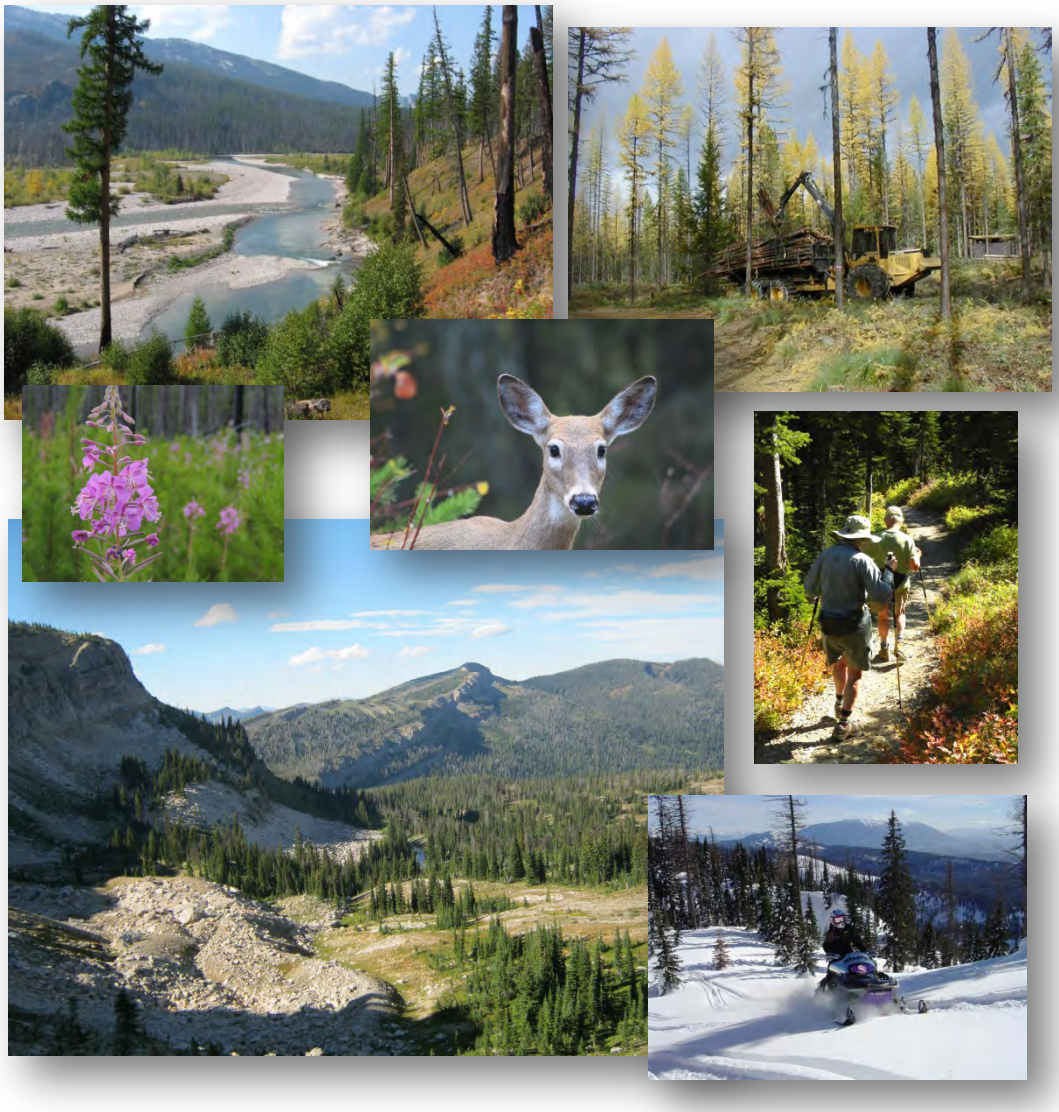
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March 2015

Proposed Action—Revised Forest Plan
Flathead National Forest



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Flathead National Forest photo captions (clockwise from upper left):

- South Fork of the Flathead River, Spotted Bear Ranger District
- Forwarder working on the Paint Emery Resource Mgt. Project, Hungry Horse –Glacier View Ranger District
- Two hikers
- Snowmobile
- View taken on the way to Pentagon Cabin in the Bob Marshall Wilderness (photo by Peter Borgesen)
- Fireweed
- Whitetail deer (photo by John Littlefield)

Proposed Action: Revised Forest Plan
Flathead National Forest

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Abstract: The Flathead National Forest has developed this proposed action—revised forest plan, in accordance with the 2012 National Forest System land management planning rule (planning rule) adopted by the U.S. Department of Agriculture.

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Chapter 1. Introduction

Proposed Action

The Flathead National Forest (NF) is proposing to revise its land and resource management plan ("forest plan" or "land management plan"). This document describes the proposed action—the proposal for changes to the current land management plan. The proposed action includes:

- forestwide, management area, and geographic area desired conditions, objectives, standards, guidelines;
- the suitability of lands for specific multiple uses, including those lands suitable for timber production;
- projected timber sale quantity;
- a description of the plan area's distinctive roles and contributions within the broader landscape;
- the identification of priority restoration watersheds;
- proposed management actions and strategies that may occur on the plan area over the life of the plan;
- areas proposed to be recommended to Congress for inclusion in the National Wilderness Preservation System;
- the rivers identified as eligible for inclusion as part of the Wild and Scenic River System;
- the plan monitoring program.

The proposed action does not include information on focal species, which is still being developed, but will be included in the draft environmental impact statement.

The proposed action is organized into four chapters:

Chapter 1 describes the purpose of the land management plan, what the need for change is, and how best available science was used. In addition, there is a list of current forest plan direction that will be retained (some of which with modifications), as well as how the plan addresses other specific management direction, including pertaining to grizzly bears. There is also a section that defines the plan components.

Chapter 2 contains the proposed forestwide plan direction, the plan components related to physical and biological ecosystems, fire, air quality, the economic, cultural and social environment, and human uses and designations of the forest.

Chapter 3 contains the proposed management area (MA) plan direction. The National Forest System (NFS) land within the Flathead NF boundary has been divided into seven MAs, each with a different emphasis, which is intended to direct management activities on that particular piece of land. MA allocations are specific to areas across the Forest with similar management needs and desired conditions.

Chapter 4 contains the proposed geographic area (GA) plan direction. Desired conditions specified at the geographic area level are those that are not adequately addressed by forestwide desired conditions. The Flathead National Forest is divided into six GAs.

Following chapter 4 is a list of abbreviations, glossary of terms, and appendices as follows:

- Appendix A—Species Habitat Associations

- Appendix B—Potential Management Approaches and Possible Actions
- Appendix C—Maps
- Appendix D—Drivers and Stressors and Related Plan Components
- Appendix E—Priority Watersheds
- Appendix F—Evaluation of Wilderness Inventory Areas
- Appendix G—Wild and Scenic River Eligibility Study Process
- Appendix H—Monitoring Program

To help set the context for the proposed action, the following sections contain information about the primary decisions to be made in the forest plan, public involvement and input to date, and the identification of the need for change.

Purpose of this Land Management Plan

The purpose of the Flathead NF Land and Resource Management Plan (hereinafter referred to as "forest plan" or "land management plan") is to have an integrated set of plan direction (referred to as components from here on out) to provide for social, economic, and ecological sustainability and multiple uses of the Flathead NF lands and resources. This forest plan sets the overall context for informed decision making by evaluating and integrating social, economic, and ecological considerations relevant to management of the forest. In May of 2012, the United States Forest Service (USFS, also "Forest Service") began using new planning regulations (2012 Planning Rule) to guide collaborative and science-based revision of land management plans that promote the ecological integrity of national forests while considering social and economic sustainability. The 2012 Planning Rule specifies the following eight primary decisions that are to be made in forest plans:

1. Forestwide components to provide for integrated social, economic, and ecological sustainability, and ecosystem integrity and diversity, while providing for ecosystem services and multiple uses. Components must be within Forest Service authority and consistent with the inherent capability of the plan area (36 Code of Federal Regulations (CFR) 219.7 and CFR 219.8–219.10).
2. Recommendations to Congress (if any) for lands suitable for inclusion in the National Wilderness Preservation System and/or rivers eligible for inclusion in the National Wild and Scenic Rivers System (36 CFR 219.7(2)(v) and (vi)).
3. Identification or recommendation (if any) of other designated areas (36 CFR 219.7 (c)(2)(vii).
4. Identification of suitability of areas for the appropriate integration of resource management and uses, including lands suited and not suited for timber production (36 CFR 219.7(c)(2)(vii) and 219.11).
5. Identification of the maximum quantity of timber that may be removed from the plan area (36 CFR 219.7 and 219.11 (d)(6)).
6. Identification of GA or MA specific components (36 CFR 219.7 (c)(3)(d).
7. Identification of watersheds that are a priority for maintenance or restoration (36 CFR 219.7 (c)(3)(e)(3)(f).
8. Plan monitoring program (36 CFR 219.7 (c)(2)(x) and 219.12

It is important to note that this plan does not authorize site-specific prohibitions or activities; rather it establishes broad direction, similar to zoning in a community. Project or activity decisions will need to be made following appropriate procedures, e.g. site-specific analysis in compliance with the National

Environmental Policy Act would need to be conducted, in order for prohibitions or activities to take place on the ground, which will be in compliance with the broader direction of the forest plan.

Distinctive Roles and Contributions of the Flathead National Forest

Introduction

The description of the plan area's distinctive roles and contribution within the broader landscape reflects those things that are truly unique and distinctive (36 CFR 219.2(b)). This description is important because it is a source of motivation or reasons behind desired conditions. The following are considered when describing the plan area's distinctive roles and contributions within the broader landscape:

- Are truly unique attributes of the plan area, or are unique benefits (uses, values, products, and services) provided by the plan area to the broader landscape;
- Are important and relevant at the local, regional, and/or national level; and
- Contribute toward social, economic, and ecological sustainability.

Ecological Resources

The Flathead NF has inherently high diversity of plant and animal life, due to its geographic location, geology, ecologically significant wetlands, topography, elevation ranges, climate conditions, and its unique patterns of historical disturbance processes, primarily wildfires of variable severities and sizes.

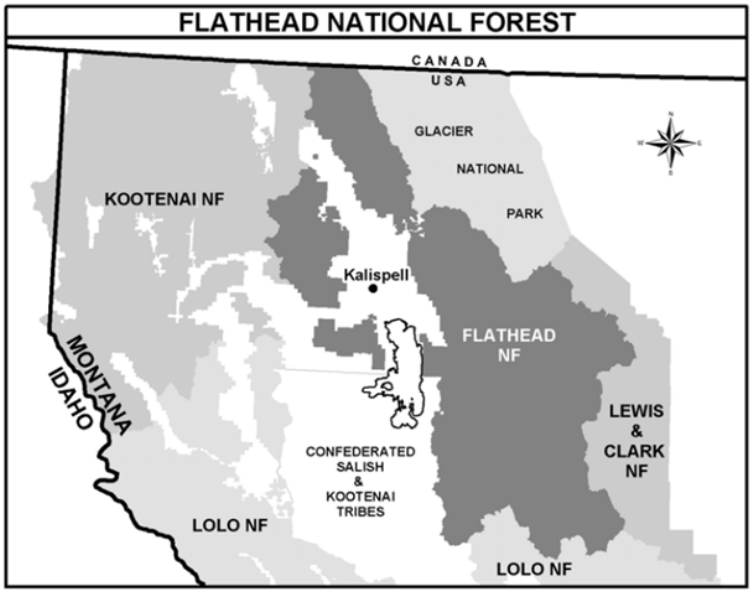


Figure 1. Flathead National Forest and vicinity

The Flathead NF is uniquely positioned in the heart of the Crown of the Continent Ecosystem, with a complex of wilderness and unroaded areas that border Glacier National Park (NP) and a remote portion of British Columbia. This location, among some of the largest wild areas in the lower 48 states, enhances its importance as a connector of habitats and core populations of associated wildlife. The Crown of the Continent Ecosystem harbors one of the most intact assemblages of medium to large carnivores in the contiguous United States and is inhabited by hundreds of species of native mammals, birds, fish, reptiles,

amphibians and invertebrates. Carnivores inhabiting the Forest include the threatened Canada lynx as well as the grizzly bear and wolverine. The Forest is part of Canada lynx critical habitat unit 3, Northern Rocky Mountain Region, with close to 1.8 million acres of habitat on Flathead NFS lands. One of the largest populations of wolverines in the lower 48 states inhabits the Forest and surrounding portions of the Crown of the Continent Ecosystem[1].

The Forest is part of the Northern Continental Divide Ecosystem (NCDE) for grizzly bears. The NCDE is one of seven grizzly bear ecosystems in the continental United States, of which five are known to be occupied[2]. The Flathead River in British Columbia, the North Fork of the Flathead River in Montana, as well as drainages on the east-side of the Continental Divide which are located in the northwestern portion of the Crown of the Continent Ecosystem, have the highest density of grizzly bears in inland North America. The Forest is the largest land manager within the NCDE recovery zone, managing approximately 37 percent of NCDE lands. Over 1,000 bears are estimated to be within the NCDE[3].

The Flathead NF is noted for abundant aquatic and wetland resources. Its diverse wetlands (including fens, marshlands, glaciated ponds, woodland vernal pools, wet meadows, sloughs, and riparian areas) provide for high water quality and key habitats for a large variety of wildlife and plant species, including the threatened plant, water howellia. In Montana, this plant is found only in the Swan Valley.

Because such a large portion of their watersheds are within protected areas, the North and Middle Forks of the Flathead River and the South Fork of the Flathead River above Hungry Horse Reservoir have abundant, intact riparian and wetland habitats and are among the least impacted riparian systems in the Flathead sub-basin.

Bull trout and westslope cutthroat trout migrate as adults from Flathead Lake to natal streams on forest to spawn. Thus Flathead Lake and the Forest are uniquely connected. Although complex food web dynamics within Flathead Lake have led to declines of these native fish, local populations on Forest have not been lost.

Flathead Lake is the largest natural freshwater lake in the western US (by surface area) outside of Alaska and it is the 79th largest of the natural freshwater lakes in the world, and is one of the cleanest. It covers 191.5 sq miles (495.9 sq km), has a mean depth of 165 feet, and a maximum depth of 371 feet. Flathead Lake's high water quality results from its watershed being mainly National Park, wilderness, and managed forest lands (>60%); having a relatively low human population (~95,000); being dominated by very old, low nutrient geology; receiving high amounts of precipitation (mostly as mountain snow); and rapid flushing of the Lake (about 2.2 years for all the water to be replaced) [4].

Hungry Horse Reservoir is the uppermost dam within the Columbia River system and while construction of the dam in 1953 disconnected the South Fork Flathead River system from Flathead Lake for migratory fish, it now serves as a protective barrier from non-native fish. The South Fork River system and reservoir supports one of the largest intact native fish assemblages in the western United States. Upon completion of the South Fork Westslope Cutthroat Trout Conservation Project, the only non-native fish population in this watershed will consist of artic grayling in Handkerchief Lake.

[1] Weaver, John L. 2013. *Safe Havens, Safe Passages for Vulnerable Fish and Wildlife, Critical Landscapes in the Southern Canadian Rockies*, British Columbia and Montana, Wildlife Conservation Society, Canada.
[2] (United States Fish and Wildlife Service [USFWS] 1993, Grizzly Bear Recovery Plan; http://www.fws.gov/mountain-prairie/species/mammals/grizzly/)
[3] Montana Fish Wildlife and Parks annual reporting and Mace, R. et al. 2012. *Grizzly bear population vital rates and trend in the NCDE, The Journal of Wildlife Management*.
[4] Flathead Lake Biological Station: http://flbs.umt.edu/lake/flatheadlake.aspx.

The Flathead NF also has six research natural areas (RNAs), part of a national network of ecological areas for research, education, and maintenance of biological diversity.

Social and Economic Resources

The Flathead NF surrounds Glacier NP on its western and southern borders. This highly scenic complex of lands draws visitors from around the world. The incredible scenery of the area contributes to community identity and sense of place, quality of life, the tourism industry, and increased real estate values.

The Flathead NF has both developed and dispersed recreation that provide for a broad and diverse range of year round activities. The top ten primary activities on the forest by participation in 2010 were: viewing natural features, viewing wildlife, relaxing, hiking/walking, downhill skiing, driving for pleasure, hunting, nature center activities, fishing, and gathering forest products.

There are two regionally significant ski areas, Whitefish Mountain Resort and Blacktail Mountain Ski Area, motorized and non-motorized travel and recreation (including mountain biking, hiking, snowmobiling, driving for pleasure), hunting, fishing, camping, Nordic and downhill skiing, white water boating, and other water and lake related opportunities.

The Forest provides abundant water for drinking and downstream uses as well as the municipal watershed, Haskill Basin, for the City of Whitefish.

The Jewel Basin Hiking Area is a unique 15,350 acre area maintained exclusively for hiking and camping, with over 20 high mountain lakes providing fishing opportunities.

The Forest contains over a million acres of designated wilderness including the Bob Marshall Wilderness, Great Bear Wilderness and Mission Mountains Wilderness. The Flathead NF has one designated Wild and Scenic River, the Flathead River, that has three forks—the North Fork, South Fork, and Middle Fork of the Flathead River that were designated by Congress in 1976.

Wilderness lands provide hiking, hunting, fishing, boating and horseback riding at the primitive end of the spectrum. Outfitter and guides play an important role in teaching and connecting people with the outdoors. They provide recreational experiences to visitors such as rafting, horseback riding, hunting, and camping. The Great Bear Wilderness, part of the Bob Marshall Wilderness Complex, has a functioning historic airstrip, providing fly-in recreation opportunities for small planes.

Recreating at the primitive end of the spectrum provides the user a very high probability of solitude, closeness to nature, self-reliance, high challenge and risk with little evidence of people. Solitude is commonly defined as an escape or complete isolation from all other people or situation in which you are alone usually because you want to be. Some components to solitude are remoteness, naturalness and removal from human intrusions.

Jobs in the recreation sector bring revenue into the local economy, where 20 percent of the jobs are tied to tourism-related industries. Whitefish Mountain Resort and Blacktail Mountain Ski Area contribute significantly to the local economy by creating jobs and attracting visitors. Many river-based and backcountry outfitters-guides and other recreation-based companies are dependent on the Forest for their livelihood. As the largest land jurisdiction in Flathead County, the Flathead NF serves as the backdrop for residents and plays a key role in supporting the social and economic sustainability of local communities, the state of Montana, and the broader region.

Historically, the Flathead Valley was the center of a forest products industry that created jobs and products, which were a dominant feature of the local economy. The history of exploration, settlement, and

development of the area for forest and fire management created a network of roads and trails which made recreational access to this mountainous country possible.

Although the volume of timber harvest has declined, the industry continues to be important to the local economy, providing forest products to meet local and national needs. Flathead County and adjoining Lake, Lincoln, and Sanders Counties derive a higher percentage of their employment from timber-related industries than either the state or the nation. The forest products industry contributes to the sense of place in the Flathead Valley.

Wildlife-related activities (hunting, fishing, wildlife viewing) are important to residents of Montana, as well as those visiting the state. The percent of Montana's population participating in wildlife-related activities was substantially higher than t the Rocky Mountain region of the west and higher than the national percentage. Hunting in northwestern Montana (Flathead, Lake, Lincoln, and Sanders Counties) is an important social and economic activity. While most of the hunting is associated with deer and elk, a large proportion of the moose hunting in the state (around one third) occurs in this four-county area.

The Flathead NF has large quantities of huckleberries (*Vaccinium* sp.). This forest product is a key ecosystem characteristic in northwest Montana because the huckleberry fruit is highly sought-after by both humans and wildlife. Large quantities of the berries are collected in the wild and sold both locally and nationally, fresh and in products such as jams. Huckleberries remain an important food source for Native Americans, who both ate them fresh and dried them for consumption through the winter months.

Cultural and Historical Resources

Cultural features are evident across the forest, including log cabins and remnants of early Euro-American settlements, Forest Service ranger stations and fire lookouts, as well as Native American travel routes and cultural sites. The Great Northern Railway reached the Flathead Valley in 1891. With the coming of the railroad, lumber became an even more important product of the Flathead Valley. Many mills opened throughout the valley and numerous small operators set up mills on Forest lands. Evidence for the harvesting and milling still exist as heritage sites managed by the Flathead NF. Many of the structures, trails and sites have retained their historic integrity and add to the area's character and sense of place.

The Flathead NF has approximately 350 recorded cultural resources. Of these, the majority, approximately 275, are historic period sites associated with Flathead NF Backcountry Administrative Facilities National Historic District (Ranger District headquarters, guard stations, and the trails and communications systems that connect them), early 20th century Euro-American farming and mining, and historic logging. Four historic properties: Hornet Peak Lookout, the Wurtz homestead, the Stone House on Swan Lake, and Big Creek Ranger Station, are listed on the National Register of Historic Places (NRHP).

The plan area is the traditional homeland of the Kootenai and Salish peoples and to a lesser extent, the Blackfeet people. The Confederated Salish and Kootenai Tribes of Montana, which includes the Kootenai, the Bitterroot Salish, and the Pend O'reille Salish peoples, have reserved treaty rights in the plan area under the Hellgate Treaty of 1855. These treaty rights include hunting, gathering, and grazing rights on Federal lands within the plan area. The Flathead Indian Reservation, which is home to the Confederated Salish and Kootenai Tribes, shares a border with the Flathead NF on its southwestern boundary.

Approximately 75 archeological sites are associated with Native American uses of the land and include lithic scatters, travel routes, Indian scarred trees, and rock art. There are traditional travel routes and camp locations along the North Fork of the Flathead River, as well as graves and rock art sites. There is also a significant native American trail network with more than 30 associated archaeological sites in the South Fork of the Flathead area that have been determined eligible for listing on the NRHP.

Public Involvement

The Flathead NF began public participation activities during the development of the *Assessment of the Flathead Forest*[5], a precursor document in the plan revision process, to develop and identify zones of agreement for the responsible official to consider relevant to forest plan components. The Forest contracted with the U.S. Institute for Environmental Conflict Resolution in 2012 to develop a collaborative stakeholder engagement process. The Institute interviewed Forest Service employees and a representative group of key stakeholders to determine willingness to engage in a collaborative process convened by a neutral, third party. The Meridian Institute was selected to serve in that capacity and facilitated numerous meetings and an interagency group to bring together information for the Flathead NF to consider in the development of its proposed action. Also, as part of the public involvement process, the Forest Service held field trips and conducted an open house in the summer and fall of 2013 to discuss existing information and trends related to a variety of conditions found on the forest. The information gained throughout the collaboration process was considered in the development of the proposed action.

Need for Change

The requirements of the 2012 Planning Rule, findings from the Flathead Forest Assessment, changes in conditions and demands since the 1986 Forest Plan, and public concerns to date highlighted several areas where changes are needed to the current plan to necessitate a plan revision.

To develop a proposed action that makes changes to a forest plan, the management direction in the current plan and its amendments is reviewed. Effective management direction from the current plan may be retained or it may be modified, or augmented, by incorporating relevant science or direction from other regulatory documents. The 2012 Planning Rule requirements also mandate that new management direction be developed to address sustainability. This section discusses in overview how needs for change identified in the current plan and its amendments, specifically in areas of public concern, were addressed during the development of the proposed action.

2012 Planning Rule Requirements

The 2012 Planning Rule supports ecological, social, and economic sustainability as a goal for management of NFS lands. To address this requirement, new management direction was developed in several areas:

- For ecological sustainability, management direction is proposed to address ecosystem diversity and key ecosystem characteristics and their integrity, especially in light of changing climates, changes in fuels and vegetation management strategies, and future environments. Revised plan components are also needed that focus on maintaining or restoring vegetation and ecosystem resilience to provide for species diversity (including threatened and endangered species (T&E), species of conservation concern (SCC) and species of public interest (SOPI); see appendix A for lists of these species).
- Comprehensive management direction to address access and sustainable recreation is proposed. This direction considers the suitability of certain areas for particular uses, recreational opportunities, and all aspects of motorized and non-motorized travel to provide for the management of existing and anticipated uses as well as resource protection needs.
- The role of timber harvest in meeting ecosystem management and social and economic objectives has changed since the Flathead's 1986 Forest Plan was developed. The 2012 Planning Rule requires the Forest to undertake a process to identify lands within the plan area for timber production suitability.

[5] USDA, Forest Service. 2014. *Assessment of the Flathead National Forest.* Available online at www.fs.usda.gov/goto/flathead/fpr.

The proposed action presents new plan components for lands suitable for timber production and for lands where timber harvest is appropriate for purposes other than timber production (e.g., removal of hazard trees in campgrounds). These plan components are intended to facilitate an active vegetation management program of work to meet ecosystem and socioeconomic objectives.

- The planning rule requires land management plans to provide information regarding possible actions that may occur on the plan area during the life of the plan, including the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used (16 U.S.C. 1604(e)(2) and (f)(2)). The plan revision addresses this requirement through the designation of management areas, objectives reflecting anticipated budget levels, and disclosure of possible management actions (see Appendix B).
- The proposed action includes new plan components that address social and economic sustainability, ecosystem services, and multiple uses integrated with the plan components for ecological sustainability and species diversity. In particular, proposed social and economic management direction provides people and communities with a range of social and economic benefits for present and future generations.
- A requirement of the 2012 Planning Rule addressed in the proposed action is the identification and evaluation of lands that may be suitable for inclusion on the National Wilderness Preservation System and eligible rivers and streams for inclusion into the National Wild and Scenic Rivers System. Outcomes from the wilderness and eligible rivers evaluations may result in the need for new or revised plan components.
- Public participation through scoping activities may also identify other needs for change that will be considered during the plan revision process.
- Plan components developed for ecosystem integrity and ecosystem diversity are expected to provide for ecological conditions necessary to maintain the persistence or contribute to the recovery of native species within the plan area, including at-risk species identified in the assessment. At-risk species for planning are federally recognized threatened, endangered, proposed, and candidate species, and species of conservation concern. At-risk species native to the Forest include the grizzly bear (*Ursus arctos horribilis*), Canada lynx (*Lynx canadensis*), bull trout (*Salvelinus confluentus*), water Howellia (*Howellia aquatilis)* and whitebark pine (*Pinus albicaulis*). Plan components for water Howellia and whitebark pine are incorporated in the Aquatic and Terrestrial Ecosystems and Vegetation sections of Chapter 3.

The following sections describe the need for change in management direction related to the grizzly bear, bull trout, and Canada lynx.

Grizzly Bear Habitat Management

Under the Endangered Species Act (ESA) of 1973, federal agencies are directed to use their authorities to seek to conserve endangered and threatened species. The 1986 Flathead NF plan contained management direction related to grizzly bear habitat, to provide specifically for recovery of the threatened grizzly bear. In 1995, Amendment 19 (A19) was completed and resulted in establishment of new management direction related to motorized use of roads and trails and security for grizzly bears. A19 established limits on open motorized access density, total motorized access density, and security core for 54 of the 73 grizzly bear subunits across the Flathead NF portion of the NCDE.

The grizzly bear population in the NCDE has now met or exceeded recovery goals. In particular, habitat conditions and management on the national forests have contributed importantly to the increased population size and improved status of the grizzly bear across the NCDE. But, supporting a healthy,

recovered grizzly population will depend on the Forest Services' continued, effective management of the NCDE grizzly bear's habitat.

In 2013, the USFWS announced the availability of a draft grizzly bear conservation strategy (GBCS) for the NCDE population for public review and input. When finalized, the GBCS will become the post-delisting management plan for the NCDE grizzly bears and their habitat. This document is necessary for the USFWS to demonstrate the adequacy of regulatory mechanisms in order to delist this grizzly population. Incorporating this strategy to the Flathead NF plan would likewise demonstrate the adequacy of regulatory mechanisms on the Flathead NF to support delisting. Thus, the Flathead NF needs to change its forest plan and incorporate the relevant desired conditions, standards, guidelines, and monitoring items related to habitat management on NFS lands to show that the Flathead NF has the adequate regulatory mechanisms in place to sustain a recovered grizzly bear population.

