



File Code: 2670

Date:

Jodi Bush
Field Supervisor, Ecological Services
USDI-Fish and Wildlife Service
585 Shepard Way
Helena, MT 59901

Dear Ms. Bush,

Enclosed is the biological assessment for terrestrial wildlife for the Hellroaring Basin Improvements Project located on the Tally Lake and Glacier View Ranger Districts. In summary, the proposal is to authorize the following:

- Eight new ski runs from upper edges of Hellroaring Basin down to Grand Junction area.
- Selective tree removal in seven gladed areas adjacent to proposed ski runs, as well as selective tree removal for scenery concerns in four areas.
- Four terrain modifications in and adjacent to Hell Fire Run and Swift Creek Run.
- Relocation of Chair 8 and abandonment of the existing Chair 8/Purgatory Run;
- Installation of a new chairlift to Hellroaring Peak (Chair 12).
- Tree felling to create a cat track (ski way) that would provide access from the ridge above Hellroaring Basin to Gray Wolf Run on the north side of the Resort.
- Construction of service roads to Grand Junction and Hellroaring Peak including one bridge over Hellroaring Creek.
- Abandonment of the existing Hell Fire Run below Grand Junction and rehabilitation of up to four creek crossings in this area.
- Avalanche control on the upper slope of Hellroaring Peak.

Design features relevant for the evaluation of effects on threatened and endangered species include limits on helicopter flights for ski lift installation, timing restrictions during the grizzly bear spring season, timing restrictions for maintenance activities in the Hellroaring Basin, measures to prevent public motorized or bicycle use of the service roads and cat track, protection of riparian areas, and numerous measures to reduce the chance of bear-human conflicts.

The determination for this project for grizzly bear, Canada lynx, and Canada lynx critical habitat is "May Affect, Likely to Adversely Affect." The determination for this project for bull trout and bull trout critical habitat is "May Affect, Not Likely to Adversely Affect". The determination for other listed species is "No Effect" to Water Howellia and Spalding's catchfly.



Thank you for your review and consultation on this project. If you have any questions, please contact Amy Jacobs at (406) 758-3544.

Sincerely,

CHIP WEBER
Forest Supervisor

cc: Kevin Aceituno, Ben Conard, Katrina Dixon, Rob Carlin, Jennifer Brady, Bill Mullholland, Rob Davies, Michele Draggoo, Amy Jacobs, Cassie Waters, Laura Strong, Chantelle Delay, Pat Van Eimerin, Beth Gardner, Craig Kendall

Biological Assessment Threatened and Endangered Terrestrial Species

Exhibit 12-03
Hellroaring
Basin
Improvements
Project

Hellroaring Basin Improvements Project

Tally Lake and Glacier View Ranger Districts
Flathead National Forest



Skier looking into upper Hellroaring Basin. Photo courtesy of Green Kat Photography.

Prepared by:


Amy Jacobs
Wildlife Biologist
Flathead National Forest

5/13/19
Date

Summary.....	3
Determination of Effects	3
Introduction.....	3
Project Summary.....	4
Action Areas	4
Project Description.....	6
Species Assessment	7
Canada Lynx	7
Action Area.....	7
Temporal Bounds	7
Methodology.....	7
Habitat	8
Population.....	9
Canada Lynx: Direct and Indirect Effects	9
Lynx Habitat Vegetation Effects from Ski Area Development.....	9
Road Construction and Use.....	11
Snow Compaction.....	12
Disturbance from Project Implementation and Recreation	12
Cumulative Effects.....	12
Regulatory Framework and Consistency.....	14
Determination	15
Canada Lynx Critical Habitat	15
Action Area.....	15
Temporal Bounds	15
Methodology.....	15
Habitat.....	16
Canada Lynx Critical Habitat: Direct and Indirect Effects.....	17
Cumulative Effects.....	20
Determination	20
Grizzly Bear	21
Action Area.....	21
Temporal Bounds	21
Methodology.....	21
Habitat.....	21
Population.....	22
Grizzly Bear: Direct and Indirect Effects	23
Cumulative Effects.....	24
Regulatory Framework and Consistency.....	25
Determination	26
Literature Cited	27
Appendix 1. Hellroaring Basin Improvements Project and Action Areas.....	29
Appendix 2. Map of Existing Features in and near the Hellroaring Basin.	30
Appendix 3. Hellroaring Basin Improvements Project Activities -- Map and Project Details.	31
Appendix 4. Hellroaring Basin Improvements Project Overlap with the Taylor Hellroaring Project...	43
Appendix 5. Maps of Canada Lynx Habitats with Project Activities.....	45
Appendix 6. Consistency with Canada Lynx Direction in the Flathead National Forest Land Management Plan (USDA Forest Service 2018b).	48
Appendix 7. Consistency with Grizzly Bear Direction in the 2018 Flathead National Forest Land Management Plan (USDA Forest Service 2018b).	56

Summary

Determination of Effects

The determination for Canada lynx due to the effects of the Hellroaring Basin Improvements Project is MAY AFFECT – LIKELY TO ADVERSELY AFFECT and the determination for Canada lynx critical habitat is MAY AFFECT – LIKELY TO ADVERSELY AFFECT. The determination for grizzly bear is MAY AFFECT – LIKELY TO ADVERSELY AFFECT.

Introduction

The purpose of this Biological Assessment (BA) is to review the possible effects of the proposed federal action on threatened, endangered, and proposed species and their habitats. Threatened, endangered, and proposed species are managed under the authority of the Federal Endangered Species Act (PL 93-205, as amended) and the National Forest Management Act (PL 94-588). Under provisions of the Endangered Species Act (ESA), Federal agencies shall use their authorities to carry out programs for the conservation of listed species, and shall insure any action authorized, funded, or implemented by the agency is not likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of proposed species; or (3) adversely modify proposed critical habitat (16 USC 1536).

This BA analyzes the potential effects of the proposed federal action on all threatened, endangered, and proposed species known or suspected to occur in the project area (Table 1). This species list was confirmed by the U.S. Fish and Wildlife Service (USFWS); reference the Montana Field Office website (10/23/2019).

Table 1. Threatened, Endangered, or Proposed Species and Critical Habitat known or suspected to occur in the influenced area of the Hellroaring Basin Improvements Project.

Species	Status	Occurrence
Canada Lynx (<i>Lynx canadensis</i>)	Threatened; Critical Habitat	Resident
Grizzly Bear (<i>Ursus arctos horribilis</i>)	Threatened	Resident
Wolverine (<i>Gulo gulo luscus</i>)	Proposed	Resident

As guided by the 2012 Planning Rule, the Flathead National Forest's 2018 Land Management Plan (LMP, USDA Forest Service, 2018b) applies a complementary ecosystem- and species-specific approach to provide for diversity of native terrestrial and aquatic species (USDA Forest Service, 2018a, FEIS Volume 2, Chapter 3.7 and Tables 6-1 through 6-3 in Appendix 6). FEIS sections 3.7.1 through 3.7.4 discuss the key ecosystems and their characteristics for wildlife, including Canada lynx and grizzly bears. FEIS Appendix 6 provides the bridge between coarse-filter plan components and key ecosystem characteristics associated with wildlife species that use the Flathead National Forest. The FEIS provides a detailed description of the structure, composition, and function of terrestrial ecosystems as wildlife habitat. The coarse-filter approach seeks to manage a broad range of habitats identified as necessary to maintain the natural diversity of species, ecosystems, and ecosystem processes on the Forest. Assessing project-level effects to key terrestrial ecosystems and their characteristics encompasses consequences to most species. The Hellroaring Basin Improvements Project meets all LMP standards and guidelines for terrestrial and aquatic ecosystems and for their associated wildlife species, including Canada lynx and grizzly bear. The

project prescribes management actions which would move towards one or more desired conditions and objectives in the LMP and would not preclude achievement of any desired conditions over the long term. Most of the needs of wildlife species associated with terrestrial features such as riparian habitats, coniferous forests, old growth habitat, large tree habitat, and dead wood habitats are thus met through this project's consistency with the LMP. See the Biological Assessment, Biological Opinion, and updated incidental Take Statement for the 2018 Land Management Plan (USDA Forest Service 2017; USDI FWS 2017, 2018). See Appendix 6 and 7 below for consistency with all species-specific plan components for Canada lynx and grizzly bears.

An additional purpose of this BA is to update Flathead National Forest's GIS layer/map of potential lynx habitat (USDA Forest Service 2017, 2018a) based on habitat conditions discovered during field review for this project. In addition, this GIS layer/map would be updated to reflect changes resulting from permanent vegetation removal that would be authorized by this project.

Project Summary

Action Areas

The Lakalaho Lynx Analysis Unit (LAU) was used as the spatial extent for the Canada lynx effects analysis, and the Canyon McGinnis and Werner Creek grizzly bear subunits were used for the grizzly bear effects analysis. These areas are north of the Flathead Valley and north and east of Whitefish Lake and including the southern portion of the Whitefish Range.

The project area is in Flathead County, approximately 8 miles north of Whitefish, Montana, and entirely inside the permit area for the Whitefish Mountain Resort. Most of the project area is in the Hellroaring drainage on the northwest side of Big Mountain and a portion (127 acres) is in the Big Creek drainage on the north side of Big Mountain. 675 acres are on the Tally Lake Ranger District and 127 acres are on the Glacier View Ranger District. The entire project area is in Management Area 7 - Focused Recreation Area and the semi-primitive motorized recreation opportunity spectrum class.

See Appendix 1 for a map showing the juxtaposition of the project area and the Canada lynx and grizzly bear analysis areas. A summary of land ownership, the wildland urban interface (WUI), and Management Areas and Geographic Areas designated by the Flathead Forest Land Management Plan (LMP) is shown in Table 2.

Table 2. Hellroaring Basin Improvements Project area and analysis areas for lynx and grizzly bears, acreages of land ownership, wildland urban interface, Management Areas (MAs), and Geographic Areas (GAs) (USDA Forest Service 2018b).

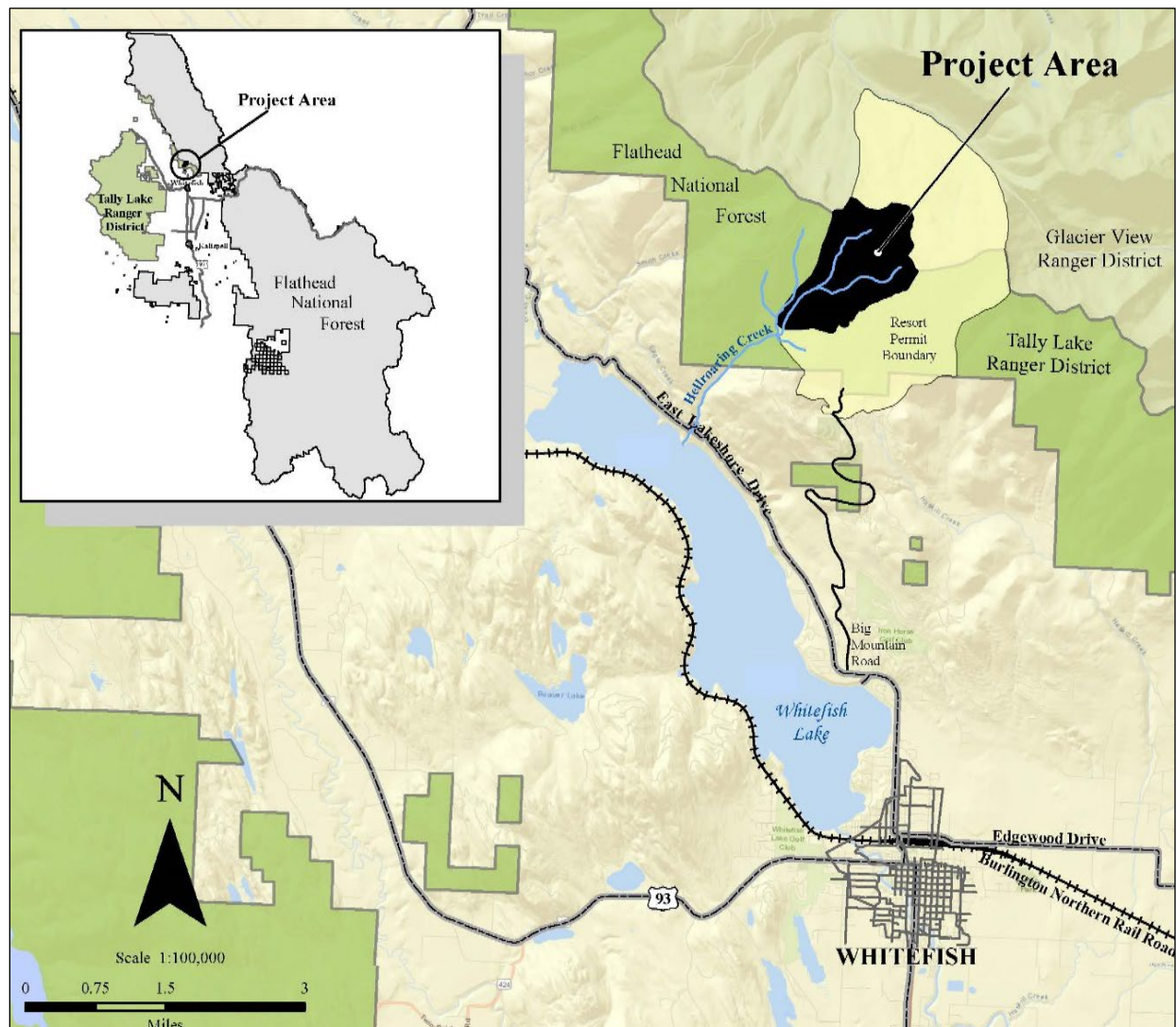
	Project Area	Lynx Analysis Area¹	Grizzly Bear Analysis Area²
Total Acres	959	22,456	61,880
Forest Service Lands	959	22,448	58,621
Wildland Urban Interface	959	4,251	10,360
Outside Wildland Urban Interface	0	18,205	51,520
Salish Mountains Geographic Area	757	3,764	7,290
North Fork Geographic Area	201	18,692	54,430
MA 2a (Designated Wild and Scenic River)	0	0	1,389

	Project Area	Lynx Analysis Area ¹	Grizzly Bear Analysis Area ²
MA 5a (Backcountry Non-Motorized Year-round)	0	4,284	10,251
MA 5c (Backcountry Motorized Winter Only)	0	522	4,408
MA 6a (General Forest Low-Intensity Vege. Mgmt.)	1	3,864	9,065
MA 6b (General Forest Moderate-Intensity Vege. Mgmt.)	0	4,719	19,984
MA 7 (Focused Recreation Area)	958	9,058	13,523

¹ Lakalaho Lynx Analysis Area.

² Canyon McGinnis and Werner Creek Grizzly Bear Subunits.

Figure 1. General vicinity of the project in relation to the Flathead National Forest, the Ranger Districts, the town of Whitefish, Montana, and Whitefish Mountain Resort's permit area.



Project Description

In summary, the proposed Hellroaring Basin Improvements Project includes the following:

- Eight new ski runs from the upper edges of Hellroaring Basin down to the Grand Junction area.
- Selective tree removal in seven gladed areas adjacent to proposed ski runs, as well as selective tree removal for scenery concerns in four areas.
- Four terrain modifications in/adjacent to Hell Fire Run and Swift Creek Run.
- Relocation of Chair 8 and corresponding abandonment of the existing Chair 8/Purgatory Run);
- Installation of a new chairlift to Hellroaring Peak (Chair 12);
- Tree felling to create a cat track (ski way) that would provide access from the ridge above Hellroaring Basin to Gray Wolf Run on the north side of the Resort;
- Construction of two service roads (to Grand Junction and Hellroaring Peak), including one bridge over Hellroaring Creek;
- Abandonment of the existing Hell Fire Run below Grand Junction and rehabilitation of up to four creek crossings in this area;
- Avalanche control on the upper slope of Hellroaring Peak; and
- An update to the existing special order that currently restricts use of bicycles to certain roads and trails and prohibits discharge of firearms on the front side of the Resort so that it includes the project area.

See Appendix 2 for a map of existing features. Appendix 3 provides details of the proposal and includes a map of proposed activities and features.

The proposed project incorporates the terms and conditions of Whitefish Mountain Resort's special use permit and annual operating plans. For example, winter operations in Hellroaring Basin currently end on March 31 each year in consideration of grizzly bear habitat security. This would not change (project design feature 64).

Machinery would be used to fall trees and move vegetation in the ski runs, except in riparian management zones or in areas with a greater than 40% slope (project design features 5 and 23). Management of all timber and slash that would be removed as a result of project activities would be required. Specific design features for this are included in Appendix 3 Table D. Timber that would be felled for project activities in the Grand Junction area and for the Grand Junction service road clearing would be hauled out for commercial use via the Grand Junction service road.

All proposed activities would be maintained in the future to retain the intended skiing experience and provide for skier and groomer safety.

Species Assessment

Canada Lynx

Action Area

In accordance with the Lynx Conservation Assessment and Strategy (LCAS) (Interagency Lynx Biology Team, 2013), 109 Lynx Analysis Units (LAUs) were identified and mapped on Flathead National Forest lands. LAUs approximate the size of an area used by an individual lynx and encompass both lynx habitat and areas classified as non-lynx habitat. The proposed Hellroaring Basin Improvements Project lies in the 22,456-acre Lakalaho LAU, which is the area used to analyze direct, indirect, and cumulative effects for Canada lynx (USDA Forest Service, 2007 and 2018a and b). See map in Appendix 1.

Temporal Bounds

The effects of the Hellroaring Basin Improvements Project on lynx were considered to continue indefinitely based on the planned continuance of recreation activities and maintenance of vegetation removal.

Methodology

Analysis of project effects on Canada lynx was primarily based on an evaluation of consistency with Flathead National Forest Land Management Plan direction (USDA Forest Service, 2018b). Several desired conditions, standards, and guidelines in the Forest Plan are relevant to Canada lynx in the project area. Standard ALL S1 and guidelines HU G1, G2, and G10 provide for Canada lynx movement, habitat security, foraging habitat, and habitat connectivity when developing ski areas. Note that VEG O1 through VEG O4, VEG S1 through VEG S6, and VEG G1 through VEG G11 do not apply to vegetation removal for permanent developments such as ski runs. Other desired conditions for Canada lynx habitat applicable to this project include:

- FW-DC-TE&V-12, which describes forest vegetation conditions that maintain or increase the density and distribution of very large live trees across the landscape;
- FW-DC-TE&V-13, which describes a range of forest densities in a diverse pattern across the landscape that provide wildlife cover and foraging conditions; and
- FW-DC-TE&V-19, which describes forest patterns that contribute to habitat connectivity and provide for movement within and between home ranges.

Data used for analysis included National Agricultural Imagery Program (NAIP) imagery, stand exams, VMAP data (Brown and Barber 2012), Flathead County wildland urban interface, review of the best available science, and geographic information system (GIS) and dataset information for features such as general forest attributes, slope, aspect, habitat type, forest type, and elevation. Mapped lynx habitat used the GIS layer that was generated for the 2018 Land Management Plan (USDA Forest Service 2017, 2018a and b) on the Flathead National Forest model as updated by site-specific information on existing habitat characteristics from on-site visits of proposed treatment areas.

For this ski-area development project, effects to lynx habitats were analyzed based on the proposed vegetation removal (Table 3). In accordance with the NRLMD and LMP Appendix A, clearing for ski runs and ski lift lines was considered to permanently remove this habitat, as it would be maintained in a

state similar to early stand initiation habitat. Areas of intermediate tree removal (glading and edge feathering for scenery concerns) would permanently reduce stand density but would retain overstory cover, converting these areas to “other” (stem exclusion) habitat, as horizontal cover would not be allowed to regrow. Non-lynx habitat treated in proposed ski area development would remain non-lynx habitat. Road and cat track construction effects on lynx habitat were expressed by linear distance passed through areas of habitat.

Table 3. Vegetation Changes in Lynx Habitat Used for Effects Analysis for Ski Area Development.

Clearing Type	Early Stand Initiation¹ (not providing winter forage)	Stand Initiation² (winter forage)	Multistory³ (forage)	Other⁴ (stem exclusion; non-feeding)
Clearing (Ski runs, lift lines, terrain modification outside existing runs)	No longer lynx habitat			
Partial Removal (Glading, edge feathering for scenery)	Other (stem exclusion; non-feeding)			No Change

¹Stand initiation structural stage where the trees have not grown tall enough to protrude above snow in winter. May provide summer foraging habitat.

²Stand initiation structural stage with sufficient above the snow vegetative density that currently provides winter snowshoe hare habitat.

³Multistory structural stage with many age classes and vegetation layers with sufficient density that provide snowshoe hare habitat. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

Habitat

Habitat needs for Canada lynx and the character and distribution of these habitats across the Flathead National Forest is discussed in detail in section 3.7.5 of the FEIS (USDA Forest Service 2018a) and in its Biological Assessment (USDA Forest Service 2017). Information found in the LCAS (Interagency Lynx Biology Team 2013), and numerous additional published research efforts indicate that primary lynx habitat in the Rocky Mountains and on the Forest includes lodgepole pine, subalpine fir, and Engelmann spruce. In Montana west of the Continental Divide, lynx habitat is primarily subalpine fir habitat types that are generally found between 4,000 and 7,000 feet elevation. Kosterman (2014) examined reproductive success in five simplified forest structure types in female home ranges and found that 50% mature forest and approximately 10 to 15% young regenerating forest appeared to be an optimal combination of structure types. Kosterman’s work classified general forest types from satellite imagery and VMAP. The habitat and effects analysis presented in this BA used a classification of lynx habitat that includes representation of types of lynx foraging habitats, not just simplified forest structure classes, and is consistent with the best available science. The project also considered Squires et al. (2013), for example to evaluate lynx foraging and travel habitats and their mosaic pattern across the project LAU suitable for lynx travel.

