    c. Days used for operating salvage harvest from June 15 through November 15 shall count against the allowable days per administrative unit for minor projects (described in commitment GB-SC2 and Table 2-5, as well as Table 2-6 under commitment GB-CY1 below).
    d. DNRC will forgo unused annual allowable operating days usable in other inactive parcels to compensate for the number of days required to complete such larger projects.
2. **Allowance:** Salvage harvest that cannot be accomplished using the four approaches listed above may be extended up to 150 days.
    a. DNRC is not required to restart the 8-year rest period on scattered parcels, but only one interruption is allowed per 8-year rest period per parcel for this purpose. Subsequent projects requiring more than the allowable days specified for each administrative unit to implement in an 8-year rest period would be addressed as a changed circumstance (see Chapter 6).
    b. DNRC will document the necessity for interrupting the rest period. A **DNRC wildlife biologist** will develop a site-specific mitigation plan addressing potential effects on grizzly bears through habitat considerations, timing restrictions, and transportation management and access. Examples of habitat considerations include important secure areas, berry fields, avalanche chutes, riparian areas, wetlands, white bark pine stands, and unique congregation or seasonal feeding areas. The DNRC project leader and DNRC decision maker will consider the input from the biologist. A copy of the mitigation documentation highlighting

those measures implemented by the project leader and decision maker (Appendix B, Document B-1) will be submitted to the USFWS prior to a project decision.

### GB-SC4 Gravel Operations on Rested Parcels

The following commitment supplements commitments GB-PR7 and GB-NR6.

One gravel pit per DNRC administrative unit may be operated more than 0.25 mile from an open road on a rested scattered parcel. In this situation, DNRC will: (1) minimize the distance of the pit from an open road, and (2) to the extent possible, cease activities on all allowable remaining pits in the administrative unit while the gravel pit is being operated. Purchasers or other licensed third parties will be allowed to continue to operate within the active pits that have legally defined operating periods by license or contract.

## Grizzly Bear: Cabinet-Yaak Ecosystem Commitments

### GB-CY1 Minor Projects during the 8-Year Rest Period

For parcels in both the CYE recovery zone and the CYE NROH, commercial forest management activities (including salvage harvests) are allowed after the spring period, but are limited to a set number of annual operating days per administrative unit, as identified in Table 2-6. Within the maximum operating days identified in Table 2-6, commercial forest management activities and salvage harvest on Libby and Plains Unit parcels are limited to a total of 10 parcels per non-denning season for each unit. In addition, the duration of such management is limited to 15 days in aggregate on each parcel for each unit.

**Table 2-6. Annual Limits for Commercial Forest Management Activities for Minor Projects in 8-year Rest Periods on Scattered Parcels in the CYE and CYE NROH.**

| Administrative Unit | Annual Maximum Operating Days[1] |
|---|---|
| Libby | 30 west and 60 east (90 total) |
| Plains | 45 |

[1] Indicates days allowed for use after the spring period during the remainder of the non-denning season.

### GB-CY2 Salvage Projects in the CYE

This commitment applies to CYE recovery zone and CYE NROH. This commitment supplements GB-SC3 item ~~(~~2. (b.)3~~)~~.

Following completion of a mitigation plan as required under GB-SC3 item (3), DNRC will submit the mitigation plan to the USFWS for approval. The USFWS will have 30 days from the date a plan is submitted for review and approval. Within 30 days, the USFWS will respond with its concerns and proposed changes required for approval. If the USFWS does not respond within 30 days, DNRC may proceed with the project. The purpose of this review is to identify the USFWS' concerns and required remedies and subsequently approve the project once DNRC has addressed the USFWS' concerns.

### GB-CY3 More Restrictive Management in the Spring Period

This commitment supersedes items (3) and (4) in commitment GB-NR3.

DNRC may conduct some motorized use associated with low-intensity forest management activities on up to 50 percent of the parcels in the CYE recovery zone and CYE NROH in spring habitat during the spring period. These uses include tree planting, prescribed burning, patrol of slash burns, and noxious weed management. Any combination of the aforementioned activities is limited to 10 days per parcel within the spring period each year.

Table 2-7 compares activities allowed during the spring period on other scattered parcels in the recovery zones and NROH with those activities allowed in the CYE recovery zone and CYE NROH.

**Table 2-7. Activities Allowed During the Spring Period[1] in Spring Habitat.**

| | NROH and Recovery Zones outside the CYE | CYE Recovery Zone and CYE NROH |
|---|---|---|
| Sale preparation | Allowed | No motorized |
| Road location | Allowed | No motorized |
| Tree planting | Allowed | ≤ 10 days aggregate per year per parcel |
| Prescribed burning | Allowed | ≤ 10 days aggregate per year per parcel |
| Data collection/monitoring | Allowed | No motorized |
| Patrol of fall/winter slash burns | Allowed | ≤ 10 days aggregate per year per parcel |
| Noxious weed management | Allowed | ≤ 10 days aggregate per year per parcel |
| Slash treatment, non-heavy equipment (chainsaws) | Allowed | No |
| Road maintenance, mechanical site preparation, and bridge replacement | 10 days total per year per unit | 10 days total per year per unit |

[1] **Spring period** – For the Stillwater Block, this is April 1 through June 15 for non-spring habitat and April 1 through June 30 for areas within spring habitat. For lands within the Swan River State Forest, DNRC scattered parcels in recovery zones, and NROH lands, this is April 1 through June 15.

### GB-CY4 Expedited Reduction of Open Road Densities for Recovery Zone Parcels

For parcels in the CYE recovery zone only (Appendix C, Figures C-15 and C-16), DNRC will expedite addressing open road densities, rather than doing it project-by-project as described in the scattered parcels commitments.

1. Within the first 5 years that the HCP and Permit are in effect, DNRC will analyze the road systems on each parcel in the CYE recovery zone and apply the Open Road Reduction Checklist for Projects on Scattered Parcels in Grizzly Bear Recovery Zones (Appendix B, Document B-2).
2. Where potential for closing roads is identified, implementation of closures will take place within the same 5-year period.

### GB-CY5 Helicopter Use in the CYE

This commitment supplements commitment GB-PR8.

1. For scattered parcels in the CYE recovery zone only, DNRC will design helicopter operations less than 500 meters (1,640 feet) above ground level for commercial log yarding to avoid important areas for grizzly bears by requiring flight paths to be at least 1 mile from scattered parcels in rest or federally designated security core areas. Where practicable, flight paths will also be designed to avoid or minimize disturbance to any known seasonally important areas.
2. For scattered parcels in the CYE recovery zone and NROH only, DNRC will limit helicopter use associated with activities of short duration requiring few or multiple trips, such as, but not limited to, weed control, prescribed burning ignition and control actions, aerial seeding, and moving large pieces of equipment or materials to remote and/or rugged locations, to those requiring less than 48 hours to complete.

## Lynx: Habitat Commitments

### LY-HB1 Lynx Habitat Map

DNRC will establish and maintain a lynx habitat map following habitat definitions, protocols and modeling procedures identified in the DNRC HCP lynx habitat mapping protocols (Appendix B, Document B-3 – DNRC Canada Lynx Habitat Mapping Protocols for Implementation of the HCP). Mapped habitat includes portions of the NWLO, SWLO, and CLO. DNRC mapping protocols closely follow information contained in the *Lynx Conservation Assessment and Strategy* (LCAS) (Ruediger et al. 2000). Protocol revisions may be made by DNRC through consultation with the USFWS. The NWLO and SWLO maps will depict structural habitat conditions, including winter foraging habitat, summer foraging habitat, other suitable habitat, and temporary non-suitable habitat. The CLO maps will depict suitable lynx habitat and temporary non-suitable habitat. Maps depicting lynx habitat in western Montana and on each DNRC administrative unit following current mapping protocols are displayed in (Appendix C, Figures C-18 through C-31).

Stands will be added or removed from consideration as lynx habitat following field review and justification by DNRC. DNRC will submit these corrections to the USFWS prior to updating the maps. Changes to lynx habitat maps will be discussed at annual meetings. Gravel pits greater than 5 acres will be tracked and accounted for under normal SLI data collection procedures and updates. As gravel pits are developed, the acres cleared will be subtracted from mapped lynx habitat until future SLI data collection identifies them as forested.

### LY-HB2 Coarse Woody Debris

To provide downed woody structure for lynx escape cover, habitat for prey species, and structure that may provide some potential den sites in the future, DNRC commits to the following project-level measures in the HCP project area in mapped lynx habitat.

1. To provide for CWD retention, DNRC will follow Graham et al. (1994) or other publications as mutually agreed to by the USFWS and DNRC. DNRC will emphasize the retention of downed logs of 15-inch diameter or larger where they occur.

**Allowance:** DNRC's ability to retain CWD may be superseded in special management situations where other goals must be considered, such as:

- Fuels management and aesthetic considerations in the urban interface
- Projects near recreational areas, where downed wood is collected and burned
- Harvest units adjacent to open roads
- Broadcast burning
- Meeting mandated hazard reduction requirements.

The impracticability of implementing this commitment would occur on no more than 10 percent of those DNRC projects within a 5-year period occurring in lynx habitat in the HCP project area.

2. For CWD recruitment, DNRC will retain an average of two snags and two live snag recruitment trees of greater than 21 inches diameter at breast height (dbh) per acre on the warm and moist habitat type group and the wet habitat type group (Green et al. 1992; Pfister et al. 1977). DNRC will retain an average of one snag and one live snag recruitment tree of greater than 21 inches dbh per acre on all other habitat type groups. If snags or snag recruitment trees of greater than 21 inches dbh are not present, then the largest snags or snag recruitment trees available will be retained. Snags may be evenly distributed or clumped. If there is an absence of sufficient snags or recruits, some substitution between the two may occur.
3. On blowdown salvage projects, 1 percent of the blowdown area will be left unsalvaged. The material will preferably be retained in a nonlinear patch or patches.

**LY-HB3 Den Site Protection**

DNRC will prohibit motorized forest management activities and prescribed burning associated with forest management activities within 0.25 mile of known active lynx den sites from May 1 through July 15. DNRC will verify the active den sites where this restriction would apply.

**Allowance:** If DNRC confirms that lynx have vacated the den site vicinity prior to July 15, DNRC may proceed with the suspended activities. Documented evidence that lynx have fully vacated the den site will be required prior to resuming activities. A DNRC biologist will provide the documentation and will confer with local lynx researchers or experts, as needed.

**LY-HB4 Foraging Habitat Attribute Retention**

To facilitate the development of multi-storied forest canopies, DNRC makes the following commitments.

1. In thinned portions of pre-commercial thinning units within mapped lynx habitat, DNRC will retain small, shade-tolerant trees (species such as grand fir [*Abies grandis*], subalpine fir

[*Abies lasiocarpa*], and Englemann spruce [*Picea engelmanii*]) that do not pose substantial competition risks to desired crop trees.

2. DNRC will retain patches of advanced regeneration of shade-tolerant trees (grand fir, subalpine fir, and spruce), as a component of commercial harvest prescriptions in winter foraging habitat. DNRC anticipates that canopy cover of the retained patches would not exceed 10 percent of the stand area through implementation of this measure.

**LY-HB5 Habitat Connectivity**

At the project level, DNRC will design harvest units to maintain a connected network of suitable lynx habitat along RMZs, ridge tops, and saddles.

**Allowance:** There are situations where maintaining habitat connectivity and leaving travel corridors along ridge tops and saddles are not practicable. Examples of this would be on non-forested ridges; on non-forested saddles; on harvest units where cable systems are used; where habitat associated with scattered parcels is isolated by management on surrounding ownerships; where lynx habitat polygons are isolated within a parcel; where forest types not preferred by lynx bisect lynx habitat; or where silvicultural, fiduciary, or access objectives cannot be met (e.g., presence of lodgepole pine [*Pinus contorta*] stands requiring stand-replacement harvest, locations with high potential for blowdown, limited access, etc.). In instances of impracticability, DNRC will document the circumstances in the MEPA environmental analysis.

**LY-HB6 Habitat Suitability**

Of the total potential lynx habitat in the HCP project area on scattered parcels outside the LMAs, DNRC will maintain at least 65 percent of the area as suitable lynx habitat and no more than 35 percent as temporary non-suitable habitat at the land office scale, as shown in Table B2-8.

**Table 2-8 Revised. Estimated Acres of Lynx Habitat Outside the LMAs by Land Office to be Retained Under the Habitat Suitability Commitment (LY-HB6).**

| Land Office | Total Potential Lynx Habitat | Required Suitable Lynx Habitat at 65 Percent | Temporary Non-Suitable Lynx Habitat Limit at 35 Percent |
|---|---|---|---|
| CLO | 34,810 ~~37,039~~ | 22,627 ~~24,075~~ | 12,184 ~~12,964~~ |
| NWLO | 65,652 ~~63,816~~ | 42,674 ~~41,480~~ | 22,978 ~~22,336~~ |
| SWLO | 37,600 ~~27,186~~ | 24,440 ~~17,671~~ | 13,160 ~~9,515~~ |

# Lynx: Management Area Commitments

## LY-LM1 Habitat Suitability

Total potential lynx habitat includes the habitat subsets of suitable lynx habitat and temporary non-suitable habitat. In the identified LMAs, DNRC will maintain at least 65 percent of total potential lynx habitat as suitable lynx habitat, and no more than 35 percent as temporary non-suitable habitat (referred to as 65/35 percent habitat ratio), as shown in Table B2-9.

**Table 2-9 Revised. Estimated Acres of Lynx Habitat that Would be Retained in Each LMA Under the Habitat Suitability Commitment (LY-LM1).**

| Lynx Management Area | Total Potential Lynx Habitat Acres | Required Suitable Lynx Habitat at 65 Percent | Temporary Non-Suitable Lynx Habitat Limit at 35 Percent |
|---|---|---|---|
| Stillwater East | ~~34,468~~ 34,082 | ~~22,404~~ 22,153 | ~~12,064~~ 11,929 |
| Stillwater West | ~~35,582~~ 35,402 | ~~23,128~~ 23,011 | ~~12,454~~ 12,391 |
| Coal Creek | ~~14,188~~ 13,071 | ~~9,222~~ 8,496 | ~~4,966~~ 4,575 |
| Swan | ~~36,654~~ 50,975 | ~~23,825~~ 33,134 | ~~12,829~~ 17,841 |
| Seeley Lake | ~~4,466~~ 4,877 | ~~2,903~~ 3,170 | ~~1,563~~ 1,707 |
| Garnet | ~~3,923~~4,084 | ~~2,550~~ 2,655 | ~~1,373~~ 1,429 |
| **Total** | **~~129,281~~ 142,491** | **~~84,033~~ 92,619** | **~~45,248~~ 49,872** |

## LY-LM2 Habitat Conversion Rate

DNRC will not convert more than 15 percent of the total potential lynx habitat to temporary non-suitable habitat per decade within each LMA.

Table BLY-LM2. Baseline (April 2012). Estimated Suitable Acres of Lynx Habitat Allowed for Conversion per Decade Under the 15 Percent Habitat Conversion Rate Commitment (LY-LM2).

| Lynx Management Area | Total Potential Lynx Habitat Acres | Allowable 10-year Suitable Lynx Habitat Reduction at 15 Percent TPH |
|---|---|---|
| Stillwater East | 34,082 | 5,112 |
| Stillwater West | 35,402 | 5,310 |
| Coal Creek | 13,071 | 1,961 |
| Swan | 50,975 | 7,646 |
| Seeley Lake | 4,877 | 732 |
| Garnet | 4,084 | 613 |
| **Total** | **142,491** | **21,374** |

**LY-LM3 Foraging Habitat**

1. In lynx habitat within the LMAs identified in Appendix C, Figures C-29 through C-31, DNRC will maintain at least 20 percent of the total potential lynx habitat as winter foraging habitat, as shown in Table B2-11.

**Table B2-11. Baseline (April 2012). Acres of Lynx Winter Foraging Habitat Required for Retention in each LMA as Required by Commitment LY-LM3.**

| Lynx Management Area | Total Potential Lynx Habitat Acres | Required Minimum Winter Foraging Habitat Acres at 20% Level |
|---|---|---|
| Stillwater East | ~~34,468~~ 34,082 | ~~6,894~~ 6,816 |
| Stillwater West | ~~35,582~~ 35,402 | ~~7,116~~ 7,080 |
| Coal Creek | ~~14,188~~ 13,071 | ~~2,838~~ 2,614 |
| Swan | ~~36,654~~ 50,975 | ~~7,331~~ 10,195 |
| Seeley Lake | ~~4,466~~ 4,877 | ~~893~~ 975 |
| Garnet | ~~3,923~~ 4,084 | ~~785~~ 817 |
| **Total** | **~~129,281~~ 142,491** | **~~25,856~~ 28,498** |

Winter foraging habitat will be identified using the DNRC lynx habitat model incorporating SLI filters. Winter foraging habitat is defined as stands exhibiting the following minimum structural characteristics:

- The stand must occur on preferred habitat types (Pfister et al. 1977; DNRC 2008c; Appendix B, Document B-3).
- The stand must have one or more of the following species present: sub-alpine fir, grand fir, or spruce.
- The stand must have at least 10 percent crown closure in trees of 9 inches dbh or greater (i.e., sawtimber category in the SLI).
- The stand must have a minimum of 40 percent total stand crown closure in understory and overstory combined.

2. Within pre-commercial thinning projects targeting saplings in lynx habitat in LMAs, identify and retain unthinned 20 percent of the thinning project area. Retained patches should maintain a density of greater than 2,000 stems per acre. In stands where a density of 2,000 stems per acre is not present, retain an area(s) with the greatest density available. To facilitate tracking and promote habitat function, (1) design retention patches to be at least 5 acres when possible, (2) emphasize retention of subalpine fir and Engelmann spruce or grand fir, and (3) locate retention areas adjacent to other suitable lynx habitat. Patches retained for this purpose may not be entered for pre-commercial thinning or commercial harvest until they can structurally meet the minimum DNRC SLI definition of sawtimber (i.e., stands must possess at least 10 percent canopy closure in the overstory in trees at least 9 inches dbh).

# Aquatics: Riparian Timber Harvest Commitments

## AQ-RM1 Class 1 Stream and Lake Riparian Management Zone Commitments

These commitments apply to timber harvests conducted immediately adjacent to Class 1 streams segments and lakes. For the purposes of this commitment, the combined SMZ and RMZ specified under ARM 36.11.425 will be referred to as an RMZ.