The plan components included in this proposed action would replace A19 and other 1986 Flathead NF plan direction related specifically to grizzly bears in its entirety. However, until consultation with the USFWS has occurred and a decision has been made on the Flathead NF Plan Revision, the Flathead NF would continue to follow A19 direction.

The Flathead planning team is also coordinating the NEPA effort to incorporate and amend the relevant habitat-related desired conditions, standards, guidelines, and monitoring items from the GBCS into the Helena, Kootenai, Lewis and Clark, and Lolo NF Plans to ensure consistent direction related to grizzly bear habitat management on National Forest System lands throughout the NCDE.

The adoption of the GBCS[6] includes incorporating the following management zones to the Flathead NF portion of the NCDE (figure C-1):

- The Primary Conservation Area (PCA): the same as the Recovery Zone identified in the Grizzly Bear Recovery Plan (USFWS 1993);
- Management Zone 1: similar in concept to the 10-mile buffer around the Recovery Zone identified in the Grizzly Bear Recovery Plan (USFWS 1993);
- The Salish Demographic Connectivity Area (DCA): a portion of Zone 1 with specific habitat measures to allow female grizzly bear occupancy and eventual dispersal to other ecosystems in the lower 48 states (i.e., the Cabinet-Yaak and Bitterroot ecosystems).

NFS lands would no longer be designated as Management Situations 1, 2 or 3.

Within the Flathead NF portion of the NCDE PCA, key management direction from the GBCS is summarized below and incorporated into the proposed action's plan components (see desired conditions, standards, and guidelines throughout this document for more detail):

- Open motorized route density, total motorized route density, and secure core would be maintained at baseline levels in each grizzly bear subunit, with certain exceptions. High use non-motorized trails would no longer be counted in calculations; Temporary increases in open and total motorized route densities and temporary decreases in secure core would be allowed for projects, as defined in the glossary;
- The food/wildlife attractant storage special orders would continue to apply across the forest;

[6] The draft GBCS (USFWS 2013) contains additional direction on grizzly bear habitat management that is incorporated in proposed action standards, guidelines, and strategies listed in the grazing, energy and minerals, vegetation, special uses, and recreation sections of this document.

- Developed recreation sites would be limited to one new site or increase in capacity in a bear management unit (BMU) in a 10-year period, with certain exceptions;
- Management agencies would continue to work cooperatively to reduce the risk of grizzly mortality and human injury resulting from conflicts.
- In the Swan Valley, the Swan Valley Grizzly Bear Conservation Agreement (SVGBCA) has coordinated timber harvest activities and associated road management across the multiple land ownerships in the Swan Valley since 1997. The SVGBCA applied to the following grizzly subunits: the South Fork Lost Soup, Goat Creek, Lion Creek, Meadow Smith, Buck Holland, Porcupine Woodward, Piper Creek, Cold Jim, Hemlock Elk, Glacier Loon, and Beaver Creek. Once the Forest has consulted with the USFWS and issued a decision on a revised forest plan, the direction in the revised plan would replace the SVGBCA in its entirety.
- In the Flathead NF portion of the Salish DCA and Zone 1, habitat protections focus on limiting miles of roads open yearlong to the public yearlong and managing current inventoried roadless areas (IRAs)[7] as stepping stones to other ecosystems.

Bull Trout and Native Fish Habitat

New information on bull trout has been published since 1995, including designation of Critical Habitat for bull trout in 2010. The Forest is incorporating management standards and guidelines into the proposed action that are equivalent to those from the Inland Native Fish Strategy (INFISH), which amended Forest Plans in 1995, across the range of bull trout. INFISH standards placed a greater emphasis on protection of fish habitat than previous standards and established priority watersheds to recover bull trout.

The most noticeable result of this need for change will be that the revised forest plan would no longer make reference to INFISH. However, the management standards and guidelines being proposed are being carried over from INFISH and still favor native fish, especially within riparian habitat conservation areas (RHCAs), while describing appropriate vegetation management scenarios that do not inhibit riparian objectives. The Forest will have standards and guidelines to maintain RHCA and stream processes and function rather than numerical Riparian Management Objectives. Watershed analysis will not be a plan component requirement however; site-specific documentation to enter RHCAs for vegetation management will be a requirement.

The key desired conditions for RHCAs are to maintain and restore fish habitat by:

- Minimizing sediment inputs from non-channelized flows to streams
- Maintaining instream flows
- Providing organic matter and large woody debris to streams for cover
- Providing stream shading

[7] IRAs are statutorily designated areas under the 2001 Roadless Area Conservation Rule (36 CFR 294, subpart B). There are 478,754 acres of IRA on the Flathead NF (see figure C-3 in appendix C). The rule prohibits cutting, selling or removing timber in IRAs except in specific cases where the responsible official determines that a special circumstance exists. These special circumstances include: the cutting, sale, or removal of generally small diameter timber is needed to improve threatened and endangered, proposed or sensitive species habitat or to maintain or restore the characteristics of ecosystem composition and structure that would be expected to occur under natural disturbance regimes.

- Stabilizing banks for channel and stream function integrity
- Allowing for diversity and productivity of native plant communities in riparian zones
- Providing terrestrial wildlife habitat connectivity

Specific plan components including standards and guidelines can be found in the watershed resource area and in associated resource areas such as infrastructure, fire and vegetation management.

Canada Lynx Habitat Management

The Northern Rockies Lynx Amendment (known as the NRLA or NRLMD) (USFS 2007) amended 18 USFS Northern Region Forest Plans, including the Flathead NF, to incorporate habitat management direction on NFS lands for the threatened Canada lynx. Since 2007 new information on Canada lynx has been published, including designation of critical habitat for Canada lynx (USFWS 2009, 2014), an updated version of the Lynx Conservation and Assessment Strategy (LCAS, Lynx Biology Team 2013), and other recent science relevant to Canada lynx in northwest Montana.

A change to the Flathead NF plan is needed to incorporate management direction and scientific information on Canada lynx habitat or critical habitat into the proposed action's desired conditions, standards, guidelines, objectives and management strategies, consistent with the 2012 planning rule requirements. Specific plan components can be found in throughout the proposed plan, (e.g. in terrestrial ecosystems and vegetation, wildlife species, recreation, and infrastructure sections). The direction in the revised Flathead NF plan would replace the management direction in the NRLMD. However, until consultation with the USFWS has occurred and a decision has been made on the Flathead NF Plan Revision, the Flathead NF would continue to follow NLRMD direction.

The Flathead NF is proposing to carry forward the standards known as ALLS1, VEGS1, 2, 5, and 6 in the NRLMD, with modifications:

- The Flathead NF is proposing to modify the vegetation standard formerly known as VEGS5 to add an exception category. The Flathead's landscape evaluation of the natural range of variation/variability (NRV) indicates large, frequent fires occur regularly in lynx habitat on the Flathead NF. In some places, post-fire tree densities greatly exceed levels needed provide hare habitat and these extremely high tree densities inhibit the development of mature multi-story hare and lynx habitat over the long-term. In other places, young forests could be pre-commercially thinned to promote growth of western larch that are resilient to fire in the overstory, while promoting growth of dense sub-alpine fir and Engelmann spruce in the understory. The proposed action would allow some forested stands in the stand initiation structural stage to be pre-commercially thinned using modified methods, to benefit winter snowshoe hare and lynx habitat by promoting biodiversity and a climate change adaptation strategy that is not currently part of the NLRMD.
- The Flathead NF is proposing to modify the vegetation standard formerly known as VEGS6 to add an exception category. The proposed action would allow noncommercial treatments to increase resilience of whitebark pine stands that contain phenotypically blister rust resistant trees to make them more resilient and adaptable to stressors and likely future environments.
- The proposed lynx management direction applies to mapped lynx habitat. Lynx habitat on the Flathead NF was mapped in 2000 and has been updated because the Flathead NF now has new information. Mapped lynx habitat has been updated based upon potential vegetation type, elevation (associated with snow depth), and lynx telemetry locations on the Flathead National Forest (figure C-2).

- In 2007, the Flathead NF consulted on acres of vegetation management objectives to be carried out under exceptions to NRLMD vegetation standards known as VEGS5 and VEGS6 (listed as FW-STD-TE&V-05, 06 in the proposed action). Exception acres for the Forest were originally estimated through 2017. The proposed action includes updated exception acres for vegetation management activities (e.g., vegetation management to restore whitebark pine and white pine) expected to occur for 15 years following plan implementation.
- Some of the human use guidelines have been consolidated or updated based upon scientific information relevant to northwest Montana.

Inventoried Roadless Areas and the Roadless Area Conservation Rule

Inventoried roadless areas (IRAs) are designated under the Roadless Area Conservation Rule (36 CFR Part 294 Subpart B). The Roadless Area Conservation Rule (RACR) prohibits road construction or reconstruction and cutting, selling or removing timber in IRA's unless a listed exemption applies. For example, one exemption allows the cutting, sale or removal of generally small diameter timber when it is needed to improve threatened, endangered, proposed or sensitive species habitat or to maintain or restore the characteristics of ecosystem composition and structure that would be expected to occur under natural disturbance regimes. The forest plan cannot modify RACR direction. The RACR can only be changed by congressional action or a new USDA rulemaking.

Currently on the Forest, there are 478,754 acres of IRAs, which is about 20 percent of the Flathead NF (refer to figure C-3). The need for changing the management direction in the IRA's from the 1986 forest plan is to remove IRA's from the suitable timber base, and determine the recreation opportunity spectrum classification, the type of travel management desired, and the desired management area delineation. The majority of the IRA's on the Flathead NF are being proposed for backcountry (58 percent) and recommended wilderness (34 percent) management areas.

Old Growth Forests

Amendment 21 (A21) was completed in 1999 and resulted in establishment of goals, standards and objectives in the Flathead NF 1986 Forest Plan related to the management of old growth forests. Key features of A21 were a standard to maintain all existing old growth, limitations imposed on vegetation treatments within old growth, retention of forest structural characteristics within timber harvest units (such as snags and downed wood), as well as restoration of landscape composition, structure, and patterns.

Direction to retain all existing old growth and the limitations on management within old growth forest stands is incorporated into the desired conditions and standards of the proposed action. However, A21 standards for snags and down woody material are incorporated as modified guidelines in the Flathead NF plan revision, since monitoring has shown that snags and down woody material are very unevenly distributed across the Flathead NF landscape. Proposed guidelines provide more specific direction to substitute live trees, especially those with decay and showing wildlife use, if snags of sufficient size are not available within each harvest unit. Since the 2012 planning rule defines guidelines as allowing for departure from the terms of guidelines only so long as the purpose of the guideline is met, the guidelines would address desired conditions for snags and down woody material over the long-term.

The proposed action includes the following modifications or updates to A21 direction:

- increased emphasis on the development of future old growth, including the retention of key stand structural components for wildlife, such as large, live trees, within vegetation treatment units;

- modification of the standard for pieces of down wood per acre to a guideline for retention of tons per acre of down woody material greater than 9" in diameter within harvest areas;
- modification of the standard for snags per acre to place more emphasis on retention of snags greater than 15 inches d.b.h., leaving 12" snags only if larger snags are not available;
- increased emphasis on the restoration of composition, amount, distribution and landscape pattern of old growth forests to within the historical range of variability or NRV, focusing on stand conditions that would make old growth forests more resilient in a changing climate and on development of larger, less linear old growth patches;

As it is not possible to accurately determine how much of the Flathead NF may have historically been old growth[8] with structural conditions important to wildlife (e.g. very large live defective trees and snags) proposed direction drops the goal of retaining "75% range around the median of the historical range of variability" and emphasizes increasing forested stands that provide old growth wildlife habitat now or in the near future.

Winter Motorized Recreation

Amendment 24 (A24) was implemented in 2006 and resulted in direction for over the snow winter motorized recreation, including when and where winter motorized recreation could occur. A24 designated specific routes and play areas, as well as seasons, for motorized over-snow use as per §212.81 of the Travel Management Rule. Specific routes and play areas and associated dates for over snow recreation identified with A24 were retained in the proposed action; however there was a need to propose changes to the boundaries of specific areas, as shown on the map in appendix C, as suitable or not suitable for over snow motorized recreation to address recreation sustainability.

The Flathead NF received input from the Whitefish Range Partnership collaborative group, expressing a desire to have a larger area open to over-snow motorized recreation in the area between Big Creek and Columbia Falls. In addition, other members of the public expressed a need to adjust the boundaries of areas that are currently open because some have grown in with vegetation and to improve the public's ability to recognize boundaries on the ground and assist the Forest Service in enforcing closure boundaries. In order to consider these recommendations but not impact key wildlife habitats, changes are being proposed in areas "suitable for over-snow motorized recreation," so that there would be no net increase in designated over snow routes or acres of play areas open to over-snow-use across the Forest. As shown in figure C-4, the largest shift in acres would be in an area in the vicinity of Lookout Creek, Deep Creek, Depuy Creek, and McGinnis Creek in the North Fork Flathead River south of Big Creek that would become suitable for over-snow-use, while an equivalent acreage in the vicinity of upper Slide Creek, upper Sullivan Creek, and Upper Tin Creek in the South Fork Flathead River is being proposed as "not suitable for over-snow motorized recreation." The proposed changes would need to undergo subsequent site-specific analysis in order to be implemented and comply with 36 CFR parts 212 and 261.

[8] Green, P., J.Joy, D.Sirucek, W.Hann, A.Xack, and B.Naumann. 1992. Old growth forest types of the Northern Region. Errata corrected 2005, 2007, 2008, 2011. USDA Forest Service, Northern Region Document Number R-1 SES 4/92. Missoula, MT. 609 pgs.

Plan Components

Introduction

This plan is designed to communicate the concepts of strategic guidance and adaptive management for the Flathead NF. Plan components guide future projects and activities and the plan monitoring program. Plan components are not commitments or final decisions approving projects or activities. Some plan components have also been designed to address drivers and stressors of ecosystems (refer to the *Assessment of the Flathead NF* for description of drivers and stressors and appendix D: Drivers and stressors and their related plan components).

Desired conditions, objectives, standards, guidelines, monitoring questions and monitoring indicators (in appendix H) have been given alpha-numeric identifiers for ease in referencing within the forest plan. The identifiers include:

- the level of direction (e.g., forestwide = FW, management area = MA, or geographic area = GA, note: with MA or GA direction, the MA number and the GA acronym are also included);
- the type of direction (where DC = desired condition, OBJ = objective, STD = standard, GDL = guideline, MON=monitoring question, IND=monitoring indicator);
- the resource (for forestwide direction),e.g., WTR = watersheds and TE&V = terrestrial ecosystems and vegetation;
- a unique number (i.e., numerical order starting with "01").

Thus, forestwide direction for desired conditions associated with watersheds would be identified starting with FW-DC-WTR-01; MA direction for desired conditions in MA-2b would be identified starting with MA-2b-DC-01, and desired conditions for the Hungry Horse GA would be identified starting with GA-HH-DC-01. The identifiers are included as part of the heading in chapters 2 through 4 with the unique number preceding each plan component.

If the component is from the GBCS then it will reference the NCDE and the management area to which it applies (PCA, Zone 1 and/or DCA; e.g. within the NCDE PCA = within the Primary Conservation Area of the Northern Continental Divide Ecosystem for grizzly bears). Refer to figure C-1 in appendix C for the delineation of the management zones applicable to the Flathead NF portion of the NCDE.

Following are the definitions and where necessary, a description of their context for the required plan components (36 CFR 219.7(e)).

Management, Geographic, and Designated Areas

Every plan must have management areas (MAs) or geographic areas (GAs), or both. The plan may identify designated or recommended areas as MAs or GAs (36 CFR 219.7(d)). These areas are assigned sets of plan components such as desired conditions, suitable uses, and in some areas either standards or guidelines, or both. GA desired conditions describe what we want to achieve in specific GAs that are not necessarily covered by forestwide desired conditions. While all resources have been considered, the only desired conditions specified for a GA are those that are not adequately addressed by forestwide desired conditions.

Designated areas or features are identified and managed to maintain their unique special character or purpose. Some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the Federal executive branch. Examples of statutorily designated areas are national heritage

areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas. Examples of administratively designated areas are experimental forests, RNAs, scenic byways, botanical areas, and significant caves (36 CFR 219.19).

Desired Conditions

A desired condition (DC) is a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but not include completion dates (36 CFR 219.7(e)(1)(i)).

Desired conditions are not commitments or final decisions approving projects and activities. The desired condition for some resources may currently exist, or for other resources may only be achievable over a long time period.

This plan presents three types of desired conditions as follows:

- Forestwide desired conditions apply across the landscape, but may be applicable to specific areas as designated on a map.
- Management area desired conditions are indications of what future conditions would typically be desired in each MA. They help clarify the general suitability of various parts of the forest for different activities and management practices. These desired conditions help us clarify what outcomes might be expected in land areas with different general suitability descriptions.
- Geographic area desired conditions are specific to an area or place, such as a river basin or valley, and reflect community values and local conditions within the area. They do not substitute for or repeat forestwide desired conditions. These desired conditions allow us to focus on specific circumstances in specific geographic locations. The Flathead NF is divided into six GAs (see chapter 4).

Objectives

An objective (OBJ) is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets (36 CFR 219.7(e)(1)(ii)). Objectives describe the focus of management in the plan area within the plan period. Objectives will occur over the life of the forest plan, considered to be over the first 15 years of plan implementation, unless otherwise specified. Objectives can be forestwide or specific to MAs or GAs.

It is important to recognize that objectives were developed considering historic and expected budget allocations, as well as professional experience with implementing various resource programs and activities. It is possible that objectives could either exceed or not meet a target based upon a number of factors including budget and staffing increases/decreases, increased/decreased planning efficiencies, unanticipated resource constraints, etc.

Standards

A standard (STD) is a mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 CFR 219.7(e)(1)(iii)). Standards can be developed for forestwide application or specific to an MA or GA.

Guidelines

A guideline (GDL) is a constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 CFR 219.7(e)(1)(iv)). A guideline can be forestwide or specific to an MA or a GA.

Suitability of Lands

Specific lands within the Forest will be identified as suitable for various multiple uses or activities based on the desired conditions applicable to those lands. The plan will also identify lands within the Forest as not suitable for uses that are not compatible with desired conditions for those lands. The suitability of lands need not be identified for every use or activity (36 CFR 219.7 (e)(1)(v)).

Identifying suitability of lands for a use in the forest plan indicates that the use may be appropriate, but does not make a specific commitment to authorize that use. Final suitability determinations for specific authorizations occur at the project or activity level decision making process. Generally, the lands on the Forest are suitable for all uses and management activities appropriate for national forests, such as outdoor recreation, range, or timber, unless identified as not suitable.

Other Required Plan Content

In addition to requiring that a plan have components, the 2012 planning rule requires that a plan have "other required content" (36 CFR 219.7(f)(1)) addressing priority watersheds, the distinctive roles and contributions of the plan area, a plan monitoring program, and proposed and possible actions. Distinctive roles and contributions are discussed earlier in this chapter, the remainder of the required content can be found in appendix B: Potential Management Approaches and Possible Actions, appendix E: Priority Watersheds, and appendix H: Monitoring Program.

Project Consistency with Plan Components

As required by the National Forest Management Act of 1976, all projects and activities that would be authorized by the Forest Service, after record of the decision for the revised plan, must be consistent with the forest plan (16 United States Code 1604 (i)) as described at 36 CFR 219.15. This is accomplished by a project or activity being consistent with applicable plan components.

When a proposed project or activity would not be consistent with the applicable plan components, the responsible official shall take one of the following steps, subject to valid existing rights:

- Modify the proposed project or activity to make it consistent with the applicable plan components.
- Reject the proposal or terminate the project or activity.
- Amend the plan so that the project or activity will be consistent with the plan as amended.
- Amend the plan contemporaneously with the approval of the project or activity so that the project or activity will be consistent with the plan as amended (36 CFR 219.15(c)).

Determining consistency

Because of the many types of projects and activities that can occur over the life of the plan, it is not likely that a project or activity can maintain or contribute to the attainment of all desired conditions, nor are all desired conditions relevant to every activity (i.e., recreation desired conditions may not be relevant to a

fuels treatment project). Most projects and activities are developed specifically to maintain or move conditions toward one or more of the desired conditions of the plan.

Every project and activity must be consistent with the applicable plan components. A project or activity approval document must describe how the project or activity is consistent with applicable plan components by meeting the following criteria (36 CFR 219.15(d)):

1. **Desired conditions and objectives**. The project or activity contributes to the maintenance or attainment of one or more desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any desired conditions, or objectives, over the long term.

2. **Standards**. The project or activity complies with applicable standards.

3. **Guidelines**. The project or activity:

   i. Complies with applicable guidelines as set out in the plan; or

   ii. Is designed in a way that is as effective in achieving the purpose of the applicable guidelines (§ 219.7(e)(1)(iv)).

4. **Suitability**. A project or activity would occur in an area:

   i. That the plan identifies as suitable for that type of project or activity; or

   ii. For which the plan is silent with respect to its suitability for that type of project or activity.

Rights and Interests

The revised forest plan will provide a strategic framework that guides future management decisions and actions. As such, the plan will not create, authorize, or execute any ground-disturbing activity. The plan will not subject anyone to civil or criminal liability and will create no legal rights. The plan will not change existing permits and authorized uses.

Best Available Science and the Proposed Action

The 2012 planning rule requires the responsible official to use the best available scientific information (BASI) to inform the development of the proposed plan, including plan components, the monitoring program and plan decisions. The foundation from which the plan components were developed for the proposed action was provided by the *Assessment of the Flathead National Forest*, and the BASI and analyses therein. The Assessment identified and evaluated the conditions and trends of 15 assessment topics identified in 36 CFR 219.6(b): (1) Terrestrial ecosystems, aquatic ecosystems, and watersheds; (2) Air, soil, and water resources and quality; (3) System drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession, wildland fire, invasive species, and climate change; and the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change; (4) Baseline assessment of carbon stocks, (5) Threatened, endangered, proposed and candidate species, and potential species of conservation concern present in the plan area; (6) Social, cultural, and economic conditions; (7) Benefits people obtain from the NFS planning area (ecosystem services); (8) Multiple uses and their contributions to local, regional, and national economies; (9) Recreation settings, opportunities and access, and scenic character; (10) Renewable and nonrenewable energy and mineral resources; (11) Infrastructure, such as recreational facilities and transportation and utility corridors; (12) Areas of tribal importance; (13) Cultural and historic resources and uses; (14) Land status and ownership, use, and access patterns; and (15) Existing designated areas located in the plan area including wilderness and wild

and scenic rivers and potential need and opportunity for additional designated areas. From this foundation, resource specialists used a number of BASI resources that included peer-reviewed and technical literature; databases and data management systems; modeling tools and approaches; information obtained via participation and attendance at scientific conferences; local information; workshops and collaborations; and information received during public participation periods for related planning activities.

Chapter 2. Proposed Forestwide Direction

Introduction

This chapter contains proposed direction that applies forestwide, unless more stringent or restrictive direction is found in chapter 3 or chapter 4. Forestwide direction includes desired conditions, objectives, standards, and guidelines. Other Forest Service direction including the retained direction (see chapter 1), laws, regulations, policies, executive orders, and Forest Service directives (manual and handbook) are not repeated in the Forest Plan. The desired conditions are described here as they relate to the Flathead NF.

This chapter is organized by resource, under the following major categories:

- Physical and Biological Ecosystems
- Economic, Cultural, and Social Environment
- Human Uses and Designations of the Forest

Air quality and fire are addressed in separate sections.

The Flathead NF intends to move toward these proposed forestwide desired conditions over the next 10 to 15 years, although they may not all be achieved for many decades. Some desired conditions may be very difficult to achieve, but it is important to move toward them over time.

Physical and Biological Ecosystems

Aquatic Ecosystems, Watersheds, and Wetlands

Introduction

Lands within the Flathead NF supply high quality water that supports a variety of uses throughout the Flathead basin. Aquatic ecosystems, watersheds, and wetlands have changed from historic conditions. Current conditions and trends indicate:

- Four stream reaches are listed as impaired by the State of Montana under the Clean Water Act.
- A decline in large migratory bull trout numbers during the past several decades primarily due to foodweb changes in Flathead Lake. However, bull trout remain strong in the Hungry Horse and South Fork GAs.
- Major threats to bull trout and westslope cutthroat trout include the presence and expansion of non-native species (lake trout, rainbow trout, and brook trout) and potentially climate change.
- A small percentage of inventoried road culverts are confirmed to be partial barriers or total barriers to westslope cutthroat trout during some part of the year. In some cases, these barriers may be beneficial for retention of native fish populations by excluding non-native fish.
- Westslope cutthroat trout populations remain strong in the three forks of the Flathead River particularly the South Fork Flathead but have declined in the Swan and Stillwater river systems.
- The Watershed Condition Framework (WCF) assessment completed in 2011 determined that 97% of watersheds on the forest are in Class 1 condition (functioning appropriately). There are 5 Class 2 (functioning at risk) watersheds which is less than 3% of all watersheds on the Forest.

The Montana Department of Environmental Quality (2014) lists four streams on the Flathead NF as being water-quality impaired as a result of forestry practices. During the last several years, the Flathead NF has been working to restore soil, watershed, and aquatic habitat conditions by implementing best management practices, removing excess roads, improving road conditions (reducing sediment), removing fish migration barriers, implementing riparian conservation strategies and threatened and endangered species conservation strategies. Much of this work has been accomplished as part of Total Maximum Daily Load (TMDL) implementation plans in cooperation with the State of Montana and Environmental Protection Agency. Big Creek was the very first impaired water body in the State to be removed from the list because of restored function. Lastly, sediment TMDLs have been completed for Sheppard and Logan creeks in the Salish GA.

The Flathead NF is known for its groundwater dependent ecosystems (GDE) which provide for highly diverse wetlands including marshes, swamps, wet meadows, fens, peatlands, glaciated ponds, wooded vernal pools and riparian areas. T&E plant and wildlife species (including proposed, candidate, and recently delisted species), species-of-conservation-concern, and species-of-interest are associated with these and other unique habitats. The threatened plant, water howellia, is found only in the Swan Valley. For additional information about conditions and trends refer to the *Assessment of the Flathead NF*.

Watersheds (WTR)

Desired Conditions (FW-DC-WTR)

01 Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances without long-term, adverse changes to their physical or biological integrity. Watersheds are in fully functioning conditions as defined by the Watershed Condition Framework.

02 Water quality meets or exceeds applicable state water quality standards and fully supports beneficial uses. Flow and habitat conditions in watersheds, streams, lakes, springs, wetlands, and groundwater aquifers fully support beneficial uses, and meet the ecological needs of native species (including SCC and T&E species) and SOPI.

03 Stream flow regimes maintain natural channel and floodplain dimensions. Floodplains are accessible and sediment deposits from over-bank floods allow floodplain development and the propagation of flood-dependent riparian plant species. Surface and groundwater flows provide late-season stream flows, cold water temperatures, and sustain the function of surface and subsurface aquatic ecosystems.

04 Stream channels transport sediment and woody material over time while maintaining reference dimensions (e.g., bankfull width, depth, entrenchment ratio, slope and sinuosity). Watershed conditions support a natural frequency and magnitude of base flows and flood flows.

05 Municipal watersheds and public water systems meet or exceed water quality standards. The risk of high severity wildfire in municipal watersheds is relatively low.

06 Water rights for consumptive and non-consumptive water uses obtained in the name of the Forest Service, support instream flows that provide for channel maintenance, water quality, aquatic habitats, and riparian vegetation. Water quality and beneficial uses are fully protected under special use permits related to water uses.