The Lakalaho LAU includes many diverse forest types, including subalpine fir, Engelmann spruce, Douglas fir, lodgepole pine, and a small component of whitebark and western white pine. Table 4 and the map in Appendix 5 below summarize the current situation for potential Canada lynx habitat in the LAU. This is based on the lynx habitat GIS layer developed for the Forest Plan as updated for this project. About 94% of the Lakalaho LAU is currently delineated as “lynx habitat” (Table 4). Denning habitat is well distributed throughout the LAU and most denning areas have feeding habitat nearby. There are no barriers to lynx movement in or near the LAU, which is located in the Whitefish Range, one of the “putative” (generally accepted or thought to exist) corridors that connect lynx habitat in Canada with that in the United States’ Northern Rockies (Squires, et al. 2013). See the cumulative effects section below for

information about the proposed Taylor Hellroaring Project, which was incorporated into this project's existing condition.

Table 4. Estimated existing condition of potential lynx habitat by structural stage in the Lakalaho LAU, in acres (and % of lynx habitat).

LAU	Total Acres	Lynx Habitat	Early Stand Initiation ¹ (not providing winter forage)	Stand Initiation ² (winter forage)	Multistory ³ (forage)	Other ⁴ (non-feeding)
Lakalaho	22,456	21,103 (94.0% of LAU)	1,744 acres (8.3%)	1,836 acres (8.7%)	9,391 acres (44.5%)	8,132 acres (38.5%)

¹Stand initiation structural stage where the trees have not grown tall enough to protrude above the snow in winter. May provide summer foraging habitat.

²Stand initiation structural stage with sufficient above the snow vegetative density that currently provides winter snowshoe hare habitat.

³Multistory structural stage with many age classes and vegetation layers with sufficient density that provide snowshoe hare habitat. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

Population

Canada lynx have been recorded in and near the Lakalaho LAU and snowshoe hares appear to be very common throughout the area. Current and past lynx occurrence across the Flathead National Forest is detailed in section 3.7.5 of the FEIS and its biological Assessment (USDA FS 2017, 2018a). Surveys using a combination of methods have detected lynx numerous times across much of the Flathead National Forest.

Canada Lynx: Direct and Indirect Effects

Lynx Habitat Vegetation Effects from Ski Area Development

A summary of lynx habitat effects from proposed vegetation removal for ski lifts, ski runs, terrain modification, glading, and feathering for scenery concerns is displayed in Tables 5a and 5b. These changes would be considered permanent, as defined in the glossary for Appendix A of the Forest Plan, since the vegetation would continue to be removed for longer than 15 years. Therefore, these 43 acres would no longer provide lynx habitat. As shown in Appendix 4, four acres of Glade 4 and one acre of clearing for Run #1 would overlap the proposed Taylor Hellroaring Project's fuel reduction Unit 106. Similarly, two acres of Run 7 and Run 8 would overlap potential lynx habitat in prescribed fire Unit B3. In these 7 acres, the Hellroaring Basin Improvements Project would allow additional vegetation removal that would be maintained over time. 42 acres of multistory lynx feeding habitat as defined for the NRLMD would be cleared or thinned. For additional consideration of recent science (i.e. Kosterman et al. 2018 and Holbrook et al. 2018), these and other less-dense but multistoried areas were found to be reduced by an additional 49 acres to total approximately 91 acres, although multi-storied habitats would remain well distributed, well connected, and abundant at nearly 70% of the Lakalaho LAU.

Table 5a. Estimated acres of potential lynx habitat by structural stage proposed to be treated for ski area development.

LAU	Total Acres	Lynx Habitat	Early Stand Initiation ¹ (not providing winter forage)	Stand Initiation ² (winter forage)	Multistory ³ (forage)	Other ⁴ (non-feeding)
Lakalaho	22,456	21,103	4	7	42	22
Total	22,456	21,103	4	7	42	22

¹Stand initiation structural stage where the trees have not grown tall/ dense enough to protrude above the snow in winter.

²Stand initiation structural stage with sufficient density that currently provides winter lynx foraging conditions.

³Multistory structural stage with many age classes and vegetation layers of sufficient density to provide winter lynx foraging conditions. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

Table 5b. Summary of estimated changes to potential lynx habitat by structural stage through proposed ski area development in the Lynx Analysis Unit, shown in increases and decreases in acres.

	Early Stand Initiation ¹ (not providing winter forage)	Stand Initiation ² (winter forage)	Multistory ³ (forage)	Other ⁴ (non-feeding)	Not Lynx Habitat (due permanent clearing)
Changes	+ 2 acres - 4 acres	+ 0 acres - 7 acres	+ 0 acres - 42 acres	+ 30 acres - 23 acres	+ 43 acres - 0 acres
Net change	- 2 acres	- 7 acres	- 42 acres	+ 7 acres	+ 43 acres

¹Stand initiation structural stage where the trees have not grown tall/ dense enough to protrude above the snow in winter.

²Stand initiation structural stage with sufficient density that currently provides winter lynx foraging conditions.

³Multistory structural stage with many age classes and vegetation layers of sufficient density to provide winter lynx foraging conditions. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

Explanations are needed for some of the changes shown in Table 5b. Terrain modification outside of existing ski runs would change 1 acre of multistory forage and 1 acre of “other” to early stand initiation. Partial vegetation removal for glading and edge feathering would change 26 acres of multistory forage and 4 acres of stand initiation to “other.” Clearing for ski runs and ski lifts would change 4 acres of early stand initiation, 3 acres of stand initiation, 21 acres of “other”, and 15 acres of multistory forage to no longer provide lynx habitat.

The estimated post-project amounts of lynx habitat is shown in Table 5c for the Lakalaho LAU. Treatments would result in permanent stand changes, as described above in the Methodology Section, reducing the amount of lynx habitat by 43 acres so that lynx habitat across the LAU is reduced from 94.0% to 93.8%.

Table 5c. Estimated post-project potential lynx habitat by structural stage, in acres (and % of lynx habitat).

LAU	Total Acres	Lynx Habitat	Early Stand Initiation ¹ (not providing winter forage)	Stand Initiation ² (winter forage)	Multistory ³ (forage)	Other ⁴ (non-feeding)
Lakalaho	22,456	21,060	1,742 (8.3%)	1,829 (8.7%)	9,349 (44.4%)	8,139 (38.6%)

¹Stand initiation structural stage where the trees have not grown tall enough to protrude above the snow in winter. May provide summer foraging habitat.

²Stand initiation structural stage that currently provides winter lynx foraging conditions.

³Multistory structural stage with many age classes and vegetation layers with sufficient density to provide winter lynx foraging conditions. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

The ability of lynx and snowshoe hares to travel across the Lakalaho LAU could be affected to a minor degree by ski area development, but habitat connectivity would be maintained (Standard ALL S1). Ski runs, clearings for ski lifts, and gladed areas would be open areas that lynx and hares may avoid. Forest patterns would continue to contribute to lynx habitat connectivity within and between home ranges, and dispersal between populations (desired condition FW-DC-TE&V-19; guidelines HU G3, HU O2, and HU O4; and Objective All O1). Limited vegetation removal would occur in riparian management zones, but cover conditions in riparian management zones would still contribute to habitat connectivity for lynx (FW-DC-RMZ-06).

The proposed action would break almost all of the existing inter-trail islands in the project area into smaller pieces, from an average of 98 acres to 32 acres. Nevertheless, the ski runs were shaped to maximize availability and proximity of these diurnal security habitats (guidelines HU G1 and HU G10). In addition, abandonment of the existing Chair 8 lift line/Purgatory Run and the lower portion of Hell Fire Run would dramatically increase the availability of diurnal security in the lower part of the drainage.

Road Construction and Use

Construction of approximately 1.2 miles of service roads and 0.5 mile of cat track would affect additional habitat in narrow strips. Road construction, maintenance, rehabilitation, recontouring, and reclamation may displace individual lynx in proximity to the activity occurring; however the displacement is not likely to limit the animal's movement or cause underuse of available habitats. The project would not increase public motorized access from the existing condition. The proposed roads would be used by the Resort but would be closed to motorized public access (project design features 60 and 62), although they could facilitate non-motorized access for recreation or trapping. The cat track would not be passable except over snow. Proposed road construction would reduce habitat along linear corridors as described above, but would not impede movements by lynx. Stand-level habitat conditions were used to calculate the amount of road construction that would occur across each type of lynx habitat (Table 6).

Table 6. Potential lynx habitats bisected by proposed road construction, in approximate feet (and miles).

	Early Stand Initiation¹	Stand Initiation² (winter forage)	Multistory³ (forage)	Other⁴ (non-feeding, denning)
Service Roads	980 feet (0 miles)	0 feet (0 miles)	2,400 feet (0.5 miles)	2,400 feet (0.5 miles)
Cat Track	0 feet (0 miles)	0 feet (0 miles)	0 feet (0 miles)	2,900 feet (0.5 miles)
Total	980 feet (0 miles)	0 feet (0 miles)	2,400 feet (0.5 miles)	5,500 feet (1.0 miles)

¹Stand initiation structural stage where the trees have not grown tall/ dense enough to protrude above the snow in winter.

²Stand initiation structural stage with sufficient density that currently provides winter lynx foraging conditions.

³Multistory structural stage with many age classes and vegetation layers of sufficient density to provide winter lynx foraging conditions. This stage may contain denning habitat.

⁴Other (stem exclusion) structural stage – Closed canopy with understory limited; Multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat. This stage may contain denning habitat.

Snow Compaction

Indirectly winter logging, snow plowing, use and grooming of the proposed ski runs, access roads, and cat track may facilitate movement of competitors that prey on snowshoe hares (such as bobcat, wolf, and coyote), although research on this is inconclusive at this time. Forest Plan Appendix A's Objective HU O1 discourages the expansion of snow compacting activities outside baseline areas evaluated between 1998 and 2000. The Resort's existing permit boundary, which the proposed action does not change nor go beyond, was included in this baseline. Consistent with Objective HU O3, all proposed activities would occur inside the Resort's existing permit area, which concentrates activities in existing developed areas.

Disturbance from Project Implementation and Recreation

Implementation of the proposed activities could cause disturbance to lynx, with possible temporary displacement from the immediate area. This includes all actions, such as vegetation removal and maintenance, helicopter operations for ski lift installation, blasting for avalanche control, timber hauling, survey work, and stream rehabilitation in the lower portion of Hell Fire Run. If active lynx denning is discovered in or close to any activity authorized by this project, operations would be modified, if needed (project design feature 70).

About 430 acres would receive increased levels of winter recreation, which would potentially increase lynx displacement from the area. This effect would be mostly limited to the daytime, as that is when most people ski, but nighttime grooming of runs could also disturb lynx. This would be partially balanced by moving an existing chairlift and abandoning the bottom of the existing Hell Fire Run, which would return over 300 acres of the Hellroaring drainage to very little winter recreation use.

Little to no effects of displacement are expected considering the distribution of available lynx foraging habitat across the project LAU. Further, project activities would occur in only a portion of the winter lynx foraging habitat within the project LAU, leaving the remaining foraging habitat largely free from disturbance. Lynx forage across a broader variety of habitats in the summer months relative to the winter and potential displacement effects would have even less effect relative to winter activity (Squires et al., 2010).

Cumulative Effects

Past wildland fires have also affected potential lynx habitat in the LAU. The largest of these was the Moose fire of 2001, although it overlapped only 34 acres of the Lakalaho LAU. Vegetation in these burned areas has yet to regenerate to the point that it would provide winter foraging habitat, thereby contributing to early stand initiation habitat in the LAU. Wildland fires have been actively suppressed in the analysis area since the 1930s, contributing to sparse understories in some dense areas as well as low levels of sapling feeding habitat. This has also led to an increased risk of a stand-replacement wildland fire. These changes have resulted in an increased risk of a stand-replacement wildland fire through denser tree stocking, slower tree growths, and more intense fires.

Past timber harvest on NFS lands in the Lakalaho LAU include several regeneration and intermediate harvests in 1962 and 1967, although none of these overlap with proposed vegetation removal. Roads, primarily constructed for timber harvest, dissected and fragmented lynx habitats. Open roads facilitated access for firewood cutters, which has decreased snags and decreased downed logs particularly important for lynx and their prey, as well as facilitated access for trappers and hunters. Brushing of saplings along most Forest roads in lynx habitat has reduced their value to snowshoe hares. Across the area, open and closed roads facilitate human access, contributing to the risk of mortality or displacement of lynx and potentially causing collision-related injuries or mortalities. The proposed roads for accessing the ski lifts and the cat track would add to these effects to a small degree at the scale of the LAU.

The Whitefish Municipal Watershed Fuel Reduction Project (WMWFRP) has ongoing activities in the southern part of the Lakalaho LAU. This project would change cover types, density, and size classes on approximately 1,114 acres through timber harvest, hazardous fuels reduction, and prescribed burning. Effects of WMWFRP vegetation management activities were incorporated into the baseline vegetation data used for this analysis.

The proposed Taylor Hellroaring Project could alter vegetation conditions on up to 1,815 acres through timber harvest, hazardous fuels reduction, and prescribed burning. Effects to the proposed areas include changing cover types, reducing density, and changing size classes, and would add cumulatively to effects on forested connectivity. The Taylor Hellroaring Project is expected to temporarily convert 75 acres of multistory feeding habitat and 753 acres of other stem-exclusion and younger mature forests to early stand-initiation forest. This would increase early stand initiation habitat up to 8% of lynx habitat in the LAU and would bring the proportion of the LAU regenerated over the past 10 years to 1.7%. As shown in Appendix 4, proposed Taylor Hellroaring fuel reduction Unit 106 and 107 and prescribed fire Unit B3 would overlap with proposed Hellroaring Basin Glade 1; Runs 1, 2, 7, and 8; clearing for Chair 12; terrain modification 4, and the Grand Junction service road. In these areas, the Taylor Hellroaring temporary vegetation changes would be made permanent by additional vegetation removal that would be maintained over time. Effects of the Taylor Hellroaring Project were also incorporated into the baseline vegetation data used for the Hellroaring Basin Improvements Project analysis.

Other Taylor Hellroaring Project activities that could contribute to cumulative effects include the construction of up to 5 miles of road and up to 15 miles of trails. Two miles of trail would cross Run 7 and Run 8. This overlap of the trail and the ski runs would contribute to cumulative effects because lynx would cross this area opened by both run development and Taylor Hellroaring Unit B3 possibly adding cumulatively to disturbance of lynx as they cross this area opened by both run development and prescribed fire Unit B3.

The existing Whitefish Mountain Ski and Summer Resort at Big Mountain contributes to the fragmentation of lynx habitat in the Lakalaho LAU. High human use in winter on the south and north sides, and in summer on the south side, of Big Mountain provide impediments to Lynx movement across the landscape. Foraging habitat is not allowed to revegetate as ski runs are maintained for obstacle free skiing.

Snowmobile access can provide easy winter access for trappers and possibly competitors. Snowmobile routes and play areas exist in the LAU (Table 7), with approximately 90 miles of routes open either yearlong or seasonally and 6,385 acres of play areas open from December 1 to March 31, conditions permitting. No additional grooming for public snowmobiling is proposed. Possible winter timber harvest for the proposed Taylor Hellroaring Project is not expected to combine with existing motorized winter travel or proposed actions in the Hellroaring Basin to have negative effects.

Table 7. Over snow routes and play areas.

Lynx Analysis Unit	Over Snow Routes		Over Snow Areas
	Seasonal	Yearlong	Seasonal
Lakalaho	45.4 miles	8.7 miles	3,235 acres
Total	45.4 miles	8.7 miles	3,235 acres

Potential mortality for Canada lynx includes starvation in winter and early spring, predation by mountain lions during non-snow periods, and human conflict (e.g., accidental trapping or malicious shooting).

Given the small relative reduction to foraging habitat and that the project would not increase public motorized access, the project is not expected to increase the probability of lynx mortality. Trapping for Canada lynx is currently not permitted, however trapping season for other furbearers is December 1 to February 15 in the LAU. Trappers can currently travel under their own power on closed roads, trails, and cross-country through forest stands in the winter time to deploy traps. The trails proposed in the Taylor Hellroaring Project would not be groomed but could facilitate additional access during the winter months for trappers in the project area.

Other past and ongoing activities include prescribed burning, fuels reduction, trail construction and maintenance, noxious weed control, maintenance and use of communication towers and other utilities, hunting, trapping, hiking, mountain biking, camping, snowmobiling, downhill skiing, cross-country skiing, snowshoeing, horseback riding, driving, motorcycle and ATV riding, and firewood and other miscellaneous forest product gathering. These have altered habitat and human activities continue to disturb and/or displace wildlife. The proposed clearing for ski runs, glades, lift lines, and travel routes would be cumulative to these past actions.

The Hellroaring Basin Improvements Project does not propose any improvement to highways or urbanization on private land. There are un-roaded areas in the southern Whitefish Range adjacent to the project area, that provide security for lynx home ranges. Additionally, a mosaic of forest stand conditions and successional stages would continue to exist after project implementation and mature multistory foraging habitat would remain well distributed in the LAU and connected by a network of forest cover to provide lynx traveling conditions.

In consideration of habitat conditions, human use, roaded access, and the number of reported observations, the mortality risk to Canada lynx remains low-to-moderate. No geographic or man-made barriers exist within the Lakalaho LAU that would preclude lynx movements to adjacent populations. While other factors outside of the Forest's control (i.e. non-target trapping mortality and competing predator populations) may impede lynx recovery, actions proposed in the project area considered in the context of cumulative effects are compatible with conserving lynx to a non-listed status and they are consistent with maintaining habitat for viable populations of lynx at the regional scale.

Regulatory Framework and Consistency

The Canada lynx was classified as Threatened in Montana on March 24, 2000, and is currently protected under the Endangered Species Act. Threatened status affords a species and its habitat special protection from adverse effects resulting from federally authorized or funded projects. The LCAS was developed in 2000 to guide lynx conservation and management and was revised in 2013.

The Record of Decision for the NRLMD (USDA Forest Service, 2007) incorporated goals, objectives, standards, and guidelines into existing plans of all National Forests in the Northern Rockies Lynx Planning Area, including the Flathead National Forest. In 2018, the NRLMD, as modified by the Final Record of Decision for the Forest Plan, was incorporated into the plan through standard FW-STD-WL-04.

Appendix A of the Flathead's Land Management Plan (USDA Forest Service, 2018b), allows for some reduction of lynx foraging habitat when developing or expanding ski areas where consistent with relevant plan direction (FW-DC-TE&V-08, FW-DC-TE&V-13, HU G2, HU G3, and HU O4).

All proposed vegetation changes and other activities would be consistent with all Forest Plan direction for Canada lynx (Appendix 6, below). See Appendix 3 Table D for design features, such as those that would protect denning lynx, retain downed wood habitat, limit clearing in specific situations, and rehabilitate disturbed areas.

Determination

The determination for Canada lynx is based on the following rationale:

- 1) The Canada lynx and its habitat are expected to occur in the project area.
- 2) An estimated 43 acres of lynx habitat would no longer provide lynx habitat due to vegetation clearing that would be maintained over time, reducing the amount of lynx habitat across the LAU from 94.0% to 93.8%.
- 3) An estimated 42 acres of winter lynx foraging habitat would be either thinned or cleared, although such habitat would remain abundant, well distributed, and well connected.
- 4) Construction of ski runs, ski lifts, the two service roads, and the cat track would affect habitat along linear corridors, but would not impede movements by lynx or alter function of surrounding habitat.
- 5) About 430 acres would receive increased levels of winter recreation, which would potentially increase lynx displacement from the area.
- 6) Inter-trail islands in the project area would be reduced in size, although the ski runs were shaped to maximize availability and proximity of these diurnal security habitats and abandonment of two ski runs would increase the availability of diurnal security in the lower part of the drainage.
- 7) All proposed activities would occur inside the Resort's existing permit area, which concentrates activities in existing developed areas.
- 8) Landscape-level travel connections would be maintained and a mosaic of stand conditions would persist to allow for lynx travel corridors within the project LAU.

In summary, the project would affect potential lynx foraging and denning habitat in relation to the habitat available within the project LAU, however, sufficient lynx foraging habitat and a mosaic of conditions for future winter foraging habitat recruitment and lynx movement would still exist to sustain lynx and snowshoe hare densities in the project LAU. The project is consistent with LMP Appendix A direction (Appendix 6). Since the project would permanently reduce the amount of existing and potential winter lynx foraging habitat in the Lakalaho LAU, the effects are not discountable. The determination for the proposed project is “**May Affect, Likely to Adversely Affect**” Canada lynx.

Canada Lynx Critical Habitat

Action Area

This analysis considered effects to all designated lynx critical habitat in the Lakalaho LAU.

Temporal Bounds

The effects of the Hellroaring Basin Improvements Project on lynx critical habitat were considered to continue indefinitely based on the planned continuance of recreation activities and maintenance of vegetation removal.

Methodology

In addition to the Forest Plan desired conditions, standards, and guidelines listed in the Canada lynx section above, FW-DC-WL-05 applies specifically to Canada lynx critical habitat. This desired condition states that boreal forest landscapes support a mosaic of differing forest successional stages, providing the physical or biological features essential to the conservation and recovery of the Canada lynx population.

Data used for analysis included National Agricultural Imagery Program (NAIP) imagery, stand exams, VMAP data (Brown and Barber 2012), Flathead County wildland urban interface, review of the best available science, and geographic information system (GIS) and dataset information for features such as general forest attributes, slope, aspect, habitat type, forest type, and elevation. Mapped lynx habitat used the GIS layer that was generated for the 2018 Land Management Plan (USDA Forest Service 2017 and 2018a and b) on the Flathead National Forest model as updated by site-specific information on existing habitat characteristics from on-site visits of proposed treatment areas. Lynx critical habitat mapping matched habitat designated in USDI Fish and Wildlife Service, 2014.