DNRC will implement the following commitments for timber harvest within RMZs for Class 1 streams and lakes:

1. DNRC will establish an RMZ with a minimum width equal to the 100-year site index tree height (or 80 feet, whichever is greater) for timber harvests immediately adjacent to Class 1 streams and lakes. The 100-year site index tree height will be determined at the project level by field sampling the age and height of several site trees within the stand and comparing those values to locally or regionally developed site index curves.
2. DNRC will maintain a 50-foot-wide no-harvest buffer within Class 1 RMZs. This buffer will start at the edge of the ordinary high water mark (OHWM) and extend across the RMZ to a slope distance of 50 feet when measured perpendicular to the stream or lake. Within the 50–foot-wide no-harvest buffer, it may be necessary to allow corridors associated with cable logging systems used to fully suspend logs across streams. In these situations, the minimum corridors spacing will be 150 feet with no more than 15 percent of the 50-foot buffer affected.
3. Harvest prescriptions within the remainder of the RMZ (from 50 feet to a distance equal to the 100-year site index tree height or 80 feet, whichever is greater) will retain shrubs and sub-merchantable trees to the fullest extent possible, and a minimum of 50 percent of the trees greater than or equal to 8 inches dbh.
4. Multiple harvest entries into a specific RMZ stand will only occur if (1) the existing RMZ forest stand is classified as a medium-to-well-stocked, pole timber or saw timber size class (as defined by standard DNRC SLI procedures), and (2) the proposed harvest would meet the SMZ Law minimum tree retention requirements.
5. To ensure protection of native fish species from increased stream temperatures, DNRC will monitor stream temperatures as described in HCP Chapter 4, Monitoring and Adaptive Management. Additionally, DNRC will classify specific stream segments as temperature-sensitive reaches and provide additional protections during riparian harvest. This will be achieved by committing to no statistically significant ($p \geq 0.05$) increase in stream temperature attributable to DNRC timber harvest activities in temperature-sensitive reaches.
6. DNRC will extend SMZs to include adjacent wetlands, where the normal SMZ boundary intercepts a wetland (ARM 36.11.302). Retention tree requirements for the adjacent wetland are the same as the requirements for the first 50 feet of the SMZ (ARM 36.11.305).
7. DNRC will extend RMZs on Class 1 streams supporting HCP species in situations where channel migration is likely to influence riparian functions that are potentially affected by a timber harvest. DNRC has identified several types of CMZs where this potential is more likely. A CMZ is defined as the width of the floodprone area at an elevation twice the

maximum bankfull depth. CMZs usually influenced by forest management activities are limited to those that occur on streams with an entrenchment ratio of greater than 1.4 and with valley slopes of less than 8 percent gradient that exhibit unstable channel conditions or potential for relatively high rates of lateral channel erosion and lateral migration. Entrenchment ratio is the floodprone width of a stream divided by the bankfull width if the stream. The floodprone width is equal to two times the maximum depth of the streams at bankfull flows (Rosgen 1994). CMZs will not be established with entrenchment ratios of less than 1.4 because such channels are highly confined and have little or no potential for channel migration. Application of CMZs will be determined on a site-specific basis by a DNRC watershed specialist.

8. Two types of CMZs are recognized under this strategy, and they are classified using the following approach:

    a. **Type 1 CMZ** - A Type 1 CMZ corresponds to the floodprone area of streams exhibiting both valley bottom characteristics and alluvial processes. Valley bottom characteristics include channel slopes that are typically less than 1.5 percent and channel patterns that are meandering or braided. Alluvial processes mean that the stream is both eroding and depositing sediment throughout different parts of the channel. An example of an alluvial process would be a bend in the channel of a valley bottom stream, where the outside bend exhibits a deep channel eroding into the stream bank and the inside bend exhibits a shallow channel where eroded sediments are deposited. Streams with Type 1 CMZs typically migrate across valley bottoms rather slowly. Occasionally though, these streams are susceptible to very rapid migration to new or previously abandoned channels during major flood events. Type 1 CMZs are generally associated with Rosgen C, D, DA, and E channel types.

    b. **Type 2 CMZ** - A Type 2 CMZ corresponds to the floodprone area of unstable streams exhibiting sudden erosion and deposition processes. Unstable streams are not able to efficiently transport sediment due to a variety of reasons, which can lead to increased rates of sediment deposition and channel migration. Unstable streams with Type 2 CMZs are uncommon, but where they occur, stream gradients typically range from 1 to 8 percent. Sudden erosion and deposition processes can occur on a Type 2 CMZ when a stream is forced out of its stream banks and into the floodprone area. Examples of sudden erosion and deposition are: (1) a moderately contained stream with evidence of recent sediment deposition on the forest floor outside of the stream channel, (2) alluvial fans, and (3) debris flows or torrents.

9. A CMZ will be established when harvest activities are immediately adjacent to streams supporting HCP fish species that are exhibiting these types of channel migration processes. The level of conservation applied within the CMZ will be determined by the type of CMZ present.

    a. On Type 1 CMZs, the portion of RMZ restricted to 50 percent retention will be extended when necessary to incorporate the entire floodprone area. In the event the width of the floodprone area does not extend beyond the normal RMZ, the

standard RMZ harvest restrictions will be applied. The 50-foot no-harvest buffer will not be extended.

b. Type 1 CMZ established on a stream with an unstable stream channel or stream bank exhibiting evidence of recent lateral migration will receive the same level of protection as designated for a Type 2 CMZ (see commitment 9(c) below).

c. On Type 2 CMZs, the no-harvest buffer is a combination of the floodprone width plus an additional 25 feet within the RMZ. No timber harvest will occur within the entire floodprone width. Additionally, the delineation of the normal RMZ width (based on 100-year site index tree height or 80 feet, whichever is greater) will begin at the edge of the floodprone width, and an additional 25-foot no-harvest buffer will be applied within the RMZ.

d. Allowances for the restrictions listed in commitments 9(a) through 9(c) include those listed under Allowances for Class 1 RMZs, below.

10. A DNRC water resource specialist will review all sites where harvest greater than 1 acre is proposed within an RMZ established for a Class 1 stream or lake.

**Allowances within Class 1 RMZs:**

As part of the HCP riparian timber harvest strategy, allowances associated with the 50-foot no-harvest and 50 percent retention portions of the RMZ (including those extended to incorporate CMZs) may be required in certain cases where harvest is necessary to address specific situations or circumstances that would include fire, insect, and disease salvage and the need to emulate natural disturbance through non-salvage-related harvest.

1. The following allowances may be invoked under this commitment:

a. In forest stands within an RMZ being impacted by disease or insect infestations (e.g., dwarf mistletoe [Arceuthobium *spp.*], mountain pine beetle [*Dendroctonus ponderosae*], or Douglas-fir beetle [*Dendroctonus pseudotsugae*]), harvest of diseased or insect-infested trees may occur within the 50-foot no-harvest buffer. However, harvest of diseased or insect-infested trees from within the first 50 feet of the RMZ will still meet the minimum retention tree requirements of the SMZ Law. Retained trees will include all streambank trees and downed trees lying within the stream channel or embedded in the stream bank. To help control disease or insect infestations, harvest of diseased or insect-infested trees from within the remaining RMZ may exceed those levels necessary to meet the normal 50 percent retention requirement.

b. In areas within an RMZ that have been subjected to severe or stand-replacement wildfires, salvage harvest of dead trees may exceed the normal 50 percent retention requirement in that portion of the RMZ outside of the 50-foot no-harvest buffer. No salvage harvest of fire-killed trees will occur within the 50-foot no-harvest buffer. Downed trees lying within the stream channel or embedded in the stream bank will not be removed. These harvests will still meet the minimum retention tree requirements of the SMZ Law.

c. DNRC may manage a portion of the total Class 1 RMZ acreage on forested trust lands using harvest prescriptions designed to meet the minimum retention tree requirements of the ARMs adopted under the SMZ Law (ARM 36.11.305). These requirements include retention of at least 50 percent of the trees greater than or equal to 8 inches dbh on each side of the stream, or 10 trees per 100-foot segment of stream (equal to approximately 86 trees per acre), whichever is greater. Tree retention will be based on the number of trees within the first 50 feet of the RMZ on both sides of a stream. A 50-foot-wide no-harvest buffer would not be required in these situations. The RMZ stands targeted to be managed in this manner will be those stand types where shade-tolerant species exist and regeneration or maintenance of shade-intolerant tree species is necessary to achieve or maintain desired future stand types or provide long-term riparian functions.

2. When an allowance is invoked, the following conditions would apply:

   a. The minimum requirements of the SMZ Law must still be met.

   b. A DNRC water resource specialist will review all sites when an allowance is proposed regardless of the number of RMZ acres affected.

   c. Salvage harvests in a Class 1 RMZ where HCP fish species are present may trigger a changed circumstance. In those instances, DNRC will follow the changed circumstances process for addressing salvage harvest (see HCP Chapter 6, Changed Circumstances).

   d. Removal of individual hazard trees within the no-harvest buffer is allowed. A hazard tree is any tree that poses a risk to public safety, roads, structures, property, and other improvements. Public safety refers to situations that pose a foreseeable risk of injury or death to a person.

   e. Within each aquatic analysis unit identified in the HCP project area, the amount of Class I RMZ managed under these allowances will be limited so that the extent that the total RMZ area treated under these allowances when combined with the amount of existing RMZ area in a non-stocked or seedling/sapling size class such that it does not exceed 20 percent of the total Class 1 RMZ acres occurring on forested trust lands in that unit.

**AQ-RM2 Class 2 and 3 Riparian Management Zone Commitments**

DNRC will implement the following commitments for timber harvest conducted immediately adjacent to Class 2 streams, Class 3 streams, and other bodies of water as defined by the SMZ Law (ARM 36.11. 312):

1. Timber harvest conducted within an SMZ established for a Class 2 stream, Class 3 stream, or other body of water will implement DNRC's existing timber harvest practices, which include the Montana Forestry BMPs, Forest Management ARMs 36.11.425 and 426, and the SMZ Law (ARMs 36.11.302 through 313).

2. Timber harvest conducted in an SMZ established for a Class 2 stream, Class 3 stream, or other body of water will comply with all applicable requirements regarding harvest prescriptions and tree retention requirements, including:

a. Clearcutting will be prohibited in the SMZ of a Class 2 stream, Class 3 stream, or other body of water.

b. Timber harvests within Class 2 SMZs will retain at least 50 percent of the trees greater than or equal to 8 inches dbh on each side of a stream or 5 trees per 100-foot segment, whichever is greater. Timber harvest conducted within SMZs of Class 2 streams, Class 3 streams, or other bodies of water will protect and retain sub-merchantable trees and shrubs to the fullest extent possible.

c. Retention trees within Class 2 SMZs will be representative of species and sizes in the pre-harvest stand.

d. SMZs of Class 2 and 3 streams and other bodies of water will be extended to include adjacent wetlands, where the normal SMZ boundary intercepts a wetland. Retention tree requirements for the adjacent wetland are the same as the requirements for the normal SMZ.

e. For Class 2 streams, the SMZ will be extended to 100 feet when SMZ slopes are greater than or equal to 35 percent. When the SMZ is extended, most retention will be selected within 50 feet of the stream. The remaining retention trees may be left anywhere in the SMZ.

3. On Class 2 or 3 streams with high erosion risk, an RMZ will also be established in accordance with ARM 36.11.425.

# Aquatics: Sediment Delivery Reduction Commitments

### AQ-SD1 Commitments for Minimizing Forest Management Roads

The HCP commitments for minimizing roads used for DNRC forest management activities incorporate the existing DNRC sediment delivery reduction practices for planning transportation systems for the minimum number of road miles (ARM 36.11.421). The HCP commitments will include the following existing DNRC practices:

1. DNRC will only build roads that are necessary for current and future management objectives.
2. DNRC will identify necessary roads by conducting transportation planning as part of landscape-level or project-level evaluations.
3. DNRC transportation planning will consider
    a. Existing and probable future access needs within the road planning project area
    b. The relationship of existing access routes and road systems on adjacent parcels
    c. Logging system capabilities
    d. Access needs of planned and future forest improvement activities
    e. Access needed for fire protection
    f. Public access

g. Planning road systems cooperatively with adjacent landowners whenever practicable

h. Protection of wildlife and aquatic habitat.

4. DNRC will evaluate and consider the use of alternative yarding systems that minimize road needs if such systems are practicable and economically feasible and their use will meet immediate and foreseen future management objectives.

5. DNRC will use existing roads located in an SMZ only if potential impacts to water quality and aquatic habitat can be adequately mitigated. DNRC will consider relocating roads outside of the SMZ when these impacts cannot be adequately mitigated.

6. DNRC will restrict or reclaim that non-essential to near-term future management needs, or where unrestricted access would cause excessive resource damage. The term "near-term future" generally refers to a period of 15 or 20 years. Decisions on road restrictions or reclamation will be based on consideration of several factors, including, but not limited to, planned activities, desired future stand conditions, silvicultural objectives, infrastructure needs, cost, fire protection access needs, and available human and financial resources.

**AQ-SD2 Commitments for Reducing Sediment Delivery from Existing Roads**

The commitments for reducing sediment from all existing DNRC roads incorporate the existing ARMs, BMPs, and policies covering DNRC forest management programs as described in the existing practices. All existing DNRC roads include permanent, temporary, open, closed, abandoned, reclaimed surfaces, as well as all stream crossing structures. (Check the current road inventory data collection application.) These measures already provide a large degree of conservation to HCP fish species and provide a sound basis for meeting the HCP sediment delivery reduction strategy objectives..

The HCP commitments include several additions to the current DNRC practices that will provide better assurances that the HCP sediment delivery reduction strategy objectives are being met. These additions include a timeline for completing road inventories in watersheds supporting HCP fish species, a prioritization scheme for implementing corrective actions, and a timeline for identifying and implementing corrective actions, as described below.

1. DNRC will complete inventories of all existing roads and stream crossing structures used for forest management activities and abandoned roads that are within the HCP project area and located within watersheds (sixth-order HUCs) supporting HCP fish species. Roads inventoried will be limited to those for which DNRC has legal access and sole ownership, or cost-share or reciprocal road agreements.

2. DNRC will complete inventories using current methods and procedures, consisting currently of the road inventory data collection application. These methods and procedures may be revised over time to include additional information, take advantage of new technology, or gain efficiency. However, the essential elements of the existing inventory will be maintained. Any revision of the methods and procedures will continue to provide all information required for the identification of existing and potential sediment sources and the development of corrective measures.

3. DNRC will complete road inventories within the original HCP project area on all watersheds supporting bull trout (including core and nodal habitat) during the first 10 years that the Permit is in effect. Road inventories for lands added to the HCP project area that are within watersheds supporting bull trout will be completed within 10 years from the date of issuance of the Amended HCP and Permit.

4. All road inventories for watersheds supporting westslope cutthroat trout or Columbia redband trout within the original HCP project area will be completed within the first 20 years that the Permit is in effect. Road inventories for lands added to the HCP project area that are within watershed supporting westslope cutthroat trout or Columbia redband trout will be completed within 20 years from the date of issuance of the Amended HCP and Permit.

5. Based on the completed road inventories, DNRC will classify all inventoried road segments/sites as being either:

    a. Low risk of sediment delivery (meets BMPs or has very low risk of sediment delivery)

    b. Moderate risk of sediment delivery (does not meet BMPs, has moderate risk of sediment delivery, or meets BMPs but is poorly located)

    c. High risk of sediment delivery (does not meet BMPs, is poorly located, is currently delivering sediment, or has high risk of future sediment delivery).

6. Corrective actions will be prioritized by considering the following factors:

    a. Watersheds supporting bull trout

    b. Watersheds supporting westslope cutthroat trout or Columbia redband trout

    c. Watersheds supporting other sensitive beneficial uses (e.g., domestic/municipal uses)

    d. Watersheds in which TMDLs are in place

    e. 303(d) listed watersheds in need of TMDL development.

7. Corrective actions will be prioritized for implementation within a watershed by:

    a. High-risk sites,

    b. Moderate-risk sites, then

    c. Low-risk sites whenever feasible.

8. Project-level, site-specific corrective actions will be developed and implemented on sites identified as having a high or moderate risk of sediment delivery. These corrective actions will only occur on roads and stream crossing structures where DNRC has legal access and has sole ownership. These sites will be improved to a level necessary to reduce risk of sediment delivery to streams supporting fish species and to meet or exceed the habitat requirements for HCP fish species. Primary mechanisms to achieve this action are development and implementation of site-specific road improvements and road upgrades, road abandonment or road reclamation, culvert replacement and/or removal, and other mitigation measures necessary to bring problem road segments up to minimum BMP standards.

9. On roads with shared ownership where DNRC does not have sole ownership, DNRC will continue to work with other cooperators to address road segments identified as having moderate or high risk of sediment delivery as described under existing practices.

10. Corrective actions will be completed on all identified sites with high risk of sediment delivery located within bull trout watersheds that are in the original HCP project area by 2027. DNRC will prioritize and complete corrective actions at all site located on the Stillwater Block with high risk of sediment delivery to waters identified as bull trout critical habitat (USFWS 2016) by 2024. Corrective action on sites located on lands added to the HCP project area will be completed within the first 15 years from the date of issuance of the Amended HCP and Permit. ~~within the first 15 years that the HCP and Permit are in effect.~~ Annual updates and the 5-year monitoring report will be used to document progress of corrective actions.

11. Corrective actions will be implemented at all identified high-risk sites in watersheds supporting westslope cutthroat trout or Columbia redband trout located within the original HCP project area within the first 25 years that the HCP and Permit are in effect. Corrective actions on sites located on lands added to the HCP project area will be completed within the first 25 years from the date of issuance of the Amended HCP and Permit. Annual updates and the 5-year monitoring report will be used to document progress on these corrective actions.

12. DNRC will continue to implement the road sediment source inventories and corrective actions in watersheds supporting HCP fish species throughout the duration of the Permit term.

13. DNRC will incorporate the goals, targets, and prescriptions contained within approved TMDLs applicable to covered activities where DNRC has actively participated in the development of the TMDL, and the TMDL planning area is located within a watershed containing HCP project area parcels supporting HCP fish species. In these cases, the requirements of the TMDL may be applied in conjunction with the commitments contained in one or more of the aquatic conservation strategies. DNRC will actively participate in TMDL development when 25 percent or more of the TMDL planning area consists of HCP project area parcels in watersheds supporting HCP fish species.

**AQ-SD3 Commitments for Reducing Sediment Delivery from New Road Construction, Reconstruction, Maintenance, and Use**

The commitments for reducing potential sediment delivery from all new DNRC road construction, reconstruction, maintenance, and use rely primarily on DNRC's continuing commitment to implement existing SMZ Laws, ARMs, and policies covering DNRC forest management programs, as described above for the existing practices. These policies apply to both new temporary and new permanent roads. These commitments also include several additions to the current DNRC practices that will provide better assurances for meeting conservation strategy objectives. These commitments include a process for ensuring (1) adequate review of proposed road activities potentially affecting HCP fish species habitat by a DNRC water resource specialist, (2) design and implementation of site-specific mitigation measures, and (3) adequate monitoring and adaptive management on both the implementation

and effectiveness of the conservation commitments. The additions included in these commitments are:

1. A DNRC water resource specialist will review road management activities associated with forest management projects located within watersheds (sixth-order HUCs) supporting HCP fish species. The water resource specialist will make recommendations that will be integrated into the development of road standards, contract specifications, site-specific BMPs, and other mitigation measures. The purpose and role of the specialist reviews are detailed in commitment 5 below. Specific road management activities that will be reviewed by a water resource specialist include

    a. Road construction and reconstruction projects meeting one or more of the following criteria:

        i. Greater than 0.5 mile in length,

        ii. Located within the RMZ of a Class 1 stream supporting an HCP fish species,

        iii. Includes the installation or removal of a Class 1 stream crossing, or

        iv. Located on sites with high erosion risk as defined by ARM 36.11.403(82).

    b. Road maintenance projects and use of roads for hauling timber harvest greater than 100 mbf involving one or more of the following circumstances:

        i. Located within the RMZ of a Class 1 stream supporting an HCP fish species,

        ii. Includes a Class 1 stream crossing, or

        iii. Located on sites with high erosion risk as defined by ARM 36.11.403(82).