07 Educational and informational programs are provided to enhance understanding of wetlands, stream ecosystems, and watersheds.

08 Watershed maintenance and improvement activities contribute to jobs and income opportunities for local communities.

09 Groundwater quality meets State of Montana water quality standards and fully supports designated and existing beneficial uses, where attainable. The Forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in groundwater pollution that violates the State of Montana's drinking water quality standards and/or is permanently above natural or background levels. The timing, variability, and water table elevation in groundwater aquifers is within the natural range of variability and is not measurably altered by management activities or special use permits for on-forest withdrawals or injections.

10 GDEs, including peatlands, bogs, fens, wetlands, seeps, springs, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size, seasonal and annual timing, and water table elevation within the natural range of variability in order to maintain biodiversity of flora and fauna, as well as soil and hydrologic functions.

11 Stream habitat features, including large woody material, percent pools, residual pool depth, median particle size, and percent fines are within reference ranges as defined by agency monitoring.

Objectives (FW-OBJ-WTR)

01 Improve 3 or 4 watersheds (HUC12) (e.g., move class 2 watersheds, as defined by watershed condition framework, to class 1). Improvements in these watersheds may include passive or active restoration efforts.

Guidelines (FW-GDL-WTR)

01 Management activities in impaired watersheds (listed by the state under section 5 of the Integrated 303(d)/305(b) Report) with approved TMDLs are designed to comply with the TMDL implementation plan.

02 When placing physical barriers such as berms on routes, assure that roads are assessed and that road drainage features are in place to avoid future risks to watershed condition. See also FW-GDL-IFS.

03 Project-specific best management practices (BMPs) should be incorporated in land use and project plans as a principle mechanism for controlling non-point pollution sources, to meet soil and watershed desired conditions, and to protect beneficial uses.

04 New stream diversions and associated ditches should have screens placed on them to prevent loss of fish and other aquatic organisms.

05 To maintain stream channel stability, large woody debris should not be cut and/or removed from stream channels unless it threatens critical infrastructure.

Wetlands (WET)

Desired Conditions (FW-DC-WET)

01 Wetland water levels fluctuate from year-to-year but persist in the long-term.

02 Non-forested areas in and surrounding wetlands (e.g., marshes, wet meadows, sloughs,) are composed of hydrophytic plant and animal communities characteristic of the wetland type contributing to ecological and wildlife habitat diversity. Desired conditions support species

associated with wetland habitats (see appendix A for a list of wildlife species on the Flathead NF associated with wetland and riparian habitats).

03 Fens (a sub-set of peatlands) have the necessary soil, hydrologic, water chemistry, and vegetative conditions to provide for continued fen development and resilience to changes in climate and other stressors. Fens support unique plant species that are characteristic of and within the range of historic conditions (e.g., Slenderleaf sundew and Sphagnum mosses as well as a variety of shrubs). Engelmann spruce is common on the outer margins of many fens, as well as on drier hummock tops, but does not retard fen development.

04 Peatland complexes that provide habitat for bog lemmings (wildlife SCC species) have cover conditions that provide for movement of Northern bog lemmings from fen to fen as surface water conditions change.

05 Beavers (SOPI) create and maintain wetlands unless their activities directly threaten roads/other human developments or create habitat conditions that threaten reproduction and survival of T&E fish species or fish SCC.

06 Upland areas surrounding wetlands that have the most direct influence on wetland characteristics, as well as stream segments that flow directly into wetlands, sustain the natural characteristics and diversity of those wetlands. Wetland water flows, water quality, water chemistry, soil, and organic substrate support the long-term composition and function of wetlands within the range of historic conditions.

07 Cover conditions in upland areas adjacent to wetlands provide for summer thermal regulation of species such as white-tailed deer or moose and contribute to habitat connectivity for a variety of wildlife species.

Riparian Habitat Conservation Areas (RHCA)

Desired Conditions (FW-DC-RHCA)

01 RHCAs provide healthy, functioning aquatic, riparian, upland, and wetland ecosystems that support native and desired non-native plant, vertebrate, and invertebrate communities, distributed across the landscape.

02 RHCAs contribute to stream channel integrity, channel processes, and sediment regimes that function characteristically for a given landscape and climatic setting.

03 RHCAs provide for wetland ecosystems. Streams and lakes are free of chemical contaminants and do not contain excess nutrients. Sediment levels are within reference conditions, supporting salmonid spawning and rearing, and cold water biota requirements.

04 Upland and riparian portions of RHCAs have species composition, density, and fuel loading consistent with the natural range of variation for healthy ecosystems. In areas where people live and in mountainous areas with developments such as resorts, RHCAs have rates of wildfire spread that is not higher than surrounding forests.

05 Cover conditions in RHCAs provide for summer thermal regulation of species such as white-tailed deer or moose and contribute to habitat connectivity for a variety of wildlife species (e.g., Canada lynx, fisher, numerous forest interior bird species, and marten).

06 RHCAs have highly diverse structure (including large down wood, snags, and decadent live trees) to support numerous bats and other mammals, bird, reptile and amphibian species which feed, nest, or roost near water. Townsend's big-eared bat (wildlife SCC species) feeding/roosting sites are available over time.

Objectives (FW-OBJ-RHCA)

01 Enhance or restore 15 to 50 miles of habitat to maintain or restore structure, composition, and function of habitat for wildlife species associated with riparian habitats (see Appendix A).

Standards (FW-STD-RHCA)

01 Management activities within RHCAs shall maintain or improve the existing conditions. Short-term effects (effects that occur during, or immediately following, implementation of activity) from activities in the RHCAs may be acceptable when those activities support long-term benefits (benefits that occur following completion of the activity) to the RHCAs and wildlife and aquatic resources. Silvicultural practices and/or prescribed burning may be conducted in RHCAs to move toward vegetation and fuels management desired conditions where existing aquatic ecosystem conditions can be maintained or improved, soil ecological functioning is protected, and adverse effects to populations of threatened or endangered aquatic or terrestrial species, or species of conservation concern, are avoided.

Guidelines (FW-GDL-RHCA)

01 Default RHCAs widths should be followed as defined (see glossary) except where site-specific RHCA widths can be increased where necessary to achieve desired conditions for streams, lakes, ponds, or wetlands (or their desired conditions or management objectives). Reduced RHCA widths are appropriate if they provide necessary protection of stream, lake, pond, or ecosystems. Deviation from default RHCA widths requires documentation of the rationale that supports modification.

02 Project specific BMPs should be incorporated into road maintenance activities as principle mechanisms for protecting water resources.

03 When conducting wildland fire operations within RHCAs, minimum impact suppression tactics, with a focus on minimizing heavy equipment usage, should be used. Wildland or prescribed fire may be used as a site-specific tool to achieve desired conditions in RHCAs provided there is documentation of the rationale supporting use of fire.

04 When drafting water from streams, pumps should be screened and located away from spawning areas to prevent entrainment of fish and aquatic organisms. During the spawning season for native fish, pumping sites should be located away from spawning gravels. Drafting equipment and water tenders and helicopter buckets should be inspected and cleaned for aquatic invasive species prior to use in a water body.

05 To provide desired conditions within RHCAs stream channels, trees felled inside RHCAs for safety reasons (e.g. not associated with felling for harvest removal or other reasons) should be left on-site and directionally felled towards or into streams or wetlands, where it is safe and practical to do.

06 Refueling, equipment maintenance, and storage of fuels and other toxicants should be avoided in RHCAs.

07 If necessary for the attainment of RHCA desired conditions, ground-based mechanized equipment used for logging or mechanical fuels reduction may enter an RHCA only at designated locations, to maintain desired soil and aquatic ecosystem functioning.

08 To minimize impacts to aquatic and riparian ecosystems, new roads, including new temporary roads, and new motorized trails should not be constructed in RHCAs except where needed to cross streams.

09 Ground-based mechanized equipment used for logging or mechanical fuels reduction should only enter a peatland if it is to specifically benefit the peatland.

10 Avoid construction of roads, temporary roads, motorized trails, and snowmobile trails in sites with peat and in adjacent RHCAs because these activities can compact peatlands. .

Aquatic Habitat (AQH)

Desired Conditions (FW-DC-AQH)

01 Water bodies (and associated wetland or riparian vegetation) and adjacent uplands provide habitats that support self-sustaining native and desirable non-native aquatic communities, which include fish, amphibians, invertebrates, plants, and other wildlife species. Aquatic habitats are diverse, with channel, lacustrine, and wetland characteristics and water quality reflective of the climate, geology, and natural vegetation of the area. Water quality supports native amphibians and diverse invertebrate communities. Streams, lakes, and rivers provide habitats that contribute toward recovery of threatened and endangered fish species and address the habitat needs of all native aquatic species.

02 Connectivity between water bodies provides for life history functions (e.g., fish migration to spawning areas, amphibian migration between seasonal breeding, foraging, and overwintering habitats) and for processes such as recolonization of historic habitats. Stream channels supply the required structure for desired stream habitat features.

Objectives (FW-OBJ-AQH)

01 Enhance or restore 50 to 100 miles of habitat to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species.

02 Reconnect 100 to 150 miles of fragmented habitat in streams where aquatic and riparian-associated species' migratory needs are limiting distribution of those species.

Aquatic Species (AQS)

Desired Conditions (FW-DC-AQS)

01 Over the long term, habitat contributes to the support of self-sustaining populations of native and desired non-native aquatic species (fish, amphibians, birds, mammals, invertebrates, plants, and other aquatic-associated species) distributed across the landscape. In the short term, stronghold populations of native fish continue to thrive and expand into neighboring unoccupied habitats, and depressed populations increase in numbers. Available habitat supports genetic integrity and life history strategies of native fish, macro-invertebrates, and amphibian, aquatic bird, and aquatic mammal populations. Human caused migration barriers are absent unless they are needed to prevent invasions by non-native species.

02 Non-native fish species are not expanding into water bodies that support native fish on National Forest System (NFS) lands. Impacts of non-native fish species on native salmonids, such as hybridization, competition, and predation, are minimized to the extent possible.

03 Aquatic ecosystems are free of invasive species such as zebra mussels, New Zealand mud snails, quagga mussels, and Eurasian milfoil. Non-native plant and amphibian species are not expanding into water bodies that support native amphibian breeding sites (e.g., non-native bullfrogs, Chytrid fungus, or Reed canary grass are not expanding into boreal toad breeding sites).

04 Bull trout – Recovery and delisting of bull trout is the long-term desired condition. Bull trout population trends toward recovery through cooperation and coordination with USFWS, tribes, state agencies, other federal agencies, and interested groups. Recovery is supported through accomplishment of the Bull Trout Conservation Strategy and the Bull Trout Recovery Plan. On NFS lands spawning, rearing, and migratory habitat is widely available and inhabited. Bull trout have access to historic habitat and appropriate life history strategies (e.g., resident, fluvial, and adfluvial) are supported.

05 Habitat conditions improve in occupied bull trout and westslope cutthroat trout streams and in connected streams that were historically occupied, resulting in an increase in the overall number of stronghold populations. Trout habitat and populations continue to be protected through forest plan direction.

06 Where NFS lands are adjacent to lakes, ponds, and reservoirs, lands have shoreline conditions that provide nesting, breeding, and feeding habitats for associated wildlife.

07 Habitat occupied by the common loon, harlequin duck, black swift (wildlife SCC), and boreal toad (wildlife SOPI) is stable or trending upward.

Guidelines (FW-DC-AQS)

01 Management activities that may disturb native or desirable non-native salmonids, or have the potential to directly deliver sediment to their habitats, should be limited to times outside of spawning and incubation seasons for those species, as identified in table 1 below.

Table 1. Operational restrictions to protect spawning fish and fry emergence while operating within the high water mark.

Time of year of spawning	Activity	Inoperable activity period
Westslope cutthroat trout	Known occupied streams	Prior to July 15
Bull trout	Known occupied streams	After August 31

02 In order to promote successful breeding by boreal toads, equipment that may spread aquatic invasive species from place to place should be sterilized and any invasions of these species into wetlands or ponds should be controlled**.**

Soil (SOIL)

Desired Conditions (FW-DC-SOIL)

01 The five soil ecological functions (soil biology, soil hydrology, nutrient cycling, stability and support; and filtering and buffering) are sustained so that long-term soil productivity is not impaired.

02 Areas with sensitive and highly erodible soils or landtypes with mass failure potential are not destabilized as a result of management activities.

03 Soil quality and ecological functioning are maintained or improved when designing and implementing vegetation treatments, and protection of the soil resource is emphasized.

Standards (FW-STD-SOIL)

01 Vegetation management activities do not create detrimental soil conditions on more than 15 percent of an activity area. In activity areas where less than 15 percent detrimental soil conditions exist from prior activities, the cumulative detrimental effect of the current activity following project implementation and restoration must not exceed 15 percent. In areas where more than 15 percent detrimental soil conditions exist from prior activities, the cumulative detrimental effects from project implementation and restoration should not exceed the conditions prior to the planned activity and should move toward a net improvement in soil quality.

Guidelines (FW-GDL-SOIL)

01 Ground-based equipment for vegetation management should only operate on slopes less than 40 percent, to protect soil quality and sustain soil ecological functions. Exceptions may occur, as determined through site specific project analysis, where the steeper areas are short in length or where low-impact logging equipment designed to reduce soil impacts are employed.

02 Restore soil function on temporary roads utilized for removal of commercial forest products (e.g., timber harvest, biomass removal) when commercial activities are complete. Appropriate restoration activities will be determined through onsite assessment and may include activities such as re-contouring the entire road template to natural ground contour, scarification, utilizing native materials as soil inoculum, and placement of woody debris.

03 Ground-disturbing management activities on landslide prone areas should be avoided. If activities cannot be avoided, they should be designed to maintain soil and slope stability.

04 Project specific BMPs should be incorporated into land management activities as a principle mechanism for protecting soil resources.

Terrestrial Ecosystems and Vegetation (TE&V)

Introduction

The Flathead NF has a wide diversity of plant communities, across sites that range from warm, moist and dry valley bottoms to cold, steep, non-forested ecosystems. These communities support a rich and diverse assortment of animals. Plant and animal communities have been and continue to be shaped by ecosystem drivers and stressors, primarily climate, vegetative succession, fire, insects, disease, invasive species and human uses and developments.

The strategy for the Flathead NF is to maintain and/or restore the full spectrum of ecosystem biodiversity in the planning area. This is essential to ensure the integrity and sustainability of the ecosystem, and its ability to provide the desired ecological, social and economic services.

The following sections describe the desired conditions and other plan components that collectively contribute to biodiversity across the plan area. Biodiversity is the variety and abundance of plants, animals, and other living organisms as well as the ecosystem processes, functions, and structures that sustain them. Biodiversity includes the relative complexity of species and communities across the landscape at a variety of scales, connected in such a way that provides for the genetic diversity to sustain a species over the long-term.

Desired conditions are described in this section at a variety of scales (from all of the Forest's biophysical settings to just a single biophysical setting). Refer to appendix A for a description of biophysical settings, the acres in each biophysical setting by GA, and lists of species and their habitat associations. Maps of biophysical settings forestwide (figure C-5) and by GA (figures C-6 to C-11) are in appendix C.

For additional information about conditions and trends related to terrestrial ecosystems and vegetation refer to the *Assessment of the Flathead NF*. Refer to appendix B for potential management approaches and possible actions that would contribute towards achieving the desired conditions and objectives described below.

Desired Conditions (FW-DC-TE&V)

01 Within the NCDE PCA, the amount, type and distribution of vegetation provides for ecological, social and economic sustainability of NFS lands, while providing habitat components that contribute to sustaining a recovered grizzly bear population in the NCDE. Forest patterns and the mosaic of successional stages at a Bear Management Subunit scale provide for grizzly bear habitat needs over the long term.

02 Across the landscape, diverse vegetation conditions occur, in a complex pattern of species, tree sizes, tree ages, forest densities, patch sizes, canopy layers, and other forest structural characteristics such as downed wood and snags. Desired conditions for these components (as provided throughout this forest plan) create landscape patterns and forest conditions that are resilient, having the capacity to maintain or regain normal functioning and development following future disturbances (such as fire) or in the face of future climate changes. Forest patterns result in greater variation in post-disturbance forest conditions (such as in burn severity and numbers of live trees remaining after fire or insect epidemics), and more rapid and effective recovery and re-establishment of trees and other vegetation after disturbances. The vegetation mosaic across the plan area is dynamic, varying greatly over time as vegetation is influenced by site conditions and responds to climate changes and ecological processes such as natural succession, fire, insects and disease, floods and droughts.

03 Within mapped Canada lynx habitat and critical habitat (figure C-2), the amount, type and distribution of vegetation management activities provides for the ecological, as well as social and economic sustainability of National Forest System lands, while providing habitat components to contribute to the conservation of the Canada lynx population. Diverse conditions for the warm moist, cool moist to moderately dry, and cold biophysical settings contribute to habitat quality and connectivity for Canada lynx populations at a landscape scale over the long-term, providing habitat resilience to climate change.

04 Desired habitat conditions across the forest and within each biophysical setting (refer to appendix A for description of biophysical settings) contribute to viable populations of plant and animal SCC and T&E species, as well as SOPI, based upon the capability of Flathead NFS lands (refer to appendix A for a list of species). Ecosystem conditions contribute to the survival, reproduction, and dispersal of terrestrial and aquatic wildlife species native to the Flathead NF, and provides for habitat security, shelter, and forage.

05 Uncommon habitat elements (e.g. rocky outcrops and cliffs, scree and talus slopes, caves, waterfalls) support persistence of associated wildlife and botanical species (also see wildlife section).

06 Native plants and plant communities dominate the landscape, while non-native invasive species are in low abundance and do not disrupt ecological functioning.

07 Vegetation provides sustainable levels of timber harvest and other forest products, such as wood fiber, biomass, firewood, posts and poles, and medicinal plants, tepee poles, mushrooms, and berries for commercial, tribal, personal, educational and scientific uses.

08 The diversity and condition of vegetation across the landscape reduces the extent and intensity of native forest insect and disease activity and effects on vegetation. Occasional outbreaks may occur, with effects within the range of natural variability.

09 The Flathead NF supports a diversity of native tree species, with most stands composed of more than one tree species. Desired conditions for presence of individual tree species and for forest dominance types are described in Table 2 and table 3 below. Refer also to table 5 for desired conditions by biophysical settings.

Table 2. Desired conditions forestwide for coniferous tree species presence[a] (percent of Flathead NF where species is present)

Conifer species	Current estimate[b] (%)	Desired range (%)	Desired trend from current condition
Ponderosa pine	0.7 (0.1-1.4)	4 - 8	Increase in all size classes
Douglas-fir	32 (28.8-35.8)	25 - 50	Maintain
Western larch	15 (13.0-18.0)	25 - 45	Increase, particularly in larger size classes and overstory tree layers
Lodgepole pine	25 (22.0-28.4)	15 - 35	Maintain
Subalpine fir	61 (57.6-64.5)	40 - 60	Increase or maintain in Canada lynx habitat; decrease elsewhere(refer to table 5)
Engelmann spruce	40 (37.2-43.9)	25 - 45	
Grand fir	3 (1.5-3.9)	1 - 4	Maintain
Western redcedar	1 (0.3-1.6)	1 - 3	Increase, particularly in larger size classes
Whitebark pine	12 (9.9-14.7)	15 - 20	Increase
Western white pine	2 (1.1-3.0)	5 - 15	Increase, particularly of blister rust-resistant trees

a. Presence refers to the existence of at least one live tree of the species per acre, in any size class.

b. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program.

Table 3. Desired conditions forestwide for coniferous forest dominance types[a] (percent of Flathead NF in the dominance type)

Forest dominance type	Current estimate[b] (%)	Desired range (%)	Desired trend from current condition
Ponderosa pine	0.5 (0.04-1.1)	1 - 5	Increase
Douglas-fir	17 (14.7-21.0)	10 - 25	Maintain, or decrease in areas where western larch or ponderosa pine are preferred
Western larch	5 (3.8-6.7)	10 - 25	Increase, with focus in areas currently dominated by lodgepole pine or Douglas-fir
Lodgepole pine	15 (12.4-17.8)	10 - 20	Maintain, or decrease in areas where western larch or ponderosa pine are preferred
Subalpine fir/Engelmann spruce	43 (37.5-49.1)	30 - 50	Maintain
Grand fir/Western redcedar	0.9 (0.2-1.6)	1 - 4	Increase, with focus in areas that would support long term persistence of western red cedar
Whitebark pine	4 (2.6-5.1)	5 - 8	Increase

a. Dominance type reflects the most common tree species in the stand.

b. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: Dominance Mid 40 classes, R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program.

10 The Flathead NF supports a diversity of forest size classes, which also reflect variation of forest successional stages, age classes, tree growth rates, soil productivity, and stand density across the landscape. Desired conditions forestwide for size class distribution are described in table 4. Forest size class amount and distribution will fluctuate over time as forests develop through natural succession and/or change in response to disturbances. Refer also to FW-DC-TE&V-22 which describes desired conditions for presence of large live trees (greater than or equal to 20 inches d.b.h.) within forest stands across the landscape. These large live trees are recognized as an important ecosystem component and may be present within stands that are classified into any of the four size classes described below. See also FW-DC-TE&V-11 and table 6 under FW-DC-TE&V-13 for further description on desired conditions related to forest size classes by biophysical settings.

Table 4. Desired conditions forestwide for coniferous forest size classes[a] and associated successional stage (percent of Flathead NFS lands)

Forest size class and successional stage	Current estimate[b] (%)	Desired range (%)
Seedling and sapling (<5" d.b.h.[c]); early successional	16 (14.1-18.8)	12 - 35
Small tree (5-10" d.b.h.; mid-successional	30 (27.4-33.0)	10 - 30
Medium tree (11-15" d.b.h.); mid-successional	22 (20.0-25.1)	10 - 30
Large tree (>15" d.b.h.); mid to late successional	19 (16.6-22.2)	15 – 50

a. Defined as the *predominant* diameter class of live trees, calculated as basal area weighted average diameter. A stand within a particular forest size class may contain trees of multiple diameters, for example some large trees (>15" d.b.h.) may be present within stands classified as seedling/sapling, small or medium forest size class.

b. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program.

c. d.b.h. = diameter [at] breast height (4.5 feet above ground level)

11 Forest patches (areas that have similar forest attributes, such as tree age or size class) range widely in size, shape and conditions (such as tree density and number of canopy layers) across the planning area. Patches of early successional seedling/sapling forests are dispersed across the landscape among patches of small, medium and large forest size classes, forming a landscape pattern consistent with natural range of variability. This pattern contributes to the resilience of the forest at the stand and landscape scale and to connectivity of habitat for wildlife needs (refer to FW-DC-TE&V-02 and 04).

Forestwide, the patch sizes of early successional seedling/sapling forest are highly variable. The estimated NRV for average patch size of seedling/sapling early successional forests ranges from 138 to 660 acres, with a global forestwide average (average of the averages) of 288 acres. The weighted global average is about 37,700 acres. These values indicate that the majority of seedling/sapling patches are less than 300 acres in size, but very large patches (e.g., those greater than 30,000 acres) also occur, though not as often as smaller patches (i.e. they may exist for one 20 year period over a 100+ year time span). This reflects the spatial and temporal pattern formed under the natural fire regimes within this ecosystem, where moderate and high severity fires are most prevalent, but very large size fires occur infrequently (refer to FW-TE&V-DC-16). Currently, the mean patch size of seedling/sapling forests is estimated at 108 acres forestwide, with a range of 5 to nearly 42,000 acres in size. The desired condition is for the largest patches of early successional

forests to occur within wilderness and large unroaded areas. Outside these areas, desired size of early successional forest patches are much smaller, with most patches less than 300 acres in size.

Desired conditions of forest patterns and conditions within patches more specific to each biophysical setting are described below. The estimated NRV for average patch size of early successional forest is stated for each setting, as well as the weighted average size of these patches. In all cases, the weighted average is much greater than the arithmetic average, indicating that very large patches of early successional forest do occur within the NRV, but are much less common than the smaller patches. Refer to appendix A for information on the biophysical settings and appendix C for maps of the biophysical settings.

Warm-Dry coniferous biophysical setting: This biophysical setting covers approximately 9% of forested lands of the FNF, tied strongly to terrain, aspect and elevation across most of the forest, and dispersed within a larger mosaic of more moist forest lands. Forest patterns across the area generally reflect the variation that might occur in the mixed severity fire regime, where low to high severity burned conditions occur within the fire boundary, resulting in 20 to 80% tree mortality across the area and early successional forest patches highly variable in size. The estimated NRV for average patch size of seedling/sapling early successional forests ranges from 60 to 185 acres, with a global average (average of the averages) of 102 acres. The weighted global average is about 16,000 acres. Currently, the mean patch size of seedling/sapling forests in this setting is estimated to be 57 acres, with a range of 5 to 5,480 acres.

Forest patches of different sizes, shapes, and forest conditions form a complex and diverse pattern across this setting, resulting from both active vegetation management and natural disturbances and processes. The larger early successional seedling/sapling dominated patches (e.g., 200 acres or larger) occur in wilderness and large unroaded areas. Smaller clumps or patches (e.g., 5 to 180 acres in size) of seedling/sapling dominated forest are much more common, especially outside these areas. Across the landscape, early successional patches are interspersed with similarly sized patches dominated by medium and larger sized trees, often with relatively open mid-story canopies.

Though some early successional patches are even aged, most are two-aged or multi-aged, where overstory trees are present as scattered individuals, small groups or patches. This diverse forest structure persists as the seedling/sapling trees grow into the small, medium and large forest size classes. Individuals or small groups of very large trees (greater than 20 inches d.b.h.) occur widely across the landscape, at varying densities, reflecting the widespread presence of fire tolerant species (primarily ponderosa pine, Douglas-fir and western larch) and relatively frequent, low to moderate severity fire events. Grass, forb or shrub-dominated vegetation types occur within this matrix where gaps in the forest canopy or a very open canopy forest are present. Stand densities range widely, from very low (e.g., less than 40 trees per acre in areas dominated by larger overstory trees) to very high (e.g., in dense clumps of smaller understory trees, or in portions of the big game winter range areas). In areas where wildfires pose a threat to communities or other values identified for protection, most forest stands are low or moderately stocked with trees to achieve desired forest and fuel conditions.

Forests in the warm-dry biophysical setting provide habitat for a variety of wildlife species (see appendix A for a full list of species). Note that this biophysical setting is not included in mapped Canada lynx habitat. The mosaic pattern of forest conditions, consisting of large, full-crowned trees that reduce snow depths interspersed with patches of dense young trees, provide winter cover and shelter for big game species over long time frames as forest and landscape conditions change. In areas of big game winter habitat, the forest groundcover consists of windblown lichens and a variety of grasses, forb, and shrub species (e.g. Rocky Mountain maple (*Acer glabrum*),

kinnikinnick (*Arctostaphylos uva-ursi*), common juniper (*Juniperus communis*), oceanspray (*Holodiscus discolor*), mallow ninebark (*Physocarpus malvaceus*), common snowberry (*Symphoricarpos albus*), and birch leaf spiraea (*Spirea betulifolia)* that provide wildlife forage and nesting sites.

Warm-Moist coniferous biophysical setting: This biophysical setting covers approximately 5% of the forested lands of the FNF, concentrated in the more gently sloped, lower elevation lands and river valley bottoms. Forest patterns across the area generally reflect the variation that might occur in the mixed severity fire regime, where low to high severity burned conditions occur within the fire boundary, resulting in 20 to 80% tree mortality across the area and early successional forest patches highly variable in size. The estimated NRV for average patch size of seedling/sapling early successional forests ranges from 44 to 210 acres, with a global average of 103 acres. The weighted global average is about 4,100 acres. Currently, the mean patch size of seedling/sapling forests in this setting is estimated to be 28 acres, with a range of 5 to 363 acres.