Habitat

On September 12, 2014, the USFWS revised critical habitat in the contiguous United States. Northwest Montana is in Critical Habitat Unit 3, which encompasses approximately 9,783 square miles (approximately 6,261,095 acres). The Unit 3 area is essential to the conservation of lynx because it appears to support the highest density of lynx populations in the northern Rocky Mountain region of the lynx's range. It also likely acts as a source for lynx and provides connectivity to other portions of the lynx's range in the Rocky Mountains (USDI Fish and Wildlife Service, 2014). As of the 2014 revision, there were approximately 2,273,340 acres of designated critical habitat for lynx on the Flathead National Forest. All of the Lakalaho LAU is designated critical habitat. Critical habitat acres by structural stage are shown in Table 8 below. A map of the project area, project LAU, and critical habitat is in Appendix 5. All PCE components, including deep fluffy snows and connectivity, are abundant and well-distributed across this area.

By definition, critical habitat for Canada lynx contains the physical and biological features essential to conservation of the lynx, and is comprised of "primary constituent elements" (PCEs) in an appropriate quantity and spatial arrangement (USDI Fish and Wildlife Service, 2014). The primary constituent elements and four components for lynx critical habitat are:

- *Presence of snowshoe hares and their preferred habitat conditions*, which include dense understories of young trees, shrubs or overhanging boughs that protrude above the snow, and mature multistoried stands with conifer boughs touching the snow surface (PCE1a);
- *Winter snow conditions* that are generally deep and fluffy for extended periods of time (PCE1b);
- *Sites for denning* that have abundant coarse woody debris, such as downed trees and root wads (PCE1c); and
- *Matrix habitat* (e.g., hardwood forest, dry forest, non-forest, or other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range (PCE1d) (USDI 2014a).

Table 8. Existing critical habitat acres by structural stage, in acres (and % of critical habitat), as updated for this project.

	Lakalaho LAU
Total	22,456
Stand Initiation ¹	1,836 acres (8.2%)
Early Stand Initiation ²	1,744 acres (7.8%)
Multistory ³	9,391 acres (41.8%)
Other ⁴ (stem exclusion)	8,132 ac (36.2%)
Matrix Habitat ⁵	1,353 acres (6.0%)

¹Stand initiation structural stage that currently provides winter snowshoe hare habitat because the trees have grown tall enough to protrude above the snow in winter– relates to PCE1a.

²Early stand initiation structural stage does not yet provide winter snowshoe hare habitat because the trees have not grown tall enough to protrude above the snow in winter; early stand initiation is a component of the boreal forest CH mosaic of successional stages – relates to PCE1a.

³Multistory structural stage with many age classes and vegetation layers that provide snowshoe hare habitat, dense horizontal cover – relates to both PCE1a - and PCE1c.

⁴Stem exclusion structural stage - closed overstory canopy with limited understory vegetation; multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat because they do not provide enough dense horizontal cover – likely relates to PCE1c.

⁵Matrix habitat includes dry forest habitat types, rock outcrops, sites dominated by dry grass/forb/shrubs, low elevations – PCE1d.

Canada Lynx Critical Habitat: Direct and Indirect Effects

The Final Rule for Revised Designation of Critical Habitat (2014) described three types of Federal actions that may affect critical habitat:

- Actions that would reduce or remove understory vegetation within boreal forest stands on a scale proportionate to the large landscape used by lynx.
- Actions that would cause permanent loss or conversion of the boreal forest on a scale proportionate to the large landscape used by lynx.
- Actions that would increase traffic volume and speed on roads that divide lynx critical habitat, or, in matrix habitat, activities that change vegetation structure or condition in such a way as to create a barrier or impede lynx movement.

For Canada lynx critical habitat, estimated amount of lynx habitat and matrix habitat proposed for vegetation treatment is displayed in Tables 9 through 11 below. Note that vegetation clearing would permanently convert some lynx habitat to additional matrix, and that vegetation removal for gladed areas and edge feathering would permanently convert some foraging habitat to stem exclusion.

Table 9. Estimated acres of lynx critical habitat proposed to be treated.

LAU	Total Acres of Critical Habitat	Acres Treated			
		PCE1a - Stand Initiation, Early Stand Initiation, and Multistory	PCE1c – Denning Habitat	Stem Exclusion, Non-foraging	PCE1d – Matrix Habitat
Lakalaho	22,456	49	64	22	35
Total	22,456	49	64	22	35

PCE1a would be reduced by approximately 49 acres through vegetation removal for ski area development. The reduction of PCE1a would be approximately 0.2% of the estimated PCE1a conditions in critical habitat in the Lakalaho LAU. Reduction in PCE1a would be permanent as trees would not be allowed to grow back and provide snowshoe hare habitat in these areas. As shown in Appendix 4, about 7 acres of glading would overlap with a fuel reduction unit and a prescribed fire unit in the proposed Taylor Hellroaring Project. This decision would maintain the proposed vegetation removal over time. A separate area of approximately 5 acres would be converted from matrix habitat due to abandoning the bottom of the existing Hell Fire Run and relocating Chair 8, and eventually this would provide for PCE1a. Construction of approximately 1.2 miles of service roads and 0.5 mile of cat track would affect additional habitat in narrow strips that mostly bisect hare habitat.

The presence of deep fluffy snows (PCE1b) would not be affected over most of the LAU. Up to 115 additional acres of newly compacted area would be created for and by downhill skiing, entirely within the existing permit area of Whitefish Mountain Resort.

PCE1c would be reduced by approximately 64 acres by ski area development. Stand conditions with PCE1c attributes exist in both multistory forage and other (stem exclusion) habitats with high amounts of down woody debris. The reduction of PCE1c would be less than 0.4% of the estimated PCE1c in the Lakalaho LAU. Project design features (Appendix 3 Table D) would retain down woody debris in some areas as well as larger diameter snags, retaining some denning structures useable for lynx denning.

The project proposes 35 acres of vegetation treatment in what is currently matrix habitat (PCE1d). An additional 43 acres of matrix habitat would be created by permanent vegetation removal for ski runs and lift line clearing, all in thin linear shapes (Map in Appendix 3). Lynx movement patterns may temporarily change as a result of vegetation removal and recreation-related activities, but matrix habitat would continue to support the ability of lynx to travel within their home range.

Table 10 summarizes effects on the primary constituent element components. Proposed vegetation removal for ski lifts and ski runs would permanently convert 43 acres to PCE1d (matrix). The physical and biological features would not be altered to an extent that would appreciably reduce the conservation value of critical habitat for lynx as PCE components would continue to function at the scale of the Lakalaho LAU and across critical habitat unit 3.

Table 10. Summary of estimated changes to critical habitat, shown in increases and decreases in acres. *(Note that some acres are shown in more than one column, i.e. Multistory PCE1a also provides PCE1c denning habitat).*

LAU	Total Acres of Critical Habitat	PCE1a - Stand Initiation, Early Stand Initiation, and Multistory	PCE1c - Denning Habitat	Stem Exclusion, Non-foraging	PCE1d - Matrix Habitat
Lakalaho	22,456	+ 0 acres - 49 acres	+ 30 acres - 65 acres	+ 30 acres - 23 acres	+ 43 acres - 0 acres
Total	22,456	- 49 acres	- 35 acres	+ 7 acres	+ 43 acres

Explanations are needed for Table 10. Partial vegetation removal for glading and edge feathering would change 26 acres of multistory forage and 4 acres of stand initiation forage to “other” habitat. This 30 acres accounts for the addition in the PCE1c column and the “stem exclusion” column. Clearing for ski runs and ski lifts would change 4 acres of early stand initiation, 3 acres of stand initiation forage, 21 acres of “other”, and 15 acres of multistory forage to matrix habitat. This accounts for the addition of 43 acres in the PCE1d column.

Table 11. Post-project critical habitat acres by structural stage, in acres (and % of critical habitat).

	Lakalaho LAU
Total	22,456
Stand Initiation ¹	1,829 acres (8.1%)
Early Stand Initiation ²	1,742 acres (7.8%)
Multistory ³	9,349 acres (41.6%)
Other ⁴ (stem exclusion)	8,139 acres (36.2%)
Matrix Habitat ⁵	1,3965 acres (6.2%)

¹Stand initiation structural stage that currently provides winter snowshoe hare habitat because the trees have grown tall enough to protrude above the snow in winter– relates to PCE1a.

²Early stand initiation structural stage does not yet provide winter snowshoe hare habitat because the trees have not grown tall enough to protrude above the snow in winter; early stand initiation is a component of the boreal forest CH mosaic of successional stages – relates to PCE1a.

³Multistory structural stage with many age classes and vegetation layers that provide snowshoe hare habitat, dense horizontal cover – relates to both PCE1a - and PCE1c.

⁴Stem exclusion structural stage - closed overstory canopy with limited understory vegetation; multistory structural stage with many age classes and vegetation layers that do not provide snowshoe hare habitat because they do not provide enough dense horizontal cover – likely relates to PCE1c.

⁵Matrix habitat includes dry forest habitat types, rock outcrops, sites dominated by dry grass/forb/shrubs, low elevations – PCE1d.

Table 12 displays effects to primary constituent elements relative to critical habitat within the project LAU, as well as relative to critical habitat in Unit 3.

Table 12. Effects on the primary constituent elements for designated lynx critical habitat.

Primary Constituent Element		Project Effects
PCE1a	Presence of snowshoe hares and their preferred habitat conditions, which include dense understories of young trees, shrubs or overhanging boughs that protrude above the snow, and mature multistoried stands with conifer boughs touching the snow surface.	42 acres of multistory hare habitat and 7 acres of sapling hare habitat would be permanently altered, becoming either matrix habitat or open forested area. Habitats providing for PCE1a would remain widespread and abundant, at 50% of critical habitat across the LAU.
PCE1b	Winter snow conditions that are generally deep and fluffy for extended periods of time.	The presence of deep fluffy snows would not be affected over most of the LAU. Up to 115 additional acres of newly compacted area would be created within the existing permit area of Whitefish Mountain Resort.
PCE1c	Sites for denning that have abundant coarse woody debris, such as downed trees and root wads.	The estimated 35-acre decrease in denning habitat (PCE1c) through proposed ski-area development is less than 0.2% of the available denning habitat (PCE1c) in the LAU.
PCE1d	Matrix habitat (e.g., hardwood forest, dry forest, non-forest, or other habitat types that do not support snowshoe hares) that occurs between patches of boreal forest in close juxtaposition (at the scale of a lynx home range) such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.	Matrix habitat would increase by 43 acres with an eventual decrease of 5 acres as an abandoned ski run recovers. The proposal would not alter the ability of lynx to access habitat within or between home ranges. Travel patterns may change slightly to avoid openings. A mosaic of conditions will continue to exist in the LAU to allow lynx and hares to travel between patches of boreal forest. There would be no negative impacts on any lynx linkage area or travel corridor (Squires et al. 2013).

There would be a small amount (43 acres) of permanent loss of habitat due to proposed clearing that would be maintained over time. The physical and biological features would not be altered to an extent that would appreciably reduce the conservation value of critical habitat for lynx and the primary constituent elements would continue to function at the scale of the LAU and across Critical Habitat Unit 3.

Cumulative Effects

Most of the cumulative effects relevant to Canada lynx critical habitat are as described above for Canada lynx. These effects include loss and alteration of habitat due to past, ongoing, and planned timber harvest and past wildland fires.

Actions that have affected PCE1a (snowshoe hares and their habitats) include timber harvest, pre-commercial thinning, fire, fire suppression, and road construction. Those same actions have affected PCE1c (sites for denning), as have firewood collection. Actions that may have affected PCE1b (deep fluffy snows) include over-snow recreation, snow grooming, and snow plowing, although snow-making by the Resort continues to create deep fluffy snows in some areas.

The proposed Taylor Hellroaring project, also in the Lakalaho LAU, is proposed to treat approximately 74 acres of PCE1a; 1,474 acres of PCE1c; and 151 acres of PCE1d, in addition to actions such as constructing one mile of new temporary and permanent roads and several miles of trails. These acres are incorporated in Table 8 above, as are habitat effects of the ongoing Whitefish Municipal Watershed Fuel Reduction Project. About 5 acres of Taylor Hellroaring Project fuel reduction unit 106 would overlap a proposed ski run and a glading area and 2 acres of Taylor Hellroaring Project prescribed fire unit B3 would overlap lynx habitat in two proposed ski runs (Appendix 4). In these areas, temporary vegetation changes that would be approved for the Taylor Hellroaring Project would become permanent changes under the Hellroaring Basin Improvement Project's proposed action.

Determination

The determination for Canada lynx critical habitat is based on the following rationale:

- 1) An estimated 43 acres of lynx habitat would no longer provide lynx habitat due to vegetation clearing that would be maintained over time, increasing the amount of matrix habitat (PCE1d) across the LAU from 6.0% to 6.2%.
- 2) The proposed project would decrease snowshoe hare habitat (PCE1a) in designated lynx habitat and in Canada lynx critical habitat by 49 acres.
- 3) The proposed project would decrease lynx denning habitat (PCE1c) by 35 acres.
- 4) PCE1d (matrix habitat) would increase by 43 acres with an eventual decrease of 5 acres as an abandoned ski run recovers. This matrix habitat would continue to support the ability of lynx to travel within their home range.
- 5) PCE1b (deep fluffy snows) would not be affected by this proposal. All proposed activities would occur inside the Resort's existing permit area, which concentrates activities in existing developed areas.
- 6) The project would not alter physical or biological features that would appreciably reduce the conservation value of critical habitat for lynx.
- 7) All PCEs would remain abundant and well distributed across the project LAU and across Critical Habitat Unit 3 before, during, and after implementation.

In summary, although habitat effects would be permanent, the project is found to affect minimal lynx PCE1a and PCE1c habitat in relation to the habitat available within the project LAU. The determination for the proposed project is “**May Affect, Likely to Adversely Affect**” Canada lynx critical habitat.

Grizzly Bear

Action Area

The Hellroaring Basin Improvements Project is located in the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Area. The Canyon McGinnis and Werner Creek Grizzly Bear subunits were used to analyze direct, indirect, and cumulative effects to the grizzly bear and have been determined as the appropriate scale to analyze effects to grizzly bears by the Interagency Grizzly Bear Committee (IGBC). Land ownership/management in these subunits is shown in Table 14.

Table 14. Land ownership in affected grizzly bear subunits.

Grizzly Bear Subunit	Acres	USFS	Weyerhaeuser	Small Private	State DNRC
Canyon McGinnis	33,239	91.3%	0.0%	8.2%	0.0%
Werner Creek	28,641	98.7%	0.0%	0.0%	1.3%

Temporal Bounds

The effects of the Hellroaring Basin Improvements Project were considered to continue indefinitely based on the planned continuance of recreation activities and maintenance of vegetation removal.

Methodology

Data used for analysis included stand exams, VMAP data, National Agricultural Imagery Program (NAIP) imagery, grizzly bear telemetry data, past grizzly bear mortality information, grizzly bear denning habitat model, and review of the best available science. In addition, site-specific information on habitat characteristics was collected during on-site visits to proposed treatment areas. Road density, hiding cover, levels of displacement, and risk of mortality were used to evaluate the effects of project activities. National Agricultural Imagery Program (NAIP) imagery, stand data, and field visits were used to estimate hiding cover within the areas of proposed activities.

Habitat

Habitat and other needs of grizzly bears in this area are detailed in the Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem (NCDE 2018) and in section 3.7.5 of the FEIS for the Flathead Land Management Plan (USDA Forest Service 2018a). National Forest System lands encompass 63% of the NCDE recovery zone. At 40% of the NCDE, the Flathead National Forest is the majority Federal land manager within the NCDE recovery zone.

Table 15 displays the existing situation regarded motorized access in terms of Open and Total Motorized Route Densities and Secure Core (USDA Forest Service 2018b) in the project subunits. Boulanger and Stenhouse (2014) found that road density did appear to influence population trend; however the authors noted that survival rates and population trend of their study area in Canada were lower than that of the NCDE. It should also be noted, that in Canada many of the gravel forest roads are not closed to the public, unlike on the Flathead Forest, which has strict objectives for open route densities and

administrative travel on gated roads. In the Flathead Valley of British Columbia and Montana, after three decades of monitoring grizzly bear vital rates, McLellan (2015) found that industrial activities (logging and gas exploration) did not have a clear negative effect on population trend.

Table 15. Existing Situation Expressed in Motorized Access Parameters in affected grizzly bear subunits.

Grizzly Bear Subunit	Access Density Parameter		
	OMRD (> 1 mi/mi ²)	TMRD (> 2 mi/mi ²)	Secure Core
Canyon McGinnis	18%	31%	50%
Werner Creek	29%	20%	63%

The subunits, which are over 90% Forest land, provide potential habitat for grizzly bears year-round. The area supports over 20,000 acres of modeled grizzly bear denning habitat and nearly 40,000 acres of hiding cover, and both are well distributed (Table 16). Denning season in this area is considered to be from December 1 to March 31 each year. Denning habitat has been characterized by looking at combinations of elevation, aspect, slope, and vegetation that matched known grizzly bear dens. Spring (April 1 to June 30) is a key time for grizzlies because they emerge from their winter dens, possibly with young cubs or yearlings, and move to lower elevations with a focus on greener, moister areas. Spring habitats typically emphasize avalanche slopes and other habitats supporting grasses and forbs. Mace and Manley (1993) found that grizzlies switched to berries during the middle of July and continued to feed heavily on berries through September. In summer and fall, abundant and diverse habitat is available for grizzly bears across these two subunits.

Table 16. Existing habitat conditions in affected grizzly bear subunits.

Grizzly Bear Subunit	Acres in Subunit	Potential Key Spring Habitat <4,900 ft. elevation Acres (%)	Potential Denning Habitat >5,900 ft. elevation Acres (%)	Hiding Cover Acres (%)
Canyon McGinnis	33,239	16,279 (49.0%)	8,567 (25.8%)	16,481 (49.6%)
Werner Creek	28,641	4,347 (15.2%)	13,245 (46.2%)	22,955 (80.1%)

Population

Grizzly bears and their sign have been recorded in and near the project area, and tracks, scat, and a den site were encountered during field surveys. NCDE Monitoring data confirm year-round use of the project area by both male and female grizzly bears, including females with cubs and a denning female. High densities of berry-producing shrubs attract grizzly bears to the project area from June through October.

Population considerations for grizzly bears in this area are detailed in the Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem (NCDE 2018) and in section 3.7.6 of the FEIS for the Flathead Land Management Plan (USDS Forest Service 2018a). The grizzly bear was listed as a threatened species under the Endangered Species Act in the lower 48 states in 1975. The Grizzly Bear Recovery Plan was completed in 1982 and revised in 1993 (USDI Fish and Wildlife Service, 1993). The 1993 revised Recovery Plan delineated grizzly bear recovery zones and detailed recovery objectives and strategies. Current information suggests that the grizzly bear population in the NCDE and on the Flathead National Forest, is expanding its range outside of the recovery zone.

In the past 20 years, there have been four documented grizzly bear mortalities in the project subunits, not including dependent young. Three of these occurred in the Canyon McGinnis subunit, with only one occurring on NFS lands. This female had been killed by gunshot and was found along an NFS road. The three yearling cubs found near the carcass appeared to be fine. The other two mortalities occurred on private land. The remaining mortality occurred in the Werner Creek subunit on NFS lands. This adult male mortality was also the result of a gunshot wound.

Grizzly Bear: Direct and Indirect Effects

Proposed ski area development in the Hellroaring Drainage would remove 45 acres of cover for ski runs and lift lines and would make 57 acres of cover less effective through thinning glades and feathered areas. These changes would be considered permanent and include about 7 acres that overlap a fuel reduction unit and a prescribed fire unit in the proposed Taylor Hellroaring Project. This is a small amount at the scale of the Canyon McGinnis Subunit, where the amount of cover would decrease from 49.3% to 49.1%. As more sunlight and moisture would reach the forest floor, the openings and thinned areas would be expected to produce grass, forb, huckleberry, and shrub forage for grizzly bears. Limited vegetation removal would occur in riparian management zones, however, cover conditions in riparian management zones would continue to meet FW-GDL-TE&V-03. See project design features 1, 5, 8, 23, 28, and 48 that would retain downed wood habitat, limit clearing in specific situations, and rehabilitate disturbed areas (FW-GDL-TE&V-02).

Human activity during project implementation could negatively affect grizzly bears by causing disturbance or temporary displacement from preferred habitats. This would include survey work, timber hauling, helicopter operations for ski lift installation, blasting for avalanche control, and stream rehabilitation in the lower portion of the Hell Fire Run, and survey work. Disturbance during vegetation clearing and maintenance may also occur due to mechanical/motorized activity and crew activities. However, specific amounts of disturbance is difficult to predict from ski area development activities, as motorized use and human activity may occur in one area and then lessen as work would shift elsewhere. Project implementation would not exceed 5 years, consistent with FW-GDL-IFS-01.

Much of the proposed project activities would occur in potential spring habitat for grizzly bears. Project activities would not begin until June 1 each year, which would reduce the potential to displace bears foraging on spring foods (FW-GDL-TE&V-01). If active grizzly bear denning is discovered in or close to any activity authorized by this project, operations would be modified if needed, as stated in project design feature 70.