2. New road locations or reconstruction of existing roads will avoid high-hazard sites prone to mass failure as required in BMP III.A.4. Proposed road locations will be screened during the cumulative watershed effects (CWE) coarse-filter analysis for locations associated with slope instability and prone to mass failure (see Section 2.2.3.5, Cumulative Watershed Effects Conservation Strategy). A DNRC water resource specialist will review all proposed road locations in the field when a CWE coarse-filter analysis indicates that the proposed road is located on sites with high risk of slope instability in watersheds supporting HCP fish species.

3. When new road construction or reconstruction cannot be avoided on potentially unstable slopes, DNRC will design and implement site-specific mitigation measures to reduce the risk of mass failure.

4. Roads deemed unnecessary for future use that are reclaimed will be left in a stable condition not requiring maintenance.

    DNRC will design and implement site-specific BMPs and other mitigation measures to reduce the risk of sediment delivery to streams affecting HCP fish species to the maximum extent practicable. A DNRC water resource specialist will make recommendations that will be integrated into the development of road standards, contract specifications, site-specific BMPs, and other mitigation measures.

**Allowance:** In cases where measures necessary to adequately reduce the risk of sediment delivery may not be practicable or feasible due to site, funding, or other limitations, decision

rationale will be documented in the HCP implementation checklist and provided to the USFWS in the annual update.

5. DNRC contracts that address forest management activities conducted in watersheds supporting HCP fish species and including road construction, reconstruction, maintenance, and use will include applicable road design specifications and operating requirements. These specifications will include road construction and maintenance standards, resource protection requirements, BMP requirements, special operating and design requirements, and site-specific BMP and mitigation measure specifications.

6. DNRC will incorporate the goals, targets, and prescriptions contained within approved TMDLs applicable to covered activities where DNRC has actively participated in the development of the TMDL, and the TMDL planning area is located within a watershed containing HCP project area parcels that support HCP fish species. In these cases, the requirements of the TMDL may be applied in conjunction with the commitments contained in one or more of the aquatic conservation strategies. DNRC will actively participate in TMDL development when 25 percent or more of the TMDL planning area consists of HCP project area parcels in watersheds supporting HCP fish species.

7. DNRC will administer road construction projects to ensure that contract specifications, BMPs, and other resource protection requirements are met on a weekly basis when road construction and maintenance activities are actively occurring.

8. On sites where practices implemented have resulted in unacceptable levels of impact to soil or water resources, appropriate mitigation and/or rehabilitation measures will be implemented as soon as possible. Examples of unacceptable levels of impact are major departures in BMPs resulting in actual sediment delivery to streams or a high risk of sediment delivery to streams

**AQ-SD4 Commitments for Reducing Potential Sediment Delivery from Timber Harvest, Site Preparation, and Slash Treatments**

The commitments for reducing potential sediment delivery from DNRC timber harvest activities (harvest, yarding, site preparation, and slash treatment) focus on reducing the levels of soil disturbance and subsequent levels of erosion and providing buffers zones for effective filtration of sediment. The commitments are primarily based on existing practices, but also include new measures for (1) providing a process for ensuring adequate review by a DNRC water resource specialist of harvest activities potentially affecting HCP fish species habitat, (2) designing and implementing site-specific mitigation measures, and (3) providing adequate feedback using both implementation and effectiveness monitoring. The additions included in the commitments are:

1. A DNRC water resource specialist will review all proposed timber harvests greater than 100 mbf located within a watershed supporting an HCP fish species. The water resource specialist will conduct a field review and make recommendations that would be integrated into the development of contract specifications, site-specific BMPs, and other mitigation measures. The purpose and role of the specialist reviews are detailed in commitment 4 below.

   **Allowance:** In situations or circumstances determined to have low risk of substantial soil disturbance, the DNRC water resource specialist may forgo a field review and not make any

recommendations to be integrated into contract specifications. Low risk will be determined after consulting with a DNRC water resource specialist. An example of a situation that would not require field review by a water resource specialist might include activities such as salvage harvest from existing roads with no RMZs present.

2. Timber harvests proposed on high-hazard sites prone to mass failure will be screened during the CWE coarse-filter analysis as outlined in the HCP CWE conservation strategy (Section 2.2.3.5). A DNRC water resource specialist will conduct a field review of all proposed harvest locations when CWE coarse-filter analysis indicates the timber harvests are located on sites with high risk of slope instability and are prone to mass failure.

3. When timber harvests are conducted on unstable slopes, DNRC will modify harvest prescriptions and/or design and implement mitigation measures to avoid increasing the risk of mass failure.

4. DNRC will design and implement timber sale contract specifications, special timber harvest operation requirements, site-specific BMPs, and other mitigation measures to reduce the risk of sediment delivery to streams affecting HCP fish species to the maximum extent practicable. A DNRC water resource specialist will make recommendations that will be integrated into the development of contract specifications, special operating requirements, site-specific BMPs, and other mitigation measures.

   **Allowance:** In cases where measures necessary to adequately reduce the risk of sediment delivery may not be practicable or feasible due to site, funding, or other limitations, decision rationale will be documented in the HCP implementation checklist and provided to the USFWS in the annual update.

5. Contracts addressing DNRC timber harvest and associated forest management activities will include applicable standard operating requirements and restrictions; special operating requirements and restrictions; BMPs; and site-specific mitigation measures designed to avoid, minimize, or mitigate the risk of sediment delivery to streams affecting HCP fish species.

6. DNRC will administer timber sale projects to ensure that contract specifications, BMPs, and other resource protection requirements are met.

7. DNRC will incorporate the goals, targets, and prescriptions contained within approved TMDLs applicable to covered activities where DNRC has actively participated in the development of the TMDL, and the TMDL planning area is located within a watershed containing HCP project area parcels that support HCP fish species. In these cases, the requirements of the TMDL may be applied in conjunction with the commitments contained in one or more of the aquatic conservation strategies. DNRC will actively participate in TMDL development when 25 percent or more of the TMDL planning area consists of HCP project area parcels in watersheds supporting HCP fish species.

8. DNRC will complete contract inspections during routine contract administration. DNRC will document the levels of compliance with contract specifications and requirements.

9. On sites where practices implemented have resulted in unacceptable levels of impact to soil or water resources, appropriate mitigation and/or rehabilitation measures will be implemented as soon as possible. Examples of unacceptable levels of impact are major

departures in BMPs resulting in actual sediment delivery to streams or a high risk of sediment delivery to streams.

### AQ-SD5 Commitments for Reducing Potential Sediment Delivery from Gravel Excavation, Processing, Hauling, and Use

These commitments build upon the commitments for gravel pits described in the grizzly bear conservation strategy, including commitments GB-PR7, GB-NR6, GB-ST5, GB-SW5, and GB-SC4.

1. DNRC will design and implement site-specific BMPs and other mitigation measures to reduce the risk of sediment delivery to streams affecting HCP fish species from all gravel pits. A DNRC water resource specialist will make recommendations that will be integrated into the development of contract specifications, permits, and Plans of Operation (as required under ARM 17.24.217).
2. DNRC gravel pits will comply with biennial agreements established with county weed boards. Noxious weeds will be managed utilizing an integrated weed management approach. Such practices include, but are not limited to: (1) The use of weed-free equipment; (2) re-vegetation of disturbed areas with site-adapted species, including native species as available; and (3) biological control measures included in timber sale contracts and Plans of Operations (as required under ARM 17.24.217). Non-vegetated areas associated with large gravel pits may not exceed 40 acres.
3. **Allowance:** Gravel pits will not be developed within SMZs. Some site-specific minor levels of borrowing and stockpiling of material may occur in an SMZ where required to construct, reconstruct, improve, or maintain roads or road stream crossings. If borrows occur in SMZs, measure to minimize risk of sediment delivery will be developed by a DNRC water resource specialist and integrated into the development of contract specifications or permits.
4. **Allowance:** Gravel pits will not be developed within RMZs. Some site-specific minor levels of borrowing and stockpiling of material may occur in an RMZ where required to construct, reconstruct, improve, or maintain roads or road stream crossings. If borrows occur in RMZs, measures to minimize risk of sediment delivery will be developed by a DNRC water resource specialist and will be integrated into the development of contract specifications or permits.
5. **Allowance:** The Stillwater Block and the Swan Unit may each have one medium non-reclaimed gravel pit within the portion of an RMZ that extends beyond the SMZ.
6. Gravel development and use associated with borrows is considered a normal and necessary component of road construction and road maintenance. Development and use of borrows is allowed unconstrained when associated with allowable road construction and/or road maintenance activities.

## Aquatics: Fish Connectivity Commitments

### AQ-FC1 Fish Connectivity Commitments

The following commitments comprise the HCP fish connectivity conservation strategy

1. This strategy for connectivity applies to HCP project area lands and those roads and stream crossings that DNRC has access to and sole ownership of. For roads with shared ownership, DNRC will work with other road cooperators to address fish passage issues.

2. DNRC will provide connectivity to adult and juvenile bull trout, westslope cutthroat trout, and Columbia redband trout during low to bankfull flows by emulating streambed form and function at stream crossings. DNRC will use the best available design technology while considering site conditions and cost efficiencies.

Allowances for AQ-FC1:

   a. Road-stream crossings that will provide connectivity to limited or marginal fisheries habitat may not be required to emulate streambed form and function when approved by the USFWS. The USFWS will conduct reviews of requests for this allowance and approve or deny within 45 days.

   b. DNRC may receive a 124 permit that requires the installation of a stream crossing structure that does not meet the design standards contained in the fish connectivity strategy. In these cases, DNRC will notify the USFWS during the annual update that an allowance is being invoked.

3. DNRC will inventory and assess for connectivity all existing stream crossings on known and presumed (see AQ-RM1 commitments) bull trout, westslope cutthroat trout, and Columbia redband trout habitat not surveyed during the DNRC Fish Passage Assessment Project. DNRC will also foster cooperative relationships with other agencies and landowners to further refine the status and prioritization of bull trout, westslope cutthroat trout, and Columbia redband trout connectivity on the watershed scale. The methods for assessing fish passage and connectivity will be the same as those used for the DNRC Fish Passage Assessment Project.

4. Road-stream crossings constructed on streams with bull trout, westslope cutthroat trout, and Columbia redband trout habitat will include the following additional mitigations:

   a. Construction windows are generally July through mid-August (within habitat occupied by bull trout), July through November (within habitat occupied by westslope cutthroat trout or Columbia redband trout), or as specified by MFWP in a 124 permit.

   b. DNRC will implement reasonable measures to exclude and/or salvage fish from construction sites, such as constructing block nets and removing fish from de-watered stream sections, as practicable.

   c. As practicable and economically feasible, stream flows will be rediverted through newly constructed crossing structures to allow engineered substrates to adjust to stream energies and processes. Regarding the rediversion of stream flows through a newly constructed crossing structure, diligence during the final phases of construction when stream flows are rediverted into crossing structures can help ensure proper sealing of engineered substrates and prevent costly reinstallation of substrate material. This practice is most appropriate where higher stream energies and steeper gradients occur.

d. Montana Forestry BMPs will be met at each site during and after modification or construction. A DNRC contract administrator will be present during all fish passage installations. The application of BMPs will occur during contract administration and after site modification or construction. Contract administrators will have the authority to halt or modify a project if BMPs are not being met during construction.

e. DNRC will provide training on fish connectivity design and construction techniques for field staff responsible for fish passage installations. Training will occur early in the implementation of the HCP. Additional training will be provided as new technologies become available or there are changes in personnel.

5. DNRC will prioritize road-stream crossing improvements based on existing levels of connectivity, as well as species status and population biological goals established while taking into consideration other regulatory agencies' or cooperative organizations' activities and goals. Genetic data used for a coarse filter will be obtained primarily from MFWP data sets. Where practicable and where time is permitting, DNRC will collaborate with MFWP to collect species genetics information to supplement those data sets.

   a. Fish connectivity coarse filter

      i. Priority 1 – Habitat includes any bull trout life stage

      ii. Priority 2 – Habitat includes 100 percent genetically pure westslope cutthroat trout or Columbia redband trout

      iii. Priority 3 – Habitat includes westslope cutthroat trout or Columbia redband trout of unknown genetic purity

      iv. Priority 4 – Habitat includes 80 to 99 percent genetically pure westslope cutthroat trout or Columbia redband trout.

   b. Fish connectivity fine filter (within priority groups)

      i. Determine if the action of culvert removal or replacement meets conservation objectives (i.e., prevention of genetic introgression or displacement by non-native species) while considering the goals of MFWP, the USFWS, and other appropriate organizations.

      ii. Determine the status of existing connectivity for different life stages at varying flows through model outputs, field verification, and other available data.

      iii. Crossing site improvements may also be prioritized based on management opportunities, such as associated timber sales and other projects, forest improvement funds, grant availability, and structural failure due to catastrophic natural events.

6. DNRC will maintain a planning schedule containing a list of road-stream crossing sites to be addressed by this strategy. The planning schedule will identify current site prioritizations, potential mechanisms for implementation, and project status. The schedule will be reviewed annually and updated as new road-stream crossing sites are identified, there are changes in crossing status, new information becomes available, or improvements are completed.

DNRC will provide this planning schedule to MFWP, the USFWS, and other appropriate organizations to effectively collaborate with adjacent landowners and other agencies on bull trout, westslope cutthroat trout, and Columbia redband trout conservation objectives.

7. All Priority 1 sites within the original HCP project area determined to require connectivity will be improved within the first 15 years that the HCP and Permit are in effect. Priority 1 sites determined to require connectivity that are located on lands added to the HCP project area will be improved within the first 15 years from the date of issuance of the Amended HCP and Permit.

8. All road-stream crossings will allow connectivity of adult and juvenile bull trout, westslope cutthroat trout, and Columbia redband trout during low to bankfull flows within the first 30 years that the HCP and Permit are in effect, except in those cases identified in commitment 5(b)(i).

9. Every 5 years, one-sixth of all sites that do not meet the objectives of the fish connectivity strategy as determined by the DNRC Fish Passage Assessment Project will be improved to meet the strategy or, at a minimum, have final plans and designs for improvements to meet the strategy.

   If, due to initial programmatic adjustments in HCP implementation, the first one-sixth of the sites cannot be improved in the first 5-year period, then those sites will be improved within the first 10 years that the HCP and Permit are in effect. Sites that may be delayed under this scenario would be improved in addition to other sites selected for improvement during the second 5-year period.

10. The selection of a road-stream crossing design on streams supporting HCP fish species will be determined by DNRC based on stream channel form and function, costs, long-term environmental risk (sedimentation), and anticipated use. The selection of site-specific stream crossing designs is contingent upon approval by regulatory permitting authorities such as MFWP and MDEQ. The construction and maintenance of forest roads, including bridge and culvert stream crossings, are activities that normally do not require 404 discharge permits administered by the U.S. Army Corps of Engineers (33 CFR 323.4 (1i) and (6iii)). The majority of fish passage structures in streams supporting HCP fish species will be designed to pass a minimum of the 50-year flood event. In order of preference, subject to environmental, operational and economic feasibility, design options that DNRC will consider include:

    a. Permanent structure removal
    b. Temporary bridges
    c. Permanent bridges
    d. Bottomless arch culverts
    e. Fords – (1) reinforced fords such as armored fords, and (2) fords with streambeds suitable to handle predicted loads (both are generally only feasible in low-traffic areas)

# Aquatics: Cumulative Watershed Effects Commitments

## AQ-CW1 Cumulative Watershed Effects Commitments

The HCP CWE conservation strategy is a framework that essentially clarifies the existing Forest Management ARMs (36.11.423, Watershed Management – Cumulative Effects). Under this strategy, DNRC will continue to analyze the potential for impacts due to CWE as currently conducted under ARM 36.11.423. Additional commitments included in the conservation strategy are designed to :

1. specify the type of forest management activities that will be analyzed for CWE,
2. define the described levels of risks,
3. implement alternatives or measures to offset potential impacts, and
4. provide consistent documentation of analysis methods and rationale used for risk determinations.

DNRC will analyze CWE on all forest management projects (including projects categorically excluded from MEPA analysis) involving:

1. upland timber and salvage harvest of more than 15 acres or 50 mbf,
2. RMZ harvest of green timber,
3. salvage harvest within the RMZ of 1 or more acres of dead and dying timber,
4. new road construction greater than 0.5 miles,
5. new road construction located within an RMZ of a class 1 stream supporting HCP fish species, or
6. construction of any length of new road that includes the installation of new Class 1 stream crossings.

Watershed resource specialists will complete CWE assessments which will be sent to the project leader. Using the analysis, DNRC will ensure that a forest management project will not increase impacts beyond the physical limits imposed by the stream system for supporting its most restrictive beneficial use(s), when considered with other existing and proposed state activities for which the scoping process has been initiated. The analysis will identify specific measures, where appropriate, for mitigating adverse effects on beneficial water uses.

For this strategy:

- RMZ harvest refers to harvest within the SMZ, the RMZ as defined by the HCP riparian harvest conservation strategy, or the CMZ as defined by the HCP riparian harvest conservation strategy.
- Physical limits generally refer to streambank stability, sediment yield, streambed stability, channel processes, etc.

- Restrictive beneficial uses are those uses of a water body that are classified by MDEQ in established water quality standards. Two examples of beneficial uses are the support of cold-water fisheries and drinking water.

DNRC makes the following commitments to address CWE:

1. DNRC will determine the necessary level of CWE analysis on a project-level basis, and, at a minimum, will complete a watershed coarse-filter (Level 1) analysis (see Document B-9—CWE Coarse Filter Analysis Form, on the 'HCP Documents' page of the HCP internal website). The level of analysis will depend on assessment of the following factors.

    - The extent of the proposed activity will be determined through evaluation of the magnitude, range, or geographic scope of the activity. Extent will also consider the degree or level of intensity of the activity. For example, regeneration harvest would be considered a high-intensity activity, and salvage harvest of individual dead trees would be considered a low-intensity activity.
    - Levels of past activities will be determined through the Level 1 analysis and then integrated into further analysis if necessary.
    - Beneficial uses at risk are those beneficial uses considered to be impaired relative to established water quality standards.
    - DNRC will use the factors listed above during the Level 1 analysis to determine the risk of existing CWE or the potential for CWE to result from a proposed DNRC forest management activity. If a Level 1 analysis determines there is only a low potential for adverse cumulative impacts, then the analysis will be considered complete. Low potential for impacts implies there is a low likelihood that adverse CWE of a proposed DNRC action can be detected and foreseen by DNRC. If there is a moderate to high potential for adverse CWE to result from the proposed DNRC forest management activity as determined by a Level 1 analysis, then a Level 2 or Level 3 analysis will be conducted.

    a. DNRC will complete a preliminary watershed coarse-filter (Level 1) analysis on all eligible projects. This analysis will rely primarily on existing data and information, and will include documentation of rationale describing those variables that may contribute to CWE, an assessment of adverse CWE risk, and a description of future detailed analysis, if required.

    b. DNRC will complete a more detailed Level 2 and/or Level 3 watershed analysis on projects where DNRC determines (through the Level 1 analysis) there is greater than a low potential for CWE.

    A low potential for CWE implies that there is a low likelihood that adverse CWE of a proposed action can be detected and foreseen by DNRC when considering past and present activities on all ownerships. Future actions are also considered when they are state-sponsored actions that are under concurrent consideration by any state agency through environmental analysis or permit processing procedures.