Forest patches of different sizes, shapes, and forest conditions form a complex and diverse pattern across the area. Forest conditions and landscape patterns result primarily from active vegetation management and from natural forest succession. Early successional seedling/sapling dominated patches may be large (e.g., 250 acres or more) but more often occur as smaller patches (e.g. 20 to 200 acres in size). Within these patches there are usually live, fire tolerant , overstory trees present, from small to large size trees, as scattered individuals, small groups or patches. Early successional seedling/sapling forests are interspersed across the landscape with similarly sized forest patches dominated by small, medium and larger tree sizes.

As forests grow after disturbances (such as fire or harvest), after several decades they often develop multiple canopy layers, with shade tolerant species (e.g., grand fir, western red cedar, subalpine fir) occupying the understory layers and larger sized, usually fire tolerant species dominating the overstory layers. The species, density, and size of overstory tree species vary widely, depending on factors such as site capability, stand history, and successional development. Relatively high tree densities (i.e., greater than 60% tree canopy cover) characterizes most stands on these highly productive sites. However, in areas where wildfires pose a threat to communities or other values identified for protection, most forest stands are low or moderately stocked with trees to achieve desired forest and fuel conditions.

Forests in the warm-moist biophysical setting provide habitat for a variety of wildlife species (see Appendix A for a full list of species). The mosaic pattern of forest conditions, consisting of dense mature trees that reduce snow depths, interspersed with patches of dense young trees, provide winter cover and shelter for big game species over long time frames as forest and landscape conditions change. In areas of big game winter habitat, the forest groundcover consists of windblown lichens and a variety of grasses, forb, and shrub species (e. g. Rocky Mountain maple (*Acer glabrum),* serviceberry *(Amalanchier alnifolia),* redstem and shiny-leaf ceanothus *(Ceanothus* sp.), willows (*Salix* sp.), and elk sedge (*Carex geyeri).*In mapped Canada lynx habitat or critical habitat (map C-2), except in the wildland-urban interface (WUI), young forests with high horizontal cover of abundant tall shrubs/dense saplings are interspersed with older forests, to provide food and cover for snowshoe hares (the primary prey of Canada lynx) over long time frames, as forest and landscape conditions change. In identified fisher habitat, groves of large old cedar and western larch with heartrot provide resting and denning sites for fisher.

Cool-Moist/Moderately Dry coniferous biophysical setting: This biophysical setting covers approximately 67% of the forested lands of the FNF. Forest patterns across the area generally reflect the variation that might occur in the mixed and high severity fire regime. Mixed severity

fires result in 20 to 80% tree mortality across a fire area, and high severity results in greater than 80% mortality. Early successional openings across this landscape are highly variable in size, from less than 100 acres to several thousand or tens of thousand acres. The estimated NRV for average patch size of seedling/sapling early successional forests ranges from 99 to 364 acres, with a global average of 188 acres. The weighted global average is about 16,900 acres. Currently, the mean patch size of seedling/sapling forests in this setting is estimated to be 185 acres, with a range of 5 to 41,782 acres.

Forest conditions and landscape patterns result from both active vegetation management and natural disturbances and processes. Even-aged, single canopy forest patches are common, particularly in the early (seedling/sapling) and mid-successional stages of forest development. Seedling/sapling patches greater than 10,000 acres in size occur in portions of the landscape, in particular within wilderness and large unroaded areas where large wildfires occur. Outside these areas, seedling/sapling patches tend to be smaller in size (e.g., less than 300 acres). Over time, large patches of even-aged, single canopy forests may become more diverse in size and structure, as understory canopy layers of shade tolerant trees develop (subalpine fir and spruce) and other disturbances (such as insects, disease, fires) create smaller patches of different tree sizes, species, or stand structures within the larger patch matrix. Large (greater than 20 inches d.b.h), fire-tolerant overstory trees occur at low to moderate density across the landscape within this biophysical setting, very unevenly distributed, and predominantly western larch. Most forests in this setting are moderately to densely stocked with trees, except in areas where wildfires pose a threat to communities or other values identified for protection. In these areas, most forest stands are low or moderately stocked with trees to achieve desired forest and fuel conditions.

Forests in the cool-moist biophysical setting provide habitat for a variety of wildlife species (see Appendix A for a full list of species). In mapped Canada lynx habitat or critical habitat (figure C-2), except in the WUI, dense young, seedling/sapling forests with branches touching the snow surface are interspersed with mature multi-story hare and lynx habitat over long time frames as forest and landscape conditions change. Many mature multi-story forests have Engelmann spruce and subalpine fir trees exceeding 1,000 stems per acre in the understory (less than 4 inches d.b.h.) and 280 stems per acre in the mid-story and overstory (greater than 4 inches d.b.h.). Except in the Wildland Urban Interface, many young forests (seedling/saplings) have stem densities ranging from about 1,200 to 14,000 per acre, with branches touching the snow surface. Stands with extremely high densities (e.g., greater than 14,000 stems per acre) occur following fires, but are interspersed in a mosaic with stands of much lower densities.

Openings dominated by grasses, forbs and shrubs provide non-winter foraging habitat for other species such as deer, elk, moose and bears. The forest groundcover consists of a variety of grass, forb, and shrub species, including species that can produce berries that provide forage for grizzly bears and other wildlife species (e.g. huckleberries (*Vaccinium globulare, Vaccinium membranaceum),* serviceberries *(Amalanchier alnifolia),* mountain ash (*Sorbus scopulina)*, and buffaloberry (*Shepherdia Canadensis)*. Additional desirable species to provide cover and forage for snowshoe hares and moose may also be present, including willow (*Salix* sp.), Alder (*Alnus* sp.), and Pacific yew (*Taxus brevifolia)*.

Cold coniferous biophysical setting: This biophysical setting covers approximately 14% of the forested lands of the FNF. Forest patterns across the area generally reflect the variation that might occur in a mixed and high severity fire regime. Mixed severity fires result in 20 to 80% tree mortality across a fire area, and high severity results in greater than 80% mortality, with early successional openings highly variable in size. The estimated NRV for average patch size of

seedling/sapling early successional forests ranges from 51 to 145 acres, with a global average of 83 acres. The weighted global average is about 960 acres. Currently, the mean patch size of seedling/sapling forests in this setting is estimated to be 72 acres, with a range of 5 to 3000 acres.

Forest conditions and landscape patterns result primarily from natural disturbances and processes (e.g., wildland fire, succession). A very diverse mosaic pattern of vegetation conditions occur, reflecting both the influence of disturbances and the complex arrangement of site and environmental conditions that prevent or delay the establishment and growth of trees. Variable size patches of small, medium or large trees are intermingled with small and large grass/forb/shrub openings and other non-forest types, such as slabrock. Forest characteristics within patches are variable, usually composed of multiple canopy layers, tree ages and size classes. Size of early successional seedling/sapling forest patches, originating mainly from fire, range from small (e.g., 20 acres) to large (e.g., over 1000 acres). Tree density is dictated mainly by the site conditions and varies considerably, from very low (less than 20% canopy cover) on harsher sites and steep slopes with shallow soils, to high in the moist basins. The highest elevations and most exposed sites have trees that may exhibit a "krumholz" form – stunted, with twisted stems and crowns that are very dense at the ground level.

Forests provide habitat for a variety of wildlife species (see appendix A for a full list of species). On ridges, steep slopes, or drier sites, trees of all sizes have lower density and groundcover is often low-growing and sparse. Fires create conditions suitable for regeneration of white-bark pine trees, which provide forage for wildlife species such as Clark's nutcrackers. The more gently sloped, moist basin areas are more densely stocked (e.g., 40 to 60% canopy cover), providing cover interspersed with forage for species such as grizzly bears, Canada lynx, elk and mule deer. On sites with higher productivity, mature multi-story forests with Engelmann spruce and subalpine fir exceeding 1,000 conifer stems per acre in the understory (greater than 4 inches d.b.h.) and 280 stems per acre in the mid-story and overstory (greater than 4 inches d.b.h.) are present. In mapped Canada lynx habitat or critical habitat (map C-2), some young forests in the stand initiation structural stage (seedling/saplings) have about 1,200-14,000 stems per acre of tall shrubs/dense tree saplings with branches touching the snow surface, and are interspersed with older forests to provide food and cover for snowshoe hares and Canada lynx (as well as habitat for other species) over long time frames as forest and landscape conditions change. Moister or more protected sites support tall shrub species which provide forage for a variety of wildlife species (e.g. menziesia (*Menziesia Ferruginia),* tall huckleberry (*Vaccinium membranaceum*), a variety of willow species (*Salix sp.*), mountain ash (*Sorbus scopulina*), alpine currant (*Ribes montigenum*), as well as shorter shrub species (dwarf bilberry (*Vaccinium myrtillus*), grouse whortleberry (*Vaccinium scoparium).*

12 Presence of tree species within each coniferous forest biophysical setting (refer to appendix A for description of biophysical settings) meets desired conditions described in table 5. These conditions provide desired habitat conditions for associated wildlife species. See appendix A for a full list of species associated with the forest conditions within each biophysical setting. Appendix B provides information on possible management actions to move towards achieving these desired conditions.

Table 5. Desired conditions by biophysical setting for tree species presence (percent of Flathead NF within the biophysical setting where species is present)

Biophysical setting	Current estimate [a] (%)	Desired range	Desired trends and conditions
Warm-Dry Coniferous Forest	Ponderosa pine: 3 (0.0-8.4) Douglas-fir: 74 (65.1-83.5) Western larch: 10 (3.4-16.0) Lodgepole pine: 27 (17.2-37.0)	Ponderosa pine: 30-60 Douglas-fir: 30-65 Western larch:15-40 Lodgepole pine: 20-40	Increased presence of ponderosa pine across all portions of landscape, and western larch on the more moist sites. Decreased presence of Douglas-fir, particularly in areas that are not big game winter range. Lodgepole pine maintained at mid to low end of desired range. Most common species observed across the landscape is ponderosa pine, and all size classes are well represented. Pure or nearly pure stands of Douglas-fir or lodgepole pine are present but uncommon. Western larch is present on the more moist sites within this setting, most often in mixed stands with ponderosa pine and Douglas-fir. In areas determined to be big game winter range, species with full crowns in winter, (e.g. Douglas-fir and ponderosa pine) are well-represented in all size classes, while western larch and to a lesser extent lodgepole pine, occur as minor or co-dominant species
Warm-Moist Coniferous Forest	Ponderosa pine: 0 Douglas-fir: 44 (23.6-63.7) Western larch: 62 (43.8-78.9) Western white pine: 13 (1.4-26.3) Lodgepole pine: 31 (12.0-51.0) Grand fir: 42 (22.1-62.5) Western red cedar: 24 (8.6-40.0) Subalpine fir: 28 (11.9-44.9) Engelmann spruce: 56 (36.5-75.2)	Ponderosa pine: 5-15 Douglas-fir: 40-60 Western larch: 55-80 Western white pine: 10-25 Lodgepole pine: 4-15 Grand fir: 10-50 Western redcedar: 10-25 Subalpine fir: 10-30 Engelmann spruce: 15-40	Increased presence of ponderosa pine and western white pine across the landscape, while maintaining presence of Douglas-fir and western larch. Decreased presence of lodgepole pine (particularly small and medium size classes). In areas mapped as habitat for Canada lynx, grand fir, subalpine fir and/or Engelmann spruce are maintained in understory tree layers, while dominance of these species decreases in overstory canopy layers. In areas not mapped as lynx habitat, and in wildland urban interface, decreased presence of grand fir, subalpine fir and Engelmann spruce in both understory and overstory tree layers. Western red cedar is maintained, especially in areas where there is potential for development of large, old trees. Species composition is very diverse, both across the landscape and within stands. Most stands are composed of two or more co-dominant tree species. Western larch, Douglas-fir, and ponderosa pine are widespread and are the most common shade intolerant species observed, especially in overstory tree layers and larger size classes. Western white pine is present on many sites, and achieves co-dominance with other shade intolerant species. Lodgepole pine is less common than other shade-intolerant species, usually present as a co-dominant or minor species. Western redcedar, grand-fir, subalpine fir and Engelmann spruce are commonly present in understory tree layers, but usually minor components of overstory tree layers, except adjacent to streams, ponds, or other particularly moist sites. Groves of large, old western red cedar are present across the landscape, especially in more sheltered sites and riparian areas.

Biophysical setting	Current estimate [a] (%)	Desired range	Desired trends and conditions
			In areas determined to be big game winter range, species with full crowns in winter, (e.g. Douglas-fir, ponderosa pine, western white pine) are well-represented in all size classes, while western larch and to lesser extent lodgepole pine, occur as minor or co-dominant species.
Cool-Moist/ Moderately-Dry Coniferous Forest	Douglas-fir: 29 (25.4-33.1) Western larch: 16 (13.0-19.2) Lodgepole pine: 27 (23.6-31.2) Subalpine fir: 71 (66.8-74.3) Engelmann spruce: 49 (44.9-52.4) Western white pine: 2 (1.0-3.1) Whitebark pine: 11 (8.5-13.6)	Douglas-fir: 40-60 Western larch 25-50 Lodgepole pine 20-40 Subalpine fir: 60-85 Engelmann spruce: 40-70 Western white pine: 3-6 Whitebark pine: 9-15	Increased presence of western larch, particularly as larger tree components and in overstory canopy layers, and in areas dominated by lodgepole pine, to promote species tolerant of insects, disease and fire and with the potential to provide high quality habitat for cavity nesting/denning species. Presence of Douglas-fir is maintained or increased, focusing on areas currently dominated by lodgepole pine. Increased presence of western white pine and whitebark pine within stands on suitable sites. Lodgepole pine maintained at mid to lower end of the desired range. To contribute to conservation of Canada lynx, subalpine fir and/or Engelmann spruce is maintained or increased in understory canopy layers, while dominance of these species is decreased in overstory tree layers. Pure stands of subalpine fir or Engelmann spruce are present across the landscape, but more commonly stands will contain the presence of western larch, Douglas-fir and/or lodgepole pine as well. Pure or nearly pure stands of lodgepole pine are present in some areas where there have been frequent moderate or high severity wildfires.
Cold Coniferous Forest	Lodgepole pine: 7 (0-14.8) Subalpine fir: 75 (63.0-85.1) Engelmann spruce: 21 (10.6-32.1) Whitebark pine: 51 (38.8-63.2)	Lodgepole pine: 2-10 Subalpine fir: 40-80 Engelmann spruce: 20-60 Whitebark pine: 40-60	On exposed sites and other areas where whitebark pine is most likely to persist, there is decreased presence of subalpine fir and increased presence of whitebark pine. On gentler slopes and basins, subalpine fir and/or Engelmann spruce is maintained in understory tree layers, while dominance of these species is decreased in overstory tree layers, correlated with an increased presence of whitebark pine. Presence of lodgepole pine is maintained, especially in areas where subalpine fir is the only species. Groves of alpine larch are rare but present and persistent over time on suitable sites throughout this setting.

a. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program.

13 Desired range for forest size classes within each coniferous forest biophysical setting is described in table 6. Size classes will fluctuate over time as forests develop through natural succession and/or change in response to disturbances. Desired trend as compared to current estimates is generally to maintain or increase seedling/sapling and large tree size classes, and to maintain or decrease small and medium tree size classes. Refer also to FW-DC-TE&V-22 which describes desired conditions for presence of large live trees (greater than or equal to 20 inches d.b.h.) within forest stands across the landscape. These large live trees are an important ecosystem component and may be present within stands that are classified into any of the four size classes described below. These conditions, in combination with those described for

composition, pattern, and other vegetation components in this plan, create habitat that supports a wide variety of wildlife associated with forests in the biophysical setting (see appendix A for a full list of species). Refer to FW-DC-TE&V-11 for further descriptions of desired conditions related to forest size classes and patterns by biophysical settings. Appendix B provides information on possible management actions to move towards achieving these desired conditions.

Table 6. Desired conditions by biophysical setting for forest size class (percent of Flathead NF within the biophysical setting in the size class)

Biophysical setting	Forest size class[a]	Current estimate[b] (%)	Desired range
Warm-Dry Coniferous Forest	Seed/Sapl	17 (9.5-24.5)	5-35
	Small	32 (22.5-41.8)	10-45
	Medium	29 (20.2-37.1)	10-35
	Large	23 (15.2-32.6)	15-50
Warm-Moist Coniferous Forest	Seed/Sapl	6 (0.0-14.3)	5-45
	Small	42 (24.7-58.3)	5-35
	Medium	32 (16.8-47.2)	5-25
	Large	20 (8.2-32.8)	20-60
Cool-Moist/Moderately-Dry Coniferous Forest	Seed/Sapl	19 (15.7-22.3)	15-40
	Small	35 (31.0-38.5)	15-30
	Medium	24 (21.0-27.7)	10-25
	Large	22 (17.9-25.0)	25-50
Cold Coniferous Forest	Seed/Sapl	30 (20.3-38.5)	15-35
	Small	29 (20.1-37.1)	5-25
	Medium	22 (15.1-29.6)	5-25
	Large	19 (12.2-28.2)	12-50

a. Seed/Sapl <5 in. diameter [at] breast height (d.b.h.); Small 5-10" d.b.h.; Medium 11-15 in. d.b.h.; Large >15 in. d.b.h.

b. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program

14 Fire occurs as a key ecological process forestwide, creating, restoring and maintaining the desired diversity of vegetation conditions and the resilience of the ecosystem. Planned and unplanned (natural) ignitions are managed to promote fire as an ecological process, recognizing and upholding its natural role in effecting change in vegetation structure and composition over time. The composition, density, structure and conditions of vegetation help reduce the threat of undesirable wildfires to local communities and ecosystems.

15 Desired ecological conditions in large, unroaded landscapes (such as wilderness, recommended wilderness and portions of the backcountry areas) are primarily achieved as a result of natural ecological processes and disturbances, such as fire (both planned and unplanned

ignitions). Outside of these landscapes, human influences and actions, such as fire suppression or timber harvesting, are more evident and play a larger role in achieving desired ecological conditions.

16 Fires of variable size occur periodically across the Flathead NF, creating recently burned forest conditions (fire event within the preceding 10-15 years) in amounts, distributions and patch sizes that function to provide habitat for associated wildlife species, particularly for the black-backed woodpecker (refer to appendix A for a full list of associated wildlife species). Both planned and unplanned ignitions will be used to achieve desired conditions. Desired characteristics of recently burned forest are described in table 7.

Table 7. Desired conditions forestwide for recently burned forest conditions (for the first 10-15 years after fire event)

Severity	Natural range of variation (NRV) (as described for an interval of 10 years)	Desired condition
Moderate to high severity recently burned forest (greater than 40% mortality of trees in small to large size classes)	1 – 13% of Flathead NF lands. These burn conditions are created by fires that occur under the mixed and high severity fire regimes, with 35 to 100 year or greater fire intervals. These burn conditions occur across all biophysical settings of the FNF, though they are most common and achieve largest patch sizes in the cool moist-moderately dry setting. Burned patches may be over 30,000 acres in size, though these sizes occur infrequently, closely tied to climate and drought conditions. More commonly, moderate or high severity burn patches are much smaller in size (e.g. less than 1000 acres), especially in the warm moist and warm dry biophysical settings, where they most often occur within a complex matrix of low/moderate/high/unburned patches of forest. Fewer acres of moderate to high severity burn conditions exist in cool and/or moist climatic periods; greater acres exist in warm and/or dry climatic periods. The patches created by moderate to high severity fires are characterized by an abundance of snags of various sizes and densities, and grasses, forbs and shrubs dominate the ground vegetation. Within a few years, coniferous tree seedlings (and aspen and birch on some sites) are widespread and eventually dominate most sites. In moderate severity fires, there are individuals or small patches of live overstory trees that survive the fire.	Moderate to high severity, recently burned forest conditions are distributed throughout the Flathead NF, varying widely in amount, pattern and frequency over time and space. Recently burned forest conditions are most consistent with NRV in wilderness areas and larger unroaded areas, which will have the majority of acres and the largest patch sizes. Outside these areas, moderate to high severity burned forests will occur over much less acres overall and mostly in relatively small patches (e.g., less than 500 acres). Recently burned sites support an abundance of native grasses, forbs and shrubs, along with low to very high densities of fire killed trees. Fire-killed conifers over 20 inches d.b.h. are present for nesting by black-backed woodpeckers and other cavity nesting or denning species, in patches 100 acres or larger, and available periodically over time, consistent with NRV. Fire-killed trees over 10 inches d.b.h. are available for feeding by black-backed woodpeckers and other wildlife species associated with burned forests (see appendix A for a full list of species).
Low severity recently burned forest (less than 30% mortality of trees in medium and larger size classes)	0 – 2% of Flathead NF lands. On the FNF, these burn conditions are created by fires that occur mainly under a mixed severity fire regime. They are most common in forests in the warm-dry biophysical setting but also in some forests types in the warm-moist and cold biophysical settings. In these latter settings, these burn conditions usually occur in areas of lower density coniferous tree cover, lower fuel loadings, an abundance of fire resistant tree species, and/or where fire was historically more frequent (e.g., areas where fire	Low severity burned forest conditions occur across the forest, but mainly in warm dry and warm moist biophysical settings, with patterns and amounts consistent with the NRV. Recently burned sites support an abundance of native grasses, forbs and shrubs. Live tree densities are low to moderate, and small snags (less than 9 inches d.b.h.) are abundant in some areas, dependent on pre-fire conditions.

Severity	Natural range of variation (NRV) (as described for an interval of 10 years)	Desired condition
	use by Native Americans was common). In patches burned at low severity, tree density is reduced but many, if not most, trees survive the fire, particularly those in the medium and larger tree size classes and the fire tolerant species (e.g., ponderosa pine and larch). Mortality is mostly in small tree sizes (e.g., less than 9 inches d.b.h.) and of species sensitive to fire, such as lodgepole pine and subalpine fir. Patch sizes and patterns of forest burned at low severity are highly variable, and dictated mainly by the pattern of forest conditions (species, densities) and site variations (biophysical setting, topography) across the landscape. Larger patches of low severity burn conditions occurred in warm, dry settings, where ponderosa pine was widespread, and fires were frequent, keeping fuel loadings and fire severities lower. Across most of the forested areas of the Flathead NF, low severity burned forest conditions most commonly occur as smaller patches within the matrix created by a larger fire of mixed severities, interspersed with other forest patches that burned at moderate or high severity, and unburned patches.	

17 Non-coniferous vegetation types are present across the Flathead NF in amounts consistent with the NRV, and meet associated characteristics described in table 8. Refer to appendix A for a description of the vegetation types and wildlife species associated with these plant communities. Also see aquatics section for desired conditions for wetland and riparian plant communities.

Table 8. Desired conditions forestwide for non-coniferous plant communities (percent of Flathead NF where these community types/species are present)

Non-coniferous Plant Community	Current estimate [a] (%)	Desired range	Desired Condition
Hardwood tree communities (primarily black cottonwood, paper birch, quaking aspen)	Dominance type 1% (0.18-2.2) Species Presence Cottonwood: 1.4% (0.6-2.15) Birch: 1% (0.4-1.6) Aspen: 0.6%	Dominance type 0.5-2% Species presence: 2-6% where one or more of these species are	Persistent[b] hardwood-dominated communities are rare on the Flathead NF, and the majority are cottonwood communities associated with areas of high and/or fluctuating water tables. Hardwood tree communities are mostly a transitional vegetation type within the coniferous forest biophysical settings, where they may dominate or coexist with coniferous species during early to mid-stages of forest succession, after disturbances such as fire or harvest. As a transitional community type, hardwoods comprise 40% or greater proportion of the stand, in a mixture with coniferous species. They most commonly occur on the warm moist biophysical setting and in riparian-associated areas or areas of higher moisture. Refer also to desired conditions related to early successional and recently burned coniferous forest types (FW-DC-TE&V-10,11,13,16). Canopy gaps and small openings are periodically created within the coniferous forest landscape by disturbances, to provide sites where hardwoods are successfully regenerating and growing into larger sized trees. Black cottonwood trees are most common along large, low-gradient streams

Non-coniferous Plant Community	Current estimate [a] (%)	Desired range	Desired Condition
	(0.1-1.1)	present	where seasonal flooding sustains a variety of age and size classes. Paper birch and aspen are common in riparian areas along streams, as well as in lower and mid-slope areas where water seeps out of the ground. Hardwood communities have a high diversity of mesic forbs, shrubs, grasses, sedges, and ferns in the understory.
Grass/forb/shrub communities	<u>Persistent communities</u> 5% <u>Transitional communities</u> See estimated % for seed/sapl (early successional) under FW-DC-TE&V-10, 13	<u>Persistent communities</u> 5% <u>Transitional communities</u> See desired conditions FW-DC-TE&V-10, 11,13	Persistent[b] and transitional grass/forb/shrub dominated communities are maintained at current levels and distribution across the landscape in amounts that provide habitat for associated wildlife species (refer to appendix A). The most common types of grass/forb/shrub communities are: (1) Persistent communities on mid to high elevation relatively moist sites, are usually shrub dominated but may also have abundant grasses and forbs. These are maintained by avalanches or by harsh site conditions that slow or preclude establishment of trees. (2) Persistent communities on mid to low elevation relatively dry sites, usually grass dominated but may also have abundant drier site forbs and shrubs. These are maintained by site and soil conditions that slow or preclude establishment of trees, and/or by fire. (3) Transitional communities occurring within the coniferous biophysical settings during the early successional stages after disturbances, such as fire or harvest. These are by far the most common type across the Flathead NF. Through natural succession, coniferous forest cover will eventually dominate, though these areas may be dominated by grass/forb/shrub communities for short or long time periods (e.g., 10 years up to several decades) depending upon the fire frequency.

a. Estimated mean across all Flathead NFS lands (which includes non-forest types). Lower and upper bounds at 90% confidence interval. Data source: R1 Summary Data Base, from data produced from the Forest Service's Inventory and Analysis (FIA) program

b. For purposes of this desired condition, these plant communities are considered persistent if they remain hardwood or grass/forb/shrub dominated for 50 or more years.

18 Old growth is currently estimated at 11% of the forested lands across the Flathead NF. The desired condition is for an increasing trend in the amount and patch size of old growth forestwide, with particular focus on increases in the warm dry and warm moist biophysical settings. Desired ecological conditions for old growth are displayed in table 9. Refer to appendix A for description of the biophysical settings.

Table 9. Desired conditions forestwide for old growth forests and by biophysical setting

Biophysical setting	Desired composition, structure and other ecological conditions of old growth
General forest-wide conditions	Old growth forests at both the landscape and stand-level are resilient, persisting over time as a dynamic but enduring component of the landscape. Old growth is resistant to undesirable impacts from insects, disease, wildfire, drought and potential climate change. Old growth forest is represented across the forest in amounts, distributions, and patch sizes that provide for habitat needs of wildlife species (refer to appendix A for list of old growth associated wildlife species). Forest-wide and within individual watersheds, the distribution, patch size and average percentage of old growth forest will vary over time as influenced by disturbances and processes, such as fire, insect infestation, and succession. Old growth contains a substantial amount of the associated components that provide high quality habitat for associated wildlife species, such as large snags; large live trees with heart rot or broken tops; large diameter down woody material; and a diversity of tree size classes. Desired tree species composition and structure within old growth forest vary by biophysical settings, as described below.
Warm Dry	Ponderosa pine is the most common species in the large, old tree class, with western larch also common on moister sites. Forest canopy is relatively open, and the structure is either single canopy or small patch mosaic (patches typically less than one acre) where there are two or more tree size classes interspersed with patches of shrubs, forbs, and grasses.
Warm Moist	Ponderosa pine and western larch are the most common species in the large, old tree classes. Where supportive site conditions occur, western white pine and western red cedar are present as large, old trees, as well as in understory tree layers. Groves of very large, old western red cedar exist and amount is trending upward. Large, old Douglas-fir is widespread, most often in mixed stands with these other species. Tree density is typically moderate to high, with multiple tree sizes and canopy layers often occurring in a small-patch mosaic pattern. More open canopy conditions may also be associated with old growth, especially in areas where more frequent fire was common and fire resistant species dominate (e.g., in the Swan Valley GA).
Cool Moist-Moderately Dry	Western larch is the most common species in the large, old tree class, followed by Douglas-fir. Large, old Engelmann spruce are common in riparian areas and other sites with high soil moisture. Overall tree density is moderate to high, with wide diversity in tree sizes. Stands are composed of two or more canopy layers. Small gaps in upper canopy layers often occur, and are associated with dense patches of understory trees.
Cold	Engelmann spruce is the most common species in the large, old tree class. Over time, large, old whitebark pine increase within old growth stands in some portions of this setting. Tree density varies depending upon soil development and climatic conditions.