Roads permitted to the Resort are regarded as private roads when considering FW-STD-WL-03, FW-STD-IFS-02, and FW-STD-IFS-03. Grizzly bear secure core would not be affected by this proposal due to the location of the service roads to Grand Junction and to Hellroaring Peak relative to existing areas of secure core and nearby private lands. Even so, construction and permittee's motorized use of approximately two miles of new road could cause additional, but short-distance, displacement of individual bears.

Several project design features would contribute to decreasing the potential for human-bear conflict and associated grizzly bear mortality, consistent with FW-STD-WL-02, FW-STD-REC-02 and -04, FW-GDL-TE&V-04, FW-GDL-WL-01 and -03, and FW-GDL-IFS-01. This includes requiring compliance with food storage and sanitation orders, bear-country safety education requirements, requiring an approved seed mix, and the requirements for resolving any bear-human conflict situation that may arise. In addition, Hellroaring Basin would continue to be subject to the skier use closure that begins annually on April 1. For more information, refer to project design features 59, 60, 61, 62, 64, 65, 66, 68, and 69.

After construction is complete, the Hellroaring drainage below Road 9790 would continue to provide habitat security for grizzlies during the non-denning season (GA-SM-MA7-Big Mtn-DC-04), even though its effectiveness would be slightly reduced by the reduction of hiding cover, ski-area maintenance activities, and a possible increase in huckleberry picking and other human uses resulting indirectly from the reduction in conifer cover.

Project design features that contribute to security in and near this drainage include limiting maintenance activities in the Hellroaring drainage to a single three-week maintenance period each year between July 1 and November 30, prohibiting bicycles on service roads and gating these roads, and prohibiting public motorized use of the cat track yearlong (project design features 59, 60, 61, and 62). Abandonment of the Purgatory Run and the lower portion of Hell Fire Run would increase security in the lower part of the drainage, as these areas would no longer receive any ski-area use or maintenance during any time of the year. About 330 acres in the Hellroaring drainage would receive reduced levels of winter activity, but these would be unlikely to be used for denning due to additional avalanche control on approximately 30 acres on the upper slope of Hellroaring Peak.

Cumulative Effects

The proposed project would add to human activities in the affected subunits, including vegetation management, road management, private land development, hunting, firewood gathering, berry picking, hiking, mountain biking, horseback riding, driving, motorcycle/ATV riding, snowmobiling, camping, and other recreational uses. Whitefish Mountain Resort has an array of ski runs, ski lifts, trailheads, and buildings, which includes the Summit House Restaurant and generates relatively high levels of recreational activity yearlong in the western end of the Canyon McGinnis Subunit and heavy use during the winter in the southern end of the Werner Creek Subunit. These activities can displace bears from these areas in all seasons. In addition, hiding cover in both of those areas continues to be modified by ski area maintenance. There is a State DNRC lookout cabin on Werner Peak which is accessed by the Taylor Road NFSR 9790. The Great Northern Flats and Big Creek River Accesses are on the east edge of the Canyon McGinnis subunit. Winter activities in potential denning habitat, such as ski area operation, avalanche blasting, snowmobiling, and communication tower maintenance, may have reduced denning in some parts of the analysis area.

Human activities on NFS lands in the project area increase the chance of conflict with bears and thus the chance for grizzly bear mortality. Road closures, decommissioning, and creation of Secure Core in the project subunits have decreased grizzly bear mortality risk and increased habitat security.

Past and ongoing timber harvest will continue to affect cover and forage in the affected subunits, with additional effects on individual grizzly bears through disturbance. Upcoming prescribed burns for the Whitefish Municipal Watershed Fuel Reduction Project (WMWFRP) will use a helicopter for ignition of the units within the Canyon McGinnis subunit. Vegetation management in the Municipal Watershed Project will reduce hiding cover in the Canyon McGinnis subunit by approximately 600 acres, which was incorporated into the baseline vegetation data used for this analysis. Access conditions in the Canyon McGinnis subunit will be temporarily affected by project activities, but will return to pre-project levels upon project completion. The WMWFRP will result in temporary displacement during implementation of project activities. Effects of WMWFRP vegetation management activities were incorporated into the baseline vegetation data used for this analysis. The WMWFRP will result in potential displacement during implementation of project activities but will increase Secure Core in the Canyon McGinnis subunit, moving it toward motorized access management objectives.

The proposed Taylor Hellroaring Project, also incorporated in the exiting condition tables and project effects analysis above, is expected to temporarily decrease hiding cover by approximately 800 acres and also temporarily decrease the availability of forage, such as huckleberries. About 7 acres of fuel reduction and prescribed fire overlaps a proposed ski area development and thus would be made permanent through maintenance activities. During implementation, human and mechanical activity may displace bears from the areas surrounding proposed vegetation treatment units, roads, haul routes, and other activities. Proposed road construction effects would be largely temporary and motorized access parameters would return to baseline levels, but proposed trail construction may lead to long-term displacement cumulative to that caused by existing roads and trails.

Maintenance of habitat security for grizzly bears in the Hellroaring drainage through limitations on human activity was a mitigation measure of the 1995 Big Mountain Expansion record of decision (USDA 1995). This drainage has added value as security habitat immediately adjacent to an area of relatively high levels of human use, although it is not large enough to be considered “secure core”. From April 1 to November 30, the Hellroaring drainage has been managed to provide grizzly habitat security and this would continue under the proposed action. Human access into the Hellroaring drainage during the non-ski season has been discouraged through the placement of slash and stumps near the top of ski runs and lift corridors. In the proposed Taylor Hellroaring Project, one section of Trail 2 would switchback down from the southern ridge into the lower drainage and has the potential to affect grizzly bear security in this area.

A Special Food Storage Order on the Flathead National Forest has contributed to improved conditions for grizzly bears. The Food Storage Order requires all users of NFS lands to store food, garbage, and other bear attractants in a bear-resistant manner. Contractors and others implementing the Hellroaring Basin Improvement Project would be required to comply with this order.

Regulatory Framework and Consistency

Flathead Land Management Plan

The Forest Plan (USDA Forest Service 2018a) incorporates management direction from the Grizzly Bear Conservation Strategy (NCDE Subcommittee 2018). Many desired conditions, standards, and guidelines in the Forest Plan are relevant to grizzly bears in the project area. These include:

- FW-DC-TE&V-01 and -02, guides management to provide the amount, type, and distribution of vegetation for habitat components in a mosaic of successional stages for grizzly bear habitat needs over the long-term;
- FW-GDL-TE&V 01 supports the inclusion of measures into project design to reduce the risk of disturbance to the grizzly bear population, such as restricting activities in spring habitat during the spring time period or providing areas with low levels of human activity adjacent to areas with high levels of disturbance;
- GA-SM-MA7-Big Mtn-DC-04, specific to the Resort, promotes year-round recreational opportunities, with winter recreation occurring in all portions of the Resort’s permit area. This guideline also limits recreational opportunities during the grizzly bear non-denning season to the south-facing slope while maintaining higher levels of grizzly bear habitat security in the portion of the upper Hellroaring watershed below Road 9790.
- Forest-wide desired conditions designed to reduce the risk of grizzly bear-human conflicts include FW-DC-WL-01, FW-DC-WL-03, and FW-DC-REC-06

- In addition, several forest-wide guidelines are intended to reduce the risk of grizzly bear-human conflicts by contractors, permittees, lessees, operators, and their employees (FW-GDL-TE&V-04 and FW-GDL-WL-01 and -02).

All proposed vegetation changes and other activities would be consistent with all Forest Plan direction for grizzly bears (Appendix 7, below). See Appendix 3 Table D for design features, such as those that would reduce human/bear conflicts, protect denning bears, retain secure habitat in the Hellroaring drainage.

Big Mountain Expansion Decision

Maintenance of habitat security for grizzly bears in the Hellroaring drainage through limitations on human activity was a mitigation measure of the 1995 Big Mountain Expansion decision. The LMP (USDA Forest Service 2018b) incorporated this as GA-SM-MA7-Big Mtn-DC-04. Because little other unroaded habitat exists in the southern end of the Whitefish Range, this drainage has added value as security habitat immediately adjacent to an area of relatively high levels of human use, despite the area not being large enough to be considered Secure Core. After ski-area development construction is complete, this part of the Hellroaring drainage would continue to provide habitat security for grizzlies during the non-denning season even though its effectiveness would be slightly reduced by the reduction of hiding cover, ski-area maintenance activities, and a possible increase in huckleberry picking and other human uses resulting indirectly from the reduction in conifer cover. See design features #59, 60, 61, 64, and 65 in Appendix 3.

Determination

The determination for grizzly bears is based on the following rationale:

- 1) The grizzly bear and its habitat are expected to occur in the project area.
- 2) Motorized access parameters would not be affected by project activities in the Canyon McGinnis or Werner Creek subunits, however these subunits do not currently meet research benchmarks (USDI FWS 2017 and 2018) and therefore the baseline condition is adverse.
- 3) Roads constructed for this special-use permit (ski lift service roads) would not be open to public motorized travel but motorized use for ski-area operations could displace bears.
- 4) The proposed action would permanently decrease hiding cover across the project subunits. Hiding cover would remain well distributed for grizzly bear travel and security during and after project implementation.
- 5) Spring timing restrictions would likely prevent displacement of grizzly bears when early season plant production is limited.
- 6) Vegetation removal for ski area development would increase forage for grizzly bears.
- 7) No project activities would occur in or near Secure Core, including low-elevation helicopter flights for ski lift installation.
- 8) Project design features #16 and 57 through 70 would contribute to decreasing the potential for human-bear conflict and associated grizzly bear mortality.

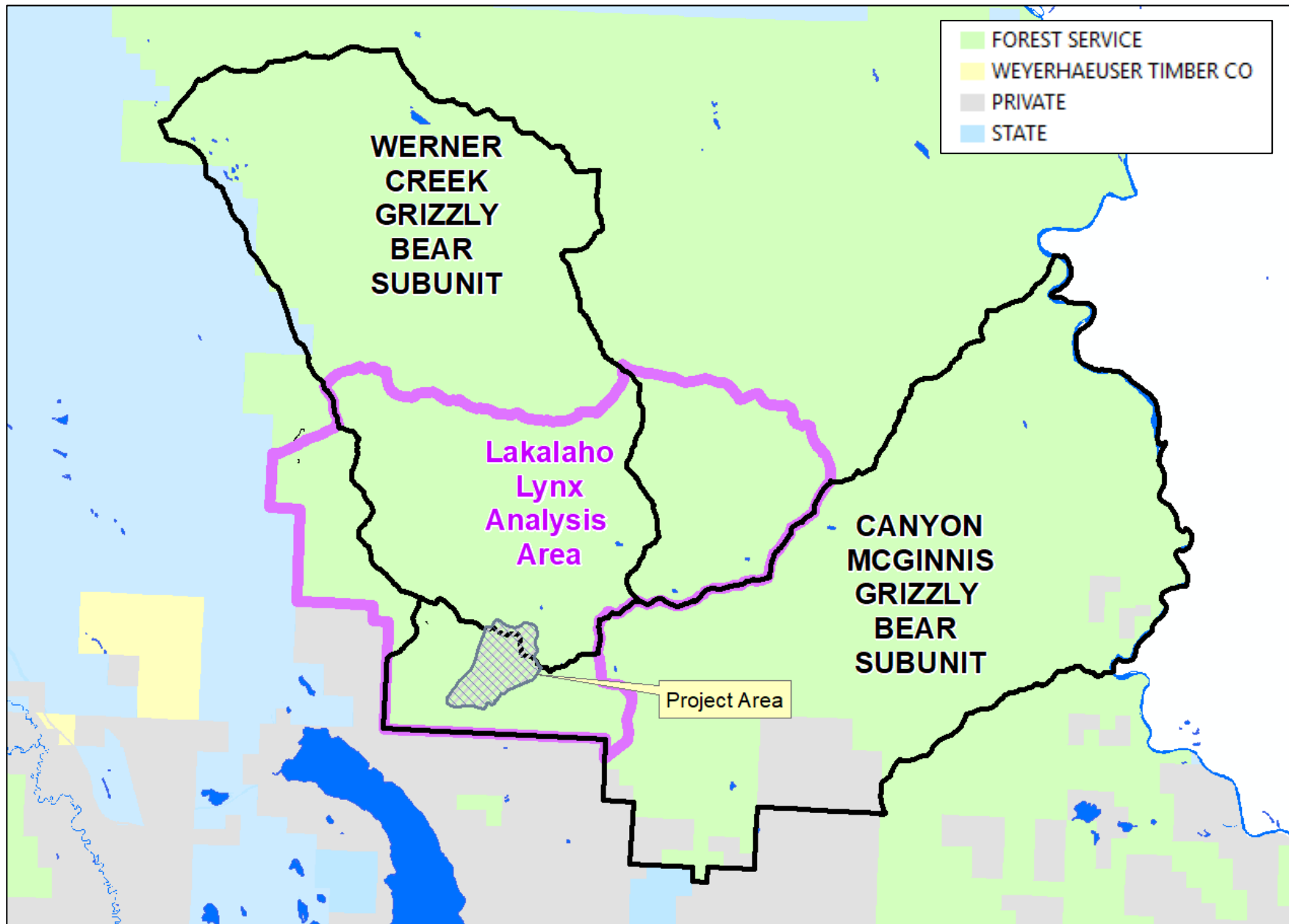
The project activities were designed to reduce impacts to the grizzly bear. The project would have minor impacts to grizzly bears due to the influence of project activities. Considering the baseline and the combined conditions of the proposed project, the determination for grizzly bear is “**May Affect, Likely to Adversely Affect**”.

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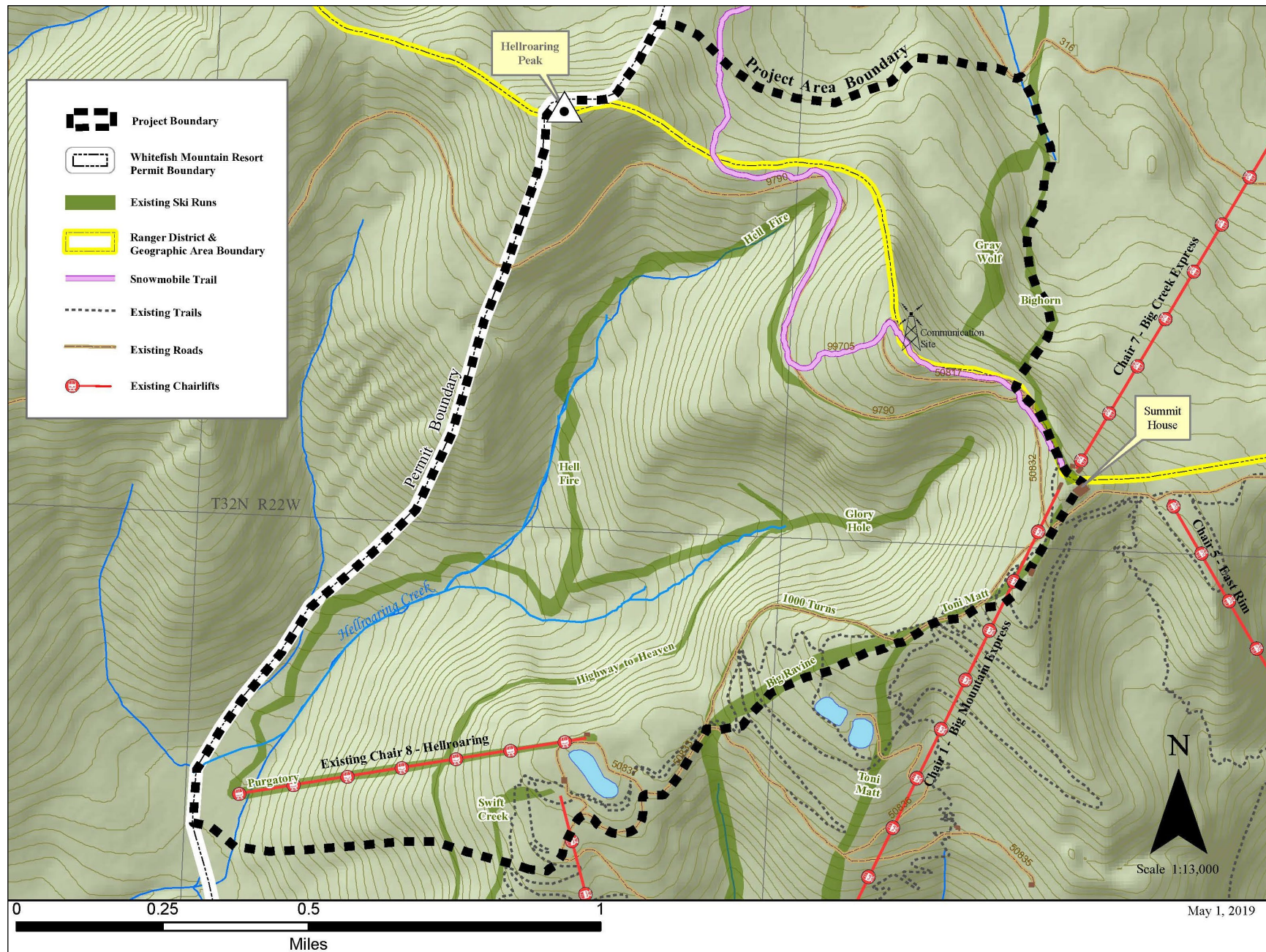
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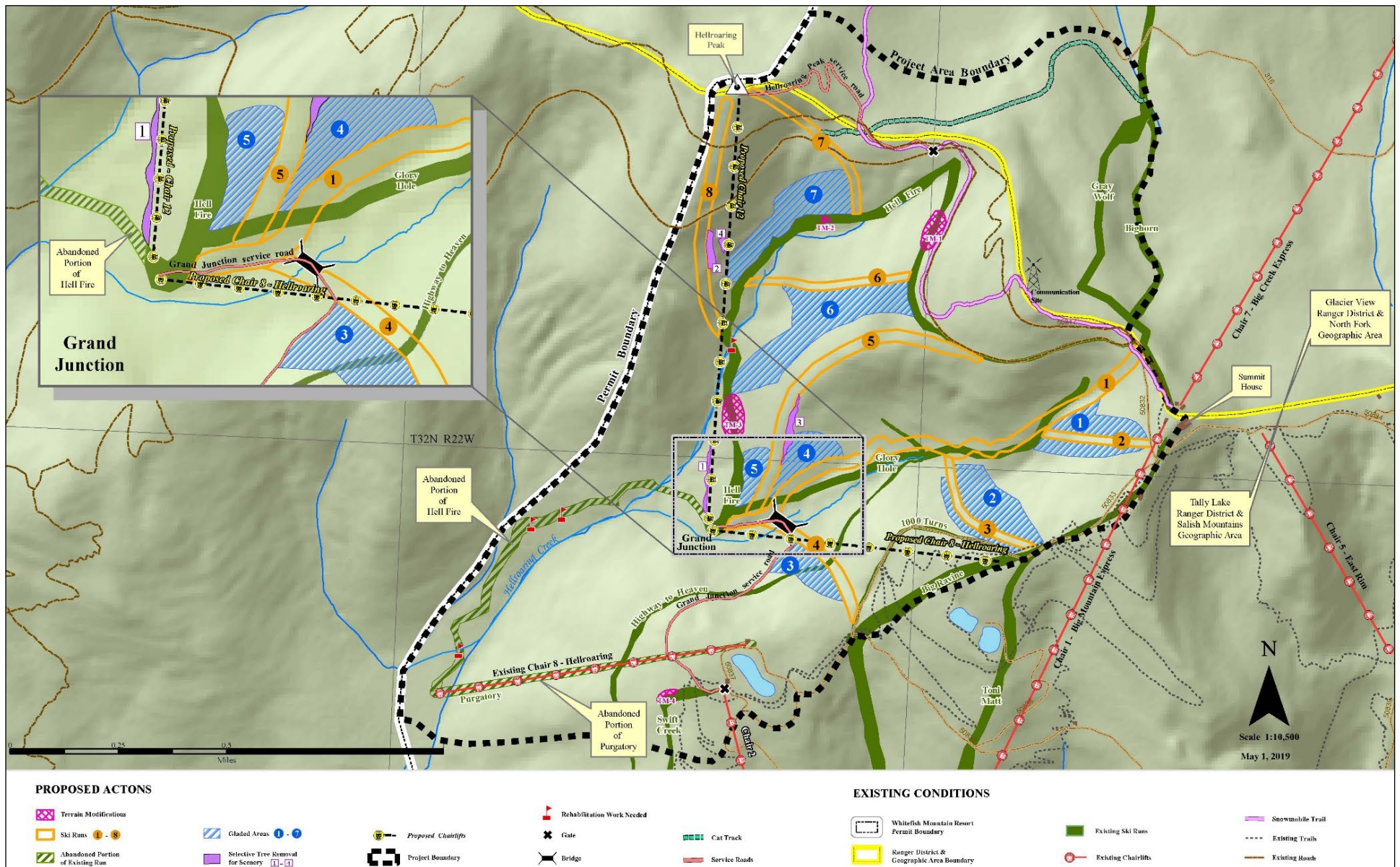
Appendix 1. Hellroaring Basin Improvements Project and Action Areas.



Appendix 2. Map of Existing Features in and near the Hellroaring Basin.



Appendix 3. Hellroaring Basin Improvements Project Activities -- Map and Project Details.



Appendix 3, continued. Project Description Details.

Table A. Miles/acres and other details of proposed activities.