Level 2 watershed analysis will generally include four steps

i. Evaluation of Level 1 analysis results

ii. Field review of the project area by a DNRC watershed resource specialist

iii. Evaluation of existing direct and indirect effects on watershed resources within the project area to establish a baseline of existing conditions

iv. qualitative assessment by DNRC of both the watershed coarse-filter (Level 1) analysis data and collective projected direct and indirect effects of the proposed action relative to the baseline of existing conditions.

Examples of current Level 2 watershed analysis methodologies that could be used by DNRC include the MEPA Environmental Assessment Checklist (DNRC 1998b), Pfankuch channel stability rating (USFS 1974), Lassen National Forest method (Young 1989), and *A Framework for Analyzing the Hydrologic Condition of Watersheds* (McCammom et al. 1998).

c. DNRC will complete a detailed Level 3 watershed analysis when the Level 1 or Level 2 analysis predicts or indicates the existence of or potential for unacceptable CWE as a result of the proposed forest management activity.

i. A Level 3 watershed analysis uses appropriate levels of information and technology in a quantitative assessment by DNRC of both (1) the Level 1 and Level 2 analysis data, and (2) the collective projected direct and indirect effects of the proposed action relative to the baseline of existing conditions. Examples of current Level 3 watershed analysis methodologies that could be used by DNRC include water yield increases relative to equivalent clearcut areas (USFS 1974), Washington Forest Practices Board (WFPB) *StandardMethodology for Conducting Watershed Analysis* (WFPB 2002), *Forest Practices Cumulative Watershed Effects Process for Idaho* (IDL 2000), *An Approach to Water Resources Evaluation of Non-Point Silvicultural Sources* (EPA 1980), and *WATSED* (*water and sediment yields*) (USFS 1992).

ii. Unacceptable CWE implies there is a high degree of risk that an adverse CWE of an action can be foreseen and detected by DNRC when considering past and present activities on all ownerships. Future actions are also considered when they are state-sponsored actions under concurrent consideration by any state agency through environmental analysis or permit processing procedures.

2. DNRC will establish thresholds for CWE on a watershed-level basis when completing all Level 2 or Level 3 analyses. Thresholds will take into account items such as:

- stream channel stability,
- beneficial water uses, and
- existing watershed conditions.

The thresholds established for any analysis will be based on the ranges of environmental variability found to be naturally occurring within the watershed(s) encompassing the project area.

For this analysis framework:

a. Thresholds are either qualitative (including narrative descriptions) or quantitative standards used to describe acceptable levels of risk of CWE. For example, thresholds for a Level 2 analysis may be low, moderate, and high, while thresholds for a Level 3 analysis may be 5 percent, 10 percent, and 15 percent.

b. A watershed-level basis is specific to the watershed boundary containing the headwater streams to the drainage(s) within the project area up to a maximum of the sixth-order HUC designation.

c. Stream channel stability describes the ability of a given stream reach or network to facilitate the movement of relatively equal quantities of incoming and outgoing sediment classes. Stream channel stability also describes the ability of a given stream reach or network to facilitate a range of flow regimes without increased rates of in-stream erosion, migration, or flooding beyond those that would otherwise be expected to occur.

d. Existing watershed conditions include variables such as forest cover, road construction, road conditions, flow regimes, natural disturbance, geology, susceptibility to erosion, and other concurrent management proposals.

3. DNRC will set water quality thresholds at a level that ensures compliance with water quality standards and protection of beneficial water uses, including HCP fish species habitat, with a low to moderate degree of risk.

a. Water quality standards are established by MDEQ (ARM 17.30.641, Water Quality – Surface Water Quality Standards and Procedures).

b. In watersheds of water-quality-limited water bodies, DNRC will set thresholds at a level providing a low degree of risk to beneficial water uses.

c. A watershed of a water-quality-limited water body is analogous with the sixth-order HUC watershed contributing to a 303(d) listed water body. A water body identified on a current 303(d) list is determined by MDEQ to have impaired water quality for one or more reasons. The MDEQ maintains 303(d) listings through an interagency agreement with the EPA, the entity responsible for implementation of the CWA.

4. DNRC will implement management mitigations or project alternatives to offset potential impacts when a high risk of CWE is apparent after Level 2 or Level 3 analysis. Management mitigation measures will be designed to reduce the potential for CWE to a moderate or low level.

5. DNRC will consider implementing management mitigation or project alternatives when a moderate risk of CWE is apparent after Level 2 or Level 3 analysis.

6. Whenever feasible, DNRC will cooperate with other landowners in watersheds with mixed ownership to minimize CWE within acceptable levels of risk. Feasibility for cooperation

with other landowners in a watershed to minimize CWE will depend on (1) DNRC time, financial, and logistical constraints; and (2) the willingness of other landowners to cooperate in such efforts.

# Chapter 3. Amended Transition Lands Strategy

The Amended Transition Lands Strategy (2010 HCP, Chapter 3) is provided below.

## 3 Transition Lands Strategy

DNRC is charged with the management of over 5.1 million surface acres of state trust lands. DNRC considers and addresses environmental factors as required by various laws and rules and balances those considerations with the short- and long-term revenue-generating capacity of the lands. Protecting the future revenue-generating capacity of the land includes not only forest management activities, but other income-producing activities, such as grazing; mineral, oil, and gas exploration, development, and extraction; recreation; real estate uses; and other potential uses not yet identified. Thus, lands currently managed for timber production have the potential for other uses over the term of the Permit.

DNRC considers opportunities to sell, purchase, develop, or exchange state trust land parcels to diversify land holdings, maximize the rate of return to the trusts, improve public access to state trust lands, and consolidate state trust lands for more efficient management. In order to accomplish these objectives, DNRC seeks opportunities to both dispose lands as well as obtain additional trust lands. Therefore, DNRC must be able to maintain the flexibility to move lands into and out of the HCP project area over the 50-year Permit term. Lands identified for removal from or addition to the HCP project area due to proposed land use or ownership changes are termed "transition lands."

### 3.1 Transition Lands Strategy Purpose and Objectives

The purpose of this transition lands strategy is to describe the process for moving DNRC lands into or out of the HCP project area. This strategy ensures: 1) adequate levels of conservation are provided for HCP species, and 2) DNRC can add lands to the HCP so that the HCP's conservation value can be expanded on DNRC's acquisitions and DNRC can meet its land management and fiduciary trust obligations.

To maintain the overall integrity of the conservation levels provided under the HCP, this transition lands strategy provides important benefits:

1. Long-term biological assurances by setting caps on the amount of land DNRC can remove from the HCP project area.
2. The opportunity and framework for interested parties to extend conservation benefits on DNRC lands through leases, licenses, or other legal instruments pursuant to existing state laws.
3. The process for DNRC to add lands to the HCP so that the conservation benefits of the HCP may be geographically expanded for the benefit of the HCP species.

In addition to these conservation benefits, this strategy also allows for the continuation of DNRC's ability to acquire, develop, and dispose of trust lands. This program includes, but is not limited to, land transfers, development, sales, purchases, and exchanges to realize short- and/or long-term benefits for the trust beneficiaries.

Lands identified for addition to or removal from the HCP project area will be considered under the guidance of the *DNRC Real Estate Management Programmatic Plan: Final EIS Record of Decision* (DNRC 2005c) or any future updates to the Real Estate Management Programmatic Plan and in coordination with the FMB.

### 3.2 Removal of Lands From the HCP

At its sole discretion, DNRC may remove lands from the HCP project area through either disposal or leasing. DNRC may also request that the recipient of the removed lands commit to managing them in accordance with the HCP and Permit. However, DNRC will not be required to mandate continuation of the HCP commitments and Permit conditions on the disposed or leased lands by the new land owner or lessee.

DNRC may lease, license, sell, or exchange HCP project area lands to a federal or state agency, a not-for-profit conservation organization, private corporations or individuals, or any other non-governmental entity. If that entity has an existing Permit or agreement with the USFWS under which the leased, licensed, or disposed HCP project area lands will be managed in a manner providing similar or greater benefits to HCP species than the HCP, then the caps described below will not be applied to those lands.

Some HCP project area lands within grizzly bear recovery zones, CYE grizzly bear NROH, LMAs, or bull trout core habitat areas may be proposed for removal from the HCP project area and not be expected to remain under conservation measures similar to those in the HCP. DNRC will notify interested parties of the proposed dispositions of lands from the HCP project area using established mailing lists for notifying interested parties of potential real estate activities such as land sales and potential commercial, residential, or industrial development projects. Any interested party may request to be included on the mailing list. When a notice is mailed for lands included in the HCP project area, the notice will include information regarding potential land conservation opportunities as outlined by this transition lands strategy. A federal, state, or nonfederal land management or conservation agency or entity will have 60 days upon notification by DNRC to respond with a letter of intent and proposal to purchase the land outright or to lease, license, or explore other legal instruments for conservation purposes pursuant to existing state laws. Any purchase, lease, license, or other legal instrument must be executed within 24 months at full market value unless otherwise extended at the sole discretion and benefit of the state. If no response is received within 60 days, DNRC will continue to pursue the lease, development, or disposal of such HCP project area lands.

In addition to the lease, license, or similar instrument, conservation buyers may elect to pursue an option with the state to purchase the parcel in the future. If the state chooses to grant such an option, then an upfront fee will be assessed along with a specified closing date to exercise this option. Specific terms, such as the fee amount and closing date, will be negotiated at the time of the lease, license, or similar legal instrument.

Upon written request from the USFWS within 60 days of the proposed sale of HCP project area lands to a private entity, DNRC, at its sole discretion, will apply deed restrictions with enforceable terms or other binding conservation measures, as long as the value of the land is not reduced. Incorporating such measures will be prioritized in areas with substantial use by grizzly bears and areas of notable importance to grizzly bears, such as habitat linkage (Servheen et al. 2001), as well as bull trout core

areas defined by MBTRT (2000). Specific deed restrictions pertaining to grizzly bears and bull trout will be developed on a case-by-case basis using measures similar to those contained in the 2010 HCP, Appendix B (Documents B-10 – Example Grizzly Bear Deed Restrictions and Document B-11 – Example Bull Trout Deed Restrictions, respectively). Potential deed restrictions may include, but are not limited to, development limitations or specifications, riparian setbacks, food disposal and storage requirements, livestock grazing restrictions, or other conservation measures.

The ability to remove lands from the HCP project area is capped. DNRC will abide by the 5 percent and 10/15 percent caps on removal of lands from the HCP Project area as described below.

### *3.2.1 5 Percent Cap on Removal of Lands*

Over the 50-year Permit term, DNRC will cap the removal of HCP project area lands in the NCDE and CYE grizzly bear recovery zones, CYE grizzly bear NROH, LMAs, and bull trout core habitat areas (as defined in MBTRT 2000) to 5 percent of the baseline of original HCP project area lands in these habitat areas.

**Rationale:** This 5 percent cap would allow 15,434 acres from 308,687 acres of these habitat areas to be removed from the HCP project area. This cap ensures adequate conservation for the HCP species by limiting the amount of lands that can be removed from these key areas in the HCP project area while allowing DNRC the flexibility to meet its land management and fiduciary goals. The cap describes the total acres that may be affected. The limit on the removal of lands does not mean that only the baseline acres may be removed; it may also apply to lands subsequently added to the HCP and Permit at a later date. The scattered DNRC parcels in the CYE NROH will be subject to the 10/15percent cap (described below) once grizzly bear populations reach stable levels as described in the CYE commitments for grizzly bears in Section 2.1.1 (Grizzly Bear Conservation Strategy).

### *3.2.2 10/15 Percent Cap on Removal of Lands*

For all other HCP project area lands, DNRC would cap the removal of lands at10 or 15 percent of the original baseline over the 50-year Permit term. The cap would be 10 percent of the original baseline acres unless and until DNRC acquires large amounts of former industrial timber lands (e.g., through the Montana Working Forests Project) and adds at least 15,000 acres to the HCP project area. At that time, the cap would increase to 15 percent.

**Rationale**: The 10 percent cap would allow 32,122 acres from 321,229 acres, and the 15 percent cap would allow 48,184 acres, of all other HCP project area lands to be removed from the HCP project area. This cap ensures adequate conservation for these species by limiting the amount of lands that can be removed from the HCP project area while allowing DNRC the flexibility to meet its land management and fiduciary goals.

As described in the original HCP, at such time that DNRC added at least 15,000 acres to the HCP-covered lands, the cap would increase from 10 to 15 percent. The HCP amendment process in 2017 added 81,416 acres of lands to the original HCP. Therefore, the 10 percent cap is increased to 15 percent. The total acreage of lands where the 15 percent cap would applies remains at 321,229 acres and the total lands allowed for removal from the HCP under the cap would be 48,184 acres.

The removal of lands is not limited to the original lands comprising the HCP project area, but may also apply to any lands subsequently added to the HCP project area at a later date. As long as DNRC stays

within the caps, removing lands from the HCP project area would be accomplished through a minor modification to the Permit.

## 3.3 Addition of Lands to the HCP

### *3.3.1 Types of Lands That May be Added to the HCP Project Area*

Lands DNRC may propose for addition to the HCP would be located within the NWLO, SWLO, or CLO. These lands would be similar to the 2010 HCP project area lands because they occur in the same landscapes and aquatic analysis units and support the same forest cover types described in the original HCP and Final EIS planning area (USFWS and DNRC 2010). These lands would have similar management histories as state trust lands and other forested lands in the HCP project area and Final EIS planning area. That is, these lands would typically be managed for multiple uses and/or managed primarily for timber production, though management intensity may be varied based on the land uses of the previous land manager.

### *3.3.2 Process for Adding Lands to the HCP Project Area*

When DNRC proposes to add lands to the HCP project area, it will provide the following information to the USFWS for its approval to include these lands in the HCP project area and manage them under the HCP and Permit conditions.

1. A map, legal description, and acreage of the proposed lands, along with the HCP species and/or their associated habitat currently believed to occur within the land area proposed for addition to the HCP project area. Additional information may include:

- Stream miles and HCP stream type
- Road miles, densities, and general condition of roads, including available information on the status of stream crossings.
- General description of the condition of the RMZs and SMZs
- Location of any known or registered cultural sites.

2. A written description of the baseline conditions of the proposed lands in relation to the HCP covered species and relevant commitments under the HCP.

3. An evaluation of the anticipated levels of incidental take for the added lands and the effects of that take on the covered species.

4. A plan of action demonstrating how DNRC will incorporate the relevant commitments of the HCP into the management of the lands proposed for addition. The plan will describe:

- How the lands would be classified and managed under the HCP (i.e., which administrative unit they are in, whether they are in a recovery zone, LMA, etc.)
- How habitat commitments will be tracked (e.g., lynx suitable habitat)
- A timeline for implementing the commitments on the newly added lands (e.g., fish passage culverts).

Timelines and tracking methods for commitments on newly added lands may be different from those established for the original HCP project area.

The analyses of effects in the original 2010 HCP FEIS, and 2011 ESA section 7 biological opinion strived to include all the potential effects of implementing this transition lands program on factors of the human and natural environment, including the covered species. Thus, if potential effects of future additions of lands to the HCP were already analyzed in these and subsequent supplemental analysis documents (USFWS and DNRC 2010, 2017, and 2018), the USFWS would not need to conduct further NEPA analysis. Upon receipt of the information identified above for each future proposal to add lands to the HCP, the USFWS will determine whether the potential effects were already analyzed or if further NEPA/MEPA and ESA analyses are necessary. If the USFWS determines that a major amendment to the Permit requires additional NEPA analysis, the USFWS would conduct the appropriate level of analysis and provide the NEPA document for public review. The USFWS must determine whether all ESA section 10(a)(1)(B) permit issuance criteria would be met when evaluating each proposal before amending the Permit. Section 10 requires that the USFWS provide public notice regarding amendments to the Permit for 30 days, regardless of the level of NEPA/MEPA analysis.

### 3.4 Notification and Review of Addition and Removal of Lands

DNRC and the USFWS will hold annual meetings to facilitate the exchange of information related to proposed and completed transactions of HCP project area lands. The agencies will mutually agree on the date, time, and location for this annual meeting. Additional meetings may be convened more frequently based on the mutual consent of both parties. Topics of discussion at such meetings will include the status of adherence to the caps on removal of lands from the HCP, along with the completed or known proposed transfers, purchases, sales, developments, leases, and/or exchanges that occurred over the past year and those that are expected to occur during the upcoming year.

DNRC will notify the USFWS of proposed or completed real estate transactions involving all HCP project area lands, including those discussed at the annual review and those that were not identified at the time of the annual review. Closing documents will be made available to the USFWS upon request. Regarding land transactions that arise after the annual meeting and therefore were not considered at the annual meeting or any subsequent meeting(s), DNRC will notify the USFWS by letter of the proposed transaction to add or remove lands. The USFWS will have 30 days to respond with any concerns. The date of receipt of the letter by the USFWS will trigger the 24-month process described in Section 3.2 (Removal of Lands from the HCP).

# Amended Changed Circumstance for Grizzly Bears

These changes pertain to the DNRC 2010 HCP, Chapter 6, page 6-6.

## 6.2.1.4 Triggers and Responses for Grizzly Bears

Because salvage harvest is an important component of DNRC's annual harvest volume, it is a covered activity, and the conservation commitments apply to all salvage harvests. However, both parties recognize that management following large-scale fires, insect or disease outbreaks, or wind events could compromise the integrity of the rest/management strategy to provide grizzly bears secure and quiet areas free from management activities. Therefore, changed circumstances for grizzly bears related to a fire, insect or disease outbreak, or wind event are defined as:

1. A fire, insect or disease outbreak, or wind event on the ~~Stillwater Block,~~ Swan River State Forest or scattered parcels in a recovery zone that requires a salvage project in a subzone(s) or parcel in rest that would take more than 151 days during the summer and fall periods to complete. Days used conducting activities during the winter period do not count against each 151-day total. A separate 151-day total applies to each subzone and each parcel in rest independently.

or

2. A second interruption of a 6-year (Swan) or 8-year (scattered parcels) rest period extending for greater than 30 days (needed during summer and/or fall periods) is required for the purposes of salvage.

When a changed circumstance is triggered for grizzly bears, DNRC would follow the changed circumstance process and develop project mitigations for conducting the salvage harvest. The "toolbox" of potential minimization/mitigation measures includes, but is not limited to:

- Re-starting the rest period after the project is completed
- Adding extra time to the rest period once it re-starts (9 years instead of 8, for example)
- Implementing temporary road restrictions or closures that were not part of the original travel plan
- Requiring seasonal operation restrictions
- Making adjustments to operations in adjacent subzones
- Re-scheduling adjacent operations.

## AMENDED MONITORING AND ADAPTIVE MANAGEMENT FOR GRIZZLY BEARS AND AQUATIC SPECIES.

These changes pertain to the DNRC 2010 HCP, Chapter 4, pages 4-16, 4-17, 4-19, 4-20, 4-40 and 4-41.