19 Snags suitable for nesting and denning, particularly in larger sizes (i.e., greater than 20 inches in diameter), are present not only in old growth forests, but across the matrix of forest lands, contributing to the diversity of forest structure and to the sustainability of wildlife species associated with snags (see appendix A for a full list of species). Snag presence, distribution, density, size and species are highly variable across the landscape and by biophysical setting, forest dominance type, successional stage and stand history. Snags are unevenly distributed and very dynamic over time. The highest densities of snags of all sizes occur in burned areas. The lowest densities of snags occur in areas accessible to firewood cutting (especially close to human communities), in developed sites or other areas where the concern for human safety is elevated, and in designed fuel breaks. Lower densities and sizes of snags also tend to occur within lodgepole pine

dominated stands, unless affected by mountain pine beetle infestation. Desired conditions for snag densities across the forest are displayed in table 10. Ranges are displayed as an average across all forested acres. Individual stands or sites may have no snags, or a much higher number of snags per acre, depending upon the unique conditions and disturbance history, but each geographic area on the forest has the average number of snags displayed in table 10.

Table 10. Desired range in average snags per acre of all conifer species as measured across all forested acres of the Flathead NF, by biophysical setting and snag diameter

Biophysical setting	Current estimate[a] (>15 in. d.b.h.[b])	Current estimate (>20 in. d.b.h.)	Desired Range in average number of snags per acre greater than or equal to 15 in. d.b.h.	Desired Range in average number of snags per acre greater than or equal to 20 in. d.b.h.
Forestwide	4	1	1.5–5.0	1.0–2.0
Warm-Dry	4	1	0.2–6.0	0.1–2.0
Warm-Moist	5	2	1.0–10.0	0.5–6.0
Cool-Moist/Mod. Dry and Cold	3-4	1	2.0–4.0	0.6–1.5

a. Data source: R1 Summary Data Base (Forest Service's FIA program)
b. diameter [at] breast height (4.5 feet above ground level)

20 Live, decadent trees and snags greater than 20 inches d.b.h. are present, (predominately ponderosa pine or western larch), and provide habitat for primary cavity nesters and species such as flammulated owls. These and other snags greater than 15 inches d.b.h. are also available for boreal owls, chickadees, bluebirds and numerous other species associated with tree cavities (see appendix A for a full list of species). In areas identified as fisher habitat, western larch and western red cedar trees with heartrot, as well as snags and down logs greater than 20 inches d.b.h., occur in mesic forest stands with canopy cover greater than 40% to provide for fisher resting and denning.

21 Downed woody material is present across forested lands, consistent with the natural range of variation. Down woody material, especially the larger material (e.g., 9 inches or larger in diameter) contributes to long-term forest structural diversity and habitat for marten and other wildlife species associated with down woody material for feeding, denning and cover (see appendix A for a full list of species). Downed wood is highly variable in amount, sizes, species and stages of decay, both across the landscape and over time. The desired conditions for down woody material are displayed in table 11. Ranges are displayed as an average across all forested acres, and reflect the highly variable natural range of variation in amount of downed woody material. Individual stands or sites may have lower or higher amounts depending upon the unique conditions and disturbance history. Amounts on the low end will generally be found in areas where concern for fire hazard is elevated, such as adjacent to human structures, in designed fuel breaks, and in areas accessible to firewood cutting. Amounts on the high end will generally be found in the areas with lower direct human influence, such as wilderness or unroaded areas, and in areas that burned in the recent past or have had recent insect/disease infestations. Individual stands or sites may have no down wood, or a much higher amount of down wood per acre, depending upon the unique conditions and disturbance history, but each geographic area on the forest has the average tons per acre of downed wood displayed in table 11.

Table 11. Desired range in average total tons per acre of downed woody material, as measured across all forested acres within each biophysical setting on the Flathead NF

Biophysical setting	Current estimate[a] (ton per acre)	Desired Range in average tons per acre of downed woody material
Warm-Dry	17	10–40
Warm-Moist	27	10–50
Cool-Moist/Mod. Dry and Cold	21 and 34, respectively	10–60

a. Data source: R1 Summary Data Base, from the Forest Service's Inventory and Analysis (FIA) program

22 Large live trees (greater than or equal to 20 inches d.b.h.) are currently present across an estimated 19% of forest (range of 16.6% to 22.1%, at 90% confidence interval). The desired condition is for an upward trend in the proportion of the forest where large live trees are present, particularly of long lived species tolerant of fire. These trees contribute to diversity of forest structures, long-term forest resilience and recovery after disturbance (such as fire), the sustainability of habitat for wildlife species; opportunity for development into future late successional or old growth forest, and for long-term recruitment of large rotten trees and snags providing denning habitat for lynx and a variety of other wildlife species. Presence, distribution, density, size and species are variable across the landscape and very dynamic over time. They are unevenly distributed and vary considerably by biophysical setting, forest dominance type, successional stage, and stand history. Western larch and Douglas-fir are the most common large, live tree species forest-wide, except on warmest sites (warm dry biophysical setting) where ponderosa pine is most common, and on cold sites or wet soils, where Engelmann spruce is most common. Large western red cedar is present on some sites within the warm, moist biophysical setting, especially in locations where groves of old, very large trees could develop. Large western white pine is present on the warmer, moist sites across the forest.

23 The pattern of forest conditions across the landscape provides for dispersal and genetic interchange between populations and the long distance range shifts of species, as may occur in response to climate change. Forest patterns also contribute to needs for wildlife habitat connectivity and movement across the landscape. Coniferous trees in the small to large size classes are interconnected to allow forest interior wildlife species, such as Canada lynx and marten, to move within home ranges and across the landscape. Refer also to FW-DC-TE&V-11 for additional desired conditions related to landscape patterns.

Objectives (FW-OBJ-TE&V)

01 Treat 62,000 to 174,000 acres forestwide to maintain or move towards achieving desired conditions for coniferous forest types and associated wildlife species. Some of these acres occur in mapped lynx habitat and are included in the exceptions listed under Standard FW-STD-TE&V 05 and 06 below. An estimated 1,400 to 2,500 acres per year would use the exceptions listed in Standard FW-STD-TE&V 05, and 300 to 460 acres per year would use the exceptions listed under FW-STD-TE&V 06. Refer to appendix B for possible management strategies and possible actions to achieve this direction.

02 Treat 500 to 2,500 acres of forest to promote diverse native hardwood forest types. Most of these acres are associated with conifer removal in aspen stands and are included in the exceptions listed under Standard FW-STD-TE&V 05. Refer to appendix B for possible management strategies and possible actions to achieve this direction.

03 Treat 1,500 to 5,000 acres of persistent grass/forb/shrub plant communities, focusing on key habitats for big game species, to reduce conifer encroachment and maintain or improve conditions for native plant establishment and growth.

04 Treat 12,000 to 16,000 acres to contain or reduce non-native invasive plant density, infestation area, and/or occurrence.

Standards (FW-STD-TE&V)

01 Vegetation management within old growth shall be limited to actions that (1) maintain or restore old growth characteristics and ecosystem processes, such as where fire may be allowed to burn at low intensity; (2) increase old growth forest resistance and resilience to disturbances or stressors; (3) reduce fuel hazards adjacent to private property or other exceptional values at risk; or (4) address human safety issues, such as removal of hazard trees adjacent to developed campground site. Vegetation management activities must not modify the characteristics of the stand to the extent that the stand would no longer meet the definition for old growth (refer to glossary).

02 New or expanded vegetation management projects and other activities affecting mapped Canada lynx habitat or designated critical habitat, shall maintain habitat connectivity for Canada lynx, as determined through project level analysis. Also see desired conditions specified in individual GAs, which apply to lynx as well as other wide-ranging wildlife species.

03 Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages, limit disturbance in each lynx analysis unit (LAU) as follows: If more than 30 percent of the mapped lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects [formerly VEGS1].

Where and to what this applies: applies to all vegetation management projects that regenerate forests, except for fuel treatment projects within the wildland-urban interface (WUI) as defined by the Healthy Forest Restoration Act of 2003 (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] shall occur on no more than 6 percent (cumulatively) of mapped lynx habitat on each administrative unit (a unit is a National Forest). *In addition, fuel treatment projects may not result in more than three adjacent LAUs exceeding the standard.*

04 Timber management projects shall not regenerate more than 15 percent of mapped lynx habitat on NFS lands within an LAU in a ten-year period [formerly VEG S2].

Where and to what this applies: applies to all timber management projects that regenerate forests, except for fuel treatment projects within the WUI as defined by HFRA, subject to the following limitation:

- Fuel treatment projects within the WUI [that do not meet Standards FW-STD-TE&V 03-06] shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

05 In lynx habitat, precommercial thinning projects that reduce winter snowshoe hare habitat may only occur [formerly VEG S5]:

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. Based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of USFWS, where a written determination states:

   a. that a project is not likely to adversely affect lynx; or
   b. that a project is likely to have short term adverse effects on lynx or its
   c. habitat, but would result in long-term benefits to lynx and its habitat; or

4. For conifer removal in aspen, or daylight thinning around individual aspen trees, where aspen is in decline; or

5. For daylight thinning of rust-resistant white pine where 80 percent of the winter snowshoe hare habitat is retained; or

6. To restore whitebark pine; or

7. To promote development of mature multi-story snowshoe hare and lynx habitat by pre-commercially thinning a portion of stands in the cool, moist biophysical setting that have been regenerated by fire or timber harvest, using modified thinning techniques (as defined in the glossary) [added to VEG S5].

   Exceptions 2 through 7 shall only be utilized in LAUs where Standard FW-STD-TE&V 04 is met.

Where and to what this applies: applies to all precommercial thinning projects, except for fuel treatment projects that use precommercial thinning as a tool within the WUI as defined by HFRA, subject to the following limitation:

- Fuel treatment projects within the WUI that do not meet Standards FW-STD-TE&V 03-06 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 FW-GDL-FIRE-04.

06 In mapped lynx habitat, vegetation management projects that reduce snowshoe hare habitat in mature multi-story forests may occur only [formerly VEG S6]:

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 treatments to increase resilience of whitebark pine in stands that contain phenotypically blister rust resistant trees, to make them more resilient and adaptable to stressors and likely future environments.

Exceptions 2 through 4 shall only be utilized in LAUs where FW-STD-TE&V 03 and 04 are met.

(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 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: applies to all vegetation management projects except for fuel treatment projects within the WUI as defined by HFRA, subject to the following limitation:

- Fuel treatment projects within the WUI that do not meet Standards FW-STD-TE&V 03-06 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 FW-GDL-FIRE 04.

Guidelines (FW-GDL-TE&V)

01 Within the NCDE PCA, logging operations should be restricted in time and space if needed to reduce the potential for substantial grizzly bear disturbance/displacement (e.g., restricting logging activities to the denning season or prohibiting logging activities during the spring in key spring grizzly bear habitat), as determined by site-specific analysis. *Note*: Other forest 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 objectives (especially if needed to prevent resource damage), but should otherwise be restricted in time or space, if needed to reduce the potential for substantial grizzly bear disturbance/displacement.

02 Within the NCDE PCA, vegetation management activities should be designed to include one or more measures to protect, maintain, increase and/or improve grizzly habitat quantity or quality in areas where it would not increase the risk of grizzly bear–human conflicts.

03 Within the NCDE PCA, measures to retain cover should be included in the project design if vegetation management activities would result in the loss of cover along grass/forb/shrub openings, riparian wildlife habitat, or wetlands, as determined by a site-specific analysis.

04 Silvicultural practices should generally maintain or trend the forest vegetation towards the desired conditions outlined above and in other sections of this plan, creating forests more resilient and resistant to disturbances and stressors, including climate change.

05 The development of future old growth forests should be promoted where appropriate and beneficial, as determined through project level analysis, to trend the landscape towards desired amounts, distribution, patterns and characteristics of old growth over the long term (i.e., beyond the plan period).

06 Landscape composition and patterns should be managed to increase the resilience of old growth to potential future disturbance (such as wildfire and disease), consistent with the natural disturbance regimes, and in particular in areas with low to moderate severity fire regimes.

07 Building of permanent or new temporary roads should avoid impacts to old growth where feasible (also see the infrastructure section of this plan).

08 Vegetation management should retain forest structural components consistent with natural ecosystem processes and disturbances, considering existing forest conditions and limitations of treatment methods. Retention of these components should contribute to desired conditions at the forestwide scale. These structural components include snags and snag recruitment trees (see FW-GDL-TE&V-10), down woody material (see FW-GDL-TE&V-09) and large, live trees (see FW-GDL-TE&V-11). Excluded from this guideline are areas and activities where tree removal or vegetative manipulation are conducted to protect health and safety, to create desired conditions within developed recreation sites or other special use areas, or for personal use firewood permits.

09 In the absence of a site-specific analysis that supports an alternative prescription for downed wood retention, retain a minimum of approximately 10 tons per acre of large down woody material (greater than 9 inches in diameter) within timber harvest units, where available. The maximum

amount of total downed woody material (all diameters) should generally not exceed 40 tons per acre. Retained material should consist of the longest and largest available, and where possible, consist of intact pieces of a variety of species, sizes and stages of decay, including cull tops and logs. The intent is to contribute to forest structural diversity and provide forest components that are important to many wildlife species. Exceptions may occur, for example when there is insufficient material of suitable size prior to harvest.

10 In the absence of a site-specific analysis that supports an alternative prescription for snags, vegetation management activities should retain at least the minimum number of snags greater than or equal to 15 inches d.h.h. displayed in table 12, including all western larch and ponderosa pine snags greater than 20 inches. The intent is to provide sufficient habitat both short and long term, well distributed across the landscape, for wildlife species associated with snags, particularly the larger snags which are typically less abundant (refer to appendix A). Five live replacement trees of equivalent diameter should be left (if available) for each snag per acre that is lacking. These replacement trees may also be used to meet the live tree retention guideline (FS-GDL-TE&V-11). Exceptions may occur, for example in areas where the minimum number or snag/live tree sizes are not present prior to management activities or where there are issues of human safety (such as in developed recreation sites). Exception also occurs for vegetation management occurring within 200 feet of a road that is open to motorized use and accessible to personal firewood cutting.

Table 12. Snag levels to retain (where they exist) after vegetation management activities

Biophysical setting	Minimum number of snags per acre	
	Greater than or equal to 15 inches d.b.h.[a]	Greater than or equal to 20 inches d.b.h.
Warm-Dry	2	1
Warm-Moist	6	2
Cool-Moist/Mod. Dry	3	2
Cold	2	1

[a] If snags greater than 15 inches are not available, then snags greater than 12 inches d.b.h. should be retained.

11 Where vegetation management activities occur and snags or live replacement trees are retained to meet FW-GDL-TE&V-10, follow this guidance:

a. Emphasize retention of the largest snags and live replacement trees, as well as species that tend to have high snag longevity (e.g., ponderosa pine or western larch), or less persistent but highly valuable for wildlife (e.g., black cottonwood, paper birch, quaking aspen, and Douglas-fir).

b. Favor for retention snags or live replacement trees with evidence of decay, broken tops, and wildlife use, such as existing cavities or feeding sign.

c. In salvage areas (such as after fire or insect epidemics) where an abundance of snags of desired sizes exist across the landscape, untreated areas within the same or adjacent subwatershed may be used to contribute towards desired snag habitat needs.

d. Retained snags and live replacement trees should be left on the site indefinitely (e.g., not removed in a subsequent harvest activity) to provide desired habitat over the long term.

e. In timber harvest areas, in the event that retained snags or live replacement trees fall over or are felled (e.g., for safety reasons), they should be left on site to provide coarse woody debris habitat.

12 In the absence of a site-specific analysis that supports an alternative prescription, live trees that would contribute to long term structural diversity and other ecological benefits should be retained over the long term (i.e., not removed in a subsequent harvest) within areas harvested with an even-aged regeneration method (clearcut, seedtree or shelterwood cuts). The intent is to increase the resilience of the stand to potential future disturbances (such as fire), retain important forest structural components for wildlife habitat, and provide an opportunity for development of future late successional or old growth forest conditions. Live trees retained for snag replacement purposes (see FW-GDL-TE&V-10 and 11) may be used to meet this guideline. Exceptions to this guideline may occur, for example in areas where there are no suitable trees present.

13 Where regeneration harvest activities occur and live trees are retained to meet FW-GDL-TE&V-12, follow this guidance:

a. Preferred trees to retain are long-lived, fire tolerant species, particularly western larch and ponderosa pine. On certain sites and locations, such as stands in the warm moist biophysical setting, Douglas-fir, western white pine, and western red cedar may also be suitable species.

b. Trees currently of larger sizes and/or with the potential to achieve large sizes over time (e.g., adequate growth rates and tree health) are preferred.

c. Trees left to meet this guideline may serve multiple functions, such as providing seed for reforestation, enhancing scenic qualities, or contributing to future snag habitat.

d. Leave tree distribution can be highly variable, taking into account such factors as the natural variation within the existing stands, terrain, and logging methods. They may be left as scattered individuals, small groups or larger patches.

e. The pattern and density of live leave trees should not unduly inhibit successful reforestation with desired tree species and densities.

f. Trees left to meet this guideline should remain on the site indefinitely (e.g., not removed in a subsequent harvest activity) to provide desired forest structural conditions over the long term.

g. Feasibility of tree retention, considering desired conditions for other resources, treatment methods and other site specific factors, should be determined through project level analysis.

14 In vegetation treatment units within 1 mile of large lakes or rivers, all live ponderosa pine, western larch, and black cottonwood trees greater than or equal to 20 inches d.b.h. should be retained to provide nesting habitat for bald eagles.

Specific Terrestrial Animal and Plant Species

Introduction

The 2012 planning rule adopts a complementary ecosystem and species-specific approach, known as a coarse-filter/fine-filter approach, to provide for the diversity of plant and animal communities and the long-term persistence of native species in the plan area. The coarse-filter plan components are designed to maintain or restore ecological conditions for ecosystem integrity and ecosystem diversity in the plan area within Agency authority and the inherent capability of the land. Fine-filter plan components are designed to provide for additional specific habitat needs, when those needs are not met through the coarse-filter plan components.

Habitat for most animal species primarily would be managed via coarse-filter components found the terrestrial and aquatic ecosystem sections. The following section includes the fine-filter plan components

that address needs for specific species. Refer to appendix A for the specific habitats and the species to which these plan components apply.

Threatened, Endangered, Proposed and Candidate Plant Species (PLANT)

Desired Conditions (FW-DC-PLANT)

01 Habitat conditions support the recovery of plant species listed as threatened, endangered, proposed or candidate species under the ESA, which include Spalding's Catchfly (*Silene spaldingii*), Water Howellia (*Howellia aquatilis*) and Whitebark Pine (*Pinus albicaulis*). Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are retained or restored. Refer to appendix A for habitat associations for these species.

Objectives (FW-OBJ-PLANT)

01 Treat 8,100 to 19,200 acres for the purpose of sustaining or restoring whitebark pine in the ecosystem and contribute to achieving desired conditions for presence of this species across the landscape. Refer to appendix B for possible management activities to achieve this objective. Some of these treatments may be included in the exception acres allowed under standard FW-STD-TE&V-05 and 06.

Standards (FW-STD-PLANT)

01 Follow the direction in the Conservation Strategy for *Howellia aquatilis* when designing site specific management actions.

02 Retain a buffer of a minimum width of 300 feet from the margins of ponds (occupied and unoccupied) that provide *Howellia aquatilis* habitat. Vegetation treatments within the buffer shall occur only if the vegetative, physical and/or hydrologic features required for long-term habitat conservation are maintained or improved. Vegetation treatments within the buffer sustain soil quality and ecological functions, so that long term productivity is not impaired. Road maintenance activities within the buffer shall maintain or improve hydrological integrity to protect habitat conditions for *Howellia aquatilis*.

Guidelines (FW-GDL-PLANT)

01 Pond habitat that currently, or potentially, supports *Howellia aquatilis* should be maintained or improved.

02 To the extent possible, whitebark pine trees identified for collection of scion, pollen or seed, and whitebark pine plantations, should be protected from potential loss due to fire, insect, disease or other threats.

Plant Species of Conservation Concern (SCC PLANT)

Desired Conditions (FW-DC-SCC PLANT)

01 Vegetation conditions and ecological processes that currently or potentially support plant species of conservation concern are maintained or restored. Refer to appendix A for a full list of potential SCC.

Objectives (FW-OBJ-SCC PLANT)

01 Treat 16,000 to 21,000 acres of forest to maintain or restore rust-resistant western white pine across the landscape and contribute to desired conditions for species presence across the landscape. Refer

to appendix B for possible management actions to achieve this objective. Some of these treatments may be included in the exception acres allowed under standard FW-STD-TE&V-05.

Guidelines (FW-GDL-SCC PLANT)

01 Provide mitigation or protection measures to maintain occurrences or sustain habitats of non-coniferous plant species of conservation concern.

02 When non-coniferous plant species of conservation concern are documented, they should be avoided during management activities or protected by a suitable buffer from human disturbances that may adversely impact the population.

03 Peatland and fens should be protected from human disturbances that may adversely impact habitat conditions for plant species of conservation concern. (also see Wetland section under Aquatic Ecosystems).

Threatened, Endangered, Proposed and Candidate Wildlife Species

Desired Conditions (FW-DC-WL)

01 Within the NCDE Primary Conservation Area (PCA) and Zone 1 (including the Salish DCA), bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear–human conflicts in the NCDE.

02 Within the NCDE PCA and Zone 1 (including the DCAs), grizzly bear habitat on NFS lands contributes to sustaining a recovered grizzly bear population in the NCDE.

03 Mapped Canada lynx habitat and critical habitat (figure C-2) are managed in a manner that contributes to sustaining recovery of the Rocky Mountain Canada lynx population.

04 If any new threatened and endangered species and/or their critical habitat are designated, habitat is managed in a manner that supports population recovery.

05 Community leaders, homeowners, contractors, permittees, and other forest users who are invested in or adjacent to the Flathead National Forest are knowledgeable about human-bear conflict risk and they understand the need to manage human activities to reduce the risk of conflicts.

Objectives (FW-OBJ-WL)

See WET, RIP, TE&V, IFS, REC, M&E, LSU and ECOS OFP, sections of this document.

Standards (FW-STD-WL)

01 Grizzly bear habitat on National Forest System lands in the NCDE is delineated and managed as the Primary Conservation Area (PCA) and Zone 1 (including the Salish DCA) (see figure C-1).

02 Within the NCDE PCA and Zone 1 (including the Salish DCA), Food/Wildlife Attractant Storage Special Order(s) shall apply to all National Forest System lands in the NCDE.

Guidelines (FW-GDL-WL)

01 Within the NCDE PCA and Zone 1 (including the Salish DCA), contractors, permittees, lessees, operators, and their employees should be informed of Food/Wildlife Attractant Storage Special

Order(s) prior to beginning work and annually thereafter, in order to reduce the risk of grizzly bear–human conflicts.

02 Within the NCDE PCA and Zone 1 (including the Salish DCA), if a contractor, permittee, lessee, operator or their employees elect to camp on National Forest System lands other than in a developed recreation site, a site evaluation should be prepared and written authorization (i.e., campsite agreement which includes the Food/Attractant Storage Special Orders) should be obtained.

03 Within the NCDE PCA and Zone 1 (including the Salish DCA), the use of clover in seed mixes on National Forest System lands should be discouraged. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

04 Bear-resistant structures (e.g., bear resistant food storage and temporary or permanent garbage storage facilities) should be installed as needed to reduce human-bear conflicts in areas of concentrated human use.

Wildlife and Invertebrate Species of Conservation Concern (SCC)

Desired Conditions (FW-DC-SCC WL)

01 Habitat conditions and ecological processes that support wildlife SCC are maintained or restored to contribute to populations that persist over the long term, with sufficient distribution to be resilient and adaptable to stressors and likely future environments (*see appendix A for a full list of potential SCC*)(see table 13 for desired conditions of special habitat features not addressed elsewhere under Aquatic or Terrestrial Ecosystems).

Table 13. Desired conditions for special habitat features and associated wildlife and invertebrate species of conservation concern (SCC)

Special habitat feature	SCC common name	Desired condition description
Waterfalls	Black Swift	Waterfalls meeting the habitat requirements for black swifts will have sustained water flow through the nesting season and cover conditions that maintain shading in front of nest sites.
Fast-moving, low-gradient, clear mountain streams with large down woody material and dense bank cover to provide nest sites as well as larger streams with large rocks to provide resting sites	Harlequin Duck	Harlequin duck nesting stream reaches will have dense cover adjacent to the stream (including live and dead trees, shrubs, and down logs) and down woody material instream. There will be low levels of human disturbance on breeding stream reaches through the nesting season (Once older broods move to loafing areas along main rivers disturbance does not appear to be a concern, as long as people are not concentrated near loafing sites (e.g., trailheads, campgrounds, dispersed camp sites, etc.)
Caves, old mines, old buidlings, bridges	Townsend's Big-eared Bat	Caves and old mines/buildings provide areas for roosting, hibernation, or maternity sites for various species of bats. Caves and mines providing suitable habitat that are closed for human safety or cave protection are still accessible to bats. Where possible, old mines and buildings that are important for maternity roosts and hibernacula are stabilized and conserved.

Special habitat feature	SCC common name	Desired condition description
Lakes greater than 13 acres and less than 5,000 feet elevation	Common Loon	Known nesting sites and other highly suitable nesting sites typically in protected bays or on islands have levels of human development and disturbance (e.g., boat launches, roads, trails, dispersed and developed campsites) that do not prevent successful loon reproduction.
Peatlands	Northern Bog Lemming	Peatlands have cover and down woody material around them that provides wildlife habitat connectivity between individual sites.
Talus areas	Carinate mountainsnail	Talus slopes with populations of the carinate mountainsnail in the Swan Valley Geographic Area are maintained as suitable habitat.

Standards (FW-STD-SCC WL)

01 Areas proposed for activities that may affect habitat for wildlife SCC shall be evaluated in a site-specific biological evaluation and/or other environmental document.

Guidelines (FW-GDL-SCC WL)

01 To promote healthy, reproductive bat populations, bat-friendly closures should be installed when closing mines or caves, unless surveys indicate bats are not present and habitat is unsuitable. Buildings and bridges should be inspected prior to removal or demolition to identify bat use. When bats are present, removal should not begin until bats have left for the season or have been removed. If White-nosed Syndrome is documented in Montana, management actions should be adopted as needed to prevent or curtail spread of the disease.

02 To provide habitat that contributes to reproductive fisher populations, vegetation management prescriptions in areas modeled as fisher habitat should contribute to the development of large mature trees including large western larch, cedar, and grand-fir trees with cavities of suitable size for maternal denning (also see desired conditions, standards, and guidelines for the warm, moist biophysical setting; snags, down woody material, and old growth).