Proposed Activity	Miles	Acres	Other Details	Rationale
<i>Terrain modification (total)</i>	<i>0.3</i>	<i>3.8</i>		Enhance skier experience and improve skier and groomer safety.
TM-1	0.1	1.5	Re-contour grade reversals inside and/or adjacent to existing Hell Fire Run.	
TM-2	0.02	0.1		
TM-3	0.1	1.9		
TM-4	0.05	0.3	Remove trees to widen a sharp turn adjacent to existing Swift Cr Run	
<i>Ski runs (total)</i>	<i>3.5</i>	<i>45.0</i>		Increase groomed and off-piste skiing opportunities. Improve skier circulation. Improve access and experience for intermediate and advanced intermediate skiers.
Run 1	1	14	Up to 120 feet wide ¹ . Existing Glory Hole Run incorporated where overlap.	
Run 2	0.2	2	Up to 80 feet wide.	
Run 3	0.3	2.6	Up to 80 feet wide.	
Run 4	0.3	3.7	Up to 100 feet wide.	
Run 5	0.6	9.6	Up to 120 feet wide.	
Run 6	0.3	3.3	Up to 80 feet wide.	
Run 7	0.3	3.2	Up to 80 feet wide. Only needed if Chair 12 installed.	
Run 8	0.5	6.7	Up to 120 feet wide. Only needed if Chair 12 installed.	
<i>Gladed areas (total)</i>		<i>61.3</i>	Trees would be selectively with approximately 20x20 foot spacing between trees (project design feature 22. Glade 7 would only be needed if Chair 12 is installed.	Enhance skier experience and respond to growing skier preference for tree skiing. Provide for skier safety. Allow skiers to disperse across a broader area, reducing crowding and improving skier circulation.
Glade 1		8		
Glade 2		10.4		
Glade 3		6.7		
Glade 4		4.7		
Glade 5		2.2		
Glade 6		18.2		
Glade 7		11.1		
<i>Selective tree removal for scenery (total)</i>		<i>2.9</i>	Selective tree removal would occur in areas adjacent to Chair 12, Run 8, and Run 5 to create a gradual canopy gradient. This would be created by selectively removing trees from the edge of the runs and lift lines outward.	Minimize the contrast between the cleared ski run/lift line and non-cleared area to retain scenic character. Tree removal in these areas would be minimized to the extent possible to reduce effects to wildlife.
Scenery 1		1.3		
Scenery 2		0.6		
Scenery 3		0.8		
Scenery 4		0.2		
<i>Chairlifts (total)</i>	<i>1.4</i>	<i>8.5</i>	50 foot wide clearance. A heavy lift helicopter would be used to deliver concrete, lift towers, terminals, and other materials. Flights would be staged from private land about 2.5 miles south of the project area. Ground-based	
Relocated Chair 8	0.6	3.5	heavy lift helicopter would be used to deliver concrete, lift towers, terminals, and other materials. Flights would be staged from private land about 2.5 miles south of the project area. Ground-based	Enhance skier experience, circulation, and safety by abandoning lower section of Hell Fire Run. Enhance skier experience and improve safety by moving existing chairlift from lower

Proposed Activity	Miles	Acres	Other Details	Rationale
			survey work (e.g. for chairlifts) would need to be completed. This could require incidental brush cutting to allow for accurate surveying.	location. Improve skier circulation and improve skier safety by providing a lift served exit out of Hellroaring Basin.
New Chair 12	0.8	5	See 1 Some runs would be narrower to avoid riparian management zones and old growth patches. ² Finished area of 30x50 feet x four terminals. ³ Construction disturbance of 50x70 feet x four terminals. ⁴ Finished width of 14 feet. ⁵ Construction disturbance width of 30 feet. Table B and design features 6, 18, 20, 48, 55, 56, 57, 58, and 59 for additional details specific to the proposed chairlifts.	Enhance skier experience and circulation by providing lift access to Hellroaring Peak area and Run 7, Run 8, Glade 7, and the cat track via the Hellroaring Peak service road. Improve skier circulation and safety by providing second lift served access out of Hellroaring Basin.
<i>Terminals for New chairs 8 and 12</i>		<i>1.5 (finished)² 3.3 (construction)³</i>	Loading and unloading ramps and lift line areas at terminals could require some grading and clearing to accommodate safe access and staging for skiers. See 1 Some runs would be narrower to avoid riparian management zones and old growth patches. ² Finished area of 30x50 feet x four terminals. ³ Construction disturbance of 50x70 feet x four terminals. ⁴ Finished width of 14 feet. ⁵ Construction disturbance width of 30 feet. Table and design features 2, 20, 48, 55, 56, and 59.	
<i>Service roads (total)</i>	<i>1.3</i>	<i>2.2 (finished)⁴ 4.8 (construction)⁵</i>	In winter, roads would be groomed and open to administrative and skier use. Outside of winter ski season, roads would not be open to public motorized use. Bicycle use would also be prohibited on the service roads. See design features 18, 20, 48, 53, 54, 60, and 61.	Support and maintain Chair 8 and Chair 12. Access ski runs and glades for maintenance activities.
Grand Junction service road	0.7	1.2 (finished) ⁴ 2.6 (construction) ⁵	Upper terminus of road would be near top of Chair 2. Lower terminus would be in	Year-round administrative access to Grand Junction area and lower terminals of

Proposed Activity	Miles	Acres	Other Details	Rationale
			Grand Junction Area. Road would be gated at the junction with Forest Road 50837. This road would require construction of a bridge (see below). Road would provide for hauling timber cut as a result of project activities.	Chair 8 and 12. Provide high voltage power to lower Chair 12 terminal if it is a bottom drive lift. Provide road served access and egress for safety needs. Provide direct skier access from Chair 2, upper terminal to Chairs 8 and 12 lower terminals.
Hellroaring Peak service road	0.6	1.0 (finished) ⁴ 2.2 (construction) ⁵	Eastern terminus of road would be at junction with Forest Road 9790. Western terminus would be at Hellroaring Peak. Road would be gated at junction with Forest Road 9790. Road would only be needed if Chair 12 is a top drive lift. See Table C.	Year-round access to the drive terminal on Hellroaring Peak, if Chair 12 is a top drive lift. Provide road served access and egress for operation and maintenance needs.
<i>Grand Junction service road bridge</i>	<i>20 to 40 feet</i>	<i>0.56</i>	Bridge would be 14 feet wide. The bridge would be built to Forest Service specifications to withstand snow load, groomers, and heavy equipment. See project design features 7 and 18.	For equipment to cross a tributary of Hellroaring Creek and access Grand Junction area via service road. If Chair 12 is a bottom drive lift, bridge would also provide power across creek. See Table C.
<i>Cat track</i>	<i>0.7</i>	<i>1.3 (finished)⁴ 2.8 (construction)⁵</i>	Cat track would be groomed in winter and provide a connection to the north side of the resort. Would intersect snowmobile trail 99705 near saddle just east of Hellroaring Peak. Public motorized use of cat track would be prohibited year-round. Bicycle and hiker use would be discouraged (design feature 62). This would require clearing of trees and some cut and fill in areas with steep slopes. See project design features 20, 48, 52, 53, 54, and 63.	Improve skier circulation by providing skier access to the lower terminal of Chair 7 and the north side ski pod.
<i>Avalanche control</i>	<i>N/A</i>	<i>30</i>	Snow conditions and avalanche risk would determine specific methods and locations of avalanche control, but methods would likely include explosives. This would be in addition to other avalanche control already authorized in the Resort's special use permit.	Provide for skier and groomer safety.

Proposed Activity	Miles	Acres	Other Details	Rationale
Total miles of new activity: 7.3 Total acres of new activity (finished area): 157.0 Total acres of new activity (construction disturbance area): 163.0				

¹ Some runs would be narrower to avoid riparian management zones and old growth patches.

² Finished area of 30x50 feet x four terminals.

³ Construction disturbance of 50x70 feet x four terminals.

⁴ Finished width of 14 feet.

⁵ Construction disturbance width of 30 feet.

Table B. Details on the proposed chairlifts.

Chairlift	Location	Length	People per hour	Type	Associated activities
Hellroaring Chair 8 (New)	Lower terminal: Grand Junction area (5,375 feet). Upper terminal: Junction of Toni Matt and Big Ravine runs (across from entrance to the 1,000 Turns Run) (6,450 feet).	Length: 3,015 feet/0.6 miles. Vertical feet: 1,075 feet.	1,800 (no change from existing).	Triple, fixed grip. Top drive (no change from existing).	1. Abandonment of existing Hell Fire Run below Grand Junction and existing Chair 8 lift line/Purgatory Run. 2. Construction of Grand Junction service road and bridge.
Hellroaring Peak Chair 12 (Relocated)	Lower terminal: Grand Junction area (5,375 feet) in existing Hell Fire Run at Grand Junction, just west of relocated lower terminal of Chair 8. Upper terminal: Hellroaring Peak (6,715 feet).	Length: 4,365 feet/0.8 miles. Vertical feet: 1,340	Likely 1,800.	Likely triple, fixed-grip. May be bottom or top drive (see Table).	1. Construction of runs 7 and 8, glade 7, and Hellroaring Peak service road. These activities would not be implemented until after a firm commitment is made by the Resort to purchase and install Chair 12.

As shown in Table C, relocated Chair 8 would continue to be a top drive lift. High voltage, underground power would only go to the drive terminal. Low voltage power for switches, controls, and communication lines at the lower terminal would be delivered overhead through the lift line. Chair 12 could be a top drive or bottom drive lift. How this would affect other proposed activities is described in Table C.

Table C. Differences in implementation if Chair 12 is top or bottom drive.

Drive	High voltage power terminal	Service road	Power source	Power line location
Top	Upper	Hellroaring Peak service road for maintenance access.	Closest junction box to chairlift on Road 9790.	Dug into Chair 12 lift line north of intersection with Road 9790.
Bottom	Lower	Grand Junction service road for power and maintenance access. Hellroaring Peak service road would not be built.	Closest junction box to upper terminus of Grand Junction service road with upper terminal of Chair 2.	Dug into Grand Junction service road.

As stated previously, the portion of the existing Hell Fire Run below Grand Junction would be abandoned (0.8 miles/7.6 acres) because it would no longer be needed with the relocation of Chair 8. This portion would be allowed to revegetate naturally, other than four stream crossings that would be actively rehabilitated.

These stream crossings would be rehabilitated in order to restore hydrologic function, promote long-term streambank stability, and protect water quality. Rehabilitation methods would generally follow guidance for culvert removal sites and comply with all applicable local, State, and Federal permitting requirements. Two of the stream crossings (the upper and lower most rehabilitation sites) would also require removing corduroy logs¹. A Forest aquatics specialist would be on-site during this phase of the project to communicate the appropriate level of work at each location. The rehabilitation work would require approximately four days of heavy machinery work, unless extenuating circumstances would warrant additional time and are approved by the district ranger.

The existing Chair 8/Purgatory Run would also be abandoned (0.6 miles/5.7 acres²) with the relocation of Chair 8. Because the lift line would be abandoned, eventually the lift line/Purgatory Run would naturally grow in. Chair 8's terminal buildings would be removed (0.1 acres³). However, the buildings' concrete pad and footings and lift line's footers would remain in place to reduce ground disturbance that would occur during removal. Rebar and bolts on abandoned Chair 8's terminal footers and lift line footers would be flush cut for safety reasons.

In total, approximately 1.4 miles/13.4 acres of existing features would be abandoned. More information related to rehabilitation methods is in project design features 7 and 48.

Table D. Project design features that are incorporated into the proposed action.

Subject area	Project design feature
Aquatics and soils	1. Before implementation, riparian management zones would be clearly marked in order to delineate the extent of mechanized equipment use. 2. Before implementation, terminal footprint disturbance areas would be flagged by the Resort and approved by the aquatics specialist. 3. Before implementation, the Resort would identify fuel storage and refueling locations outside of the riparian management zone and at least 150 feet away from perennial streams (e.g. Hellroaring Creek). If this is not possible, the Resort would work with the Forest Service aquatics specialist for approval of any storage or refueling sites within riparian management zones and have an approved spill containment plan. 4. Ground-based heavy equipment would only operate outside of riparian management zones and in areas with less than 40% slope to protect soil quality. Walking heavy equipment through riparian management zones to access ski runs, glades, or lift lines would be prohibited. The use of mechanized equipment for skidding or piling vegetation within riparian management zones would not be permitted. Exceptions to the riparian management zone rule would occur for road/bridge construction. Exceptions to the 40% slope rule may be considered if additional site-specific analysis determines that soil functions would be maintained.

¹ Corduroy, or poled ford logs, are intended to be temporarily placed in a stream parallel to the direction of flow and level with the stream bank to facilitate the crossing of equipment.

² Acreage is based on approximate existing clearance width.

³ Acreage is based on 30 feet x 50 feet x 2 terminals.

Subject area	Project design feature
	5. No additional clearing for Run 1 would occur where it would be within the riparian management zone. 6. Chairlift tower footers would avoid stream channels, banks, and riparian management zones, where practicable. Footers that would potentially be placed in the riparian management zone would be discussed with the permit administrator and aquatics specialist and approved by the district ranger in writing. 7. Instream work would occur during the low stream flow time period (usually in July/August) in order to reduce sediment delivery downstream. 8. Existing and newly felled downed trees would be left onsite in riparian management zones in order to meet large wood desired conditions, where it would be safe and practical to do so. 9. Hand (chainsaw) falling would be the only approved method of timber falling within riparian management zones. 10. All slash created as a result of project activities would be kept out of active stream channels and other water bodies. Slash piles would be located outside riparian management zones. 11. Ground-based mechanical vegetation treatments and mechanical piling would occur when soils are dry as determined by the hand feel method. 12. All mechanized units that remove commercial products would be logged using designated skid trails. Equipment would occasionally leave the trails to access trees or accomplish other activities. 13. Skid trail spacing width must average at least 75 feet in all tractor harvest units. The goal is to occupy less than 15% of the treatment area, including soil disturbance from skid trails and landings associated with proposed activities. 14. Sale administrators will monitor soil moisture conditions prior to allowing equipment to begin operations in summer. This monitoring must be documented in the Timber Sale Daily Report.
Implementation timing restrictions, permitting, and surveying	15. Project implementation would adhere to any State and Federal permit timing restrictions and requirements. Examples include, but are not limited to: permitting through the State for instream and associated floodplain activities; storm water permitting through the State due to the size of proposed disturbance; or US Fish and Wildlife terms and conditions. 16. Proposed action activities would be completed between June 1 and November 30 each year to limit impacts to wildlife and to minimize ground disturbance during wet time periods in the springtime (FW-GDL-TE&V-01). 17. Project implementation would not exceed 5 years in order to comply with FW-GDL-IFS-01 (pp. 66-67). Pile burning would be excluded from these timing restrictions, in order to allow for curing of the fuels and more efficient burning. 18. The Forest would submit Joint 310 Form 270 to the appropriate regulatory agencies for work related to bridge construction (given disturbance thresholds triggering an individual permit are not reached) and timber harvest. Approval for alternative practice activities within the riparian management zones (where Chair 8 lift line, the Grand Junction service road and bridge, and Run 4 would cross the riparian management zone) would also be needed from the Montana Department of Natural Resources and Conservation. Permits and alternative practices must be granted and/or approved by the appropriate regulatory agencies before implementation. 19. Storm water permitting through the Montana Department of Environmental Quality would be the responsibility of the Resort or associated contractor on-site performing the work.

Subject area	Project design feature
	20. The outer edges of runs, gladed areas, terminals, lift lines, service roads, and the cat track would be flagged by the Resort and approved by the Forest before tree removal or ground disturbance would occur.
Vegetation/slash management	21. No tree removal in glades or the scenery-specific gladed areas would occur until after the Forest silviculturist has prepared a prescription. 22. Gladed areas would retain between seventy-five and 125 trees per acre for an average of 100 trees per acre, or for an average of twenty foot spacing. The focus in the glades would be to retain the largest trees possible. Live trees greater than 20" DBH and dead trees greater than 12" DBH would be retained, unless they would pose a risk to critical infrastructure (e.g. chairlifts or terminals) or human safety. 23. Trees in gladed areas could be removed by hand or machine felling, unless in riparian management zones or where slopes are greater than 40% slope. Only hand felling would occur in these areas unless site-specific exceptions to the 40% slope rule is approved by the Forest soils scientist. 24. Hazard trees adjacent to ski runs and gladed areas that need to be felled would be felled away from ski runs and left intact on the ground as much as possible to provide wildlife habitat. If felled into runs, the trees could be limbed and bucked and removed from the run wherever in conflict with skier safety or grooming. 25. Stumps created as a result of this project would be cut to a height as to not be a safety hazard. 26. Slash management would occur concurrent and progressive with the proposed activities and/or within the same season/operating window. 27. All activities: Where lop and scatter⁴ slash management would occur, slash would be limbed and bucked into eight foot lengths and placed on or near the ground surface so that the slash would be less than 2 feet deep. Directional felling would be required as opposed to jack straw felling in order to facilitate decomposition. 28. Ski runs and glades: Existing down wood greater than 9" diameter would be left intact and retained in glades and ski runs to maintain wildlife habitat, wherever not in conflict with grooming and/or skier safety. Where these pieces would be in conflict with grooming and/or skier safety, the pieces would be limbed, bucked and or placed in an area to reduce safety issue. 29. Ski runs: Trees greater than 9" diameter in ski runs could be bundled and left in depressions or moved off ski runs in places where it would not conflict with grooming, skier safety, or create a high concentration of fuel. The resort would work with the Forest permit administrator and/or fuels specialist during project implementation to determine the appropriate management technique. 30. Glades: Slash greater than 9" diameter in gladed areas would be left intact in place to provide wildlife habitat, where it would not conflict with skier safety, or create a high concentration of fuel. Where these pieces would be in conflict with skier safety, the pieces would be limbed or bucked. 31. Glades: Slash less than 9" diameter in gladed areas would be bucked into 8' lengths or less and placed on or near the ground surface and limbed so that the slash would be less than 2 feet deep. Directional felling would be required as opposed to jack straw felling in order to facilitate decomposition. Slash less than 9" diameter could be piled, if it met other proposed action design features.

⁴ *Lop and scatter*: cutting limbs and boles of trees to reduce depth of slash created by felled or existing trees.

Subject area	Project design feature
	32. Piles could be either constructed by hand or by machines, but all piles would be constructed to facilitate full consumption when burned. Machine piles would be constructed with excavators. 33. All piles would be located outside of residual/leave tree driplines, and in openings or areas of low tree densities to minimize damage to residual trees when burned. 34. No piles would be located on top of down logs, rotten stumps, or rocks. 35. In order to ensure compliance with prescribed fire operations and air quality laws, the Forest would burn the piles. The resort would be billed for the cost of the Forest to burn the piles. 36. Prior to hand piling, slash and/or existing down wood would be limbed flush with the bole of the tree to a minimum diameter of 1" on two opposing sides, and bucked into pieces 8 feet or less in length. 37. Hand piles would be a minimum of 10 feet in diameter and 6 feet high when constructed. 38. Hand piles would be compactly constructed and would have a sound base to prevent the pile from toppling. Slash would be piled in a parallel configuration, similar to pencils in a box. Once the minimum pile dimensions are met, slash could be added vertically on the edge of a pile to prevent the pile from toppling. Slash extending greater than 2 feet in any direction from the pile profile would be cut off and placed on the pile. 39. Hand piles would be covered with a burnable, non-toxic water repellent paper (no tar paper) so that three fourths the diameter and three fourths of the height of the pile would be covered. The paper would be held firmly in place by heavy slash. 40. Hand piles constructed on slopes greater than 40% would be secured by leaving one or two activity generated stumps four to 6 feet high per pile on the downhill side. 41. Machine piles would be placed greater than 20 feet apart to prevent a windrow effect. 42. Machine piles would be ten to 20 feet in diameter and a minimum of 8 feet high. Exceptions to maximum pile size diameter limits would be considered if additional site-specific analysis determines that soil functions would be maintained. 43. Slash used to build machine piles would not exceed 8 feet in length. 44. Machine piles would be compactly constructed, be free of dirt and duff, and have a sound base to prevent the pile from toppling. Slash would be piled in a parallel configuration, similar to pencils in a box. Once the minimum pile dimensions are met, slash could be added vertically on the edge of a pile to prevent the pile from toppling. Slash extending greater than 2 feet in any direction from the pile profile would be cut off and placed on the pile. 45. To facilitate efficient pile burning, only stumps removed from the ground for service road construction would be allowed to be placed in burn piles in order to facilitate more efficient pile burning. These stumps would be as free of dirt as possible.
Whitebark pine conservation	46. If blight-free mature trees or cone-bearing whitebark pine trees are found during project activities, the Forest silviculturist or permit administrator would be contacted for further actions. 47. Cone bearing whitebark pine trees that exhibit potential rust resistance would be protected in gladed areas, unless removal is approved on a case by case basis by the district ranger or Forest silviculturist.