### Table 4-2. Summary of grizzly bear HCP implementation monitoring.

| Conservation Commitment | Compliance Question | Compliance Threshold | Reporting Requirement | Reporting Frequency | Management Response |
|---|---|---|---|---|---|
| ~~GB-ST2~~ | ~~Has DNRC followed management/rest period schedule in Class A lands?~~ | ~~100%~~ | ~~Provide listing of active /inactive subzones of Class A lands to demonstrate compliance with 4-management/8-year rest commitment for each 5-year monitoring period.~~<br><br>~~Report use of the allowable 30 commercial operating days that are allotted for parcels in formal rest status and report these days to the USFWS upon request.~~<br><br>~~Report the number of times the management period was extended due to allowable delays, DNRC will write an explanation of the delay and submit it to the USFWS immediately upon notice that a delay will be necessary. Requires USFWS review only.~~ | ~~5-year. Extensions require immediate reporting.~~ | ~~DNRC – If allowable operating days are exceeded, develop corrective action(s) in coordination with the USFWS. Documentation will be reported in applicable annual updates and summarized in 5-year monitoring reports.~~<br><br>~~USFWS – Review and approve corrective action(s).~~ |
| ~~GB-ST3(2)~~ | ~~Has DNRC implemented required mitigation measures for extended salvage projects as described in item (2) of the commitment?~~ | ~~100%~~ | ~~Report number, location, and duration of salvage projects.~~<br><br>~~Use Appendix B, Document B-1 (salvage checklist for projects in rest) to report compliance with commitment and additional mitigation measures applied to the project.~~ | ~~5-year~~ | ~~USFWS – Review Appendix B, Document B-1 (salvage checklist for projects in rest) for appropriate application of commitments and mitigation measures.~~<br><br>~~DNRC – Documentation will be reported and summarized in 5-year monitoring reports.~~ |

**TABLE 4-2. Table 4-2. Summary of grizzly bear HCP implementation monitoring.**

**Table 4-2. Summary of grizzly bear HCP implementation monitoring.**

| Conservation Commitment | Compliance Question | Compliance Threshold | Reporting Requirement | Reporting Frequency | Management Response |
|---|---|---|---|---|---|
| GB-SW1 | Has DNRC limited open temporary roads to ~~5~~ 6.5 miles at one time? | 100% | Use annual accomplishment report by administrative unit to acknowledge implementation of the requirement. | 5-year. | DNRC – If out of compliance, manage road system as necessary to ensure road amounts are within allowable levels. Identify the issue and develop corrective action(s) in coordination with the USFWS within 60 days or next summer period, whichever is sooner. Documentation will be reported in applicable annual updates and summarized in 5-year monitoring reports.<br><br>USFWS – Review transportation plans to ensure compliance, and review and approve modifications to the transportation plan. |
| GB-SW3 | Has DNRC followed management/rest period schedule? | 100% | Provide listing of active/inactive subzones to demonstrate compliance with ~~4-year management/8-year~~ 3-year management/6-year rest commitment for each 5-year monitoring period.<br><br>Report use of the allowable commercial operating days that are allotted for parcels in formal rest status and report these days to the USFWS at 5-year intervals. This information will also be available to the USFWS upon request.<br><br>Report the number of times the management period was extended. When management period is extended due to allowable delays, DNRC will write an explanation of the delay and submit it to the USFWS immediately upon notice that a delay will be necessary. Requires USFWS-review only. | 5-year. Extensions require immediate reporting. | DNRC – If allowable operating days are exceeded, develop corrective action(s) in coordination with the USFWS to minimize any risk of future occurrence. Documentation will be reported in applicable annual updates and summarized in 5-year monitoring reports.<br><br>USFWS – Review and approve corrective action(s). |

## Table 4-6. Summary of implementation monitoring for aquatic conservation strategies

| Conservation Commitment | Compliance Question | Compliance Threshold | Reporting Requirement | Reporting Frequency | Management Response |
|---|---|---|---|---|---|
| AQ-SD | Road inventories completed on all watersheds supporting bull trout within 10 years.<br><br>All road inventories completed within 20 years.<br><br>Classification and prioritization of corrective actions.<br><br>Corrective actions to high-risk sites completed in bull trout watersheds within 15 years.<br><br>Corrective actions to high-risk sites completed in bull trout critical habitat on the Stillwater Block by 2024.<br><br>Corrective actions to high-risk site located in other watersheds within 25 years | Annual update and 5-year monitoring report indicates a trend toward meeting timelines | Update status of all inventory projects and BMP audits.<br><br>Complete accomplishment report detailing progress of road inventories, classification, and corrective actions. | 5-year. | DNRC – Develop and implement<br><br>an action plan for improving compliance with timelines.<br><br>USFWS – Review and approve action plan.<br><br>USFWS – Review transportation plans to ensure compliance, and review and approve modifications to the transportation plan. |

Exhibit 1

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
MISSOULA DIVISION

| | | |
|---|---|---|
| FRIENDS OF THE WILD SWAN; MONTANA ENVIRONMENTAL INFORMATION CENTER; and NATURAL RESOURCES DEFENSE COUNCIL; | ) | Case No. 9:13-cv-00061-DWM |
| Plaintiffs, | ) | |
| v. | ) | |
| S.M.R. JEWELL, Secretary, U.S. Department of the Interior, in her official capacity; and UNITED STATES FISH AND WILDLIFE SERVICE | ) | |
| Defendants. | ) | |

**SETTLEMENT AGREEMENT AND RELEASE**

## I. GENERAL TERMS

To resolve the Parties' respective appeals in the U.S. Court of Appeals for the Ninth Circuit (Appeal Nos. 14-35923 and 14-35927), and the parties' respective claims and defenses in No. 9:13-cv-00061-DWM, U.S. District Court for the District of Montana, the Plaintiffs Friends of the Wild Swan, Montana Environmental Information Center, and Natural Resources Defense Council (collectively, Plaintiffs) and Intervenor-Defendants Montana Department of Natural Resources and Conservation (DNRC) and the Montana Board of Land

Commissioners (Land Board) agree to the following:

1. DNRC shall adopt the Conservation Measures set forth in this Settlement Agreement (Agreement) by promulgating them as rules in DNRC's Forest Management Administrative Rules of Montana (ARMs) following statutory requirements of the Montana Administrative Procedures Act (MAPA) within six months following the entry of an order by the U.S. District Court for the District of Montana adopting the terms of this Agreement as an order of the Court. DNRC, following entry of an order by the U.S. District Court for the District of Montana adopting the terms of this Agreement, shall immediately submit these Conservation Measures to the U.S. Fish and Wildlife Service for appropriate processing under the terms of the Habitat Conservation Plan.
2. DNRC shall also include these Conservation Measures as habitat conservation standards in the Northern Continental Divide Ecosystem (NCDE) Conservation Strategy, which would remain in place following de-listing of the grizzly bear. DNRC, following entry of an order by the U.S. District Court for the District of Montana adopting the terms of this Agreement as an order of the Court, shall immediately submit these Conservation Measures to the U.S. Fish and Wildlife Service to be adopted into the Final NCDE Conservation Strategy.
3. Once codified in Forest Management ARMs and the NCDE Conservation

Strategy, any future modifications of these Conservation Measures would be done following formal procedures outlined in the NCDE Conservation Strategy, and revision of the Forest Management ARMs following MAPA rule-making procedures. Any changes made through formal rule-making require final approval by the Land Board. No such modifications or changes shall be made by DNRC or the Land Board while the DNRC Habitat Conservation Plan (HCP) remains in effect. Further, while these Conservation Measures complement the DNRC HCP in its current form, these Conservation Measures shall be required, with or without the HCP in place.

4. Except as provided in Part II.3 below, implementation of this Agreement will not prohibit or restrict existing and future activities that are located totally or partially in areas previously managed as "Stillwater Core" and that are located outside of lands identified in Attachment A as Grizzly Bear Security Zones (Security Zones). This includes projects that were affected by the injunction issued by the U.S. District Court for the District of Montana on August 21, 2014 in Case No. 9:13-cv-00061-DWM.

## II. CONSERVATION MEASURES

1. **Agreement Area**: Within the land area referenced in the DNRC HCP as the Stillwater Block (90,517 acres), which includes blocked lands on the

Stillwater and Coal Creek state forests, DNRC shall establish 7 Security Zones totaling 22,007 acres as identified in Attachment A.

2. To minimize adverse impacts to grizzly bears, DNRC shall comply with the following restrictions within the 7 Security Zones.
    a. Motorized activities, including public, DNRC administrative, and DNRC commercial forest management activities, will be prohibited during the grizzly bear non-denning season each year, April 1 – November 15 (non-denning season).
    b. Motorized activities will be allowed during the grizzly bear denning season only, November 16 – March 31 (denning season).
    c. DNRC commercial forest management activities will be allowed during the denning season below 6,300 feet elevation.
    d. No permanent road construction will be allowed.
    e. The DNRC shall construct and reclaim any temporary roads and skid trails in a manner to prevent future use by motorized vehicles, including off-road vehicles, during the non-denning season.
    f. When conducting DNRC commercial forest management activities near identified Security Zones during the non-denning season, the DNRC will minimize the duration of air- and ground-based harvest activities to the extent practicable, particularly in known areas of

seasonal importance for bears.

g. DNRC will minimize the duration of administrative activities near Security Zones to the extent practicable.

h. The DNRC shall make efforts to design helicopter flight routes in a manner that avoids and/or minimizes flight time across Security Zones during the non-denning season, and/or known seasonally secure areas.

i. Where practicable, the DNRC shall design flight paths to occur greater than one mile from potentially affected Security Zones during the non-denning season, or areas of known seasonal importance.

j. Subject to Part II.2.f and g above, short-term disturbance will be allowed in any Security Zones at any time and for the necessary duration to address road sedimentation issues required by the HCP Aquatic Conservation Strategies and Forest Management ARMs.

3. On the remaining 68,510 acres of blocked lands outside of Security Zones, DNRC shall comply with the following measures:

   a. Access management and seasonal restrictions and road construction requirements will be implemented according to the DNRC HCP Transportation Plan measures that apply to Class B Lands as defined in the HCP (commitments GB-ST1, GB-ST4, and GB-ST5).

b. Motorized public activities, DNRC commercial forest management activities and DNRC administrative activities are allowed during the denning and non-denning seasons as allowed by the DNRC HCP Transportation Plan.

4. Subject to the provisions of Part II.2.f-i above, DNRC will complete timber sale and forest improvement activities currently under contract that overlap Security Zones identified in Attachment A. DNRC will expedite these activities to shorten the amount of time disturbance will occur in Security Zones. These include:

   a. activities on 27 acres of Upper Whitefish Timber Sale (approved by the Land Board on April 19, 2012) as identified in Attachment B; and

   b. activities on 6 acres of Swedish Chicken Site Prep Project (contract signed on June 13, 2014) as identified in Attachment C.

5. Until DNRC completes activities under 4.a. and b. above, DNRC shall relocate 33 acres of Security Zone as mitigation to retain 22,007 acres of Security Zones at all times. Once these activities are complete, DNRC shall adhere to Security Zones as found in Attachment A.

## III. ADDITIONAL TERMS OF THE AGREEMENT

1. DNRC will complete corrective actions as specified in the HCP on high-risk sediment sites located within bull trout watersheds by 2027, and will

prioritize and complete corrective actions at high-risk sediment sites in bull trout critical habitat by 2024.

2. Plaintiffs waive their right to challenge future DNRC management of grizzly bear habitat that was previously Stillwater Core on the ground that such management violates the Endangered Species Act, 16 U.S.C. § 1531 et seq., as long as Conservation Measures for the Security Zones herein described remain as requirements in administrative rule and the NCDE Conservation Strategy and DNRC complies with them. Plaintiffs reserve their right to challenge DNRC non-compliance with any Conservation Measure requirements and/or any modification or change made to the Conservation Measure requirements by DNRC or the Land Board.
3. Plaintiffs and the State forever release and covenant not to sue or to file any administrative claim against one another with respect to any and all civil claims between them that were or could have been made in the underlying legal action concerning the DNRC HCP; provided, however, that nothing in this Agreement shall affect or impair claims to enforce this Agreement.
4. The parties to this Agreement agree that they will each bear their own attorneys' fees and costs and hereby release one another from any claims for such fees and costs. Plaintiffs reserve their right to seek an award of attorneys' fees and costs from the Federal Defendants in Case No. 9:13-cv-

00061-DWM, U.S. District Court for the District of Montana.

5. The undersigned representatives of each party certify that they are fully authorized by the party they represent to agree to the Court's entry of the terms and conditions of this Agreement and do hereby agree to the terms herein. None of the provisions or obligations of this Agreement shall become binding and effective unless and until the Court enters an Order adopting the terms of this Agreement. The Effective Date of this Agreement shall be the date the Court enters the Order.

6. The terms of this Agreement constitute the entire agreement of the Parties with regard to Plaintiff's claims set forth in the above-captioned case, and no statement, agreement or understanding, oral or written, which is not contained herein, shall be recognized or enforced.

7. The parties hereby stipulate and respectfully request that the Court retain jurisdiction to oversee compliance with the terms of this Agreement and to resolve any motions to modify such terms. See Kokkonen v. Guardian Life Ins. Co. of America, 511 U.S. 375 (1994).

Dated: _____

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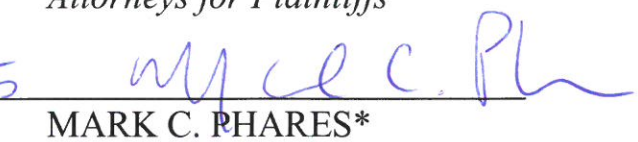
Dated: 10/1/2015 

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# APPENDIX C - DNRC'S ASSESSMENT OF INCIDENTAL TAKE FOR THE ADDED LANDS

DNRC acknowledges that conducting forest management activities on the added lands under the HCP commitments has potential to impact habitat, and that some impacts may have adverse effects on habitat or individual listed species. The level of impacts or adverse effects that modify or degrade habitat to the point of killing or injuring an individual by disrupting normal behavioral patterns, such as breeding, feeding, or sheltering, are difficult to identify and quantify. Rather than try to declare which impacts definitively constitute take, DNRC's approach to amending its Permit is to identify the impacts that have the potential to constitute take on the added lands. As described in the sections below addressing aquatic species, grizzly bear, and lynx, the methods and metrics for identifying impacts that have the potential to constitute take are specific to this amended HCP and the associated amended Permit and are intended only to apply to the added lands managed under this HCP and Permit.

This assessment of impacts that could constitute take recognizes that evaluating take is an imperfect and imprecise process, potentially influenced by an infinite number of physical and temporal variables.

## Aquatic Species Analysis of Take

### *Impacts that have the Potential to Constitute Take*

#### ***Sediment Production and Delivery***

DNRC has determined that sediment potentially produced at Class 1 road-stream crossings and sediment potentially delivered to a Class 1 stream from roads located within 300 feet of the stream are impacts that have the potential to constitute take of HCP fish species. As described in the Supplemental EIS for this amended HCP (Section 3.9.1 HCP-Covered Fish and Fish Habitat), increased levels of sediment can have adverse effects on fish habitats. Fine sediment deposited in spawning gravels can reduce survival of eggs and developing fry of HCP fish species. Additionally, important habitat factors for rearing fish, such as interstitial spaces in the substrate and deep pools, may be reduced or lost, thus reducing food availability and cover.

Increased levels of sediment delivery could occur during and immediately following new road construction activities, from livestock grazing on the stream miles supporting HCP-covered fish, and installation of new stream crossing structures. These same impacts could also occur during the implementation of corrective actions, including the installation of BMP upgrades to existing roads, replacement or removal of existing stream crossing structures, rehabilitation of existing stream crossing sites, and reclamation of existing or previously abandoned roads. The levels of sediment delivery expected would be minor and of short duration. Therefore, the potential impacts to covered species habitat would be localized, short-term, and at low risk levels.

### ***Habitat Connectivity***

DNRC has determined that inadequate design and improperly installed stream crossing structures could diminish connectivity to the extent that the impact could potentially constitute take of HCP fish species. Improperly installing a new stream crossing structure, improperly replacing an existing stream crossing structure, or improperly rehabilitating a site where an existing structure is being removed could diminish connectivity to the extent that the impact could potentially constitute take of HCP fish species.

The HCP fish species use different habitat characteristics for spawning, juvenile rearing, and adult rearing. Sometimes these habitat requirements necessitate the movement of fish between lake and riverine environments. The blockage of fish from any of these habitats could lead to unsuccessful spawning, increased predation, or reduced growth or survival rates. In turn, local populations could be diminished if adequate spawning and rearing areas are inaccessible. The primary activity affecting connectivity is related to the installation, maintenance, and removal of stream crossing culverts. Improperly designed or installed culverts are typically the most universal threat to connectivity. The potential effect of fish passage barriers, mainly culverts, is impaired access of HCP fish species to spawning, feeding, and cover areas, which could constitute take.

Take on the 2010 HCP-covered lands related to installation of 32 of the 417 new culverts to be installed over the permit term for 1 year after installation of each culvert and installation of 18 culverts on 81,416 acres of newly added lands under the Amended HCP.

On the 2010 HCP-covered lands would also potentially occur due to impeded fish passage from the 106 fish passage culvert barriers inventoried and identified in the DNRC Fish Passage Assessment Project for westslope cutthroat and Columbia redband trout until year 30 (2041) and 15 fish passage culvert barriers for westslope cutthroat trout on the newly added lands until 2047 of the Permit term.

## DNRC's Summary of Take

The following statements capture DNRC's assessment of incidental take for the aquatic species.

1) Sediment delivery from road segments located within 300 feet of a bull trout stream as shown in Table C-1.
2) Sediment delivery from livestock grazing on the stream miles supporting bull trout as shown in Table C-2.
3) Installation of 32 of new culverts on bull trout streams to be installed over the permit term for 1 year after installation of each culvert.
4) Installation of 18 culverts on bull trout and weststlope cutthroat trout streams to be installed on the newly added lands over the permit term for 1 year after installation of each culvert.

If westslope cutthroat or Columbia redband trout were to be listed, DNRC's assessment of incidental take is:

1) Sediment delivery for the number of miles of stream habitat with road segments located within 300 feet of a stream in each AAU indicated for the westslope cutthroat and Columbia redband trout in Table C-1.
2) Sediment delivery from livestock grazing on the number of miles of stream habitat in each AAU indicated for the westslope cutthroat and Columbia redband trout in Table C-2.
3) Impeded fish passage from the 106 fish passage culvert barriers inventoried and identified in the DNRC Fish Passage Assessment Project for westslope cutthroat trout until year 30 (2041) of the Permit term.
4) Impeded fish passage from the 15 fish passage culvert barriers for westslope cutthroat trout on the newly added lands until 2047.
5) Installation of the same 32 new culverts for which bull trout take is authorized above for 1 years after installation of each culvert.
6) Installation of the same 18 culverts on the 81,416 acres of newly added under the Amended HCP.