03 To provide habitat that contributes to reproductive loon populations, nesting lakes should be managed in accordance with guidelines in the Conservation Plan for the Common Loon in Montana.

04 To reduce disturbance at active nesting or roosting sites of wildlife species listed in table 14, proposed activities that may increase human disturbance during the time periods listed should be evaluated in a site-specific biological evaluation and/or other environmental document. Measures to limit disturbance during project implementation should be incorporated as needed.

Table 14. Nesting or roosting SCC that are sensitive to human disturbance during specific time periods

Species	Location	Time period[a]
Harlequin Duck	Stream reaches with known nesting	Mid-April to Mid-August
Black Swift	Waterfalls with known nesting	Mid-April to Mid-August
Common Loon	Distance from active nests determined by lake configuration and suitable location for floating signs	Mid-April to Mid-July
Townsend's Big-eared Bat	Caves with known roosting or hibernacula	Year-round

a. specific dates may change if there are changes in species use due to climate change, documented by BASI

Objectives (FW-OBJ-SCC-WL)

01 Maintain or improve nesting habitat on all lakes suitable for nesting to promote successful reproduction of the common loon (e.g. signs, nesting structures), as needed.

02 Maintain or improve 100-1000 acres of habitat for bats and other cavity nesting/roosting/denning species in areas where snags are lacking (e.g. placement of nesting structures, creating snags).

Objectives for vegetation, fire, and wetlands, and RHCAs are also relevant for SCC-WL.

Wildlife Species of Public Interest (SOPI-WL) for Hunting, Trapping, Viewing and Sustenance

Desired Conditions (FW-DC-SOPI-WL)

01 Key ecosystem characteristics support wildlife SOPI and are resilient and adaptable to stressors and likely future environments. Special habitat features such as caves, boulder fields, persistent snow fields, and waterfalls provide habitat for associated species (see table 15). Refer to appendix A for the full list of SOPI species and associated habitats.

Table 15. Desired conditions for special habitat features and associated wildlife species of public interest (SOPI)

Special habitat feature	SOPI name	Desired condition description
Within one mile from 40+ acre water body or 4th order or larger stream), within direct line-of-sight of the water, within 600 feet elevation of the water	Bald Eagle	In order to provide nesting habitat for bald eagles, large-diameter trees >20" diameter [at] breast height are available within 1 mile large lakes and major rivers. Trees providing nesting sites will have low levels of disturbance during the nesting season (table 16).
Cliffs	Peregrine Falcon	In order to provide nesting habitat for peregrine falcons and golden eagles, cliffs providing nesting sites will have low levels of disturbance during the nesting season (table 16).
Boulder fields/talus	Pika, Hoary Marmot	Accumulations of boulders and rock slabs at high elevations provide year-round habitat for pikas and hoary marmots. Diverse communities of forbs and grasses as well as leaf litter will occur adjacent to these sites to provide cover and/or forage.
High elevation areas (6,100 to 9,200 feet on Flathead NF) with Krumholtz vegetation	White-tailed ptarmigan, Mountain Goat, Wolverine	Areas with persistent spring snow provide habitat for associated species such as white-tailed ptarmigan, mountain goats, wolverines and other species associated with high elevations.

Objectives (FW-OBJ-SOPI-WL)

Objectives for vegetation, fire, wetlands, and RHCAs are relevant for SOPI-WL.

Guidelines (FW-GDL-SOPI-WL)

01 Habitat for bald eagles should be managed in accordance with guidelines in the Montana Bald Eagle Management Guidelines.

02 Activities that may increase human disturbance in denning, nesting, or seasonal concentration areas during the time periods listed in table 17 should be assessed and managed on a site-specific basis to limit population stressors of wildlife species listed in table 17.

03 Special habitat features identified in table 15 should be evaluated for presence of wildlife and invertebrate species prior to activities that would have substantial effects (e.g. blasting, gravel

crushing) and measures to avoid or mitigate effects should be included as needed, based upon site specific analysis.

Table 16. Denning or nesting SOPI that may be sensitive to human disturbance during specific time periods

Species	Location	Time period[a]
Mountain Goat, White-tailed Ptarmigan	Known winter concentration areas	December to Mid-May
Wolverine	Maternal denning habitat in areas mapped with persistent spring snow 5 to 7 years out of 7	Mid-February to Mid-May
Elk	Known winter concentration areas	December to Mid-May
Elk	Areas providing elk security (see glossary)	Fall rifle season outside of designated Wilderness (typically mid-October to the end of November)
Gray Wolf	Within ¼ mile of active den sites	February to May
Bald Eagle	Within ½ mile of active nest sites	February to Mid-August
Peregrine Falcon	Within ½ mile of active nest sites	February to Mid-August

a. specific dates may change if there are changes in species use due to climate change, documented by BASI

Pollinator Species (POLL)

Desired Conditions (FW-DC-POLL)

01 Plant communities across the forest are composed of a diverse mix of native grass, forb, shrub and tree species, with a diverse structure and pattern across the landscape, providing foraging habitat for native pollinator species, such as Gillette's Checkerspot butterfly, bumblebees, and hummingbirds.

Guidelines (FW-GDL-POLL)

01 An integrated pest management approach should be used when evaluating proposed methods to control pests (such as insects or invasive weeds), considering potential effects to native pollinators and mitigation measures if necessary.

Air Quality

Introduction

The Clean Air Act and subsequent amendments give federal land managers the responsibility to protect Air Quality Related Values in Class 1 areas and to protect human health and basic resource values in all areas. The Bob Marshall and Mission Mountains wilderness areas are classified as Class 1 areas where very little deterioration of air quality is allowed. Columbia Falls, Kalispell, and Whitefish, are the closest non-attainment areas that fail to meet National Ambient Air Quality Standards for PM10 during some portion of the year; although virtually all land management activities on the Flathead NF occur outside the non-attainment boundaries. The Flathead Reservation and Glacier National Park are also Class 1 areas. The greatest potential to affect air quality would be from smoke (wildfires, prescribed fires) and road dust.

Desired Conditions (FW-DC-AQ)

01 The Forest meets applicable federal, state, or tribal air quality standards. Prescribed burning is planned to meet those standards, including areas classified as Class 1 areas (i.e., Bob Marshall Wilderness).

02 Air quality-related values of high quality visual conditions and healthy breathable air are maintained within Class 1 areas.

03 Visibility, human health, quality of life, economic opportunities, high quality recreation, and wilderness values are maintained by good air quality. Adverse effects to resources as a result of air pollution do not occur. Smoke emissions from wildland fires do not exceed the estimated historical frequency and distribution for the various vegetation types across the Forest. Ambient air quality and visibility across the Forest are within federal and state standards.

Guideline (FW-GDL-AQ)

01 The Forest should cooperate with federal, state, tribal, and local air quality agencies as appropriate in meeting applicable air quality and smoke requirements.

Fire

Introduction

Wildland fires occur annually with natural ignitions occurring with summer thunderstorms typically starting in mid-July through mid-September. The general public, as well as most large landowners, utilize fire to burn vegetation (both piled and broadcast) in the spring (March–June) and in the fall (September–November). Most other human ignitions are caused by campfires/smoking.

Fire management strives to manage the natural role of fire while protecting values from adverse impacts of fire by implementing a coordinated risk management approach to build landscapes that are resilient to fire-related disturbances and preparing for and executing a safe, effective and efficient response to fire.

Treatment of vegetation for fuels mitigation is typically to change predicted fire intensity, duration and/or mitigate rate of fire spread, and will focus on restoring and maintaining natural fire regimes and reducing the negative impacts of wildfires to watershed health, wildlife habitat and community values at risk.

Desired Condition (FW-DC-FIRE)

01 Fire management activities minimize the risk of loss of life, damage to property or ecosystem function. Firefighter and public safety is the first priority in every fire management activity.

02 In areas where wildfires on NFS lands currently pose a threat to communities and community assets (e.g., power lines, communication towers, developed recreation sites), wildland fuel is reduced so the expected fire behavior is reduced.

03 The full range of fire management activities, including wildland fires (prescribed fire and wildfire), are recognized and used by forest administrators as an integral part of achieving ecosystem sustainability, including interrelated ecological, economic and social components such as improved ecosystem resilience and wildlife habitat, protection of property and other values at risk, public safety, and creation opportunities.

04 Wildland fires burn with a range of intensity, severity, and frequency that allows ecosystems to function in a healthy and sustainable manner. Wildland fire is accepted as a necessary process integral to the sustainability of the forest's fire-adapted ecosystems.

05 Fire management uses an all lands, landscape approach, which is risk-based, consistent with the current national policy guidance and strategy, responsive to the latest fire and social sciences and adaptable to rapidly changing conditions.

06 Community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest are knowledgeable about wildfire risk. They understand the need to adapt their communities, properties, and structures to the inevitable wildfire, while recognizing that wildland fire is an ecological process. The maintenance of defensible space, fire resistant buildings and the reduction of the potential fire intensity around community assets that allows direct suppression tactics are examples of adapting to wildfire.

Objectives (FW-OBJ-FIRE)

01 Move toward or maintain the desired conditions for fuel management by treatment (such as mechanical or prescribed fire) of forest vegetation on approximately 50,000 to 75,000 acres, utilizing all available management opportunities. Some of these acres will be WUI exemptions to standards FW-STD-TE&V 03-06.

Standards (FW-STD-FIRE)

01 When wildland fires occur, appropriate response strategies shall be developed based on the consideration of life, safety and potential resource benefits and risks.

02 Manage unplanned fires safely, employing tactics that are cost effective and commensurate with values to be protected or benefits to be accrued.

03 Wildfire risk assessments shall be developed to assess conditional thresholds under which desired conditions can be met.

04 Require defensible space around all structures on administrative sites, and authorized by permit. Maintain stand conditions on administrative sites to assist with protection.

Guidelines (FW-GDL-FIRE)

01 Changes in fuel conditions from restoration treatments and wildfires, as well as new or changed communities, assets or natural resource values are factors that shall affect wildfire risk.

02 Work with partners and adjacent landowners to identify areas and resources of value considered in the risk assessments.

03 Use wildfires forestwide to meet multiple resource management objectives where and when conditions permit and risk is within acceptable limit and when allowed by Forest Service policy. Meeting resource objectives generally means progress toward or maintaining desired conditions. See also appendix B: Potential management strategies and possible actions.

04 When designing fuels reduction projects in portions of the wildland-urban interface (WUI) that are mapped as Canada lynx habitat, patches of dense horizontal cover providing snowshoe hare habitat should be retained where feasible in areas where it does not threaten other values at risk.

05 In the WUI, where there is close proximity to structures, private property, and administrative sites, and along designed fuel breaks, minimize hazard trees within two tree lengths to maximize personal safety and minimize holding concerns.

06 When planning projects to reduce the negative impacts of wildfires or improve fire control opportunities, design treatments to remove or rearrange the material necessary achieve at least one of the following modeled outcomes: reduce flame length, rate of spread, or torching and crowning indices.

Economic, Cultural, and Social Environment

Social and Economic Resources (S&E)

Desired Condition (FW-DC-S&E)

01 Ecological sustainability provides a variety of benefits that contribute to community stability and the quality of life in nearby communities and the larger population such as clean water, forest products, livestock grazing, carbon sequestration, energy generation, recreational opportunities, aesthetics, cultural uses, and habitat for biodiversity in the forest. Vegetation conditions support the long term sustainability of these benefits to people by reducing the risk of undesirable fire effects, disease and mortality, which may interrupt or eliminate forest benefits.

02 Sustainable and predictable levels of goods and services (such as wilderness hunting and fishing opportunities, timber, downhill skiing, and huckleberries) are provided for local communities that contribute to the local economy through the generation of jobs and income while creating products for use, both nationally and locally.

03 Ample opportunities, including employment, to connect people, including youth, with nature exist across the Forest.

Partnerships and Coordination (P&C)

Desired Conditions (FW-DC-P&C)

01 Cooperation and coordination with state agencies, federal agencies, tribes, counties and other groups lead to a stable or an upward trend of native fish and wildlife species and desired non-native aquatic and terrestrial species.

02 Recovery of threatened and endangered species is accomplished through cooperation with the U.S. Fish and Wildlife Service (including section 7 consultation, as required), state agencies, other federal agencies, tribes, counties, and interested groups.

03 Coordination with Montana Fish, Wildlife and Parks and USFWS in managing the wildlife resource within designated wilderness protects the wilderness character.

04 Develop partnerships with various interest and user groups to participate in evaluation, planning, and maintenance programs.

05 Partnerships with federal and non-federal entities helps achieve desired conditions and improve overall resources management. Partnerships and/or collaborative processes within the local communities fosters relationships that help accomplish projects in the communities' and Flathead NF's shared interest.

06 Federal, state, local and tribal agencies, universities, non-governmental organizations, and private landowners are partners in the development and implementation of monitoring efforts.

07 The Flathead NF and potential partners would have an expressed mutual interest in, benefit from, and understanding of a common purpose(s) that helps achieve their respective missions.

08 Partnerships and projects would be widely recognized by the public as beneficial to resource management, and as an appropriate and efficient use of Forest Service cooperative efforts and funding.

09 Partnerships arrangements would be transparent to the public and free of real or apparent conflicts of interest, or endorsement of commercial products, services, or entities.

10 Partner with local groups to develop a hut-to-hut system where compatible with other resources.

11 Partner with agencies, organizations and support groups to maintain the Flathead NF Backcountry Administrative Facilities Historic District on the forest.

12 Coordinate with scientists from Rocky Mountain Research Station on the effects of climate change.

13 Cooperative partnerships with other agencies, organizations, outfitter and guides, schools and others support a quality educational program and program delivery.

14 Work towards an all-lands approach to management of species of conservation concern, cooperating with other land managers across the range of a species, including efforts to mitigate threats or stressors and to provide ecological conditions that would support the species.

Cultural and Historical Resources (C&HR)

Desired Conditions (FW-DC-C&HR)

01 Cultural resources (e.g., buildings, sites, districts, structures, and objects) having scientific, cultural, or social values are preserved and protected for their cultural importance. Removal of a cultural resource may occur after site specific review and consultation with the State Historic Preservation Office. Site integrity and stability is protected and maintained on sites that are susceptible to imminent risks or threats, or where the values are rare or unique. Heritage assets are stable and their significant values protected. Vandalism, looting, theft, and human-caused damage to heritage resources are rare. Site significance and integrity are maintained through conservation and preservation efforts and receive minimal impact from visitors.

02 Traditional cultural properties, cultural landscapes, sacred sites, and other culturally significant areas identified by tribes and local communities provide tangible links to historically rooted beliefs, customs, and practices. These resources are protected through consultation with American Indian tribes, traditional cultural practitioners, consulting parties, and project design.

03 Cultural resources provide educational opportunities that connect people, past and present, to the land and its history. Through positive heritage experiences provided by interpretive sites, historic standing structures and other materials, the public has an appreciation for the region's history and develops an awareness of preservation efforts. In some cases, historic routes (e.g., railroad grades) are used for recreation trails with interpretation of their history and some historic features. Heritage-based recreation opportunities are connected, where practical, with other recreation opportunities such as trails.

04 Public enjoyment is enhanced by opportunities to visit interpretive cultural resource sites. Archaeological research contributes to knowledge about ancient American Indian history and provides a valuable perspective on past climate and environment. Archaeological site etiquette

information is readily available to national forest visitors. Interpretation of the human history of the forest promotes greater public understanding of the communities that have depended on this landscape for their livelihood, recreation and spiritual wellbeing.

05 Opportunities exist for volunteers to participate in cultural resource conservation activities such as research, site stabilization, conservation, and interpretation. Cultural resource programs, interpretive presentations, or publications are available to provide the public with opportunities to learn about, understand and experience the forest's past.

06 Sites identified as significant, under the National Historic Preservation Act, are inventoried, protected, and, if warranted, nominated to the National Register of Historic Places. Restored historic buildings placed on the Forest Service facility rental program add to forest recreation program capacity and diversity and generate revenue. Historic Forest Service administrative buildings are maintained to reflect agency history, identity, and function.

Objectives (FW-OBJ-C&HR)

01 Annually complete an inventory of 50 to 100 acres containing, or predicted to contain, highly valuable, threatened, or vulnerable cultural resources (non-project acres).

02 Evaluate and nominate four to eight significant cultural resources to the NRHP or develop five historic contexts, overviews, thematic studies, or cultural resources property preservation plans to help guide management and use of National Register eligible or listed properties, districts, traditional cultural properties, and cultural landscapes.

03 Annually complete one public outreach or interpretive project that enhances public understanding and awareness of cultural resources and/or history of the plan area.

Guidelines (FW-GDL-C&HR)

01 Cultural resource protection provisions should be included in applicable contracts, agreements, and special use permits for National Register-listed or eligible properties.

Areas of Tribal Importance (TRIB)

Desired Condition (FW-DC-TRIB)

01 The Forest recognizes and maintains culturally significant species and the habitat necessary to support healthy, sustainable, and harvestable plant and animal populations to ensure that rights reserved by Tribes are not significantly impacted or diminished.

02 The Forest recognizes, ensures, and accommodates tribal member access to the Forest for the exercise of treaty rights and to provide opportunities to practice traditional, cultural, and religious activities, such as plant gathering and ceremonial activities that are essential to sustaining their way of life, cultural integrity, social cohesion, and economic well-being.

Objectives (FW-OBJ-TRIB)

01 Management of traditional cultural areas, through the development of two to five management plans, in consultation with the tribes.

02 Ongoing government-to-government and staff consultation for each federally recognized Tribe with historical or treaty interests in Flathead NFS lands, through a cooperatively established tribal consultation protocol.

Guidelines (FW-GDL-TRIB)

01 Consult with Tribes when management activities may impact treaty rights and/or cultural sites and cultural use, according to the consultation protocol.

Human Uses and Designations of the Forest

Recreation Settings and Opportunities

Introduction

Developed and dispersed recreation encompasses a broad and diverse range of activities. On the Flathead NF, there is a variety of recreation opportunities, including motorized and non-motorized travel, horse-back, hiking, hunting, fishing, camping, Nordic skiing, downhill skiing, snowmobiling, viewing natural features, driving for pleasure, mountain biking, floating and recreational boating, berry picking and viewing wildlife

Demographic and population studies show that visitation to the forest and adjacent public land will continue to grow. The Flathead Valley and surrounding areas continue to experience high growth and development. With the increasing numbers of recreationists, the Flathead NF faces the task of managing the land in a way that offers a wide spectrum of opportunities while minimizing conflict between different user groups and effects on the environment.

Summer Recreation (SREC)

Introduction

The Forest's summer recreation settings range from primitive and unroaded backcountry areas that offer solitude and quiet recreation, to roaded settings that connect communities to the forest and offer visitors the opportunity to roam vast distances or gather and socialize with family and friends. Historic log cabins/ranger stations and fire lookouts offer visitors a chance to learn about and experience the rich heritage of early Euro-American settlers. The social, managerial, and physical attributes of the forest's recreation settings are managed to ensure these opportunities are available for future generations to enjoy.

Desired Conditions (FW-DC-SREC)

01 Summer recreation opportunities provide a range of settings as described by the recreation opportunity spectrum (ROS). The desired distribution of ROS settings are displayed in figure C-12 and summarized in table 17.

Table 17. Acres and percent of desired summer recreation opportunity spectrum classes

Summer ROS classification	Percent
Primitive	53%
Semi-primitive non-motorized	20%
Semi-primitive motorized	3%
Roaded Natural	25%
Rural	<1%
Urban	0%

02 Summer primitive ROS settings encompass large, wild, remote, and predominately unmodified landscapes. These settings often coincide with designated and recommended wilderness and inventoried roadless areas. Additional primitive ROS settings are scattered across the forest and surrounded by semi primitive non-motorized settings. Primitive ROS settings contain no motorized recreation and little probability of seeing other people. Summer primitive settings provide quiet solitude away from roads and people, are generally free of human development, and facilitate self-reliance and discovery. Historic structures such as log ranger stations and fire lookouts are occasionally present. Signing, and other infrastructure is minimal and, when used, are constructed of rustic, native materials.

03 Summer semi-primitive non-motorized ROS settings provide opportunities for exploration, challenge, and self-reliance. Rustic structures such as signs and foot bridges are occasionally present to direct use and/or protect the setting's natural and cultural resources. These rustic constructed features are built from native materials or those that mimic native materials. Closed roads may be present but do not detract from the SPNM experience of visitors.

04 Summer semi-primitive non-motorized settings are generally free of motorized recreation travel but mechanized travel may be present.

05 Summer semi-primitive motorized ROS settings provide motorized recreation opportunities in backcountry settings. Routes are designed for off highway vehicles (OHVs) and high clearance vehicles that connect to local communities, access key destinations and vantage points, provide short day trips on scenic loops or facilitate longer and even overnight, expeditions. Visitors challenge themselves as they explore vast, rugged landscapes. Mountain bikes and other mechanized equipment may also be present. Facilities are rustic and are used for the purpose of protecting the setting's natural and cultural resources. Bridges are sometimes present to accommodate foot, horse and OHV traffic but are built from native or natural appearing materials that blend with the surrounding landscape and maintain the semi-primitive character of the setting. There may also be narrow corridors that function as portals for visitors to park their OHVs and explore adjacent semi-primitive non-motorized and primitive settings on foot or bicycle.

06 Summer roaded natural ROS is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. Sanitation, potable water, interpretive signing, and other amenities are strategically placed to serve as destination points and/or portals to adjacent backcountry settings. Signing, facilities, bridges and other infrastructure are constructed of native materials or natural appearing materials that blend with and compliment the surrounding natural setting

07 Summer rural ROS settings are high-use areas such as Whitefish Mountain Resort. These highly structured and hardened settings accommodate large group gatherings and serve as day-use destinations. Family reunions, weddings, and local special events often take place here. These settings also function as outdoor classrooms for interpretive programs and other structured learning. Roads and parking areas are generally paved and structures and facilities provide shelter, sanitation, potable water and other amenities.

Winter Recreation (WREC)

Introduction

Recreation settings change as snow blankets Forest's landscapes. While some settings become less accessible and more remote, others change from non-motorized to accommodating over-snow vehicles.

Although the full range of settings, primitive to rural, are still present, their location, distribution and percentages change significantly during the winter months. Primitive and semi-primitive non-motorized backcountry settings offer solitude and quiet recreation for those accessing the forest on skis, snowshoes, or snow boards. Semi-primitive motorized settings cover large expanses of the forest, offering over-snow vehicles the chance to explore areas of the forest that are often non-motorized in the summer months. Roaded natural and rural settings continue to serve as convenient connections to surrounding communities and easy access to visitors. Fewer facilities are operated to provide user comfort. Groomed motorized and non-motorized trails offer users the chance to get outside for a day trip or take longer, cross-country excursions. Rental cabins are available although some require a ski in or over-snow vehicle trip to access them.

Desired Conditions (FW-DC-WREC)

01 Winter recreation opportunities provide a range of settings as described by the ROS. The desired distribution of ROS settings are displayed in figure C-13 and summarized in table 18.

Table 18. Acres and percent of desired winter recreation opportunity spectrum classes

Winter recreation opportunity spectrum classification	Percent
Primitive	52%
Semi-primitive non-motorized	10%
Semi-primitive motorized	33%
Roaded Natural	4%
Rural	<1%
Urban	0%

02 Winter primitive ROS settings are large, remote, wild, and predominately unmodified. Winter primitive ROS settings provide quiet solitude away from roads, and people. There is no motorized activity and little probability of seeing other people. Constructed trails that are evident in the summer months are covered by snow, making these settings appear even more natural and untouched by human management.

03 Winter semi-primitive non-motorized ROS settings provide backcountry skiing, snowboarding, and snowshoeing opportunities. Trails are un-groomed and often not marked. Rustic facilities, such as historic cabins, yurts may exist but are rare.

04 Winter semi-primitive motorized ROS settings provide backcountry skiing and snowmobiling opportunities. Routes are typically un-groomed but are often signed and marked. There are vast areas to travel cross-country, offering visitors an opportunity for exploration and challenge. Occasionally, historic cabins or warming huts are available for short breaks or overnight use.

05 Winter roaded natural ROS settings support higher concentrations of use, user comfort, and social interaction. The road system is plowed and accommodates sedan travel. Winter trails are routinely groomed and may have ancillary facilities such as warming huts and restrooms. System roads and trails often provide staging to adjacent backcountry settings (primitive, semi-primitive non-motorized, semi-primitive motorized). Guided snowmobiling, dog sledding, skiing, and snowshoeing may also be present.

06 Winter rural ROS settings provide high use ski areas such as Blacktail Mountain and Whitefish Mountain Resort. These areas are accessed from paved and plowed roads and are generally close to

population centers. Warming huts or other shelters, sanitation, and information and education are commonly present. Parking areas are large and plowed. Entry points and routes are signed and lead over-snow vehicles to adjacent roaded natural and semi-primitive motorized settings. Non-motorized trails are also typically groomed for Nordic skiing. Rural winter settings provide access for communities and families to celebrate holidays, conduct racing events, and skiing.

Recreation—General (REC)

Desired Conditions (FW-DC-REC)

01 Within the NCDE PCA, the number, capacity, and improvements of developed recreation sites provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on National Forest System lands.

02 The development scale of recreation facilities is consistent with the desired ROS settings and with recreation corridor, river management, or trail management plans.

03 Recreation facilities including toilets, cabins, trailheads, river portals, airstrips, developed campgrounds and visitor centers are maintained to standard to protect forest resources and provide visitor experiences commensurate with the ROS setting.

04 Recreation facilities and programs incorporate universal design concepts and meet the current Forest Service accessibility guidelines.

05 Human-bear conflicts are minimized through proper food and garbage storage where food/garbage is unavailable to bears, and information and education on recreating in bear country that reaches visitors prior to their arrival on forest as well as at areas of concentrated recreation use.

06 Livery services on the Forest are provided based on identified public need, protection of resource conditions, and are compatible with other resources.

07 New and existing outfitter and guide services respond to public needs, facilitate safe access and provide opportunities for visitors to connect with and learn about the cultural and natural resources of the area.

08 Opportunities for outdoor recreation, such as hunting, fishing, wildlife viewing, driving for pleasure, berry picking, hiking, firewood gathering, and bird watching are available for a wide variety of users.

09 A variety of motorized and non-motorized winter and summer recreation opportunities are available. Trailheads are strategically located to provide safe, convenient staging to adjacent backcountry settings throughout the year.

10 Recreation activities across the seasonal settings contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area.

11 There is a sustainable level of developed and dispersed recreation opportunities where environmental impacts are minimal. Dispersed and developed recreation opportunities are compatible with the desired ROS setting and are managed to minimize user conflicts. Developed recreation sites are clean, safe and provide for user comfort.

12 Existing developed sites are maintained and updated to accommodate current and anticipated - recreation needs.

13 New and existing special-use permits serve public interest, meet national standards and complement the recreation settings and opportunities. Recreation special uses are used as a tool to provide

desired recreation opportunities, are compatible with the ROS setting(s) in which they're permitted, help protect the Forest's cultural and natural resource values, contribute to local economies, and connect people with nature.

14 Outfitters and guides on the Flathead NF provide high quality public service, assure public health and safety, protect natural resources, avoid degradation of the social setting and minimize conflict with other users. Their knowledge of the area's cultural and natural resources are important to the delivery of quality, nature and heritage-based opportunities that instill an appreciation and land ethic to clientele.

15 The Forest provides recreational cabin rentals that are clean, safe, and compatible with other resources.

16 Developed trailheads and river access sites provide appropriate access and parking for the type of recreation use.

17 Additional groomed snowmobile routes are provided that meet the ROS class where compatible with other resources.

18 Provide groomed non-motorized winter trail systems that accommodates existing and anticipated - demand for this type of winter recreational opportunity where compatible with other resources.