Subject area	Project design feature
Rehabilitation of areas disturbed during project implementation and non-native invasive plant species prevention	48. Areas disturbed (e.g. exposed soils) as a result of project implementation would be rehabilitated, where appropriate. Rehabilitation of exposed soils would occur prior to fall or spring runoff. This would include, but would not be limited to: • Construction disturbance widths along service roads and chairlift terminals; • Relocated Chair 8 and new Chair 12 lift lines; • Cut and fill slopes (e.g. for service roads and cat track); • Areas where mechanical equipment “walked” off-road (e.g. skid trails); and • Slash piles. Excluded from this would be: • Finished service road surfaces and drainage catch points (e.g. culverts); and • The existing Hellroaring Chair 8 lift line/Purgatory Run, which was determined to have adequate vegetation and would revegetate further naturally. Rehabilitation methods could include seeding with weed-free, Forest approved seed, mulching, raking, or other suitable methods as determined by the Forest. The resort would work with the Forest permit administrator, hydrologist, or soil scientist to determine exact rehabilitation timing, locations, methods of rehabilitation, and to obtain the approved seed. 49. All burn pile locations would be lightly scarified and seeded with a Forest approved seed mix the same fall as when the burning would occur. Machine piles would be scarified by lightly raking and hand piles would be lightly scarified with a tool, boot, or by hand. 50. To address bringing in weeds from off Forest, equipment would be washed prior to work on forest.
Cultural resources	51. If cultural resources are encountered during the course of this project, ground disturbing activities in the vicinity of the find would be suspended, in accordance with Federal regulations, and the Forest archaeologist would be notified to evaluate the discovery and recommend a subsequent course of action. This clause would be included in any contracts that would be used to implement this project.
Recreation	52. The cat track-snowmobile trail intersection would be configured, signed, and managed to minimize safety hazards by notifying users of the intersection, maximizing sight distance, and requiring full stop by snowmobiles. Similarly, if the proposed non-motorized summer use Taylor Hellroaring Project trail would cross the cat track and Hellroaring Peak service road, these crossings would be signed.
Scenery	53. Keep the proposed roadways and cat track as narrow as possible. 54. Retain as much vegetation around the proposed roadways and cat track as practicable to reduce the appearance of an unnatural linear feature. 55. The terminals and chair lift towers would be painted in muted colors to blend into the surrounding landscape and the culturally/socially accepted appearance of the Resort, to the extent possible, in consideration of manufacturing limitations and painting feasibility. 56. The Forest landscape architect would review design drawings and color/material plans for the lifts and associated structures.
Wildlife	57. Helicopter flights for chairlift installation would be limited to five days for construction of each chairlift to minimize disturbance to wildlife. Additional days may be approved in writing by the Forest in extenuating circumstances. 58. No helicopter flights or landings would be allowed on the north side of the Whitefish Range divide nor to the west or northwest of the Hellroaring drainage, unless needed for safety or emergency situations.

Subject area	Project design feature
	59. All maintenance activities in the Hellroaring drainage, with or without heavy machinery, would be limited to a single three-week maintenance period each year between July 1 and November 30, unless an exemption is approved in writing by the Forest. This maintenance activity restriction would not include items such as routine inspections, monitoring, assessments, visual checks, or addressing minor safety items. (GA-SM-MA7-Big Mtn-DC-04, p. 135; FW-GDL-TE&V-01 pp. 42-43) 60. To minimize disturbance to wildlife security habitat, public motorized use of the Grand Junction and Hellroaring Peak service roads would not be allowed. The roads would be gated and signed. (GA-SM-MA7-Big Mtn-DC-04, p. 135; FW-GDL-TE&V-01 pp. 42-43). 61. To minimize disturbance to wildlife security habitat, bicycle use would also be prohibited on the service roads to minimize impacts to wildlife. The existing special order that restricts bicycle use to designated routes on the front side of the Resort would be updated to include Hellroaring Basin. To encourage compliance with this, signage would be posted and a gate would be put in place at the beginnings of the roads. (GA-SM-MA7-Big Mtn-DC-04 p. 135) 62. Public motorized use of the cat track would be prohibited year-round to protect wildlife security habitat. Although public use in summer is unlikely due to the steep grade and vegetation left in the cat track and the dense vegetation of the surrounding area. Education, such as signage, would also be used to discourage off-highway vehicle, bicycle, and hiker use. 63. To maintain wildlife habitat security, trees and slash would be felled into the cat track, as much as possible. However, trees and slash left in the cat track would not be left in a manner that would cause a safety hazard during winter use. 64. In order to protect non-denning grizzly bear habitat security, Hellroaring Basin would continue to be subject to the skier use closure that begins annually on April 1 (GA-SM-MA7-Big Mtn-DC-04, p. 135). 65. In order to reduce wildlife impacts, spring, summer, and fall recreation in the Hellroaring Basin, excluding the Road 9790 and the proposed Taylor Hellroaring Project trails, would not be promoted by the Resort (GA-SM-MA7-Big Mtn-DC-04, p. 135). 66. All individuals involved with implementation of this project would be required to comply with the Forest's food storage and sanitation order(s) (FW-STD-WL-02, p. 50). 67. Hunting and transportation of hunters and game by individuals involved in the implementation of this project would be prohibited. 68. In order to reduce the risk of grizzly bear-human conflicts (FW-GDL-REC-01, p. 61): 69. All individuals involved with implementation of this project would be informed of procedures for safely working and recreating in grizzly bear country and of food/wildlife attractant storage special order(s) prior to beginning work and annually thereafter (FW-STD-WL-02, p. 50; FW-GDL-WL-01, p. 50); and Overnight camping on Forest Service lands by individuals involved in the implementation of this project would require written approval from the Forest Service on a case by case basis (FW-GDL-WL-02, p. 50). 70. In order to resolve a grizzly bear-human conflict situation, project activities would be modified, cancelled, suspended, or temporarily ceased, as needed (FW-STD-REC-02, p. 61, and FW-GDL-TE&V-04, p. 43). 71. If any of the following are found within or close to any authorized activity, operations within that immediate area will cease until a Forest Service wildlife biologist is notified and, if necessary, activities are modified (FW-GDL-WL DIV-05, p. 49): • Active denning sites used by grizzly bears, wolves, lynx, fishers, or wolverines;

Subject area	Project design feature
	• Active nesting sites used by bald eagles, northern goshawks, or flammulated owls; • Active rendezvous (pup rearing) sites used by wolves; and/or • Indications of bat roosting.

The following two monitoring items would occur post-project completion.

Revegetation effectiveness monitoring: This monitoring would be completed to ensure adequate revegetation of burn piles and other disturbed sites. The information will be used to determine areas that are in need of retreatment if revegetation is inadequate. Monitoring would consist of (at a minimum) one person completing point intersect line transects one or two days per growing season for up to three consecutive years, starting one year after seeding.

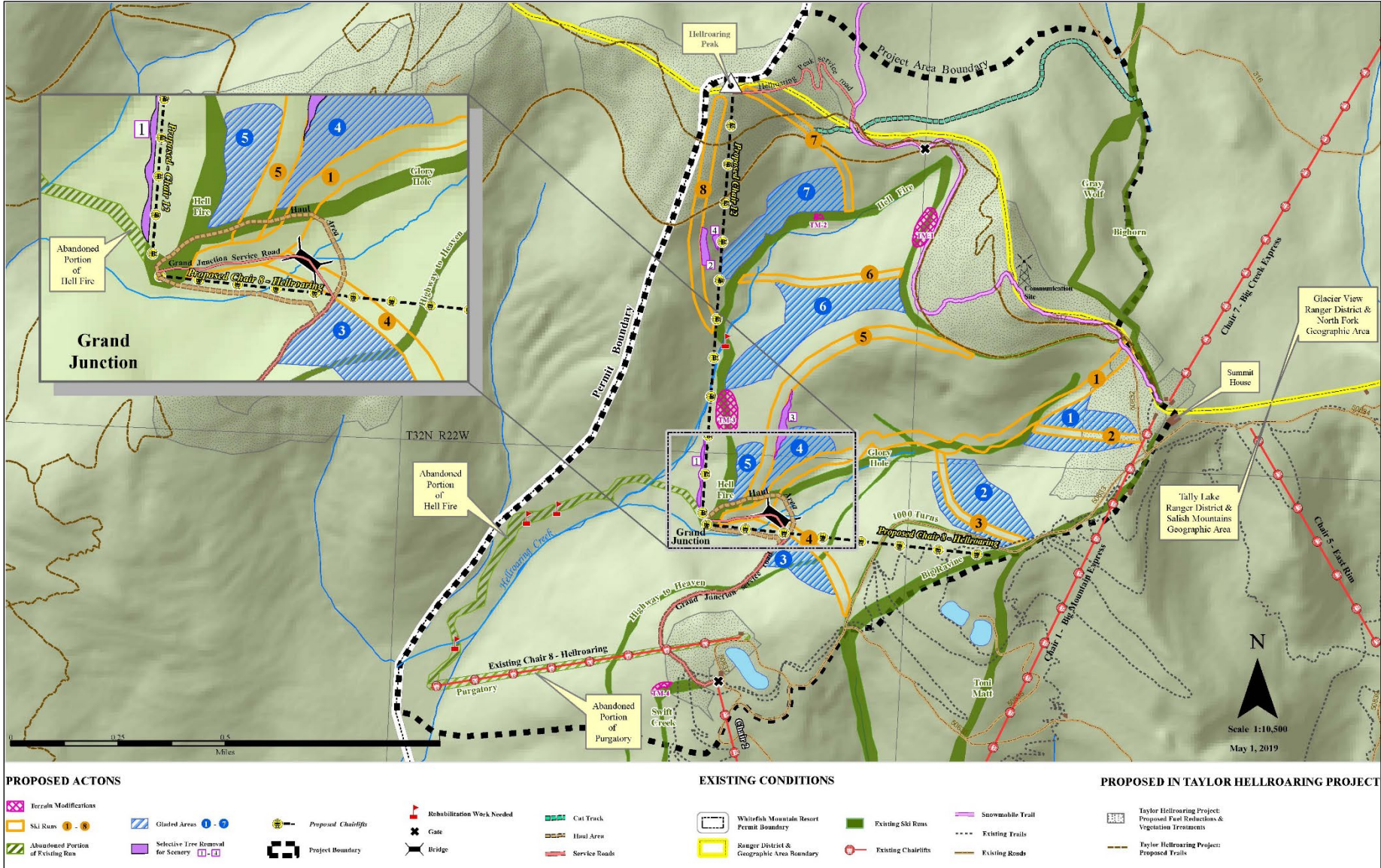
Scenery integrity objectives monitoring: Monitoring would be completed by the Forest landscape architect (or designee) to assess whether or not activities and actions are moving the project area towards meeting or exceeding the scenic integrity objectives in the short-term. If it is determined that scenic integrity objectives are not met or exceeded and therefore the intactness of the scenic character is beyond the slightly altered appearance necessary to meet or exceed a moderate scenic integrity objective, future actions may be warranted.

Appendix 4. Hellroaring Basin Improvements Project Overlap with the Taylor Hellroaring Project.

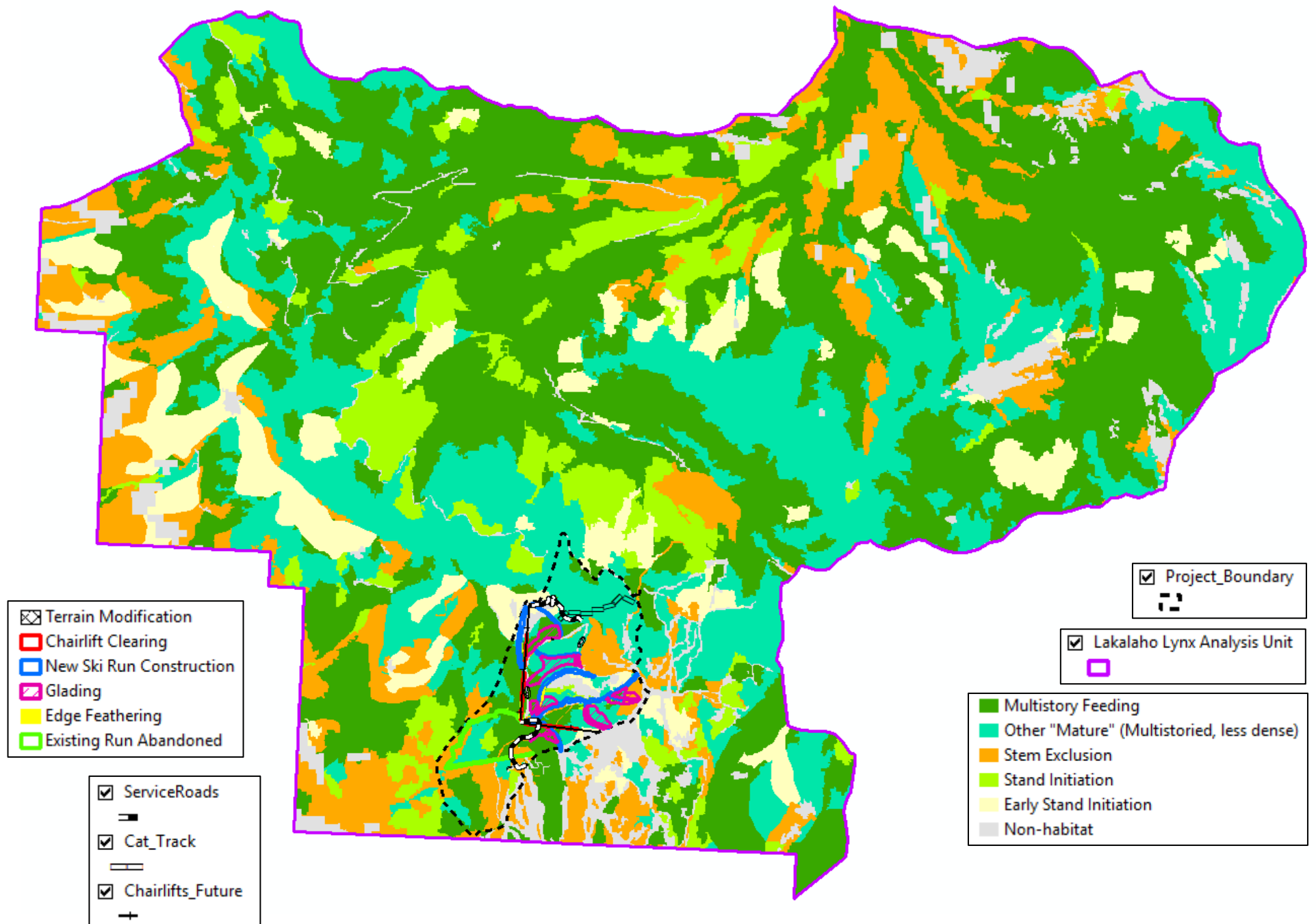
The following table and map provide information on the Hellroaring Basin proposed activities that would overlap with proposed activities in the Taylor Hellroaring Project.

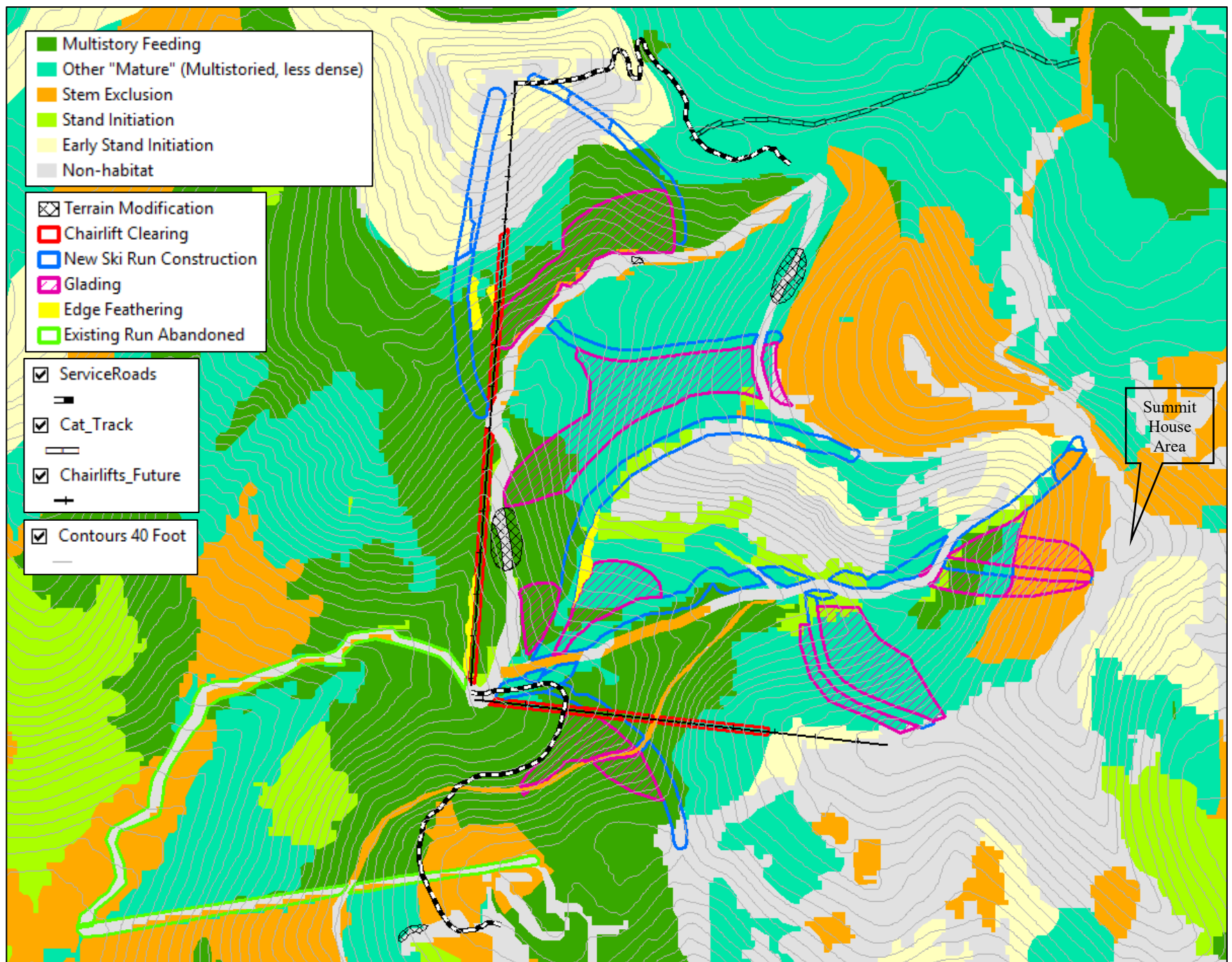
Taylor Hellroaring	Hellroaring Basin Improvements	Implementation notes
Prescribed burn unit B3	Run 7: 1.7 acres Run 8: 3.4 acres Chair 12: 0.2 miles/1.26 acres Hellroaring Peak service road: 0.25 miles/0.4 acres (finished); 0.9 acres (construction) Cat track: 0.03 miles/0.05 acres (finished); 0.1 acres (construction) Chair 12 upper terminal: 0.03 acres (finished)/0.08 acres (construction)	If the burn would occur post-construction of proposed infrastructure, protection of these would be considered in burn preparation and implementation.
Fuels reduction unit 106	Run 1: 0.8 acres Run 2: 1.1 acres Glade 1: 3.6 acres	Only one treatment would occur in the glades-fuel reduction unit overlap. Hazardous tree removal would not need to occur in the proposed ski runs.
Fuels reduction unit 107	Grand Junction service road: 0.09 miles/0.15 acres (finished); 0.3 acres (construction) Terrain modification 4: 0.0004 acres Chair 8/Purgatory Run abandoned: 1.1 acres	Hazardous tree removal would not need to occur in the proposed service road, terrain modification, or abandoned chair/run.
Proposed Whitefish Divide/Ralph Thayer Trail extension (summer, non-motorized trail)	Hellroaring Peak service road Cat track Run 7 Run 8 Chair 12	The proposed trail's final layout would avoid the road, where possible. If it would cross the road, project design feature 52 would provide for safety of trail users. Project design features 52 and 62 would discourage use of the cat track. The overlap of this trail on Run 7, Run 8, and Chair 12 did not cause any issues with the Forest interdisciplinary team.

Map showing proposed action activities along with proposed Taylor Hellroaring Project activities in the project area. Note that this map also shows the area where timber would be removed for commercial use in the Hellroaring Basin Improvement Project (“haul area”).



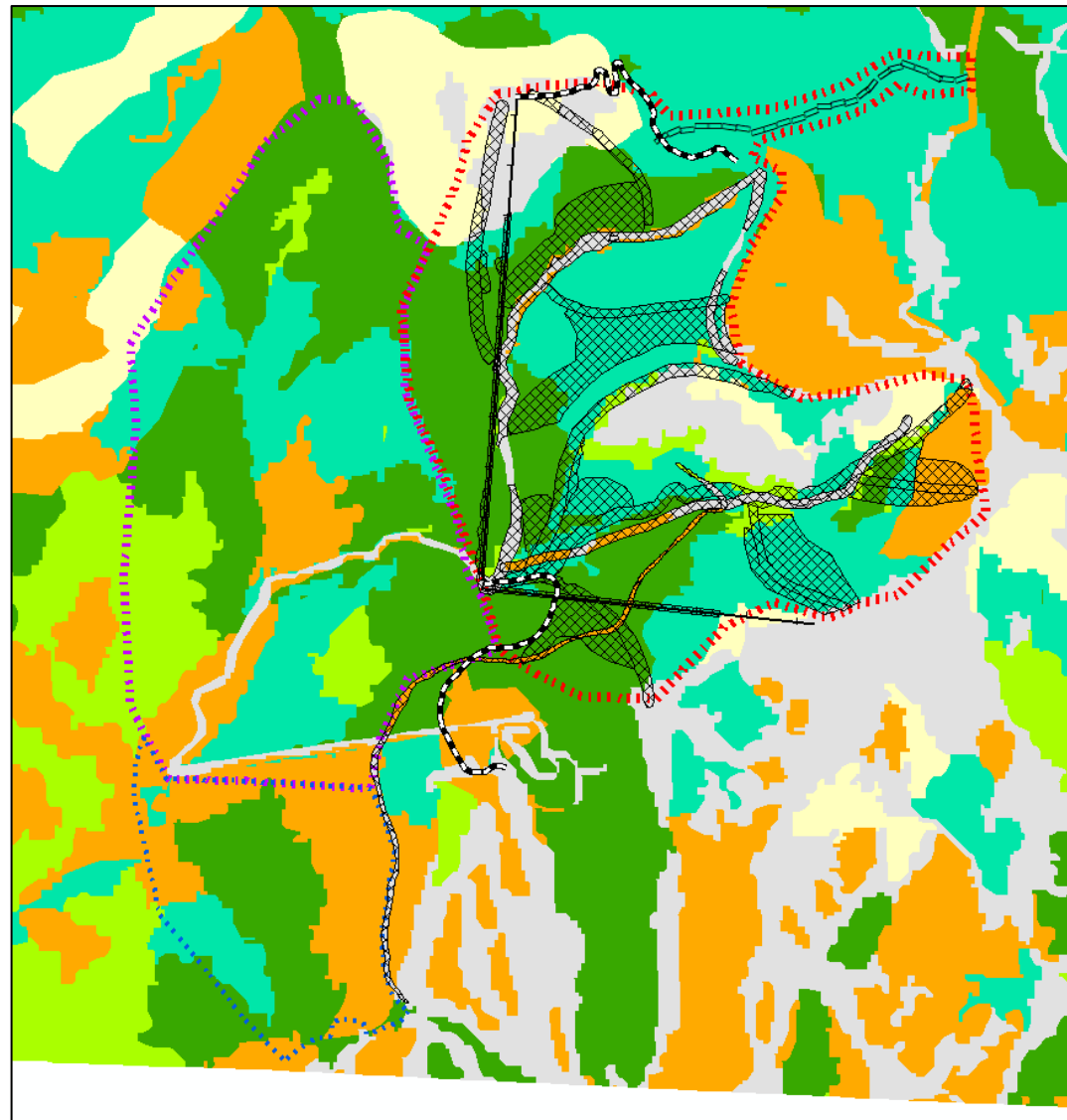
Appendix 5. Maps of Canada Lynx Habitats with Project Activities.