**Table C-1. Extent of HCP Fish Species Habitat Affected by Stream Miles within 300 feet of a Forest Road within the HCP Project Area**

| Bull Trout Core Area/Aquatic Analysis Unit | Existing Stream Miles within 300' of Existing Road within the HCP Project Area | | | Bull Trout Stream Miles within 300' of Existing and New Roads | | | WCT Stream Miles within 300' of Existing and New Roads | | | RBT Stream Miles within 300' of Existing and New Roads | | | All HCP Fish Stream Miles within 300' of Existing and New Roads | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total |
| **Bitterroot** | 76.9 | 1.5 | 78.4 | 21.1 | 0 | 21.1 | 25.7 | 0.9 | 26.6 | 0 | 0 | 0 | 25.7 | 0.9 | 26.6 |
| **Blackfoot** | 100.5 | 106.8 | 207.3 | 15.7 | 5.2 | 20.9 | 33.4 | 30.7 | 64.1 | 0 | 0 | 0 | 33.4 | 35.9 | 69.3 |
| **Flathead Lake** | 19.1 | 0 | 19.1 | 0.1 | 0 | 0.1 | 4.6 | 0 | 4.6 | 0 | 0 | 0 | 4.6 | 0 | 4.6 |
| **Lower Clark Fork** | 1.7 | 0 | 1.7 | 0.4 | 0 | 0.4 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0.4 |
| **Lower Kootenai** | 20 | 0 | 20 | 0.7 | 0 | 0.7 | 0.7 | 0 | 0.7 | 0.7 | 0 | 0.7 | 0.7 | 0 | 0.7 |
| **Middle Clark Fork** | 136.3 | 11.5 | 147.8 | 52.8 | 0.6 | 53.4 | 69.9 | 2.1 | 72.0 | 0 | 0 | 0 | 69.9 | 2.7 | 72.6 |
| **Middle Kootenai** | 47.6 | 0 | 47.6 | 12.7 | 0 | 12.7 | 16.7 | 0 | 16.7 | 13.1 | 0 | 13.1 | 16.7 | 0 | 16.7 |
| **North Fork Flathead** | 13.1 | 0 | 13.1 | 7.9 | 0 | 7.9 | 9.9 | 0 | 9.9 | 0 | 0 | 0 | 9.9 | 0 | 9.9 |
| **Rock Creek** | 3.4 | 0 | 3.4 | 0.1 | 0 | 0.1 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0.4 | 0 | 0.4 |
| **Stillwater** | 90.7 | 0 | 90.7 | 51.5 | 0 | 51.5 | 47.9 | 0 | 47.9 | 0 | 0 | 0 | 52.3 | 0 | 52.3 |
| **Swan** | 54.7 | 32.7 | 87.4 | 28.7 | 4.6 | 33.3 | 32.5 | 6.3 | 38.8 | 0 | 0 | 0 | 32.5 | 10.9 | 43.4 |
| **Upper Clark Fork** | 54.3 | 10.9 | 65.2 | 11.6 | 0 | 11.6 | 20.7 | 2.8 | 23.5 | 0 | 0 | 0 | 20.7 | 2.8 | 23.5 |
| **Upper Kootenai** | 25.1 | 0 | 25.1 | 3.9 | 0 | 3.9 | 5.5 | 0 | 5.5 | 0 | 0 | 0 | 5.5 | 0 | 5.5 |
| **Upper Missouri** | 75.0 | 0 | 75 | 0 | 0 | 0 | 7.8 | 0 | 7.8 | 0 | 0 | 0 | 7.8 | 0 | 7.8 |
| **Total** | **718.4** | **163.4** | **881.8** | **207.2** | **10.4** | **217.6** | **276.1** | **42.8** | **318.9** | **13.8** | **0** | **13.8** | **280.5** | **53.2** | **333.7** |

**Table C-2. Extent of Habitat Affected by Stream Miles by HCP Fish Species on Grazing Licensed Parcels within the HCP Project Area.**

| Bull Trout Core Area/Aquatic Analysis Unit | Total Stream Miles on Grazing Licensed Parcels | | | Bull Trout Habitat on Grazing License Parcels | | | WCT Habitat on Grazing Licensed Parcels | | | RBT Habitat on Grazing License Parcels | | | Total HCP Fish Habitat on Grazing Licensed Parcels | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total | 2010 HCP | Added Lands | New Total |
| **Bitterroot** | 85.7 | 0 | 85.7 | 15.5 | 0 | 15.5 | 19.5 | 0 | 19.5 | 0 | 0 | 0 | 19.5 | 0 | 19.5 |
| **Blackfoot** | 102.1 | 93 | 195.1 | 14.6 | 1.3 | 15.9 | 25.5 | 20.6 | 46.1 | 0 | 0 | 0 | 25.5 | 21.9 | 47.4 |
| **Flathead Lake** | 9.9 | 0 | 9.9 | 0 | 0 | 0 | 1.4 | 0 | 1.4 | 0 | 0 | 0 | 1.4 | 0 | 1.4 |
| **Lower Clark Fork** | 4.1 | 0 | 4.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lower Kootenai** | 0.5 | 0 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0 | 0.5 |
| **Middle Clark Fork** | 145.2 | 4.3 | 149.5 | 30.5 | 0.2 | 30.7 | 45.1 | 0.2 | 45.3 | 0 | 0 | 0 | 45.1 | 0.4 | 45.5 |
| **Middle Kootenai** | 25.2 | 0 | 25.2 | 2.5 | 0 | 2.5 | 4.9 | 0 | 4.9 | 3.4 | 0 | 3.4 | 4.9 | 0 | 4.9 |
| **North Fork Flathead** | 7 | 0 | 7 | 5.2 | 0 | 5.2 | 5.2 | 0 | 5.2 | 0 | 0 | 0 | 5.2 | 0 | 5.2 |
| **Rock Creek** | 8.4 | 0 | 8.4 | 0.8 | 0 | 0.8 | 1.1 | 0 | 1.1 | 0 | 0 | 0 | 1.9 | 0 | 1.9 |
| **Stillwater** | 6.4 | 0 | 6.4 | 3 | 0 | 3 | 2.5 | 0 | 2.5 | 0 | 0 | 0 | 3.0 | 0 | 3.0 |
| **Swan** | 2.5 | 0 | 2.5 | 1.5 | 0 | 1.5 | 2 | 0 | 2 | 0 | 0 | 0 | 2.0 | 0 | 2.0 |
| **Upper Clark Fork** | 46.2 | 10.6 | 56.8 | 5.0 | 0 | 5 | 7.9 | 1.2 | 9.1 | 0 | 0 | 0 | 7.9 | 1.2 | 9.1 |
| **Upper Kootenai** | 13 | 0 | 13 | 2.5 | 0 | 2.5 | 5 | 0 | 5 | 0 | 0 | 0 | 5.0 | 0 | 5.0 |
| **Upper Missouri** | 45.9 | 0 | 45.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **502.1** | **107.9** | **610** | **81.6** | **1.5** | **83.1** | **120.6** | **22.0** | **142.6** | **3.9** | **0** | **3.9** | **121.9** | **23.5** | **145.4** |

| Table C-3. DNRC Fish Passage Inventory Results by Aquatic Analysis Unit for the Amended HCP Project Area | | | | | | |
|---|---|---|---|---|---|---|
| | Number of Culvert Barriers (Priority 2,3, & 4) | | | Stream Miles Upstream of Barriers | | |
| | Original HCP | Added Lands | New Total | Original HCP | Added Lands | New Total |
| **Bitterroot** | 3 | 0 | 3 | 3.2 | 0 | 3.2 |
| **Blackfoot** | 10 | 10 | 20 | 20.3 | 12.6 | 32.9 |
| **Flathead Lake** | 2 | 0 | 2 | 2.1 | 0 | 2.1 |
| **Lower Clark Fork** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lower Kootenai** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Middle Clark Fork** | 15 | 0 | 15 | 45.2 | 0 | 45.2 |
| **Middle Kootenai** | 3 | 0 | 3 | 5.8 | 0 | 5.8 |
| **North Fork Flathead** | 8 | 0 | 8 | 8.5 | 0 | 8.5 |
| **Rock Creek** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Stillwater** | 49 | 0 | 49 | 41.3 | 0 | 41.3 |
| **Swan** | 8 | 4 | 12 | 7.3 | 2.3 | 9.6 |
| **Upper Clark Fork** | 3 | 1 | 4 | 6.1 | 4.6 | 10.7 |
| **Upper Kootenai** | 3 | 0 | 3 | 6.2 | 0 | 6.2 |
| **Upper Missouri** | 2 | 0 | 2 | 3.9 | 0 | 3.9 |
| **Total** | **106** | **15** | **121** | **149.9** | **19.5** | **169.4** |

## *Impacts that Do Not Have the Potential to Constitute Take*

As discussed in the 2010 HCP (DNRC 2010a, pp. 7-6 through 7-9), DNRC does not anticipate adverse effects that would rise to the level of take for the added lands related to stream temperatures, habitat complexity, or cumulative watershed effects.

## Canada Lynx Analysis of Take

### *Impacts that have the Potential to Constitute Take*

Adverse effects on lynx that have the potential to constitute take include reduction in acreage of foraging habitats from pre-commercial thinning and commercial harvest in winter habitat.

#### ***Summer Foraging Habitat***

As discussed in Chapter 3, Section 3.1.3 Added Lands and 3.3.2 Forest Vegetation of the Supplemental DEIS, DNRC expects to conduct pre-commercial thinning on some portion of the added lands over the course of the Permit term. However, even with the addition of lands, DNRC does not expect to treat more than 6,000 acres over any 5-year period across the entire HCP project area.

Summer foraging habitat for snowshoe hares is not limiting in the HCP project area. However, pre-commercial thinning by DNRC would affect regenerating stands with high stem densities and horizontal structure extending above snowpack during the winter, which provide winter snowshoe hare habitat. Lynx typically do not successfully forage in these areas given the high stem densities, but these areas are important for their contribution to overall snowshoe hare productivity on the landscape. Thus, thinning these stands may have adverse effects on lynx by reducing the availability of snowshoe hares on the landscape at the time of treatment. Thinning younger stands could reduce the amount of dense stands that will grow to supply winter forage and cover in the future.

The potential for adverse effects on lynx from pre-commercial thinning would be low due to DNRC's operational constraints that limit the acres that can reasonably be thinned on an annual basis and the HCP commitments that: 1) retain 20 percent of thinning units in LMAs in an unthinned condition (LY-LM3; LY-HB4[1]), 2) retain a component of shade tolerant tree species important for developing horizontal cover in regenerating stands (LY-HB4), 3) accelerate development of multi-storied stands in LMAs (LY-LM3[2]), 4) limit the overall conversion of lynx habitat (LY-LM2), and 5) retain 65 percent of suitable habitat on an LMA (LY-LM1) and on scattered parcels by Land Office (LY-HB6).

The 2010 HCP estimated that DNRC would treat an average of 6,000 acres over any 5-year period and that the acres treated annually would likely be replaced by habitat growing into summer foraging habitat across the HCP project area annually (USFWS 2011, p. 62). The assessment of acres treated remains the same even with the added lands. Nevertheless, depending upon site-specific conditions (e.g., where snowshoe hare habitat is lacking or densities are low), pre-commercial thinning could reduce dense young stands that protrude above the snowpack and provide winter habitat for snowshoe hares, or reduce the amount of stands growing into winter snowshoe hare habitat resulting in adverse effects on lynx.

### ***Winter Foraging Habitat***

Winter foraging habitat is the primary limiting factor for lynx. Under the Amended HCP, the current abundance of winter foraging habitat in the Swan and Garnet LMAs could potentially be reduced over the remainder of the HCP term (40 percent reduction for the Swan LMA and a 16 percent reduction for the Garnet LMA). Individual projects that treat substantial amounts of multistoried winter foraging habitat in LMAs and/or the cumulative reduction in winter foraging habitat over the Permit term may result in adverse effects on lynx accustomed to the abundance of winter foraging habitat in the area. The likelihood of adverse effects and the number of individuals affected is limited because the acres treated will be tracked and monitored for the Permit duration and if DNRC reaches the 20 percent threshold for winter foraging habitat in LMAs it would seek non-lynx habitat stands for harvest. The reduction of foraging habitat would not occur all at once due to operational constraints as well as the HCP commitments that: 1) limit the overall conversion of lynx habitat in each decade (LY-LM2), 2) retain 65 percent of total potential habitat as suitable habitat on an LMA (LY-LM1), and 3) maintain 20 percent of total potential habitat as winter foraging habitat in an LMA (LY-LM3).

These adverse effects would be temporary, but may affect lynx productivity or kitten survival. To be clear, DNRC does not suggest that all reduction of foraging habitat would have an adverse effect on lynx resulting in take. However, DNRC recognizes that the USFWS considers any reduction in foraging habit as an impact that could constitute take.

## DNRC's *Summary of Take*

The following statements capture DNRC's assessment of incidental take for Canada lynx. These statements vary from those presented in the USFWS Permit issued in 2012, but reflect the parameters DNRC agreed to implement and report on throughout the life of the Permit term as reflected in Chapters 2 and 3 of the 2010 HCP.

1. LY-HB6 -- Take would be exceeded if the percentage of suitable habitat of Total Potential Habitat at the land office scale drops below 65 percent for any individual land office due to forest management activities as determined through 5-year reporting requirements.

2. LY-LM1 -- Take would be exceeded if the percentage of suitable habitat of Total Potential Habitat at the LMA scale drops below 65 percent for any individual LMA due to forest management activities as determined through 5-year reporting requirements.

3. LY-LM2 -- Take would be exceeded if the percentage of Total Potential Habitat converted to non-suitable condition within any LMA exceeds 15 percent due to forest management activities within each decade of the 5-decade Permit term as determined through 5-year reporting requirements.

4. LY-LM3(1) -- Take would be exceeded if the percentage of Winter Foraging Habitat of Total Potential Habitat drops below 20 percent due to forest management activities for any individual LMA as determined through 5-year reporting requirements.

5. Take would be exceeded if timber harvest would exceed 2,320 acres of green harvest within LMAs following a changed circumstance as identified in the 2010 HCP (Chapter 6).

6. In acknowledgement of the transition lands strategy, additional lands may be added to the HCP project area years. Take would continue to be limited as described in statements 1 through 6 above. However, as the Total Potential Habitat acreages change, the acreage comprising 65 percent suitable habitat, 15 percent nonsuitable habitat, and 20 percent winter foraging habitat would also change. Values would continue to be measured and reported to the USFWS through 5-year reporting requirements

## *Impacts that Do Not Have the Potential to Constitute Take*

As discussed in the 2010 HCP (DNRC 2010a, pp. 7-32 through 7-34), DNRC does not anticipate adverse effects that would rise to the level of take for the added lands related to amount of suitable habitat, disturbance at den sites, den site attributes, and habitat linkage.

## Grizzly Bear Analysis of Take

### *Impacts that have the Potential to Constitute Take*

DNRC activities that adversely affect grizzly bears and have the potential to constitute incidental take include (1) disturbance or displacement of grizzly bears attributable to roads and human activity, and (2) potential lethal control of grizzly bears from bear-human or bear-livestock conflicts.

#### ***Habitat Degradation Due to High Road Densities***

Impacts that could constitute take are most likely to occur in the form of harm as a result of disturbance from roads or from alteration of habitat (high road densities) to the extent female bears appreciably under-use important habitat. Relatively high road densities may result in displacement of grizzly bears, particularly female bears from essential habitat (Mace and Manley 1993). Such under-use of habitat for long periods could lead to some level of impairment of normal breeding and feeding behavior in females. Continuous displacement from key habitats across broad scales could result in a bear's failure to obtain adequate food resources. This is particularly important for female bears, due to the potential influence on reduced fitness and either failure to breed or increased risk of cub mortality prior to or after parturition.

The assessment of incidental take is difficult to measure. Therefore, for this analysis DNRC will use open road density (ORD) and total road density (TRD) values on its lands as a surrogate measure of impacts with the potential to constitute incidental take. The moving windows method (USFS 1995a) of density calculation was used for DNRC blocked lands, whereas due to data limitations, simple linear density calculation was used for scattered parcels within grizzly bear recovery zones. For the DNRC blocked lands, DNRC is requesting incidental take coverage for potential impacts that could occur where DNRC owns greater than 10 percent of the total lands in the subunit and where the ORD of 1 mile per square mile would be exceeded over the Permit term (Table C-4): 45,560 acres in the Stillwater Block and 18,253 acres in the Swan River State Forest. Incidental take coverage due to open roads in the Swan is reduced due to DNRC's increase ownership and increased control over roads.

| Table C-4. Acres of incidental take from high ORDs on DNRC blocked lands in the NCDE recovery zone. | | | | | |
|---|---|---|---|---|---|
| **BMU and Subunit** | | | **All Ownerships** | **HCP Portion of the Action Area** | |
| | Subunit Acres | Acres (%) of DNRC lands within subunit | % of subunit exceeding 1mi/mi$^2$ ORD | % of lands exceeding 1mi/mi$^2$ ORD | Acres of land exceeding 1mi/mi$^2$ ORD |
| **Stillwater Block** | | | | | |
| ***Stillwater River BMU*** | | | | | |
| Lazy Creek | 34,559 | 14,365 (41.6) | 48 | 72 | 10,371 |
| Stryker | 40,860 | 32,923 (80.6) | 39 | 44 | 14,353 |
| Upper Whitefish | 32,201 | 27,035 (84.0) | 47 | 53 | 14,243 |
| ***Upper N. Fork Flathead BMU*** | | | | | |
| State Coal Cyclone | 31,366 | 13,420 (42.8) | 33 | 49 | 6,593 |
| **Stillwater Block Subtotal Acres of Incidental Take** | | | | | **45,560** |
| **Swan River State Forest** | | | | | |
| ***Bunker Creek BMU*** | | | | | |
| Goat Creek | 27,602 | 13,159 (47.7%) | 23 | 35 | 4,606 |
| Lion Creek | 29,047 | 3,671 (12.6%) | 18 | 28 | 1,028 |
| South Fork Lost Soup | 29,883 | 18,296 (61.2%) | 25 | 29 | 5,306 |
| ***Mission Range BMU*** | | | | | |
| Porcupine Woodward | 37,666 | 20,316 (53.9%) | 27 | 36 | 7,314 |
| **Swan River State Forest Subtotal Acres of Incidental Take** | | | | | **18,253** |

DNRC is also requesting incidental take coverage for potential impacts that could occur where DNRC owns greater than 10 percent of the total lands in the subunit and where the TRD of 2 miles per square mile would be exceeded over the Permit term: 50,833 acres in the Stillwater Block and 55,442 acres in the Swan River State Forest (Table C-5).

| Table C-5. Acres of incidental take from high TRDs on DNRC blocked lands in the NCDE recovery zone. | | | | | |
|---|---|---|---|---|---|
| **BMU and Subunit** | | | **All Ownerships** | **Year 50 - HCP Portion of the Action Area** | |
| | Subunit Acres | Acres (%) of DNRC lands within subunit | % of subunit exceeding 2mi/mi$^2$ TRMD | % of lands exceeding 1mi/mi$^2$ TRD | Acres of land exceeding 1mi/mi$^2$ TRD |
| **Stillwater Block** | | | | | |
| ***Stillwater River BMU*** | | | | | |
| Lazy Creek | 34,559 | 14,365 (41.6) | 83 | 80 | 11,432 |
| Stryker | 40,860 | 32,923 (80.6) | 34 | 42 | 13,866 |
| Upper Whitefish | 32,201 | 27,035 (84.0) | 59 | 67 | 18,124 |
| ***Upper N. Fork Flathead BMU*** | | | | | |
| State Coal Cyclone | 31,366 | 13,420 (42.8) | 25 | 55 | 7,411 |
| **Stillwater Block Subtotal Acres of Incidental Take** | | | | | **50,833** |
| **Swan River State Forest** | | | | | |
| ***Bunker Creek BMU*** | | | | | |
| Goat Creek | 27,602 | 13,159 (47.7%) | 59 | 93 | 13,159 |
| Lion Creek | 29,047 | 3,671 (12.6%) | 47 | 95 | 3,671 |
| South Fork Lost Soup | 29,883 | 18,296 (61.2%) | 47 | 62 | 18,296 |
| ***Mission Range BMU*** | | | | | |
| Porcupine Woodward | 37,666 | 20,316 (53.9%) | 73 | 91 | 20,316 |
| **Swan River State Forest Subtotal Acres of Incidental Take** | | | | | **55,442** |

## DNRC's Assessment of Take

The following statements capture DNRC's assessment of incidental take for grizzly bears.