Objectives (FW-OBJ-REC)

01 Rehabilitate 5 to 7 dispersed recreation sites on the Forest with erosion or sanitation issues.

02 Provide bear-resistant food storage devices at developed campgrounds.

03 Improve 7-12 developed campgrounds. See GA-OBJ for specific numbers.

04 Add 2-4 recreational cabin rentals on to the National Reservation System.

Standards (FW-STD-REC)

01 Within the NCDE PCA, the number of developed recreation sites that are open during the non-denning season shall be limited to one increase to the baseline (see glossary) per decade per bear management unit (BMU) or one increase in overnight capacity per decade per BMU, with the following exceptions:

- a change in the number or overnight capacity of developed recreation sites is necessary to comply with Federal laws (e.g., Federal Rehabilitation Act);
- a change in the number or overnight capacity of developed recreation sites is necessary to address grizzly bear–human conflicts, resource damage, or human safety concerns;
- a change in the number or overnight capacity of developed recreation sites is made that has been evaluated through the USFWS Section 7 consultation process and was shown to be acceptable while grizzly bears were listed as Threatened under the ESA;
- the Forest Service adds a developed recreation site or increases the overnight capacity of a developed recreation site, but reduces the overnight capacity by an equal amount at another recreation site(s) in the same BMU, so that there is no net increase in overnight capacity in the BMU;

- the Forest Service increases the overnight capacity of a developed recreation site, but consolidates and/or eliminates dispersed camping of equal capacity within the same BMU;
- the Forest Service exchanges, buys or sells lands with developed recreation sites.

02 New motorized routes or areas shall not be designated in primitive or semi-primitive non-motorized desired ROS settings (winter and summer).

03 Within the NCDE PCA, new or re-authorized 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.

Guidelines (FW-GDL-REC)

01 Within the NCDE PCA, if changes are proposed that increase the number or capacity of developed recreation sites that are open during the non-denning season above the baseline (see glossary), one or more measures to reduce the risk of grizzly bear–human conflicts should be incorporated into the proposal and should be in place before or concurrent with the implementation of the project.

02 To maintain quality and quantity of water flows to, within, or between GDEs, groundwater use developments (e.g., recreation and administrative sites, drinking water wells, waste water facilities) should not:

a) Be developed in RHCAs;

b) Measurably lower river flows, lake levels, or flows to wetlands or springs (e.g., change springs from perennial to intermittent, or eliminate springs altogether); and/or

c) Discharge pollutants directly to groundwater.

03 To protect resources, new and reconstructed solid and sanitary waste facilities should be located outside of RHCAs.

04 To maintain or improve high quality winter lynx habitat at a landscape scale, there should be no net increase in miles of designated over-the-snow routes or acres of designated play areas in mapped lynx habitat at a forestwide scale. Locations of designated routes or areas may be shifted across the forest in order to consolidate use, improve enforcement of closed routes or areas, or to open an area of lower quality lynx habitat in exchange for closing an equivalent acreage area of equal or higher quality lynx habitat.

05 To reduce or mitigate potential conflicts between wildlife and event participants as well as with other recreationist, recreation events, group use permits, and commercial activities (see glossary) should include permit measures that address potential conflicts such as but not limited to: location of the event, timing of the event, party size, and education on reduction of human-bear conflicts.

Scenery (SCN)

Introduction

The Forest's scenery contributes to the identity and sense of place for local communities by serving as the backdrop and backyard to residents. The Forest's scenery is a significant attraction to visitors. The magnificent mountain vistas, meandering rivers, and forested settings are featured by state and local marketing efforts and contribute to the economic sustainability of communities.

Desired Conditions (FW-DC-SCN)

01 The Forest's scenery reflects healthy resilient landscapes and exhibits attributes of the scenic character descriptions. Mountain silhouettes, winding rivers, and vast expanses of natural appearing forests enhance the quality of life for residence and visitors.

02 The Forest's scenery provides a range of scenic quality as described by the scenic integrity objectives. The desired distribution of scenic integrity objectives (SIOs) is displayed in figure C-14 and summarized in table 19.

03 The rich heritage of the area is apparent—historic cabins and fire lookouts dot the landscape, adding to the unique scenic character of the area. More modern facilities reflect the architectural character of the area and utilize materials that blend with the natural settings.

Table 19. Scenic integrity objectives for the Flathead NF

Scenic integrity objective	Percent
Very High	53%
High	16%
Moderate	14%
Low	17%
Very Low	<1%

Guidelines (FW-GDL-SCN)

01 To ensure consistency with the scenic character of the Rocky Mountain Region, the construction or reconstruction of Forest Service facilities should be consistent with the Built Environment Image Guide.

02 To be consistent with the Forest's SIOs, deviations that are visible in some areas of the forest should generally be subordinate to the surrounding natural landscape and diminish over time. The maximum degree of deviation should be consistent with the Forest's SIOs.

03 To maintain the forest's scenic character (defined by geographic areas in the FNF Assessment), vegetation management activities should be designed to reflect natural disturbance regimes and processes and minimize visible contrasts with the scenic character.

Infrastructure (IFS)

Introduction

The Flathead's infrastructure (i.e., roads, trails and facilities) includes approximately 1,420 miles of open roads and 2,260 miles of system trails that were constructed to support forest management activities, such as fire suppression, timber harvesting, and recreation.

In the last few decades, funding has not been sufficient to maintain all forest roads to national standards that are important for minimizing resource impacts. Trail maintenance is generally focused on high-use trails. Overall, fewer trails are being maintained to standard.

Recreation use and the demand for motorized and non-motorized access, especially loop trails, have increased. Advances in performance and technology have resulted in increased use during summer and winter by OHVs, mountain bikes, and over-snow vehicles.

Desired Conditions (FW-DC-IFS)

01 Within the NCDE PCA, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands while providing open motorized route density (OMRD), total motorized route density (TMRD) and secure core levels that contribute to sustaining a recovered grizzly bear population in the NCDE.

02 Motor vehicle use designations are complete and motorized vehicle use maps are available. User conflicts are minimized. Loop opportunities are a part of both the road and trail systems. Community involvement is promoted and user awareness programs (educational and informational) enhance the recreational experience. Partnerships are developed with various interest and user groups to participate in evaluation, planning, and maintenance programs for both roads and trails.

03 Easements provide access to NFS lands.

04 The transportation system serves land management and public needs and purposes. It is interconnected with federal, state, and local public roads and trails to provide access to lands, infrastructure, and inholdings where appropriate. Although roads maintained for passenger cars meet public road safety standards, roads maintained for high clearance vehicles may have hazards and require operator judgment and skill to negotiate. Road management objectives (RMOs) and trail management objectives (TMOs) are identified and kept current for all roads. Roads and trails are maintained in accordance with RMOs/TMOs. Roads and trails are connected to state, county, local public, and other federal roads and trails. The transportation system provides reasonable access for program management, and to facilities, private in-holdings, and infrastructure (e.g., buildings, recreation facilities, municipal water systems, reservoirs, electronic and communication sites, and utility lines).

05 Roads not needed to serve management and public needs and purposes are placed in intermittent stored service or decommissioned..

06 The Forests' trail system provides a variety of motorized and non-motorized recreational opportunities during summer and winter that is distributed across the Forest. Trails access destinations, provide for loop opportunities that also connect to a larger trail system, provide linkage from local communities to the Forest, and are compatible with other resources.

07 Forest system trails are sustainably designed and managed to provide a variety of high-quality motorized and non-motorized summer and winter public access that connects people to nature. Trails are maintained in accordance with TMOs.

08 Trails are in the appropriate trail class for existing use levels and use type.

09 A sustainable trail system exists that meets current and anticipated demands, while protecting natural and cultural resources.

10 Access to the national forest is provided to Tribal members for effective exercise of Treaty reserved hunting, fishing, and gathering rights, as well as cultural and religious practices.

11 Road restriction are maintained to be effective.

12 Existing airstrips (Condon, Meadow Creek, Spotted Bear, Schafer) on NFS lands are maintained to provide for quality recreational opportunities and administrative needs.

13 Infrastructure placement avoids permanent loss of Canada lynx habitat or critical habitat.

14 Maintenance along open roads will include application of best management practices to minimize adverse water quality impacts and the felling and removal of hazard trees to minimize risks to safety.

Objectives (FW-OBJ-IFS)

01 Decommission or place into intermittent stored service 30 to 60 miles of roads.

02 Complete 100 to 300 miles of reconstruction or road improvement projects.

03 Maintain up to 1,200 miles of operational maintenance level 2 through 5 roads.

04 Maintain up to 2,260 miles of NFS trails.

05 Reduce deferred trail maintenance backlog by 10-25 percent.

06 Annually, reconstruct 25 to 30 miles of trail.

Standards (FW-STD-IFS)

01 Within the NCDE PCA, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary), as long as it does not exceed either 6 trips (3 round trips) per week OR one 30-day unlimited use period during the non-denning season (see glossary). Exceptions to this standard include:

- Emergency situations as defined by 36 CFR 215.2

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases.

02 In each bear management subunit within the NCDE PCA, there shall be no net decrease in the baseline level (see glossary) for secure core and no net increase in baseline levels for OMRD or TMRD on NFS lands during the non-denning season (see glossary), with the following exceptions:

- temporary use of a motorized route for a project (see " project (in grizzly bear habitat in the NCDE)" in the glossary);
- 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;
- updated/improved data on a motorized route without an actual change on the ground;
- changes in technology or projections result in changed calculations without actual change on the ground (e.g., a switch from NAD27 to NAD83 projection);
- a road closure location is moved a short distance (often <0.25 miles) 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, resource damage, or human safety concerns
- a change is made by an adjacent landowner that decreases secure core or increases motorized route densities on a particular national forest;
- a change in a motorized route is made that has been evaluated through the USFWS Section 7 consultation process and was shown to be acceptable while grizzly bears were listed as Threatened under the ESA;
- emergency situations as defined by 36 CFR 215.2;
- temporary roads (see glossary).

03 In each bear management subunit within the NCDE PCA, temporary changes in the OMRD, TMRD and secure core shall be calculated for projects (see "project (in grizzly bear habitat in the NCDE)" in glossary). The 10-year running average for OMRD, TMRD, and secure core numeric parameters shall not exceed the following limits per bear management subunit:

- 5% temporary increase in OMRD in each subunit (i.e., OMRD baseline plus 5%);
- 3% temporary increase in TMRD in each subunit (i.e., TMRD baseline plus 3%);
- 2% temporary decrease in secure core in each subunit (i.e., secure core baseline minus 2%).

Exceptions to this standard include: emergency situations as defined by 36 CFR 215.2; and contracts, permits, and leases which are subject to existing rights.

The following hypothetical example shows how temporary changes in OMRD, TMRD, and secure core would be implemented for a project:

Example-1a. Values in a bear management subunit for OMRD, TMRD, and secure core for project in years 11 through 14

	Baseline Value	Allowed Value for Project	yr 1	yr 2	yr 3	yr 4	yr 5	yr 6	yr 7	yr 8	yr 9	yr 10	project yr 11	project yr 12	project yr 13	project yr 14	yr 15	yr 16	yr 17
OMRD	19	24	19	19	19	19	19	19	19	19	19	19	31	31	31	31	19	19	19
TMRD	19	22	19	19	19	19	19	19	19	19	19	19	22	22	22	22	19	19	19
Secure Core	69	67	69	69	69	69	69	69	69	69	69	69	63	63	63	63	69	69	69

Example-1b. Using data from Example-1a to show the 10-year running averages for OMRD, TMRD, and secure core before, during, and after project completion

	Before	During				After		
	yr 1-10	yr 2-11	yr 3-12	yr 4-13	yr 5-14	yr 6-15	yr 7-16	yr 8-17
OMRD	19	20	21	23	24	24	24	24
TMRD	19	19	20	20	20	20	20	20
Secure Core	69	69	68	67	67	67	67	67

It should be noted that in this hypothetical example, another project in this subunit would not be possible until year 24, unless that project did not require any changes in values for OMRD, TMRD, or Secure Core.

04 Within the NCDE PCA, restricted roads may be temporarily opened for public motorized use for up to 30 consecutive days to allow authorized uses such as for firewood gathering, provided the period of use occurs outside of spring and fall bear hunting seasons.

05 During dust abatement applications on roads, chemicals shall not be applied directly to watercourses; water bodies (e.g., ponds, lakes); or wetlands.

Guidelines (FW-GDL-IFS)

01 In each bear management subunit within the NCDE PCA, projects (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 in a 10-year period, to reduce the potential for grizzly bear disturbance or displacement.

Exceptions to this guideline include:

- contracts, permits, and leases which are subject to existing rights;
- prescribed burning (including slash disposal), best management practices to protect water quality, and required reforestation activities;
- emergency situations as defined by 36 CFR 215.2.

If an extension to the 5-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.

02 Within the NCDE PCA, secure core and motorized route density values (OMRD and TMRD) should be restored to pre-project levels (as defined by "project in grizzly bear habitat in the NCDE" in the glossary) within 1 year after completion of the project, in order to reduce the duration of grizzly bear displacement or disturbance due to project-related activities. Exceptions to this guideline include:

- contracts, permits, and leases which are subject to existing rights;
- prescribed burning (including slash disposal), best management practices to protect water quality, and required reforestation activities;
- emergency situations as defined by 36 CFR 215.2.

If an extension to the 1-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.

03 Routes (e.g., roads, skid trails, temporary roads, and trails) should have a water drainage system that is hydrologically disconnected from delivering water, sediment, and pollutants to water bodies, (except at designated stream crossings) to maintain the hydrologic integrity of watersheds .

04 To maintain and/or improve watershed ecosystem integrity, and reduce road-related mass wasting and sediment delivery to watercourses, new and relocated road, trail, (including skid trails and temporary roads) and other linear features[9] should avoid lands with high mass wasting potential.

[9] Linear features include powerline right of ways and utility corridors

05 To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges and other stream crossings) should:

a. Accommodate at least a 100-year recurrence interval discharge, including associated bedload and debris, and
b. Prevent diversion of stream flow out of the channels in the event the crossing is plugged or has a flow greater than the crossing was designed.

06 To maintain channel stability and reduce sediment delivery to watercourses, trails and fords crossing streams should be harden the stream bed, banks, and approaches.

07 To reduce sediment delivery to watercourses, soil should not be side-cast into watercourses. Care should be taken when plowing snow so as not to include road soil and breaks should be designed in the snow berms to allow water to route off of the road.

08 New, replacement, and reconstructed stream crossing sites should be designed to provide and maintain fish passage where native fish, or other desired aquatic organisms, are present except where it is desirable to maintain or create barriers to prevent spread of undesirable species.

09 Methods to avoid or reduce effects on lynx should be used in mapped lynx habitat or critical 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 in human activity or development.

10 Cutting brush along low speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

11 To provide safe and functioning airstrips, management and maintenance of all airstrips should follow Federal Aviation Administration recommendations.

Lands and Special Uses (LSU)

Introduction

Management of NFS lands on the Flathead NF is important to protect the public's estate interest in its national forest. Surveying and posting the national forest boundary, maintaining posted property lines, and defending public lands from trespass or encroachment are activities that maintain the integrity of the NFS. About 1,050 miles of property boundary lines have been surveyed, marked and posted, out of 1,430 total miles (73 percent complete). Approximately 610 miles of non-property boundaries such as wilderness boundaries, have been identified as needing to be surveyed and posted.

Land ownership adjustments are one of the tools used to simplify and improve management of NFS lands. The acquisition, protection, and management of road and trail rights-of-way also ensure public access to NFS land.

Special use permits authorize the occupancy and use of NFS land by private individuals or companies for a wide variety of activities, such as roads, utility corridors, communication sites, and other private or commercial uses, that cannot be accommodated on private lands.

Desired Conditions (FW-DC-LSU)

01 Land ownership adjustments, through purchase, donation, exchange, or other authority, are encouraged to simplify and improve national forest management (e.g., consolidate ownership, reduce grizzly-human conflicts, and provide for wildlife habitat connectivity).

02 Existing road and trail easements that allow access to NFS land are maintained and additional easements are acquired as necessary.

03 Utility corridors and communications sites use existing facilities, sites, and corridors unless new sites can provide better social, economic, and ecological benefits.

04 Utility corridors and communications sites are sized to fit the intended use and obsolete or unused facilities are not present on the landscape.

05 NFS property lines adjacent to private land and boundaries of special areas such as designated wilderness lands are clearly marked where inadvertent trespass and encroachment is most likely.

06 Conservation easements are managed to standard, and opportunities are explored for purchasing additional easements to maintain and protect wild and scenic river values.

07 Occupancy trespass on NFS lands does not exist.

08 Special use authorizations meet forest management and public needs consistent with the ROS and ecosystem desired conditions.

09 The existing recreation residences special-uses would continue to be permitted on the Forest.

Guideline (FW-GDL-LSU)

01 Special use authorizations in the PCA should have permit requirements that reduce or limit the risk of grizzly bear-human conflicts.

Special Designations

Introduction

Special designated areas are identified on the Flathead NF because of their unique or special characteristics. The Flathead NF currently has congressionally designated wild and scenic rivers, wilderness areas, national recreation trails, the Pacific Northwest National Scenic Trail and the Continental Divide Scenic Trail. Administratively designated areas include inventoried roadless areas, RNAs, botanical and other special areas.

Refer to chapter 3, management area direction, for plan components relating to wilderness, wild and scenic rivers, and other special designated areas.

National Scenic Trails (NST)

Background

Congressionally designated national trails are a network of scenic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement. These trails are generally are single track, linear

features that pass through a great variety of physical features, ranging from natural-appearing settings to locations where developments are noticeable. There are two national trails on the Forest: the Continental Divide National Scenic Trail (CDNST) that includes 18 miles on the Forest and the Pacific Northwest National Scenic Trail (PNST) that includes 28 miles on the Forest. Management of the CDNST is outlined in the *2009 Continental Divide National Scenic Trail Comprehensive Plan*. Refer to figure C-15 for a map of these trails.

Desired Conditions (FW-DC-SD NST)

01 National scenic trails outside wilderness are clearly marked and identified for users with the national recreation or scenic trail symbol, especially at the trail termini and junctions with side trails. Access allows for public use, interpretation, and education of the specified feature of the trail in a manner that does not impair the feature(s) for which the individual trail was established.

02 The PNST provides unique pathway that travels through some of the most spectacular and scenic terrain in the United States and connects people and communities of the Pacific Northwest. The PNST provides conservation and enjoyment of the nationally significant scenic, historic, natural, and cultural qualities of the areas through which it passes through.

03 The CDNST provide for high-quality scenic, primitive hiking and horseback riding opportunities and to conserve natural, historic, and cultural resources along the CDNST corridor.

Standards (FW-STD-SD NST)

01 No surface occupancy for oil and gas leasing activities occurs and no common variety mineral extraction occurs within the national trail corridor. Reference 16 U.S. C. 1244(a) for the PNST corridor

Guidelines (FW-GDL-SD NST)

01 To maintain the outstanding features of the CDNST and the PNST and be compatible with the surrounding environment, facilities, trail facilities should blend in with the surrounding environment. Where the trail leads to an outstanding destination feature, the qualities of that feature are preserved.

02 To maintain and protect the scenic qualities of the PNST and the CDST, management activities should be consistent with the scenic integrity objective of high to very high.

Ecosystem Services (ECOS)

Ecosystem services are best described as the combination of forest resource management with multiple use. Thus, an ecosystem services perspective of the forest would encourage natural resource managers to consider the classification of multiple use to include a broader array of services or values, such as managing for water, wildlife, timber, and recreation to address the need to sustain "provisioning" services, while also being stewards of regulating, cultural, and supporting services. The benefit to people (i.e., the goods and services provided) is what differentiates ecosystem services from the ecosystem itself. The *Assessment of the Flathead NF* identifies the following key ecosystem services provided by the forest:

- Water quality and quantity and flood control
- Clean air
- Outdoor recreation
- Scenery

- Fish and wildlife (i.e., habitat for these species)
- Cultural/heritage values, inspiration, spiritual values and solitude
- Hunting, trapping, fishing, and wildlife viewing
- Research and education
- Carbon sequestration and climate regulation
- Forest products such as wood products and huckleberries

This section covers the last four services on the list as the other ecosystem services are discussed in other sections of the proposed action (see the aquatic, air quality, recreation, wildlife and cultural sections).

Hunting, Trapping, Fishing, and Wildlife Viewing (WL)

Desired Conditions (FW-DC-ECOS WL)

01 Habitat management supports SOPI for hunting (e.g., elk, deer, moose, mountain goat, bear, wolf) and trapping (e.g., marten, wolf) at levels meeting Montana Fish Wildlife and Parks species management objectives and provides for Salish-Kootenai Tribal treaty rights. Also see FW-STD-TE&V and FW-GDL-TE&V.

02 Habitat management supports SOPI for viewing (e.g., citizen science activities such as amphibian and raptor surveys as well as individual observations of species such as the pika).

03 Diverse opportunities exist for hunting, trapping, wildlife viewing, and fishing on Forest lands. Examples include assisted outfitted/guided and unassisted, motorized and non-motorized opportunities.

04 Levels and types of hunter or trapper access are balanced with desired conditions for wildlife populations and habitat security.

Research and Education (R&E)

Desired Conditions (FW-DC-ECOS R&E)

01 Interpretation and education opportunities enrich the visitor's experience and understanding for the natural and cultural history of the Forest.

02 Conservation Education Interpretive and Visitor Information programs provide opportunities for visitors, youth, and communities to appreciate and understand the Forest's natural and cultural resources and learn how to conserve those resources for future generations.

03 Education, interpretive and information programs and activities connect people to the forest environment and foster a sense of place and stewardship.

04 Focused education activities engage youth in hands-on outdoor experiences and support educators in teaching science and natural resource topics.

05 Diverse methods and media are used for program delivery including making best use of new technologies to help maintain audience relevancy in the areas of social media, web/internet presence, self-guided media using smart phones and other devices.

06 Research and subsequent results continues to provide information and guide management about ecological, social, and economic conditions across the landscape.

Regulating Services: Baseline carbon stocks (REG)

Desired Conditions (FW-DC-ECOS REG)

01 Carbon storage and sequestration potential is sustained through maintenance or enhancement of ecosystem biodiversity and function, and managing for resilient forests adapted to natural disturbance processes and changing climates.

Forest Vegetation Products: Timber (TIMB)

Introduction

The planning rule requires identification of lands that are suited and not suited for timber production, based on several factors that include legal withdrawal (e.g., timber production prohibited due to statute, Executive order, etc.), technical factors (non-forest lands, geology or soil conditions, etc.), and compatibility with desired conditions and objectives stated in the plan (forest-wide or management area plan components). Table 20 displays the timber production suitability classification for the proposed action. Refer to figure C-16 for a depiction of timber suitability forestwide.

Table 20. Timber production suitability classification

Land Classification Category	Acres[a]
A. Total National Forest System lands in the plan area	2,393,411
B. Lands not suited for timber production due to legal withdrawals (e.g. designated wilderness, inventoried roadless areas) or technical criteria (e.g. non-forest types, landtypes or soil conditions)	1,647,399
C. Lands that ***may* be suited** for timber production (A-B)	746,012
D. Total lands **suited** for timber production because timber production is compatible with the desired conditions and objectives (proposed MAs 6b, 6c and portions of MA 7. Excludes areas not suited based on technical criteria in 'B')	500,733
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (proposed MAs identified as not suitable for timber production and Riparian Habitat Conservation Areas) (C-D)	246,279
F. Total Lands **not suited** for timber production (B+E)	1,892,677

[a] Acres are from GIS dataset and analyses. The official acres for NFS lands can be found in the land area report, http://www.fs.fed.us/land/staff/lar-index.shtml .

Per the National Forest Management Act (NFMA) and planning rule regulations, the quantity of timber that may be sold must be less than or equal to the potential sustained yield limit (SYL). The SYL is the amount of timber, meeting applicable utilization standards, "which can be removed from [a] forest annually in perpetuity on a sustained-yield basis" (NFMA at section 11, 16 USC 1611; 36 CFR 219.11(d)(6))). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the SYL is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity.

To clearly display the intended timber program, the plan must identify the projected wood sale quantity (PWSQ) and the projected timber sale quantity (PTSQ). The PWSQ is the estimated output of timber and

all other wood products expected to be sold during the plan period for any purpose (except salvage harvest or sanitation harvest) on all lands in the plan area. The PTSQ is the portion of the PWSQ that is the quantity that meets applicable utilization standards. Both the PWSQ and the PTSQ are based on the fiscal capability and organizational capacity to achieve the desired conditions and objectives in the plan for the plan period. Fiscal capability and organizational capacity is based on current budget levels.

Initial Spectrum modelling efforts calculates a PTSQ of approximately 58 MMCF in the first decade of the plan period (28.3 MMBF average annual volume), which would move vegetation toward desired conditions while considering multiple resource objectives. The PWSQ is estimated at approximately 62 to 70 MMCF in the first decade of the plan period (30.3 to 34.3 MMBF average annual volume). These timber volume outputs are less than the SYL.

Desired Condition (FW-DC-ECOS TIMB)

01 Production of timber contributes to ecological sustainability, and associated desired conditions and contributes jobs and income to the local economy. A sustainable mix of timber products (including both sawtimber and non-sawtimber) is offered under a variety of harvest and contract methods in response to market demand.

02 In areas suitable for timber production, dead or dying trees (due to fire, insects, disease) are salvaged to recover as much of the economic value of the wood as possible while achieving desired conditions for burned wildlife habitat, snags, and downed woody retention(refer to FW-DC-TE & V-16, and 19 through 21).

03 Lands identified as suitable for timber production have a regularly scheduled timber harvest program that provides jobs and income while achieving ecosystem health and sustainability.

04 Lands identified as not suitable for timber production, but where timber harvesting could occur for other multiple-use purposes, have an irregular, unscheduled timber harvest program. Harvest meets management direction and desired conditions for the area, while providing services and benefits to people.

05 Forest conditions on lands suitable for timber production are conducive to providing desired timber outputs at a sustainable level, and vegetation treatments are designed to move forests towards desired conditions (such as size classes, forest landscape patterns, tree densities, and resilience to insects and disease). A variety of silvicultural practices are used to achieve desired conditions, including regeneration harvest, thinning and fire (wildfire and prescribed fire).

06 Natural ecosystem disturbances (e.g. fire, insects, disease) occur within forests on the lands suitable for timber production, though loss of the timber resource to these disturbances is generally low.

07 Soil impacts are minimized and previously managed areas that have incurred detrimental soil disturbance recover through natural processes and/or restoration activities. Organic matter and woody debris, including large diameter logs, tops, limbs, and fine woody debris, remain on site after vegetation treatments in sufficient quantities to retain moisture, maintain soil quality, and enhance soil development and fertility by periodic release of nutrients as they decompose. Refer also to Soils section of this plan.

Objectives (FW-OBJ-ECOS TIMB)

01 Annually, offer timber for sale at an average PTSQ of 28.3 MMBF.

02 Annually, offer commercial timber and other products for sale at an average annual PWSQ of 6.2 to 7.0 MMCF (30.3 to 34.3 MMBF).

Standards (FW-STD-ECOS TIMB)

01 Timber shall not be harvested on lands where soil, slope or other watershed conditions may be irreversibly damaged, as identified in project specific findings.

02 Timber harvest activities shall only be used when there is reasonable assurance of restocking within 5 years after final regeneration harvest. Restocking level is prescribed in a site-specific silvicultural prescription for a project treatment unit and is determined to be adequate depending on the objectives and desired conditions for the Plan area. In some instances, such as when stands are treated to reduce fuel loadings, to create openings for scenic vistas or to prevent encroaching trees to meet desired vegetation conditions, it is acceptable not to restock or restock at low tree densities.