- Multistory Feeding
- Other "Mature" (Multistoried, less dense)
- Stem Exclusion
- Stand Initiation
- Early Stand Initiation
- Non-habitat

- ☑ ServiceRoads
—
- ☑ Cat_Track
—
- ☑ Chairlifts_Future
→
- ☑ Skied Areas -- Proposed Action
⊠
- ☑ ContinuingVeryLowWinterUseArea
⋯
- ☑ NewQuietWinterArea
✚
- ☑ NewHigRecUseWinterArea
✚



Appendix 6. Consistency with Canada Lynx Direction in the Flathead National Forest Land Management Plan (USDA Forest Service 2018b).

Table A. Plan Components relevant for Canada lynx in the body of the Land Management Plan (USDA Forest Service 2018b).

Identifier	Plan Components and Terms and Conditions Specific to CANADA LYNX	Project Compliance
FW-STD-WL-04	The Northern Rockies Lynx Management Direction in appendix A, as modified by the Flathead National Forest's forest plan record of decision, shall be applied.	See the following table for project consistency with LMP Appendix A
FW-STD-TE&V-02	Standard VEG S6 (as modified by the Forest, indicated in bold type below), see appendix A. The standard states: Vegetation management projects that reduce snowshoe hare habitat in mature multistory forests may occur only 1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special-use permit improvements, including infrastructure within permitted ski area boundaries; or 2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or 3. For incidental removal during salvage harvest (e.g., removal due to location of skid trails); or 4. For noncommercial felling of trees larger than sapling size within 200 feet of whitebark pine trees (in stands that contain trees identified for cone/scion/pollen collection) to make whitebark pine more likely to survive wildfires, more resistant to mountain pine beetle attack, and more likely to persist in future environments. <i>Exceptions 2, 3, and 4 shall only be utilized in lynx analysis units where standard VEG S1 is met.</i> Note: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover (e.g., uneven-aged or even-aged management systems could be used to create openings in coniferous forests in the stem exclusion structural stage where there is little understory so that new forage can grow). Where and to what this applies: Lynx habitat within lynx analysis units and to all vegetation management projects except for fuel treatment projects within the wildland-urban interface as defined by Healthy Forest Restoration Act, subject to the following limitation: Fuel treatment projects within the wildland-urban interface that do not meet standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (an administrative unit is a national forest). For fuel treatment projects within the wildland-urban interface, see guideline VEG G10 in appendix A. Exceptions to standard: This standard does not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, or roads. This standard does not apply to linkage areas (standard VEG S6).	The proposed project would not cause there to be regeneration treatment on more than 15% of lynx habitat on NFS lands within any LAU in a ten-year period. The Taylor Hellroaring project would regenerate less than 2% of the Lakalaho LAU. This standard does not apply to removal of vegetation for permanent developments such as ski runs.
NRLMD Standards VEGS1, VEGS2, VEGS5, and VEGS6	For standards VEG S1 S2, S5, and S 6 the 2017 BO on FNF revised forest plan includes the following terms and conditions which are mandatory. BO T&Cs for FNF's Revised LMP -- The following terms and conditions implement reasonable and prudent measure #1: The Forest Service shall ensure that new or future projects conducted under the exemptions from standards VEG S1, S2, S5, and S6 on the Flathead National Forest: 1. Do not occur in greater than 93,723 acres in the wildland-urban interface. 2. Do not result in more than three adjacent lynx analysis units that do not meet the standard VEG S1 of no more than 30 percent of a lynx analysis unit that is not yet snowshoe hare habitat. 3. Projects allowed per the exemptions or exceptions to VEG S5 and S6 shall not occur in any lynx analysis unit exceeding VEG S1, except for protection of structures. The following term and conditions implement reasonable and prudent measure #2:	The proposed project would be consistent with these Terms and Conditions. This standard does not apply to removal of vegetation for permanent developments such as ski runs.

Identifier	Plan Components and Terms and Conditions Specific to CANADA LYNX	Project Compliance
	The Forest Service shall ensure that vegetation management projects conducted under exceptions to VEG S5 and S6 on the Flathead National Forest adhere to the following: 4. Timber management projects (as defined in BO appendix 5) shall not regenerate more than 15 percent of lynx habitat on Forest lands within a lynx analysis unit in a 10-year period. 5. Do not occur in greater than 15,460 acres. The following term and conditions implement reasonable and prudent measure #3: 6. In support of the monitoring and reporting requirements of the NRLMD, the Flathead National Forest shall provide to the USFWS and the USDA Forest Service Northern Region (Region 1) Office in Missoula summaries of the reporting requirements listed below. The summaries shall be submitted to the USFWS Montana Ecological Services Office in Helena, Montana, by April 1 of each year or other date through mutual agreement. The summaries shall document the following information related to fuel treatment and vegetation management projects occurring in lynx habitat: a. Individual fuels treatment and vegetation management projects conducted in lynx habitat under the exemptions and exceptions to the vegetation standards VEG S1, S2, S5, and S6 may reduce the quality or quantity of snowshoe hare habitat. Some projects are likely to result in detectable and measurable effects to lynx (the USFWS biological opinion's analysis found that this may rise to the level of take), while other projects will not result in a detectable, measurable effect to lynx (i.e., may affect, but not likely to adversely affect). The acreages of all projects will be tracked and aggregated to ensure that over the life of the revised forest plan, the number of acres impacted does not exceed the acres projected to be treated and the effects analyzed in the biological opinion. This approach to tracking and monitoring ensures that the proposed action is implemented as proposed and is consistent with the USFWS analysis. In addition, given the long time span of the proposed action, this process provides information that can help determine whether consultation reinitiation ever becomes necessary. If the level of take exempted under the biological opinion for the revised forest plan would be exceeded, re-initiation of consultation or project-specific consultation would be required (as appropriate).	
FW-GDL-FIRE-05	To reduce the negative impacts of wildfires or improve fire control opportunities, treatments should be designed to remove or rearrange the material necessary to achieve at least one of the following outcomes: reduce flame length, rate of spread, or torching and crowning indices.	Treatments are designed to achieve one or more of those outcomes. Management of downed wood and activity fuels is part of this project (Appendix 3). Overlapping fuel reduction units are part of the proposed Taylor Hellroaring project (Appendix 4).
FW-GDL-REC-03	To provide ecological conditions to support Canada lynx on NFS lands at a forestwide scale, there should be no net increase in miles of designated routes for motorized over-snow vehicle use, groomed routes, or areas where motorized over-snow vehicle use is identified as suitable. The "no net increase" is in comparison to the suitability displayed in figure B-11. This guideline does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by guideline HU G12 (see appendix A).	This project would not cause a net increase in in miles of designated routes for motorized over-snow vehicle use, groomed routes, or areas where motorized over-snow vehicle use is identified as suitable. This guideline does not apply inside permitted ski areas.
FW-DC-WL-05	Within Canada lynx critical habitat mapped by the USFWS, boreal forest landscapes support a mosaic of differing forest successional stages, providing the physical or biological features essential to the conservation and recovery of the Canada lynx population.	Boreal forest landscapes would continue to support features essential to lynx conservation and recovery.

Table B. LMP Appendix A (USDA Forest Service 2018b): Northern Rockies Lynx Management Direction (as modified)

The habitat direction from the NRLMD is retained in this forest plan through standard FW-STD-WL-04. The forest plan will carry forward the objectives, standards, and guidelines developed to conserve lynx. **The use of the terms "standards," and "guidelines" in the NRLMD is consistent with the definitions of these terms found on page 6 of the forest plan. The definition of "objectives" in the NRLMD is consistent with the definition of "desired conditions" found on pages 5-6 of the forest plan. The forest plan thus defines the NRLMD "objectives" as "desired conditions."** The NRLMD plan components in this appendix are incorporated throughout the forest plan (e.g., in the terrestrial ecosystems and vegetation, wildlife species, recreation, and infrastructure sections). Forest-specific modifications to VEG S6 and HU G11 are bolded below and also replicated in the plan as FW-STD-TE&V-02 and FW-GDL-REC-03 because they were modified. This appendix applies to lynx habitat on National Forest System lands presently occupied by Canada lynx, as defined by the Amended Lynx Conservation Agreement between the Forest Service (FS) and the U.S. Fish and Wildlife Service (FWS) (USDA FS and USDI FWS 2006a).

PLAN DIRECTION		PROJECT CONSISTENCY
ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL): The following standards and guidelines apply to all management projects in lynx habitat within LAU's in occupied habitat.		
OBJECTIVE ALL O1	Maintain or restore lynx habitat connectivity in and between LAUs, and in linkage areas.	Some connections between habitat patches would be affected, however, no major ridgeline or riparian connections would be affected. A mosaic of stands would still exist as travel corridors and would maintain connectivity for lynx.
STANDARD ALL S1	New or expanded permanent development and vegetation management projects must maintain habitat connectivity in an LAU and/or linkage area.	A mosaic of stand conditions would remain after project implementation. Habitat would continue to be distributed in a way to provide connectivity through the project LAUs.
GUIDELINE ALL G1	Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses, or overpasses.	Not applicable to this project.
STANDARD LAU S1	Changes in LAU boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.	Not applicable to this project.
VEGETATION MANAGEMENT ACTIVITIES AND PRACTICES (VEG): The following standards and guidelines apply to vegetation management projects in lynx habitat within LAU's in occupied habitat. With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.		
OBJECTIVE VEG O1	Manage vegetation to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.	Natural succession and disturbance processes would be approximated and habitat components would be maintained. This objective does not apply to removal of vegetation for permanent developments such as ski runs.
OBJECTIVE VEG O2	Provide a mosaic of habitat conditions through time that support dense horizontal cover, and high densities of snowshoe hare. Provide winter snowshoe hare habitat in both the stand initiation structural stage and in mature, multistory conifer vegetation.	The mosaic would be provided over time, including areas of dense horizontal cover. Snowshoe hare densities would be maintained with stand initiation and multistory foraging habitat within the project LAUs. This objective does not apply to removal of vegetation for permanent developments such as ski runs.
OBJECTIVE VEG O3	Conduct fire use activities to restore ecological processes and maintain or improve lynx habitat.	Prescribed burning would be consistent with restoration of ecological processes. No lynx habitat would be permanently lost due to burning. This objective does not apply to removal of vegetation for permanent developments such as ski runs.
OBJECTIVE VEG O4	Focus vegetation management in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover.	The majority of project vegetation management activities are focused on other (stem exclusion) habitat. Site productivity in this area is such that a high density of conifers and other vegetation would be created in younger stands. Regeneration harvest may recruit future stand initiation habitat. This objective does not apply to removal of vegetation for permanent developments such as ski runs.

PLAN DIRECTION		PROJECT CONSISTENCY
STANDARD VEG S1	Where and to what this applies: Standard VEG S1 applies to all vegetation management projects that regenerate forests, except for fuel treatment projects within the wildland urban interface (WUI) as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI see guideline VEG G10. The Standard: Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages, limit disturbance in each LAU as follows: If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat (early stand initiation), no additional habitat may be regenerated by vegetation management projects.	Less than 30% of each LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat (early stand initiation) and the proposed project would not cause this standard to be exceeded in any LAU. Currently, approximately 4% of the Lakalaho LAU is in this condition. The Taylor Hellroaring project would double it to 8% in the Lakalaho LAU under. Seventy-four acres of the FNF's 6% allowance (90,232 acres) would be used for fuel treatment in the WUI leaving a balance of 79,773 acres. This standard does not apply to removal of vegetation for permanent developments such as ski runs.
STANDARD VEG S2	Where and to what this applies: Standard VEG S2 applies to all timber management projects that regenerate forests, except for fuel treatment. Projects within the WUI as defined by HFRA17, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI see guideline VEG G10. The standard: Timber management projects shall not regenerate more than 15 percent of lynx habitat on NFS lands within an LAU in a 10-year period.	The proposed project would not cause there to be regeneration treatment on more than 15% of lynx habitat on NFS lands within any LAU in a ten-year period. The Taylor Hellroaring project would regenerate less than 2% of the Lakalaho LAU. This standard does not apply to removal of vegetation for permanent developments such as ski runs.
STANDARD VEG S5	Where and to what this applies: Standard VEG S5 applies to all pre-commercial thinning projects, except for fuel treatment projects that use pre-commercial thinning as a tool within the wildland urban interface (WUI) as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI see guideline VEG G10. The Standard: Pre-commercial thinning projects that reduce snowshoe hare habitat may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat only: Within 200 feet of administrative sites, dwellings, or outbuildings; For research studies or genetic tree tests evaluating genetically improved reforestation stock; Based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of FWS, where a written determination states: that a project is not likely to adversely affect lynx; or that a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat; For conifer removal in aspen, or daylight thinning around individual aspen trees, where aspen is in decline; For daylight thinning of planted rust-resistant white pine where 80% of the winter snowshoe hare habitat is retained; To restore whitebark pine Exceptions 2 through 6 shall only be utilized in LAUs where Standard VEG S1 is met.	No precommercial thinning is proposed in the Taylor Hellroaring Project. This standard does not apply to removal of vegetation for permanent developments such as ski runs.

PLAN DIRECTION		PROJECT CONSISTENCY
STANDARD VEG S6	As modified in the Flathead NF 2018 Land Management Plan: Where and to what this applies: Standard VEG S6 applies to all vegetation management projects except for fuel treatment projects within the wildland urban interface (WUI) as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI see guideline VEG G10. The Standard: Vegetation management projects that reduce snowshoe hare habitat in multistory mature or late successional forests may occur only: 1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or 2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or 3. For incidental removal during salvage harvest (e.g. removal due to location of skid trails). 4. For noncommercial felling of trees larger than sapling size within 200 feet of whitebark pine trees (in stands that contain trees identified for cone/scion/pollen collection) to make whitebark pine more likely to survive wildfires, more resistant to mountain pine beetle attack, and more likely to persist in future environments. <i>Exceptions 2, 3, and 4 shall only be utilized in lynx analysis units where standard VEG S1 is met.</i> (NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).	The Taylor Hellroaring Project proposes 74 acres of vegetation management in multistory snowshoe hare habitat within the wildland urban interface adjacent to communication sites for fuel reduction purposes. No additional vegetation management is proposed in snowshoe hare habitat. This standard does not apply to removal of vegetation for permanent developments such as ski runs.
GUIDELINE VEG G1	Vegetation management projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat should be near denning habitat.	Site productivity in this area is such that a high density of conifers and other vegetation would be created in younger stands; winter hare habitat remains close to potential lynx denning habitat. This guideline does not apply to removal of vegetation for permanent developments such as ski runs.
GUIDELINE VEG G4	Prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.	No permanent travel routes would be created through prescribed fire activities. . Firebreaks would not be constructed along ridges or saddles. This guideline does not apply to removal of vegetation for permanent developments such as ski runs.
GUIDELINE VEG G5	Habitat for alternate prey species, primarily red squirrel, should be provided in each LAU.	A considerable amount of habitat for alternate prey would remain in the project LAUs. This guideline does not apply to removal of vegetation for permanent developments such as ski runs.
GUIDELINE VEG G10	Fuel treatment projects within the WUI as defined by HFRA should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.	Intermediate harvest treatments would encourage structural diversity. Regeneration of stands would provide stand initiation hare habitat in approximately 20 years. This guideline does not apply to removal of vegetation for permanent developments such as ski runs.

PLAN DIRECTION		PROJECT CONSISTENCY
GUIDELINE VEG G11	Denning habitat should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris, piles, or residual trees to provide denning habitat in the future.	Denning habitat would continue to be abundant. In harvest units, some of the coarse woody debris, piles, and trees would be retained. There are other mature stands that provide denning habitat in the Taylor Hellroaring Project LAUs that would not be treated. This guideline does not apply to removal of vegetation for permanent developments such as ski runs.
OBJECTIVE GRAZ 01	Manage livestock grazing to be compatible with improving or maintaining lynx habitat.	Not Applicable to this project. The project does not propose any grazing.
GUIDELINE GRAZ 01	In fire-and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.	Not Applicable to this project. The project does not propose any grazing.
GUIDELINE GRAZ 02	In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.	The project does not propose any management in aspen stands.
GUIDELINE GRAZ 03	In riparian areas and willow carrs, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.	Not Applicable to this project. The project does not propose any grazing.
GUIDELINE GRAZ 04	In shrub-steppe habitats, livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.	Not Applicable to this project. The project area does not contain shrub-steppe habitats.
GUIDELINE HU 01	Maintain the lynx's natural competitive advantage over other predators in deep snow by discouraging the expansion of snow-compacting activities in lynx habitat.	Motorized public over snow travel would not be allowed on new system roads. The Resort's existing permit boundary, which the proposed action does not change or go beyond, was included in this baseline.
GUIDELINE HU 02	Manage recreational activities to maintain lynx habitat and connectivity.	Recreational activities promoted by this project are focused along narrow corridors. These activities are not known to affect lynx connectivity or habitat (Squires et al. 2006; USDA 2000). Proposed recreational developments would not affect lynx connectivity and habitat would be maintained.
GUIDELINE HU 03	Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.	Proposed non-motorized trails would not impact lynx habitat, connectivity or snowshoe hare densities. Proposed activities would be concentrated in existing developed areas. Although about 430 acres would receive increased levels of winter recreation, moving an existing chairlift and abandoning the bottom of the existing Hell Fire Run would return over 300 acres of the drainage to very little winter recreation use.
GUIDELINE HU 04	Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation sites or ski areas.	Lynx habitat and connectivity would not be affected by proposed recreational improvements. The proposed ski area development was designed to provide for lynx habitat needs and connectivity, for example by retaining inter-island resting habitat and minimizing loss of foraging habitats.
GUIDELINE HU 05	Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.	Not Applicable to this project. The proposed ski area development was designed to manage human activities and the location of facilities in ways that reduced impacts on lynx and lynx habitat.
GUIDELINE HU 06	Reduce adverse highway effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity, and to reduce the potential of lynx mortality.	Not Applicable to this project.

PLAN DIRECTION		PROJECT CONSISTENCY
GUIDELINE HU G1	When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris, so winter snowshoe hare habitat is maintained.	Not Applicable to this project. Ski runs were shaped to maximize availability and proximity of these diurnal security habitats, which have abundant down woody debris.
GUIDELINE HU G2	When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.	Not Applicable to this project. The proposed ski area development was designed to minimize loss of lynx foraging habitats.
GUIDELINE HU G3	Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat.	Not Applicable to this project. The proposed ski area development was planned to retain lynx movements and habitat effectiveness.
GUIDELINE HU G4	For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.	Not Applicable to this project.
GUIDELINE HU G5	For mineral and energy development sites and facilities that are closed, a reclamation plan that restores 40 lynx habitat should be developed.	Not Applicable to this project.
GUIDELINE HU G6	Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases inhuman activity or development.	Not Applicable to this project.
GUIDELINE HU G7	New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.	No new permanent roads would be constructed on ridgetops, on saddles, or in areas important for lynx habitat connectivity. No permanent roads or trails would be constructed in or near forested stringers. The service roads would be located away from forested stringers and would not be open to public use. The service road to Hellroaring Peak (built if ski lift is top drive) would cross a ridgeline and a saddle, but this was the only feasible location inside the existing permit area. See maps in Appendix 5.
GUIDELINE HU G8	Cutting brush along low-speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.	Funding constraints limit this to the minimum necessary for safety.
GUIDELINE HU G9	On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	Public motorized use would not be allowed on new roads and effective closures would be provided. All temporary roads would be rehabilitated. The project proposes adding new road segments to the system. These roads would be reclaimed and would not be passable to motorized vehicles. Permanent roads built for this project would be needed for other management objectives. The service roads would be gated and closed to public motorized and bicycle use. Due to debris and vegetation, the cat track would function as a travelway only in winter.
GUIDELINE HU G10	When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat, if it has been identified as a need.	Not Applicable to this project. Access roads and lift termini were located to maintain lynx security habitat as much as practicable, although this was not identified as a need.
GUIDELINE HU G11	As modified in the Flathead NF 2018 Land Management Plan: To provide ecological conditions to support Canada lynx on NFS lands at a forestwide scale, there should be no net increase in miles of designated routes for motorized over-snow vehicle use, groomed routes, or areas where motorized over-snow vehicle use is identified as suitable. The “no net increase” is in comparison to the suitability displayed in forest plan figure B-11. This guideline does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12.	This project does not propose a net increase in miles of designated routes for motorized over-snow vehicle use, groomed routes, or areas where motorized over-snow vehicle use is identified as suitable. This guideline does not apply inside permitted ski area boundaries. The project does not propose to expand any designated over-the-snow routes or play areas outside the permitted ski area boundary.