1. Direct mortality of four bears from management removal as a result of habituation and food conditioning in the Northern Continental Divide Ecosystem (NCDE) and all other remaining HCP project area lands, excluding the Cabinet Yaak Ecosystem (CYE).

2. 63,813 acres of lands with Open Road Density (ORD) exceeding 1 mi/mi$^2$ in the Stillwater, Coal and Swan River State Forests.

3. 106,275 acres of lands with Total Road Density (TRD) exceeding 2 mi/mi$^2$ on the Stillwater, Coal and Swan River State Forests.

4. Take would be exceeded if the miles of open road on scattered parcels in each DNRC administrative unit increased beyond the values in Table C-6 below due to forest management activities.

5. 457,479 acres of the HCP scattered parcels outside of recovery zones on NROH and other non-recovery-zone scattered parcels over the Permit term.

6. Added acres with ORD exceeding 1 mi/mi$^2$ and linear TRD exceeding 2 mi/mi$^2$ anywhere in the HCP project area (excluding the CYE) to allow for the future addition of lands under the Transition Lands Strategy.

| **Table C-6. Baseline miles of open road on DNRC administrative units in recovery zones in the HCP project area not to be exceeded due to forest management activities under the terms of the HCP.** | |
|---|---|
| **Applicable Recovery Zone and Associated DNRC Administrative Unit** | **Open Road (miles)** |
| NCDE RECOVERY ZONE | |
| Kalispell Unit | 17.8 |
| Swan Unit | N/A |
| Plains Unit | N/A |
| Stillwater Unit | 1.8 |
| Anaconda Unit | N/A |
| Clearwater Unit | 16.8 |
| Missoula Unit | 4.1 |
| Conrad Unit | N/A |
| Helena Unit | 0.2 |
| Total | **40.7** |

## Impacts that Do Not Have the Potential to Constitute Take

As discussed in the 2010 HCP (DNRC 2010a, pp. 7-22 through 7-28), DNRC does not anticipate adverse effects that would rise to the level of take for the added lands related to helicopter use, disturbance or displacement in spring habitat and post-denning/denning habitat, secure habitat/quiet areas, hiding cover, habitat elements, and habitat linkages.

# Appendix D. DNRC Funding for the Amended HCP

One of the criteria for Permit issuance is ensuring that adequate funding is available for the HCP and all its components. This section provides a summary of the estimated costs and DNRC's commitment to funding the Amended HCP.

## Estimated Costs of the HCP

When the 2010 HCP was implemented, DNRC received increased spending authority and this additional budget is still intact. In addition, to support the 2010 HCP, DNRC requested and received $150,000 additional spending authority per year from the Forest Improvement Funds collected from timber sales. This funding was requested to finance the restoration, road maintenance and timber stand improvement activities needed on recently industrial timber lands. These funds will continue to be used in the future to address high priority sediment and fish passage corrective actions, road closure repairs and other HCP commitments.

DNRC estimates that the added lands can largely be managed under the HCP at a cost similar to that estimated for the 2010 HCP. This is the case for several reasons: 1) staff training has already occurred (most staff will not need additional training), 2) the tracking, reporting and monitoring requirements are largely the same and these systems are already implemented under the 2010 HCP, and 3) the added lands will improve efficiency because the Swan River State Forest is now one large block of land rather than a checkerboard pattern of ownership and the other added lands are adjacent to existing DNRC ownerships, which also facilitates management.

## DNRC's Budgeting and Funding Cycle

DNRC budget, funding sources, and funding cycle is described in detail in the 2010 HCP (DNRC 2010 a, p. 8-2). The DNRC budget and funding cycle described in the 2010 HCP has not changed.

## How DNRC Will Fund the HCP

How DNRC will fund the HCP is described in detail in the 2010 HCP (DNRC 2010 a, p. 8-2 and 8-3). The funding proposal described in the 2010 HCP would not change for the Amended HCP.

# Attachment E. Summary of Road Conditions on the Added Lands

| Swan Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Legal Description** | **Acres** | **Class I Stream (mi)** | **Aquatic HCP Fish Species Present** | **Total Road (mi)** | **Road Density (mi/mi$^2$)** | **General Road Condition** | **NROH** | **GBRZ** | **LMA** |
| 23N 17W S11 | 640 | 1.05 | Yes | 5.47 | 5.5 | Good | No | Yes | No |
| 23N 17W S13 | 638 | 0.00 | No | 5.32 | 5.3 | Good | No | Yes | No |
| 23N 17W S14 | 640 | 0.00 | No | 9.66 | 9.7 | Good | No | Yes | No |
| 23N 17W S15 | 641 | 0.00 | No | 9.26 | 9.2 | Good | No | Yes | No |
| 23N 17W S23 | 639 | 0.00 | No | 16.70 | 16.7 | Good | No | Yes | No |
| 23N 17W S24 | 319 | 0.00 | No | 4.90 | 9.8 | Good | No | Yes | No |
| 23N 17W S25 | 639 | 0.93 | Yes | 5.24 | 5.2 | Good | No | Yes | No |
| 23N 17W S27 | 640 | 1.24 | Yes | 6.79 | 6.8 | Good | No | Yes | Yes |
| 23N 17W S3 | 401 | 0.00 | No | 5.48 | 8.7 | Good | No | Yes | Yes |
| 23N 17W S35 | 639 | 0.05 | Yes | 8.24 | 8.3 | Good | No | Yes | Yes |
| 23N 17W S5 | 642 | 0.35 | Yes | 10.16 | 10.1 | Good | No | Yes | Yes |
| 23N 17W S7 | 618 | 1.06 | Yes | 4.70 | 4.9 | Good | No | Yes | Yes |
| 23N 17W S9 | 639 | 0.35 | Yes | 8.62 | 8.6 | Good | No | Yes | Yes |
| 23N 18W S1 | 638 | 2.92 | Yes | 2.93 | 2.9 | Good | No | Yes | Yes |
| 23N 18W S11 | 637 | 1.55 | Yes | 6.35 | 6.4 | Good | No | Yes | Yes |
| 23N 18W S15 | 637 | 0.00 | No | 10.70 | 10.8 | Good | No | Yes | Yes |
| 23N 18W S17 | 321 | 0.00 | No | 4.12 | 8.2 | Good | No | Yes | No |
| 23N 18W S21 | 641 | 0.00 | No | 7.94 | 7.9 | Good | No | Yes | No |
| 23N 18W S25 | 639 | 1.54 | Yes | 9.50 | 9.5 | Good | No | Yes | Yes |
| 23N 18W S27 | 639 | 1.00 | Yes | 9.33 | 9.4 | Good | No | Yes | No |
| 23N 18W S29 | 642 | 2.11 | Yes | 7.27 | 7.3 | Good | No | Yes | Yes |
| 23N 18W S3 | 641 | 0.00 | No | 12.30 | 12.3 | Good | No | Yes | No |
| 23N 18W S33 | 638 | 0.00 | No | 7.69 | 7.7 | Good | No | Yes | No |
| 23N 18W S35 | 640 | 0.46 | Yes | 9.12 | 9.1 | Good | No | Yes | No |
| 23N 18W S9 | 318 | 0.00 | No | 6.27 | 12.6 | Good | No | Yes | No |
| 24N 18W S23 | 80 | 0.00 | No | 1.33 | 10.7 | Good | No | Yes | Yes |
| 24N 18W S25 | 322 | 1.36 | Yes | 2.02 | 4.0 | Good | No | Yes | Yes |
| 24N 18W S27 | 640 | 0.00 | No | 11.01 | 11.0 | Good | No | Yes | Yes |
| 24N 18W S35 | 638 | 0.99 | Yes | 10.84 | 10.9 | Fair | No | Yes | Yes |
| **Summary** | **16,446** | **16.96** | **100%** | **219.3** | **8.6** | **Good** | **No** | **Yes** | **Yes** |

| Lolo Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Legal Description** | **Acres** | **Class I Stream (mi)** | **Aquatic HCP Fish Species Present** | **Total Road (mi)** | **Road Density (mi/mi$^2$)** | **General Road Condition** | **NROH** | **GBRZ** | **LMA** |
| 12N 18W S18 | 326 | 0 | No | 4.98 | 9.8 | Excellent | No | No | No |
| 15N 25W S02 | 160 | 0 | No | 0.11 | 0.5 | Excellent | No | No | No |
| 15N 25W S03 | 320 | 0.34 | Yes | 4.19 | 8.4 | Excellent | No | No | No |
| 15N 25W S04 | 120 | 0 | No | 1.10 | 5.9 | Excellent | No | No | No |
| 15N 25W S10 | 641 | 0 | No | 5.35 | 5.3 | Excellent | No | No | No |
| 15N 25W S11 | 322 | 0 | No | 3.07 | 6.1 | Excellent | No | No | No |
| 15N 25W S35 | 643 | 0 | No | 2.89 | 2.9 | Excellent | No | No | No |
| 16N 25W S20 | 40 | 0 | No | 0.00 | 0.0 | Excellent | No | No | No |
| 16N 25W S33 | 40 | 0 | No | 0.16 | 2.5 | Excellent | No | No | No |
| 17N 15W S17 | 3 | 0 | No | 0.00 | 0.0 | Excellent | No | No | No |
| 17N 26W S09 | 239 | 0.68 | Yes | 2.19 | 5.9 | Excellent | No | No | No |
| 17N 26W S10 | 280 | 0.12 | Yes | 2.52 | 5.8 | Excellent | No | No | No |
| 17N 26W S11 | 319 | 0 | No | 2.53 | 5.1 | Poor | No | No | No |
| 17N 26W S14 | 116 | 0 | No | 1.11 | 6.1 | Excellent | No | No | No |
| 17N 26W S15 | 476 | 0 | No | 1.17 | 1.6 | Excellent | No | No | No |
| 17N 27W S05 | 203 | 0 | No | 1.89 | 6.0 | Excellent | No | No | No |
| 17N 27W S09 | 651 | 0 | No | 4.12 | 4.1 | Excellent | No | No | No |
| 17N 27W S10 | 328 | 0 | No | 1.12 | 2.2 | Excellent | No | No | No |
| 18N 27W S21 | 638 | 0 | No | 2.84 | 2.8 | Poor | No | No | No |
| 18N 27W S22 | 161 | 0 | No | 0.00 | 0.0 | Excellent | No | No | No |
| 18N 27W S27 | 322 | 0 | No | 2.09 | 4.2 | Good | No | No | No |
| 18N 27W S28 | 320 | 0 | No | 1.16 | 2.3 | Good | No | No | No |
| 18N 27W S29 | 609 | 0 | No | 0.04 | 0.0 | Excellent | No | No | No |
| 18N 27W S33 | 325 | 0 | No | 2.01 | 4.0 | Good | No | No | No |
| 18N 27W S34 | 426 | 0 | No | 2.75 | 4.1 | Excellent | No | No | No |
| 18N 27W S35 | 641 | 0 | No | 4.17 | 4.2 | Excellent | No | No | No |
| 19N 29W S19 | 198 | 0 | No | 0.12 | 0.4 | Excellent | No | No | No |
| 19N 29W S31 | 37 | 0 | No | 0.36 | 6.2 | Excellent | No | No | No |
| 19N 30W S15 | 120 | 0.33 | Yes | 0.23 | 1.2 | Excellent | No | No | No |
| 19N 30W S16 | 160 | 0 | No | 1.52 | 6.1 | Excellent | No | No | No |
| 19N 30W S17 | 40 | 0.36 | Yes | 0.34 | 5.4 | Excellent | No | No | No |
| 19N 30W S35 | 323 | 1.08 | Yes | 0.00 | 0.0 | Excellent | No | No | No |
| 22N 27W S10 | 160 | 0.05 | No | 1.71 | 6.8 | Excellent | No | Yes | No |
| 23N 27W S32 | 80 | 0.43 | Yes | 0.66 | 5.3 | Excellent | No | Yes | No |
| 25N 28W S02 | 640 | 0 | No | 5.46 | 5.5 | Excellent | No | No | No |
| 25N 28W S12 | 638 | 0.56 | Yes | 2.65 | 2.7 | Excellent | No | No | No |
| **Summary** | **11,066** | **3.95** | **22%** | **66.6** | **3.9** | **Excellent** | **0%** | **5%** | **0%** |

| Potomac Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Legal Description | Acres | Class I Stream (mi) | Aquatic HCP Fish Species Present | Total Road (mi) | Road Density (mi/mi²) | General Road Condition | NROH | GBRZ | LMA |
| 12N 15W S01 | 334 | 0.00 | No | 3.76 | 7.2 | Good | No | No | Yes |
| 12N 15W S02 | 579 | 0.25 | Yes | 8.49 | 9.4 | Good | No | No | No |
| 12N 15W S03 | 485 | 0.66 | Yes | 8.17 | 10.8 | Fair | No | No | No |
| 12N 15W S04 | 486 | 0.00 | No | 5.66 | 7.4 | Good | No | No | No |
| 12N 15W S05 | 650 | 1.10 | Yes | 6.29 | 6.2 | Excellent | No | No | No |
| 12N 15W S06 | 719 | 0.00 | No | 10.02 | 8.9 | Good | No | No | No |
| 12N 15W S07 | 692 | 0.16 | Yes | 6.95 | 6.4 | Excellent | No | No | No |
| 12N 15W S08 | 359 | 0.52 | Yes | 3.85 | 6.9 | Excellent | No | No | No |
| 12N 15W S09 | 321 | 0.00 | No | 4.23 | 8.4 | Good | No | No | No |
| 12N 15W S10 | 160 | 0.00 | No | 2.22 | 8.9 | Poor | No | No | No |
| 12N 15W S17 | 566 | 0.64 | No | 7.05 | 8.0 | Excellent | No | No | No |
| 12N 15W S19 | 692 | 0.00 | No | 10.01 | 9.3 | Good | No | No | No |
| 12N 15W S20 | 281 | 0.73 | Yes | 3.86 | 8.8 | Poor | No | No | No |
| 12N 15W S21 | 481 | 1.04 | Yes | 7.42 | 9.9 | Fair | No | No | No |
| 12N 15W S28 | 643 | 0.00 | No | 8.23 | 8.2 | Excellent | No | No | No |
| 12N 15W S29 | 643 | 0.18 | Yes | 8.70 | 8.7 | Fair | No | No | No |
| 12N 16W S01 | 740 | 0.00 | No | 9.38 | 8.1 | Excellent | No | No | No |
| 12N 16W S02 | 754 | 0.00 | No | 7.40 | 6.3 | Excellent | No | No | No |
| 12N 16W S03 | 751 | 1.95 | Yes | 10.95 | 9.3 | Excellent | No | No | No |
| 12N 16W S04 | 713 | 0.37 | Yes | 7.07 | 6.4 | Excellent | No | No | No |
| 12N 16W S05 | 755 | 0.00 | No | 8.67 | 7.3 | Excellent | No | No | No |
| 12N 16W S06 | 304 | 0.00 | No | 2.78 | 5.9 | Excellent | No | No | No |
| 12N 16W S09 | 318 | 0.20 | Yes | 5.49 | 11.0 | Excellent | No | No | No |
| 12N 16W S11 | 560 | 0.27 | Yes | 6.69 | 7.6 | Excellent | No | No | No |
| 12N 16W S12 | 643 | 0.00 | No | 7.60 | 7.6 | Excellent | No | No | No |
| 12N 16W S13 | 638 | 0.00 | Yes | 6.33 | 6.3 | Excellent | No | No | No |
| 12N 16W S14 | 635 | 0.54 | Yes | 10.81 | 10.9 | Excellent | No | No | No |
| 12N 16W S15 | 634 | 0.00 | No | 5.91 | 6.0 | Excellent | No | No | No |
| 12N 16W S22 | 637 | 0.00 | No | 4.53 | 4.6 | Excellent | No | No | No |
| 12N 16W S23 | 635 | 0.00 | No | 3.3 | 3.3 | Excellent | No | No | No |
| 12N 16W S24 | 159 | 0 | No | 0.8 | 3.1 | Excellent | No | No | No |
| Potomac Acquisition Area continued | | | | | | | | | |
| Legal Description | Acres | Class I Stream (mi) | Aquatic HCP Fish | Total Road (mi) | Road Density (mi/mi²) | General Road Condition | NROH | GBRZ | LMA |

| | | | Species Present | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13N 15W S33 | 481 | 0.00 | No | 4.85 | 6.4 | Excellent | No | No | No |
| 13N 16W S06 | 102 | 0.00 | No | 0.44 | 2.7 | Excellent | No | No | No |
| 13N 16W S07 | 479 | 0.77 | Yes | 6.76 | 9.0 | Excellent | No | No | No |
| 13N 16W S19 | 650 | 0.00 | No | 5.21 | 5.1 | Excellent | No | No | No |
| 13N 16W S20 | 283 | 0.71 | Yes | 1.95 | 4.4 | Excellent | No | No | No |
| 13N 16W S28 | 424 | 0.00 | No | 3.79 | 5.7 | Excellent | No | No | No |
| 13N 16W S29 | 602 | 0.10 | Yes | 5.30 | 5.6 | Excellent | No | No | No |
| 13N 16W S30 | 648 | 1.24 | Yes | 7.10 | 7.0 | Excellent | No | No | No |
| 13N 16W S31 | 642 | 0.00 | No | 8.53 | 8.5 | Excellent | No | No | No |
| 13N 16W S32 | 654 | 0.35 | Yes | 7.65 | 7.5 | Excellent | No | No | No |
| 13N 16W S33 | 638 | 1.86 | Yes | 6.02 | 6.0 | Excellent | No | No | No |
| 13N 16W S34 | 389 | 0.25 | Yes | 2.76 | 4.5 | Excellent | No | No | No |
| 13N 17W S01 | 197 | 0.06 | Yes | 2.42 | 7.9 | Excellent | No | No | No |
| 13N 17W S02 | 185 | 0.00 | No | 2.36 | 8.2 | Excellent | No | No | No |
| 13N 17W S09 | 350 | 0.00 | No | 0.49 | 0.9 | Excellent | No | No | No |
| 13N 17W S10 | 317 | 0.00 | No | 0.40 | 0.8 | Excellent | No | No | No |
| 13N 17W S11 | 616 | 0.00 | No | 3.27 | 3.4 | Excellent | No | No | No |
| 13N 17W S12 | 645 | 0.30 | Yes | 7.42 | 7.4 | Excellent | No | No | No |
| 13N 17W S13 | 641 | 0.86 | Yes | 7.67 | 7.7 | Excellent | No | No | No |
| 13N 17W S14 | 640 | 0.00 | No | 4.95 | 5.0 | Excellent | No | No | No |
| 13N 17W S15 | 630 | 0.00 | No | 5.55 | 5.6 | Excellent | No | No | No |
| 13N 17W S17 | 157 | 0.00 | No | 0.00 | 0.0 | Excellent | No | No | No |
| 13N 17W S21 | 640 | 0.00 | No | 7.07 | 7.1 | Excellent | No | No | No |
| 13N 17W S22 | 630 | 0.16 | No | 7.10 | 7.2 | Excellent | No | No | No |
| 13N 17W S23 | 633 | 0.79 | No | 7.23 | 7.3 | Good | No | No | No |
| 13N 17W S24 | 484 | 1.08 | Yes | 7.22 | 9.6 | Excellent | No | No | No |
| 13N 17W S25 | 648 | 0.17 | Yes | 6.60 | 6.5 | Excellent | No | No | No |
| 13N 17W S26 | 619 | 1.17 | Yes | 6.56 | 6.8 | Excellent | No | No | No |
| 13N 17W S27 | 638 | 0.09 | Yes | 8.11 | 8.1 | Excellent | No | No | No |
| 13N 17W S28 | 637 | 0.00 | No | 7.4 | 7.5 | Excellent | No | No | No |
| **Summary** | **32,266** | **18.59** | **100%** | **354.8** | **6.8** | **Good** | **No** | **No** | **No** |