PLAN DIRECTION		PROJECT CONSISTENCY
GUIDELINE HU G12	Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes or designated over-the snow routes.	Not Applicable to this project. The project does not propose any changes to over-the-snow routes.
OBJECTIVE LINK O1	In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.	Not applicable to this project.
STANDARD LINK S1	When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings.	No highway construction or reconstruction is proposed.
GUIDELINE LINK G1	NFS lands should be retained in public ownership.	No NFS lands sales or exchanges are proposed.
GUIDELINE LINK G2	Livestock grazing in shrub-steppe habitats should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.	Not Applicable to this project.

Appendix 7. Consistency with Grizzly Bear Direction in the 2018 Flathead National Forest Land Management Plan (USDA Forest Service 2018b).

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
FW-STD-WL-01	Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as the primary conservation area, zone 1 (including the Salish demographic connectivity area) (see figure B-10 or subsequent USFWS updates, if applicable).	Grizzly bear habitat would continue to be delineated and managed as PCA and Zone 1.
FW-STD-WL-02	BO T&C for FNF's Revised LMP -- The Forest Service shall continue to implement food/attractant storage and handling programs in the action area. This includes ensuring all Forest Service employees and contractors adhere to appropriate protocols, and providing educational material to the public on measures to avoid conflicts and/or food conditioning of grizzly bears. Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area; see figure B-10), food/wildlife attractant storage special order(s) shall apply to all NFS lands.	Food/wildlife attractant storage special order(s) would be followed. See design features #66 and 68 in Appendix 3.
FW-STD-WL-03	In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by "project (in grizzly bear habitat in the NCDE)" during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and shall be incorporated into the 10-year running average required by standard FW-STD-IFS-03.	OMRD, TMRD, and secure core were calculated for this project, including estimated changes per year for incorporation into the 10-year running average. Grizzly bear secure core would not be affected by this proposal due to the location of the service roads to Grand Junction and to Hellroaring Peak relative to existing areas of secure core and nearby private lands. The service roads would be special-use permit roads and thus are not included in calculations of OMRD and TMRD (NCDE 2018 Appendix 6).
FW-STD-REC-01	Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline: - the agency obtains better information or updated information in its database(s); - the agency acquires land that contains developed recreation sites; - the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws; - the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts); - the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pull-out to allow trailers to turn around safely); - the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary); or - the agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. Note: If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit. Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day-use only (e.g., outfitter camps, roadside trail crossings or interpretive pull-outs; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).	This project does not include changes or additions to developed recreation sites designed for overnight use.
FW-STD-REC-02	Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.	See design features #66, 68, 69, and 70 in Appendix 3.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
FW-STD-REC-04	Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include measures to limit the risk of grizzly bear-human conflicts (e.g., a requirement to store garbage in a bear-resistant manner).	Not applicable. See design features #69 and 70 in Appendix 3.
FW-STD-REC-05	BO T&C for FNF's Revised LMP -- The Forest Service shall comply with standards FW-STD-IFS-01, FW-STD-IFS-02, FW-STD-IFS-03, FW-STD-IFS-04 and FW-STD-REC-05 in the Flathead Forest Plan. Within grizzly bear denning habitat modeled by MFWP in the NCDE primary conservation area, there shall be no net increase in percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).	This project would not cause a net increase in % of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during den emergence.
FW-STD-IFS-01	BO T&C for FNF's Revised LMP -- The Forest Service shall comply with standards FW-STD-IFS-01, FW-STD-IFS-02, FW-STD-IFS-03, FW-STD-IFS-04 and FW-STD-REC-05 in the Flathead Forest Plan. Within the NCDE primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary), as long as it does not exceed either six trips (three round trips) per week <i>or</i> one 30-day unlimited use period during the non-denning season (see glossary). The exception to this standard is: emergency situations as defined by 36 CFR § 218.21. Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see "project (in grizzly bear habitat in the NCDE)" in the glossary).	Administrative use levels would not be exceeded by this project.
FW-STD-IFS-02	BO T&C for FNF's Revised LMP -- The Forest Service shall comply with standards FW-STD-IFS-01, FW-STD-IFS-02, FW-STD-IFS-03, FW-STD-IFS-04, and FW-STD-REC-05 in the Flathead revised forest plan. In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline open motorized route density or total motorized route density on National Forest System lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline: - administrative use (see glossary); - temporary use of a motorized route for a project (see "project in grizzly bear habitat in the NCDE" definition in the glossary and FW-STD-IFS-03); - mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines; - updated/improved data on a motorized route without an actual change on the ground; - changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system); - a road closure location is moved a short distance (e.g., to the nearest intersection or turnout) to a better location to allow turn-arounds providing for public safety, to reduce vandalism, or to improve enforcement of the road closure; - the agency exchanges, acquires, buys, or sells lands; - a change in a motorized route is necessary to comply with Federal laws (e.g., Federal Rehabilitation Act); - a change in a motorized route is necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts); - a change is made by an adjacent landowner that decreases secure core or increases motorized route densities on a particular national forest; - emergency situations as defined by 36 CFR § 215.2; and - temporary roads (see glossary).	This project would not cause a net decrease to the baseline for secure core nor a net increase to the baseline OMRD or TMRD on National Forest System lands during the non-denning season.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
FW-STD-IFS-03	BO T&C for FNF's Revised LMP -- The Forest Service shall comply with standards FW-STD-IFS-01, FW-STD-IFS-02, FW-STD-IFS-03, FW-STD-IFS-04, and FW-STD-REC-05 in the Flathead revised forest plan. Concurrent, temporary increases in OMRD or TMRD, or concurrent temporary decreases in secure core for new projects (as described in the glossary) on NFS lands shall not occur in more than 3 adjacent bear management subunits on the FNF. In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by "project (in grizzly bear habitat in the NCDE)" in the glossary). The 10-year running average for open motorized route density, total motorized route density, and secure core numbers shall not exceed the following limits per bear management subunit: • 5 percent temporary increase in open motorized route density in each subunit (i.e., open motorized route density baseline plus 5 percent); • 3 percent temporary increase in total motorized route density in each subunit (i.e., total motorized route density baseline plus 3 percent); • 2 percent temporary decrease in secure core in each subunit (i.e., secure core baseline minus 2 percent). Exceptions to this standard include: • emergency situations as defined by 36 CFR 218.21 and • actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases, etc.). Refer to appendix C for an example of how to calculate and apply the running average and temporary increase/decrease.	Temporary changes to OMRD, TMRD, and secure core would fall within the maximum 10-year averages proscribed. Grizzly bear secure core would not be affected by this proposal due to the location of the service roads to Grand Junction and to Hellroaring Peak relative to existing areas of secure core and nearby private lands. The service roads would be special-use permit roads and thus are not included in calculations of OMRD and TMRD (NCDE 2018 Appendix 6).
FW-STD-IFS-04	BO T&C for FNF's Revised LMP -- The Forest Service shall comply with standards FW-STD-IFS-01, FW-STD-IFS-02, FW-STD-IFS-03, FW-STD-IFS-04, and FW-STD-REC-05 in the Flathead revised forest plan. Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).	This project does not authorize public motorized access on any closed roads.
FW-STD-OFP-01	Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear-human conflicts, as specified in the food/wildlife attractant storage special order.	Not applicable to this project.
FW-STD-E&M-01	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible, shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added without the agreement of the holder of the lease, permit, or plan of operation.	Not applicable to this project.
FW-STD-E&M-02	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized permits, leases, and/or plans of operation shall include a clause providing for modification or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.	Not applicable to this project.
FW-STD-E&M-04	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants: • bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated; • garbage shall be removed in a timely manner; • road kills shall be removed daily during active operating periods to a designated location determined in close coordination with MFWP; • feeding of wildlife shall not be allowed; and	Not applicable to this project.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
	locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in all work camps.	
FW-STD-E&M-05	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, and surface use criteria regarding grizzly bear habitat: - ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears. - seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears. - cumulative impacts of multiple, concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear. - reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration or mitigation of functioning aquatic systems and riparian management zones shall identify how reclamation will occur, plant species to be used in reclamation, a time frame of when reclamation will be completed, and monitoring criteria, and - reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed from mineral activities shall be completed as soon as practicable by the operator.	Not applicable to this project.
FW-STD-E&M-06	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation and permits shall include the following mitigation measures regarding motorized access: - public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development; - a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended; - helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and - speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.	Not applicable to this project.
FW-STD-E&M-07	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), minerals contractors or lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.	Not applicable to this project.
FW-STD-E&M-08	Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).	Not applicable to this project.
FW-STD-GR-01	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.	Not applicable to this project.
FW-STD-GR-02	Within the NCDE primary conservation area and zone 1, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use. Note: The Flathead National Forest does not have any sheep allotments.	Not applicable to this project.
FW-STD-GR-03	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), permits for livestock grazing shall include a provision that requires reporting livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.	Not applicable to this project.
FW-STD-GR-04	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), there shall be no net increase in the number of active sheep allotments on NFS lands. Note: The Flathead National Forest does not have any sheep allotments.	Not applicable to this project.
FW-STD-GR-05	Within the NCDE primary conservation area, there shall be no increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as that does not result in grazing allotments in currently unallotted lands.	Not applicable to this project.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
FW-STD-GR-06	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), temporary permits for grazing by small livestock for purposes such as controlling invasive exotic weeds or reducing fire risk, or for trailing of small livestock across NFS lands, shall not result in an increase in bear-small livestock conflicts.	Not applicable to this project.
GA-SM-STD-01	Within the Flathead National Forest portion of NCDE zone 1 <i>outside</i> the Salish demographic connectivity area (see figure B-10), there shall be no net increase above the baseline (see glossary) in the density of roads open to public motorized use on NFS lands. <i>Inside</i> the Salish demographic connectivity area, there shall be no net increase above the baseline (see glossary) in the density of roads and trails open to public motorized use during the non-denning season on NFS lands. Density is calculated by dividing the total miles open to public motorized use on NFS lands during the non-denning season, by the total square miles of NFS lands in that same area. This standard does not apply to the following: • motorized use by agency personnel or others authorized by the appropriate agency personnel; • the temporary opening of a road for a short period of time to allow for public firewood gathering and other authorized uses (see also standard FW-STD-IFS-04); • updated/improved road data without an actual change on the ground; • changes in technology or projections that result in changed calculations without actual changes on the ground (e.g., a switch in geodetic systems from the North American Datum of 1927 to the North American Datum of 1983); • moving a road closure location a short distance (e.g., to the nearest intersection or turnout) to a better location to allow turn-arounds that provide for public safety, to reduce vandalism, or to improve enforcement of the road closure; • exchanging, acquiring, buying, or selling lands by the agency; • a change in an open road that is necessary to comply with Federal laws (e.g., the Architectural Barriers Act of 1968, as amended); • motorized use for mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) because these types of permitted resource development are subject to existing rights and have a separate set of standards and guidelines; • a change in an open road that is necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage or concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts); • motorized use for emergency situations as defined by 36 CFR § 215.2; • temporary roads (see glossary).	Not applicable to this project.
FW-GDL-TE&V-01	Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring time period; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the spring time period in order to meet resource objectives (especially if needed to prevent resource damage), in which case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).	See design features #16 and 57 through 70 in Appendix 3.
FW-GDL-TE&V-02	Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.	See design features #59 through 65 in Appendix 3.
FW-GDL-TE&V-03	Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).	Where present, cover would be retained along a portion of of grass/forb/shrub openings, riparian wildlife habitat, and wetlands. Clearing for this ski area development is restricted to narrow strips.
FW-GDL-TE&V-04	Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve grizzly bear-human conflict situations.	See design feature #70 in Appendix 3.
FW-GDL-TE&V-05	To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.	Vegetation removal was not designed to increase huckleberry production or otherwise enhance grizzly bear habitat values.
FW-GDL-WL-01	Within the NCDE primary conservation area, zone 1 (including the Salish demographic connectivity area), contractors, permittees, lessees, operators, and their employees should be informed of procedures for safely working and recreating in grizzly bear country and	See design features #68 and 69 in Appendix 3.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
	of food/wildlife attractant storage special order(s) prior to turn-out of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.	
FW-GDL-WL-02	Within the NCDE primary conservation area, zone 1 (including the Salish demographic connectivity area), if a contractor, permittee, lessee, operator, or their employee elects to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.	See design feature #69 in Appendix 3.
FW-GDL-WL-03	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), clover should not be used in seed mixes on NFS lands. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.	See design features #48 and 49 in Appendix 3. The approved seed mix does not include attractants.
FW-GDL-REC-01	Within the NCDE primary conservation area, if the number or capacity of day use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. The measure(s) should be in place prior to completion of the project or be included as one of the project design criteria. Measures can include but are not limited to additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; project design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols.	See design features #16 and 57 through 70 in Appendix 3.
FW-GDL-IFS-015	When designing, constructing, or reconstructing system trails, information on how to avoid and respond to bear-human encounters should be posted at trailheads. In addition, site-specific trail design should include one or more methods to limit the risk of bear-human conflicts such as, but not limited to, • locating trails outside of riparian management zones or avalanche chutes unless it is necessary to cross or to access an existing developed recreation site, and • designing and/or maintaining trails to increase sight distance and/or to address speed of travel consistent with site-specific conditions for the managed use of the trail.	Information on how to avoid and respond to bear-human encounters would be posted at trailheads and site-specific trail design would include methods to limit the risk of bear-human conflicts. This project does not include constructing system trails.
FW-GDL-LSU-01	Special use authorizations in the primary conservation area should have permit requirements to help reduce or limit the risk of grizzly bear-human conflicts.	See design features #16 and 57 through 70 in Appendix 3.
FW-GDL-IFS-01	T&C: The Forest Service shall comply with guideline FW-GDL-IFS-01 and FW-GDL-IFS-02 in the Flathead Forest Plan. If projects will be unable to comply with the above guidelines, the Forest Service shall contact the Service immediately to determine further consultation needs. In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential of grizzly bears being disturbed or displaced. Exceptions may be made where necessary to accommodate, for example, • actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases); • prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or • emergency situations as defined by 36 CFR § 218.21. If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.	On the ground implementation will not exceed 5 years. See design feature #17 in Appendix 3.
FW-GDL-IFS-02	BO T&C for FNF’s Revised LMP -- The Forest Service shall comply with guideline FW-GDL-IFS-01 and FW-GDL-IFS-02 in the Flathead Forest Plan. If projects will be unable to comply with the above guidelines, the Forest Service shall contact the Service immediately to determine further consultation needs. Within the NCDE primary conservation area, levels of secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within one year	OMRD, TMRD, and secure core values would be restored to pre-project levels within 1 year of project completion. Grizzly bear secure core would not be affected by this proposal due to the location of the service roads to Grand Junction and to Hellroaring Peak relative to existing areas of secure core and nearby private lands. The service roads would be special-use permit roads and thus are not included in calculations of OMRD and TMRD (NCDE 2018 Appendix 6).

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
	after completion of the project in order to reduce the duration of grizzly bear displacement or disturbance due to project-related activities. Exceptions may be made where necessary to accommodate, for example, • actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases); • prescribed burning (including slash disposal), best management practices to protect water quality, and required reforestation activities; and • emergency situations as defined by 36 CFR § 215.2. If an extension to the one-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.	
FW-GDL-E&M-01	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities including leases, surface use plans for proposed wells or operations, or permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should: • avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas; • avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.	Not applicable to this project.
FW-GDL-E&M-02	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.	Not applicable to this project.
FW-GDL-E&M-03	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals, where available (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.	Not applicable to this project.
FW-GDL-E&M-04	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat, the following tiered measures should be used to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable. • Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation). • Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and the habitat available for acquisition. • Step 3: If steps 1 or 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.	Not applicable to this project.
FW-GDL-E&M-05	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), carrying bear spray should be recommended to mineral permittees, lessees, and operators to reduce the risk of grizzly bear-human conflicts.	Not applicable to this project.
FW-GDL-E&M-06	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.	Not applicable to this project.
FW-GDL-E&M-07	To protect water quality and inland native fish habitat, wildlife and other riparian-associated resources, mineral operations should not be authorized in riparian management zones. If the riparian management zone cannot be avoided, the authorization should include measures to maintain, protect, and rehabilitate fish and wildlife habitat that may be affected by the operations.	Not applicable to this project.
FW-GDL-GR-02	Within the NCDE primary conservation area, an allotment management plan and plan of operations should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).	Not applicable to this project.

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
GA-SM-MA7-Big Mtn GDL-01	To reduce grizzly bear-human conflicts at the Whitefish Mountain Resort during the non-denning season, existing mitigation measures for grizzly bears regarding food and garbage handling, odor control, and grizzly bear education at the Summit House should be retained.	Not applicable to this project. This project would not change existing mitigation measures for grizzly bears regarding food and garbage handling, odor control, and grizzly bear education at the Summit House.
FW-DC-TE&V-01	Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provides for the ecological, social, and economic sustainability of NFS lands while also providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE. See also FW-DC-WL-02.	NFS lands continue to contribute to grizzly bear recovery.
FW-DC-TE&V-02	Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.	A mosaic of successional stages continues to provide for grizzly bear habitat needs.
FW-DC-WL-01	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area; see figure B-10), bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE	Food/wildlife attractant storage special order(s) are in place and applicable to all users across the Flathead National Forest.
FW-DC-WL-02	Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), grizzly bear habitat on NFS lands contributes to sustaining recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.	Habitat on NFS lands contributes to sustaining recovery of the grizzly bear population and connectivity with neighboring recovery zones.
FW-DC-WL-03	The risk of bear-human conflicts is reduced by information, education, and design features or criteria for management activities.	See design features #16 and 57 through 70 in Appendix 3.
FW-DC-IFS-01	Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands and also provides open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.	Motorized road access levels continue to contribute to grizzly bear recovery.
FW-DC-OFP-01	Provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) from NFS lands while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.	Not applicable to this project.
FW-DC-GR-01	Within the NCDE primary conservation area, the number, capacity of, and improvements on livestock grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds, while minimizing the risk of bear-human conflicts on NFS lands.	Not applicable to this project.
FW-DC-REC-01	Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites (NCDE definition) provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.	See design features #16 and 57 through 70 in Appendix 3.
FW-DC-REC-02	Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites (NCDE definition) on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.	This project does not include changes or additions to developed recreation sites designed for overnight use.
FW-DC-REC-06	Bear-human conflicts are minimized through proper food and garbage storage; food and garbage is unavailable to bears. Trailheads and Web-based information that reaches visitors prior to their arrival on the Forest provide education and information on recreating in bear country—especially activities that may cause sudden encounters with bears.	See design features #16 and 57 through 70 in Appendix 3.
FW-DC-REC-22	The amount and distribution of motorized over-snow vehicle use does not have demonstrated adverse effects to maternal denning of wolverines or female grizzly bears with cubs during the den emergence time period.	The amount of motorized oversnow use would not have adverse effects to maternal denning of female grizzly bears with cubs during den emergence.
GA-SM-DC-01	Within the Flathead National Forest portion of NCDE zone 1 (including the Salish demographic connectivity area) (see figure B-10), roads and trails provide for public and administrative access to NFS lands. Grizzly bear habitat in zone 1 contributes to sustaining recovery of the grizzly bear population in the NCDE. The demographic connectivity area provides habitat that can be used by female grizzly bears and allows for bear movement between grizzly bear ecosystems.	Not applicable to this project.
GA-SM-DC-02	Outside the NCDE primary conservation area and the Salish demographic connectivity area, motorized trails (single-track or off-highway vehicles) provide high-elevation loop opportunities.	Not applicable to this project.
GA-SM-DC-03	In areas between the primary conservation area and the Salish demographic connectivity area, NFS lands are consolidated and conservation easements with willing landowners are supported in a manner that provides habitat connectivity and facilitates movement of wildlife. National Forest System lands in the Swift Creek-Stillwater connectivity area (see figure B-30) provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, elk) moving between the Whitefish and Salish Mountain Ranges.	Not applicable to this project.
GA-SM-MA7-Big Mtn-DC-04	Year-round recreational opportunities in an alpine setting exist at the Whitefish Mountain Resort on Big Mountain. Winter recreation opportunities occur in all portions of the Whitefish Mountain Resort permit area. During the grizzly bear non-denning season, developed recreation opportunities are provided on the south-facing slope in the Whitefish Mountain Resort permit area. The portion of the upper Hellroaring watershed below Taylor Creek Road (NFS Road 9790) provides higher levels of grizzly bear habitat security.	Not applicable to this project. After construction is complete, this part of the Hellroaring drainage would continue to provide habitat security for grizzlies during the non-denning season even though its effectiveness would be slightly reduced by the reduction of hiding cover, ski-area

Identifier	Plan Components and Terms and Conditions Specific to GRIZZLY BEARS	Project Compliance
		maintenance activities, and a possible increase in huckleberry picking and other human uses resulting indirectly from the reduction in conifer cover. See design features #59, 60, 61, 64, and 65 in Appendix 3.
GA-SM-MA7-Big Mtn-DC-06	A connective nonmotorized trail system exists linking the Whitefish Legacy Trails to NFS lands near the summit of Big Mountain and the Whitefish Divide. New trails are designed and located to reduce the risk of grizzly bear-human conflicts.	Not applicable to this project.
FW-OBJ-REC-02	Provide bear-resistant food storage devices at developed campgrounds.	Not applicable to this project.