| Blackfoot Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Legal Description | Acres | Class I Stream (mi) | Aquatic HCP Fish Species Present | Total Road (mi) | Road Density (mi/mi²) | General Road Condition | NROH | GBRZ | LMA |
| 14N 9W S03 | 540 | 0.00 | No | 4.41 | 5.2 | Good | No | Yes | No |
| 14N 9W S09 | 498 | 0.32 | Yes | 6.50 | 8.4 | Fair | No | Yes | No |
| 15N 10W S19 | 283 | 0.00 | No | 2.53 | 5.7 | Excellent | Yes | No | No |
| 15N 10W S30 | 624 | 0.00 | No | 4.90 | 5.0 | Excellent | Yes | No | No |
| 15N 10W S31 | 116 | 0.15 | Yes | 0.41 | 2.3 | Excellent | Yes | No | No |
| 15N 11W S25 | 437 | 0.00 | No | 4.34 | 6.4 | Excellent | Yes | No | No |
| 15N 11W S35 | 323 | 0.00 | No | 2.01 | 4.0 | Excellent | Yes | No | No |
| 15N 12W S04 | 633 | 0.76 | Yes | 8.24 | 8.3 | Excellent | Yes | No | No |
| 15N 12W S05 | 157 | 0.29 | Yes | 2.44 | 9.9 | Excellent | Yes | No | No |
| 15N 12W S09 | 637 | 0.00 | No | 6.06 | 6.1 | Good | Yes | No | No |
| 14N 19W S01 | 393 | 0.58 | Yes | 3.06 | 5.0 | Good | No | Yes | No |
| 14N 19W S02 | 118 | 0.06 | Yes | 1.37 | 7.4 | Good | No | Yes | No |
| 14N 11W S36 | 303 | 0.00 | No | 0.47 | 1.0 | Good | Yes | No | No |
| 16N 13W S36 | 396 | 0.36 | Yes | 4.65 | 7.5 | Good | Yes | No | No |
| **Summary** | **5,458** | **2.52** | **50%** | **51.4** | **5.9** | **Good** | **71%** | **29%** | **0%** |

| Bitterroot Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Legal Description | Acres | Class I Stream (mi) | Aquatic HCP Fish Species Present | Total Road (mi) | Road Density (mi/mi²) | General Road Condition | NROH | GBRZ | LMA |
| 02N 19W S13 | 80 | 0.18 | Yes | 0.28 | 2.2 | Excellent | No | No | No |
| 02N 19W S14 | 287 | 0.00 | No | 2.22 | 5.0 | Excellent | No | No | No |
| 03N 19W S25 | 638 | 0.84 | Yes | 5.71 | 5.7 | Excellent | No | No | No |
| 03N 20W S01 | 638 | 1.15 | Yes | 5.71 | 5.7 | Excellent | No | No | No |
| **Summary** | **1,643** | **2.17** | **75%** | **13.9** | **4.7** | **Excellent** | **0%** | **0%** | **0%** |

| Chamberlain Acquisition Area Road Conditions and Species Occurrence by Legal Description | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Legal Description | Acres | Class I Stream (mi) | Aquatic HCP Fish Species Present | Total Road (mi) | Road Density (mi/mi²) | General Road Condition | NROH | GBRZ | LMA |
| 13N 14W S02 | 203 | 0.00 | No | 2.39 | 7.6 | Excellent | Yes | No | Yes |
| 13N 14W S03 | 563 | 0.00 | No | 6.25 | 7.1 | Excellent | Yes | No | Yes |
| 13N 14W S11 | 318 | 0.00 | No | 3.24 | 6.5 | Good | Yes | No | Yes |
| 14N 12W S07 | 127 | 0.00 | No | 0.82 | 4.1 | Excellent | Yes | No | No |
| 14N 12W S17 | 350 | 0.00 | No | 4.17 | 7.6 | Poor | Yes | No | No |
| 14N 12W S18 | 627 | 0.00 | No | 6.35 | 6.5 | Good | Yes | No | No |
| 14N 12W S19 | 629 | 0.23 | Yes | 6.37 | 6.5 | Excellent | Yes | No | No |
| 14N 12W S20 | 637 | 0.00 | No | 7.60 | 7.6 | Good | Yes | No | No |
| 14N 13W S02 | 62 | 0.10 | Yes | 1.02 | 10.5 | Good | Yes | No | No |
| 14N 13W S03 | 175 | 0.35 | Yes | 2.67 | 9.8 | Excellent | Yes | No | No |
| 14N 13W S04 | 566 | 1.07 | Yes | 6.03 | 6.8 | Excellent | Yes | No | No |
| 14N 13W S05 | 506 | 0.00 | No | 3.37 | 4.3 | Excellent | Yes | No | No |
| 14N 13W S06 | 318 | 0.00 | No | 2.78 | 5.6 | Excellent | Yes | No | No |
| 14N 13W S07 | 631 | 0.00 | No | 6.55 | 6.6 | Excellent | Yes | No | No |
| 14N 13W S08 | 646 | 0.16 | Yes | 8.31 | 8.2 | Excellent | Yes | No | No |
| 14N 13W S09 | 645 | 1.69 | Yes | 6.89 | 6.8 | Excellent | Yes | No | No |
| 14N 13W S10 | 647 | 1.23 | Yes | 5.91 | 5.8 | Excellent | Yes | No | No |
| 14N 13W S11 | 625 | 1.09 | Yes | 7.36 | 7.5 | Excellent | Yes | No | No |
| 14N 13W S12 | 343 | 0.00 | No | 2.80 | 5.2 | Excellent | Yes | No | No |
| 14N 13W S13 | 645 | 0.00 | No | 7.78 | 7.7 | Excellent | Yes | No | No |
| 14N 13W S14 | 648 | 1.04 | Yes | 9.18 | 9.1 | Excellent | Yes | No | No |
| 14N 13W S15 | 653 | 1.07 | Yes | 5.39 | 5.3 | Good | Yes | No | No |
| 14N 13W S17 | 645 | 1.09 | Yes | 6.32 | 6.3 | Excellent | Yes | No | No |
| 14N 13W S18 | 615 | 0.52 | Yes | 6.42 | 6.7 | Excellent | Yes | No | No |
| 14N 14W S01 | 337 | 0.00 | No | 2.82 | 5.4 | Excellent | Yes | No | No |
| 14N 14W S12 | 447 | 0.00 | No | 2.67 | 3.8 | Excellent | Yes | No | No |
| 14N 14W S13 | 656 | 1.77 | Yes | 8.04 | 7.8 | Excellent | Yes | No | No |
| 14N 14W S24 | 640 | 1.23 | Yes | 6.33 | 6.3 | Excellent | Yes | No | No |
| 14N 14W S25 | 632 | 0.06 | Yes | 5.30 | 5.4 | Excellent | Yes | No | No |
| **Summary** | **14,537** | **12.69** | **100%** | **151.2** | **6.7** | **Excellent** | **Yes** | **No** | **No** |

# APPENDIX F. 2012 HCP Baseline Data Tables for Grizzly Bears and Lynx

| Table F-1. Linear Miles of Road in Grizzly Bear Recovery Zones by DNRC Land Office and Unit. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2012 HCP BASELINE DATA - DNRC Lands in the HCP Project Area | | | | | | | | | |
| Land Offices and Unit Offices in Recovery Zones (Scattered or Blocked Status | Linear Miles of Road in Recovery Zones | | | | | | Area | | Road Density* (mi/mi$^{2)}$ |
| | Open Roads | Restricted Roads | Seasonally Restricted Roads | Abandoned | Reclaimed | Total* | Total Area (mi$^2$) | Acres | |
| **NWLO** | **187.6** | **479.9** | **12.1** | **19.6** | **8.9** | **679.6** | **227** | **145,262** | **3.0** |
| Kalispell Unit NCDE (Scattered) | 14.6 | 28.2 | 0.0 | 2.6 | 0.0 | 42.8 | 10 | 6,465 | **4.2** |
| Libby Unit CYE (Scattered) | 0.0 | 8.2 | 0.1 | 0.4 | 0.2 | 8.3 | 4 | 2,848 | **1.9** |
| Plains Unit CYE (Scattered) | 6.0 | 8.5 | 0.0 | 0.1 | 0.0 | 14.5 | 5 | 3,308 | **2.8** |
| Stillwater Unit NCDE (Blocked) | 122.0 | 227.4 | 6.7 | 9.1 | 3.8 | 356.1 | 141 | 90,512 | **2.5** |
| Stillwater Unit NCDE (Scattered) | 2.0 | 11.1 | 0.0 | 0.0 | 0.0 | 13.1 | 4 | 2,474 | **3.4** |
| Swan Unit NCDE (Blocked) | 43.0 | 196.5 | 5.4 | 7.4 | 4.9 | 244.9 | 62 | 39,656 | **4.0** |
| | | | | | | | | | |
| **SWLO** | **19.9** | **23.0** | **0.0** | **3.6** | **1.0** | **42.9** | **11** | **7,229** | **3.8** |
| Clearwater Unit NCDE (Scattered) | 15.7 | 21.4 | 0.0 | 3.6 | 1.0 | 37.1 | 7 | 4,779 | 5.0 |
| Missoula Unit NCDE (Scattered) | 4.2 | 1.6 | 0.0 | 0.0 | 0.0 | 5.8 | 4 | 2,450 | 1.5 |
| | | | | | | | | | |
| **CLO** | **0.2** | **0.3** | **0.0** | **0.0** | **0.5** | **0.5** | **1** | **639** | **0.5** |
| Helena Unit NCDE (Scattered) | 0.2 | 0.3 | 0.0 | 0.0 | 0.5 | 0.5 | 1 | 639 | 0.5 |
| ** Does not include Abandoned or Reclaimed Roads* | | | | | | | | | |

| Table F-2. Linear Miles of Road in Non-Recovery Occupied Habitat by DNRC Land Office and Unit. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **2012 HCP BASELINE DATA - DNRC Lands in the HCP Project Area** | | | | | | | | | |
| Land Offices and Unit Offices in Non Recovery Occupied Zone (Scattered or Blocked Status) | **Linear Miles of Road in Non Recovery Occupied Habit** | | | | | | Area | | Road Density* (mi/mi$^{2)}$ |
| | Open Roads | Restricted Roads | Seasonally Restricted Roads | Abandoned | Reclaimed | Total* | Total Area (mi$^2$) | Acres | |
| **NWLO** | **101.2** | **141.2** | **3.0** | **12.3** | **6.9** | **245.3** | **59** | **37,715** | **4.2** |
| Kalispell Unit NCDE (Scattered) | 17.9 | 9.0 | 0.0 | 0.3 | 2.1 | 27.0 | 9 | 5,950 | 2.9 |
| Libby Unit CYE (Scattered) | 23.3 | 49.0 | 1.2 | 0.0 | 0.0 | 73.4 | 15 | 9,856 | 4.8 |
| Libby Unit NCDE (Scattered) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0.0 |
| Plains Unit CYE (Scattered) | 8.7 | 2.6 | 1.8 | 0.0 | 0.0 | 13.1 | 4 | 2,269 | 3.7 |
| Plains Unit NCDE (Scattered) | 3.7 | 9.7 | 0.0 | 1.2 | 0.0 | 13.4 | 4 | 2,813 | 3.0 |
| Stillwater Unit NCDE (Scattered) | 47.6 | 70.9 | 0.0 | 10.8 | 4.9 | 118.4 | 26 | 16,826 | 4.5 |
| | | | | | | | | | |
| **SWLO** | **66.4** | **188.2** | **0.4** | **39.2** | **1.0** | **255.0** | **64** | **41,314** | **4.0** |
| Anaconda Unit NCDE (Scattered) | 6.7 | 14.4 | 0.0 | 0.0 | 0.0 | 21.2 | 9 | 6,011 | 2.3 |
| Clearwater Unit NCDE (Scattered) | 59.6 | 173.8 | 0.4 | 39.2 | 1.0 | 233.8 | 54 | 34,672 | 4.3 |
| Missoula Unit NCDE (Scattered) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 | 631 | 0.0 |
| | | | | | | | | | |
| **CLO** | **10.2** | **68.2** | **0.1** | **7.3** | **1.9** | **78.5** | **53** | **33,717** | **1.5** |
| Bozeman Unit GYE (Scattered) | 5.0 | 6.0 | 0.1 | 0.0 | 0.0 | 11.0 | 13 | 8,129 | 0.9 |
| Dillon Unit GYE (Scattered) | 1.5 | 51.9 | 0.0 | 6.7 | 0.0 | 53.4 | 31 | 19,627 | 1.7 |
| Helena Unit NCDE (Scattered) | 3.8 | 10.3 | 0.0 | 0.6 | 1.9 | 14.1 | 9 | 5,961 | 1.5 |
| ** Does not include Abandoned or Reclaimed Roads* | | | | | | | | | |

| Table F-3. Linear Miles of Road in Non-Grizzly Bear Designated Areas by DNRC Land Office and Unit. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **2012 HCP BASELINE DATA - DNRC Lands in the HCP Project Area** | | | | | | | | | |
| Land Offices and Unit Offices outside Grizzly Bear Zones (Scattered Status) | **Linear Miles of Road in Non Grizzly Bear Designated Areas** | | | | | | Area | | Road Density* (mi/mi$^{2)}$ |
| | Open Roads | Restricted Roads | Seasonally Restricted Roads | Abandoned | Reclaimed | Total* | Total Area (mi$^2$) | Acres | |
| **NWLO** | **279.7** | **284.6** | **2.9** | **15.8** | **11.5** | **567.2** | **136.0** | **87,358** | **4.2** |
| Kalispell Unit | 110.4 | 71.9 | 0.0 | 9.8 | 10.9 | 182.3 | 44.0 | 27,980 | 4.2 |
| Libby Unit | 29.2 | 75.6 | 0.3 | 0.0 | 0.0 | 105.1 | 24.0 | 15,341 | 4.4 |
| Plains Unit | 140.1 | 137.1 | 2.5 | 6.1 | 0.7 | 279.7 | 69.0 | 44,036 | 4.1 |
| | | | | | | | | | |
| **SWLO** | **232.2** | **378.5** | **10.1** | **66.5** | **9.2** | **620.9** | **176.0** | **112,436** | **3.5** |
| Anaconda Unit | 78.2 | 63.4 | 0.0 | 2.0 | 0.8 | 141.6 | 61.0 | 38,760 | 2.3 |
| Clearwater Unit | 29.3 | 31.5 | 0.0 | 1.3 | 0.0 | 70.1 | 12.0 | 7,698 | 5.8 |
| Hamilton Unit | 36.3 | 98.9 | 9.8 | 46.9 | 6.4 | 145.0 | 36.0 | 22,820 | 4.1 |
| Missoula Unit | 88.4 | 175.5 | 0.4 | 16.3 | 2.1 | 264.2 | 67.0 | 43,157 | 3.9 |
| | | | | | | | | | |
| **CLO** | **44.9** | **142.8** | **1.9** | **13.1** | **1.7** | **189.6** | **122.4** | **78,358** | **1.5** |
| Bozeman Unit | 6.0 | 21.0 | 1.6 | 0.8 | 0.0 | 28.5 | 13.0 | 8,363 | 2.2 |
| Dillon Unit | 20.1 | 100.7 | 0.3 | 12.2 | 1.5 | 121.1 | 79.0 | 50,474 | 1.5 |
| Helena Unit | 18.8 | 21.2 | 0.0 | 0.0 | 0.2 | 40.0 | 31.0 | 19,520 | 1.3 |
| ** Does not include Abandoned or Reclaimed Roads* | | | | | | | | | |

| Table F-4. Composition of baseline (April 2012) lynx habitat using HCP lynx habitat definitions, on LMAs in the HCP Project Area. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2012 HCP BASELINE DATA - DNRC LANDS in the HCP Project Area | | | | | | | | | | | | |
| **Habitat Class** | **ACRES AND PERCENTAGE OF LYNX HABITAT BY PROPOSED LMA's (LAND OFFICE)** | | | | | | | | | | | |
| | Stillwater West (NWLO) | | Stillwater East (NWLO) | | Coal Creek (NWLO) | | Swan (NWLO) | | Seeley Lake Area (SWLO) | | Garnet Area (SWLO) | |
| Winter Foraging Habitat | 20,330 | 57% | 24,322 | 71% | 6,410 | 49% | 21,981 | 60% | 1,724 | 38% | 1,079 | 30% |
| Summer Foraging Habitat | 6,478 | 18% | 2,608 | 8% | 1,934 | 15% | 4,930 | 14% | 265 | 6% | 255 | 7% |
| Other Suitable Habitat | 4,066 | 11% | 2,627 | 8% | 862 | 7% | 3,441 | 9% | 688 | 15% | 1,847 | 51% |
| Suitable Habitat Subtotal | 30,874 | 87% | 29,557 | 86% | 9,206 | 70% | 30,352 | 83% | 2,677 | 59% | 3,181 | 87% |
| Temporary Non-Suitable Habitat | 4,566 | 13% | 4,903 | 14% | 3,962 | 30% | 6,080 | 17% | 1,854 | 41% | 462 | 13% |
| Total Potential Lynx Habitat | 35,440 | 92% | 34,460 | 94% | 13,168 | 86% | 36,432 | 92% | 4,531 | 46% | 3,643 | 49% |
| Non-Habitat | 3,167 | 8% | 2,226 | 6% | 2,070 | 14% | 6,224 | 16% | 5,396 | 54% | 3,863 | 51% |
| DNRC Total Acres | 38,606 | 100% | 36,686 | 100% | 15,238 | 100% | 39,657 | 100% | 9,928 | 100% | 7,507 | 100% |

| Table F-5. Acres of existing lynx habitat (3/30/2012) on Non-LMA parcels, using HCP lynx habitat definitions, on DNRC lands by Land Office in the HCP Project Area. | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Habitat Class** | **EXISTING NON-LMA ACRES AND PERCENTAGE BY HABITAT CLASS IN THE HCP Project Area (%)** | | | | | | |
| | NWLO | | SWLO | | CLO | | Total |
| Winter Foraging Habitat | 44,859 | 69% | 11,101 | 44% | N/A | N/A | 55,960 |
| Summer Foraging Habitat | 4,580 | 7% | 3,110 | 12% | 3,078 | 8% | 10,768 |
| Other Suitable Habitat | 8,515 | 13% | 6,267 | 25% | 22,862 | 60% | 37,644 |
| **Suitable Habitat Subtotal** | **57,954** | **89%** | **20,478** | **82%** | **25,940** | **69%** | **104,372** |
| Temporary Non-Suitable Habitat | 7,519 | 11% | 4,643 | 18% | 11,901 | 31% | 24,063 |
| Total Potential Lynx Habitat | 65,473 | 47% | 25,121 | 18% | 37,841 | 34% | 128,435 |
| Non-Habitat | 74,694 | 53% | 118,423 | 82% | 74,874 | 66% | 267,991 |
| Total Acres | 140,167 | 100% | 143,544 | 100% | 112,714 | 100% | 396,425 |