03 Harvesting systems shall not be selected based solely on their ability to provide the greatest dollar return.

04 Clearcutting shall be used as a harvest method only where it has been determined to be the optimum method, and other types of even-aged harvest shall be used only where determined to be appropriate. Determinations shall be based on site specific conditions and the desired conditions for vegetation, wildlife habitat and other resources.

05 The quantity of timber that may be sold per decade will be less than or equal to the SYL with the following exceptions; salvage or sanitation harvesting of timber stands that are substantially damaged by fire, windthrow, or other catastrophe or which are in imminent danger from insect or disease attack . Salvage harvest of trees substantially damaged by fire, windthrow, or other catastrophe or in imminent danger from insect or disease attack may be harvested over and above the SYL, consistent with desired conditions for terrestrial ecosystems.

06 Even-aged stands shall generally have reached or surpassed culmination of mean annual increment (achieving 95 percent of culmination of mean annual increment, as measured by cubic volume) prior to regeneration harvest, unless the following conditions have been identified during project development:

a. When such harvesting would modify fire behavior to protect identified resource, social or economic values.

b. When harvesting of stands will trend landscapes toward vegetation desired conditions.

c. When harvest is uneven-aged silvicultural systems, thinning, or other intermediate stand treatments that do not regenerate even-aged or two-aged stands.

d. When harvest is for sanitation or salvage of timber stands that have been substantially damaged by fire, wind-throw, or other catastrophe or which are in imminent danger from insect or disease attack.

e. When harvest is on lands not suited for timber production and the type and frequency of harvest is due to the need to protect or restore multiple use values other than timber production.

07 The maximum size opening on Flathead NFS lands created by clearcutting, seedtree cutting, shelterwood seed cutting or other cuts designed to regenerate an even-aged stand of timber in one harvest operation shall be 40 acres. An opening is defined as a forest patch in a seedling/sapling size class (average stand d.b.h. less than 5 inches) created by even-aged harvest methods (i.e.

clearcut, seedtree or shelterwood seed cutting). Legacy or reserve trees left to meet other desired conditions are not counted in the calculation of size class for determining the seedling/sapling classification. This standard applies to new harvest proposals only and need not consider existing recently created openings on Flathead NFS lands, adjacent private or other agency lands.

Exceptions to create harvest openings larger than 40 acres as a result of one harvest operation may occur where necessary to help achieve desired conditions, guidelines or standards, as documented throughout this plan. Plan components connected with determination of appropriate size of harvest openings include desired conditions, standards or guidelines for forest patterns and patch sizes (FW-DC-TE&V-11), scenery (FW-DC-SCN-01, GDL-03), stand or landscape resilience (FW-DC-TE&V-03, 08; FW-GDL-TE&V-04, 06), or lessening impacts due to disturbances (FW-DC-ECOS TIMB-06). Maximum opening sizes applicable to this exception are displayed in table 21. Appendix B describes management strategies that are applicable to this standard.

Table 21. Maximum opening size exception created by even-aged harvest in one harvest operation

Biophysical Setting	Maximum opening size
Warm dry and Warm moist	80
Cool moist-Moderately dry	130
Cold	70

08 Harvest openings created as a result of one harvest operation that exceed the maximum opening size established in FW-STD-ECOS TIMB-07 will require 60-day public review and Regional Forester approval.

09 The maximum opening size and the 60-day public review and regional approval process shall not apply to the size of harvest openings created as a result of natural disturbances, such as fire, windstorms, or insect and disease attacks.

For additional standards related to timber harvest refer also to FW-STD-SOIL-01 and FW-STD-RHCA-01.

Guidelines (FW-GDL-ECOS TIMB)

01 Timber harvest on lands identified as not suitable for timber production, but where timber harvesting is allowed for other multiple-use purposes (see table 32) may occur for such purposes as salvage of dead or dying trees; hazardous fuels reduction; forest insect or disease mitigation; to trend conditions towards desired stand or landscape vegetation composition, structure, and patterns; maintenance or enhancement of wildlife habitat; to perform research or administrative studies; address issues of public safety and health; or for recreation and scenic-resource management purposes, consistent with other management direction. Silvicultural practices that maintain tree vigor, promote resistance to damaging agents, and increase forest resilience should be used where possible.

02 When salvaging timber in burn areas within mapped lynx habitat, unburned patches within the burn perimeter should be retained to provide snowshoe hare and lynx habitat.

For additional guidelines related to timber harvest refer also to FW-GDL-SOIL-01 to 04, and to FW-GDL-RHCA-01, 02, 07 to 10.

Other Forest Products, including Huckleberries (OFP)

Desired Condition (FW-DC-ECOS OFP)

01 Provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) from National Forest System lands while minimizing the risk of grizzly bear-human conflicts on National Forest System lands in the NCDE.

02 Special forest and botanical products are harvested in a sustainable manner, providing products for current and future generations. Vegetation management activities augment the firewood program providing opportunities for collecting firewood.

03 Berry-producing huckleberries are available for wildlife as well as human use and are harvested in a sustainable manner, providing products for current and future generations.

Standards (FW-STD-OFP)

01 Special use permits for apiaries (beehives) shall include measures to reduce the risk of grizzly bear-human conflicts (e.g., electric fencing), as determined by site-specific analysis.

Guidelines (FW-DC-OFP)

01 Encourage the use of non-destructive berry harvesting methods to protect huckleberry plants.

Renewable and Non-Renewable Energy and Mineral Resources (E&M)

Introduction

The Forest Service has a minerals management mission to encourage, facilitate, and administer the orderly exploration, development, and production of mineral and energy resources on NFS lands to help meet the present and future needs of the Nation. Management of mineral and energy resources has been defined by Federal laws, regulations and legal decision. There are three types of mineral and energy resources:

1. Locatable Minerals: Includes commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones. Under the Mining Law of 1872, US citizens are guaranteed the right to prospect and explore lands reserved from the public domain and open to mineral entry. The right of access for exploration and development of locatable mineral is guaranteed.

2. Salable Minerals: Includes common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite. The Forest Service has the authority to dispose of these materials on public lands through a variety of methods. The disposal of these materials is discretionary.

3. Leasable Minerals: Includes commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and solid leasable minerals on acquired lands. Currently there are 341 suspended oil and gas leases covering approximately 641,500 acres on the Forest. No activity can take place on the leases until an environmental impact statement is completed. A leasing decision will not be a part of this proposed action.

Desired Condition (FW-DC-ECOS E&M)

01 Mineral materials are available based upon public interest, in-service needs, material availability, and valid existing rights, where consistent with desired conditions for other resources.

02 Locatable minerals are available for prospecting, exploring, developing, and producing and the lands are reclaimed in an appropriate manner. Abandoned mines that present a physical or chemical hazard to humans are identified, inventoried and reclaimed in the appropriate manner.

03 The lands developed for minerals materials are reclaimed in the appropriate manner.

04 Non-energy leasable minerals are available for prospecting, exploring, developing, and producing and the lands are reclaimed in the appropriate manner.

05 Energy leasable minerals are available for lease where the land is open to leasing.

06 Geologic features are conserved for their intrinsic values and characteristics.

Standards (FW-STD-ECOS E&M)

01 Mineral development is not allowed in areas withdrawn from mineral entry.

02 Within the NCDE PCA and Zone 1 (including the DCAs), 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 shall either avoid, minimize and/or mitigate environmental impacts to grizzly bears or their habitat, subject to existing rights. Stipulations or measures already included in existing leases, permits, or Plans of Operations on NFS lands shall not be changed, nor will additional stipulations or measures be added, without the lease, permit, or Plan of Operation holder's agreement.

03 Within the NCDE PCA and Zone 1 (including the DCAs), new or re-authorized permits, leases, and/or Plans of Operation shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear–human conflict situation.

04 Within the NCDE PCA and Zone 1 (including the DCAs), new Plans of Operation, permits, and/or leases for leasable and locatable mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:

- Land surface and vegetation disturbance;
- Water table alterations;
- Construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, motorized routes, pipelines, canals, transmission lines or other structures;
- Grizzly bear attractant storage and sanitation.

05 Within the NCDE PCA and Zone 1 (including the DCAs), in addition to measures included in the Food/Wildlife Attractant Special Order(s), new minerals Plans of Operation, permits, and/or leases 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 must be removed in a timely manner.
- Road kills shall be removed daily to a designated location determined in close coordination with MTFWP.

- Feeding of wildlife shall not be allowed.
- Locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in any work camps.

06 Within the NCDE PCA and Zone 1 (including the DCAs), if minerals activities have the potential to substantially affect grizzly bears or their habitat, new Plans of Operation, permits, and/or leases shall include the following mitigation measures, stipulations, or 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, reasonable and appropriate measures shall be taken to 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);
- 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 Habitat Conservation Areas (RHCAs) shall identify how reclamation will occur, plant species to be used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria.
- 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.

07 In the NCDE PCA and Zone 1 (including the DCAs), for leasable and locatable mineral activities with the potential to substantially affect grizzly bears or their habitat, new Plans of Operations, permits, and/or leases 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.
- Speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.

08 Within the NCDE PCA and Zone 1 (including the Salish DCA), minerals contractors or lessees must 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.

Guidelines (FW-GDL-ECOS E&M)

01 Within the NCDE PCA and Zone 1 (including the DCAs), in addition to forest-wide guidelines, the following guidelines apply to new leases, surface use plans for proposed wells or operations, or permits to conduct seismic exploration or drilling.

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.

02 Within the NCDE PCA and Zone 1 (including the DCAs), leasable energy activities should use the best available noise-reduction technology on all equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.

03 Within the NCDE PCA and Zone 1 (including the DCAs), along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, hiding cover should be maintained at regular intervals in order to provide habitat connectivity for grizzly bears.

04 Within the NCDE PCA and Zone 1 (including the DCAs), for locatable and non-energy leasable minerals activities with the potential to substantially affect the grizzly bear or its habitat, the following tiered measures should be considered 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.

1. Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities as the original habitat (such as the same native vegetation).

2. 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 PCA. 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 habitat available for acquisition.

3. Step 3: If Steps 1 or 2 are not achievable, the next option is to consider offsetting negative effects to bears and grizzly bear habitat with other appropriate types of actions.

05 Within the NCDE PCA and Zone 1 (including the Salish DCA), carrying of bear spray should be recommended to mineral operators.

06 Within the NCDE PCA and Zone 1 (including the Salish DCA), available resources at existing gravel pits should be used before constructing new pits.

07 To reduce impacts of leasable or locatable mineral exploration or development upon Canada lynx; a) winter access should be limited to designated routes, b) the development footprint should not

remove snowshoe hare habitat, c) development should not occur in linkage areas, as determined in a site-specific analysis. (This guideline does not apply to salable minerals.)

Livestock Grazing (GR)

Desired Condition (FW-DC-ECOS GR)

01 Within the NCDE PCA, the number and capacity of, and improvements on cattle grazing allotments support sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds, while minimizing the risk of human-bear conflicts on National Forest System lands.

02 Grazing lands sustain biological diversity, ecological processes and help preserve the rural landscape and cultural heritage of the area.

03 Management of domestic livestock grazing maintains the desired species composition, structure, and the condition of plant communities. Regeneration of forests is not limited by livestock grazing. Forage, browse, and cover needs of wildlife and authorized livestock are in balance with available forage.

04 Transitory forage on forest lands is available for cattle grazing within existing and, permitted allotments.

05 Dispersed grazing is available for use by pack stock.

Standards (FW-STD-ECOS GR)

01 Within the NCDE PCA, issuance of new permits shall incorporate measures needed to reduce the risk of grizzly bear–human conflicts, as determined by site-specific analysis. New or re-authorized 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.

02 Within the NCDE PCA, a grazing permit in non-use status shall not be allowed to increase allowable animal unit months (AUMs) when returning to use.

03 Within the NCDE PCA, permits for livestock grazing shall include a provision that requires reporting livestock carcasses within 24 hours of discovery. Bone yards shall not be established on NFS lands.

04 Within the NCDE PCA, there shall be no new sheep allotments.

05 Within the NCDE PCA, 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 un-allotted lands.

06 Within the NCDE PCA, temporary permits for grazing by small livestock for purposes of weed control, or for trailing of small livestock across NFS lands, shall include one or more measures to reduce the risk of grizzly bear–human conflicts. Such weed control efforts shall not result in an increase in bear/small livestock conflicts or in removal of grizzly bears due to such conflicts. If grizzly bear conflicts arise due to such weed control efforts, the livestock, rather than the grizzly bear, shall be removed. Exceptions to this standard include:

- operations which use livestock for packing purposes;
- outfitter and guide permits.

Guidelines (FW-GDL-ECOS GR)

01 Within the NCDE PCA, where recurring grizzly-bear human conflicts occur on cattle allotments and an opportunity exists with a willing permittee, the Forest Service should consider phasing out cattle grazing or moving the cattle to a vacant allotment where there is less likelihood of grizzly bear-human conflicts.

02 Grazing practices (e.g., accessibility of riparian areas to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that adversely affect fish and riparian habitat should be modified. Suspend grazing if adjusted practices are not effective in meeting resource objectives.

03 Within the NCDE PCA, an allotment management plan and Plan of Operations should specify, if applicable, measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitat areas) from conflicting and competing use by livestock.

04 New livestock handling and/or management facilities should be located outside of RHCAs. Livestock trailing, bedding, watering, salting, loading, and other handling or management efforts should be limited to those areas and times that would not adversely affect listed fish species or fish species of conservation concern. Where these objectives cannot be met, livestock facilities should be relocated or closed.

Chapter 3. Proposed Management Area Direction

Introduction

The NFS land within the Flathead NF boundary has been divided into seven management areas (MA), each with a different emphasis which is intended to direct management activities on that particular piece of land. MA allocations are specific to areas across the Forest with similar management needs and desired conditions.

This chapter includes the following for each MA:

- A brief description of the management area and acres allocated,
- Management direction in the form of desired conditions, standards and guidelines (if needed), and
- Suitability of lands.

The seven MA categories can be found in table 21. Some MAs are given separate designations by letter where a variation in management direction is needed. The forestwide MA map is in appendix C, figure C-17. MAs by GA are in chapter 4 (tables 34 through 37, 39 and 40) and the corresponding maps are in appendix C, figures C-18 through C-23.

Table 21. Acres and percent of Flathead NF management areas (MAs)

MA	Name	Categories	Acres[a, b]	Percent[b]
1	Wilderness	1a Designated	1,072,219	44.8
		1b Recommended	188,206	7.9
2	Wild and Scenic Rivers	2a Designated	17,373	0.7
		2b Eligible	18,227	0.8
3	Special and Administrative Areas	3a Existing	425	<0.0
		3b Proposed	1,487	0.1
4	Research Natural Areas; Experimental and Demonstration Forests	4a Research Natural Areas	7,804	0.3
		4b Experimental and Demonstration Forests	11,708	0.5
5	Backcountry	5a Non-motorized Year-round	148,323	6.2
		5b Motorized Year-round, wheeled vehicle use only on designated routes/areas	50,160	2.1
		5c Motorized over-snow vehicle use	97,743	4.1
		5d Wheeled motorized vehicle use only on designated routes/areas	10,044	0.4
6	General Forest	6a Low	131,139	5.5
		6b Moderate	435,773	18.2
		6c High	169,068	7.1
7	Focused Recreation Areas		33,360	1.4
		Total NFS Lands	**2,393,058**	**100**

a. Some MA acreages may overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

b. Acres and percentage from GIS dataset. The official acres for NFS lands and wilderness areas can be found in the land are report, http://www.fs.fed.us/land/staff/lar-index.shtml .

The acres in table 21 are based on a single MA designation and where MAs overlap, the following hierarchy was used for calculating acres:

1. Designated Wilderness (MA 1a)
2. Designated Wild and Scenic Rivers (MA 2a)
3. Recommended Wilderness (MA 1b)
4. Research Natural Areas (MA 4a)
5. Eligible Wild and Scenic Rivers (MA 2b)
6. Experimental and Demonstration Forests (MA 4b)
7. Special Areas (MA 3)

Because of overlapping management areas, the acres reported in table 21 may not match those listed in the tables within each MA section. The acres in those tables are total acres for that area within all MAs.

MA desired conditions are indications of what future conditions would typically be desired in each MA. They help clarify the general suitability of various parts of the forest for different activities and management practices (MA desired conditions are part of the "suitability of areas" component in chapter 2). These desired conditions help us clarify what outcomes might be expected in land areas with different general suitability descriptions. Suitability is discussed by MA, as well as summarized in table 32 at the end of this chapter.

MA 1: Wilderness

Introduction

These areas are managed to protect wilderness character as defined in the Wilderness Act.

1a Designated Wilderness

Background

The Flathead NF contains 1,069,933 million acres of designated wilderness, which accounts for about 45 percent of the forest. There are three designated wilderness areas within the Flathead NF – the Bob Marshall, the Great Bear and the Mission Mountains Wilderness areas. These wilderness lands provide hiking, hunting, fishing, and horseback riding at the primitive end of the spectrum. Information on designated wilderness areas on the Forest is found in table 22 below.

The Mission Mountains Wilderness is adjacent to the Mission Mountains Tribal Wilderness to the west, which is managed by the Confederate Salish and Kootenai Tribes. This area is managed to protect wilderness character as defined in the Wilderness Act and outlined in the Mission Mountains Wilderness Management Plan.

The Bob Marshall, Great Bear and Scapegoat (not on the Flathead NF) wilderness areas comprise the Bob Marshall Wilderness Complex (BMWC) which makes up an area more than 1.5 million acres. Management responsibility for the BMWC is shared with the Lolo, Lewis and Clark and Helena NF. This area is managed to protect wilderness character as defined in the Wilderness Act and outlined in the Bob Marshall, Great Bear, Scapegoat Wildernesses Recreation Management Direction.

Table 22: Designated wilderness on the Flathead NF

Name	Acres[a]
Bob Marshall	710,931
Great Bear	286,510
Mission Mountains	74,777

a. Acres are from GIS dataset and analyses. The official acres for wilderness areas can be found in the land area report, http://www.fs.fed.us/land/staff/lar-index.shtml .

Desired Conditions (MA-1a-DC)

01 Wilderness areas provide the qualities of wilderness character as defined by the Wilderness Act and the wilderness areas' enabling legislation. The five wilderness characters are: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation and other natural features such as geology, ecology, cultural, educational, scenic, historic and research.

02 Facilities in the Bob Marshall and Great Bear Wilderness areas provide for the management, protection and use of the wilderness.

03 Natural ecological processes and disturbance (e.g., wildfire, insects, and disease) are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide opportunities for visitors to experience natural ecological processes and disturbances with limited amount of human influence.

04 Non-native invasive species are non-existent or in low abundance and do not disrupt ecological functions. Endemic species within the Mission Mountains, Great Bear and Bob Marshall Wilderness areas have been identified and have been conserved and/or recovered in these three wilderness areas.

05 The current trails system in the Bob Marshall, Mission Mountains, and Great Bear Wilderness areas on the Flathead NF is managed to provide for wilderness experience.

06 Existing outfitter and guide service opportunities are maintained in the Bob Marshall Wilderness Complex as determined by identified public need.

07 Schafer Meadows Airstrip serves as an airplane accessible trailhead.

Standards (MA-1a-STD)

01 Maximum group size in the Bob Marshall and Great Bear Wilderness areas is 15 people, and maximum livestock is 35 head of livestock per party.

02 The maximum group size in the Mission Mountains Wilderness is eight and the maximum livestock is eight head of livestock per party.

03 The Bob Marshall and Mission Mountains Wilderness areas are Class I Air Quality areas and managed as such; the Great Bear Wilderness area is managed as a Class II area.

04 Permanent structures for the administration of the Mission Mountains Wilderness shall not be built.

05 Do not maintain, rehabilitate, restore, or interpret cultural resources within the Mission Mountains Wilderness.

Guidelines (MA-1a-GDL)

01 To protect RHCAs, tethering and grazing of recreational stock should be beyond 100 feet of lakeshores.

Suitability

- Designated wilderness areas are not suitable for motorized or mechanical uses and transport except as allowed by enabling legislation.
- Wilderness caves are not suitable for signage, disclosure on maps, mention in brochures, permanent reference markings, permanent or semi-permanent installations, or facilities or caches. Camping gear, exploration equipment or flagging is not suitable to remain on site.
- Wilderness areas are not suitable for timber production or timber harvest
- Wilderness areas are not suitable for commercial use of non-timber forest products (e.g., firewood, mushrooms, huckleberries), but are suitable for personal and agency use.
- The Bob Marshall and Great Bear Wilderness areas are suitable for the preservation of historic administrative structures and facilities and associated infrastructure.
- The Bob Marshall and Great Bear Wilderness areas are suitable for the preservation of historic administrative structures and facilities and associated infrastructure.
- Communication sites are suitable only as necessary for administration and/or protection of the wilderness.
- Designated wilderness areas are not suitable for mineral entry under the mining and mineral leasing laws.

1b Recommended Wilderness

Description

Recommended wilderness lands are lands that have the potential to become designated as official wilderness through legislation. The Forest Service only recommends these lands to the United States Congress for consideration. Congress, and ultimately the President, must establish legislation (through a Wilderness Bill) to officially designate wilderness areas.

These areas (shown in table 23) are recommended as additions to the National Wilderness Preservation System. Recommended wilderness represents approximately 35 percent of the inventoried roadless areas. Refer to figure C-24 for the recommended wilderness area boundaries in relation to wilderness inventory boundaries, and to appendix F: Evaluation of Wilderness Inventory Areas.

Table 23. Acres of recommended additions to the National Wilderness Preservation System

Name	Wilderness Inventory Area[a]	Recommended acres[b]
Alcove	Bob North	12,759
Elk Creek	Elk Creek	2,163
Fatty Creek	Fatty Creek	966
Java-Bear Creek	Essex	1,822
Jewel Basin[c]	Jewel Basin	22,170
Limestone –Dean Ridge	Bob North	14,953

Name	Wilderness Inventory Area[a]	Recommended acres[b]
Slippery Bill	Puzzle	7,334
Swan Front	Swan Face South	45,376
Tuchuck-Whale	Tuchuck and Whale	80,662
Total Acres[a]		188,206

a. See appendix F: Evaluation of Wilderness Inventory Areas

b. Total acres are more than those shown in table 21 because of overlapping management areas, see page 83 for additional information.

c. Area does not include Mount Aeneas communication site.

Desired Conditions (MA-1b-DC)

01 Recommended wilderness areas preserve opportunities for inclusion in the National Wilderness Preservation System. Maintain and protect the ecological and social characteristics that provide the basis for each area's suitability for wilderness recommendation.

02 Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, fire, insects, and disease function with limited amount of human influence. Impacts from visitation do not detract from the natural setting.

03 The Jewel Basin Hiking Area portion of the Jewel Basin recommended wilderness area provides a recreation experience without motorized, mechanical transport, or stock use.

Standard (MA-1b-STD)

01 Commercial communication sites shall be located outside of recommended wilderness areas.

02 Over snow and wheeled motorized, mechanical, and stock use and transport are prohibited in the Jewel Basin Hiking Area portion of the Jewel Basin recommended wilderness.

Guideline (MA-1b-GDL)

01 To maintain the wilderness character, other agency communication sites for public safety should be located outside of recommended wilderness unless no other alternative is available. If they have to be located in recommended wilderness, they should blend with the environment, and be located away from system trails and developed sites.

Suitability

- Existing non-conforming uses such as mechanical transport and motorized uses, for example use of chainsaws to maintain trails, are allowed to continue only if such uses do not prevent the protection and maintenance of the social and ecological characteristics that provide the basis for wilderness designation.
- Jewel Basin recommended wilderness area is suitable for existing outfitting and guiding but not suitable for additional outfitting and guiding or large group events. All other recommended wilderness areas are suitable for outfitter guide services.
- Recommended wilderness is not suitable for timber production and timber harvest is not allowed.
- Recommended wilderness areas are suitable for commercial or non-commercial use of non-timber forest products (e.g., mushrooms, huckleberries) as long as the social and ecological characteristics that provide the basis for wilderness designation are maintained and protected.

- Recommended wilderness is suitable for existing communication sites or to assist in administration of the area.
- Recommended wilderness areas are not suitable for cross-country over-snow vehicle travel.
- Recommended wilderness areas are suitable for restoration activities (such as prescribed fire) to restore whitebark pine or other desired ecological conditions as long as the social and ecological characteristics that provide the basis for wilderness designation are maintained and protected.

MA 2: Wild and Scenic Rivers

Introduction

This management area applies to river segments that are either designated or eligible for inclusion as part of the wild and scenic river system under the authority granted by the Wild and Scenic Rivers Act of 1968, as amended.

For wild and scenic rivers, the designated management boundaries generally consist of an area that averages one-quarter-mile-wide on either bank to protect river-related values.

Wild and scenic river segments are classified as wild, scenic, or recreational.

- Wild River Segment – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- Scenic River Segment – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- Recreational River Segment – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Desired Conditions (MA-2-DC)

01 The free-flowing condition, water quality, and outstandingly remarkable values that made river segments eligible for designation, or for which they were designated, are protected and perpetuated.

02 Designated or eligible wild rivers are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted.

03 Designated or eligible scenic rivers are free of impoundments, with shoreline or watersheds still largely primitive and undeveloped but accessible in places by roads.

04 Designated or eligible recreational rivers are accessible by road or railroad, may have some shoreline development and may have had an impoundment or diversion in the past.

05 Retain federal lands within the WSR corridor in public ownership.

06 Administrative facilities are screened or designed to blend into the natural river environment.

07 Commercial outfitted river use is a key element in providing guided fishing and rafting experience on the Flathead WSR River.

Standards (MA-2-STD)

01 Wilderness management direction must be followed where segments of the Flathead Wild and Scenic River (portion of the South and Middle Fork of the Flathead) are located in the wilderness.

02 Designated rivers must be managed to protect the free-flowing and outstandingly remarkable value (ORV) for which it was designated.

Guideline (MA2-GLD)

01 To protect the outstandingly remarkable values, impacts from recreational use would be in the acceptable range per direction in Flathead River Wild and Scenic Recreation Direction.

2a Designated Wild and Scenic River

Description

The Flathead NF has one designated wild and scenic river, the Flathead River, which has three forks: the South Fork, Middle Fork, and North Fork that were designated by Congress in 1976 for a total of 219 miles. Table 23 lists the ORVs, miles, and acres of designated wild and scenic rivers. These rivers are managed to protect the outstandingly remarkable values identified for each river as defined in the Wild and Scenic River Act and outlined in the Flathead Wild and Scenic River Management Plan (1980) and the Flathead River Wild and Scenic Recreation Direction (1986).

Table 24. Outstandingly remarkable values, miles, and acres of designated Wild and Scenic Rivers (WSR)

Designated WSR	Outstandingly Remarkable Values	Miles[a]	Acres[b]
Middle Fork Flathead River	Wild section: fisheries, geology, water quality, wildlife, botany, recreation, scenic, historic, ethnographic. Recreation segment: fisheries, geology, water quality, wildlife, recreation, scenic, history	48	19,273
North Fork Flathead River	Scenic section: fisheries, geology, water quality, wildlife, botany, recreation, scenic, historic, ethnographic. Recreation section: fisheries, geology, water quality, wildlife, recreation, history	59	6,153
South Fork Flathead River	Wild/wilderness section: fisheries, geology, water quality, wildlife, botany, recreation, scenic, historic, ethnographic. Wild/non-wilderness section: fisheries, geology, water quality, wildlife, recreation, scenic, historic, ethnographic. Recreation section: fisheries, geology, water quality, wildlife, recreation, scenic, historic, ethnographic.	112	16,498

b. Miles are approximate

a. Total acres are more than those shown in table 21 because of overlapping management areas. As noted with table 21, designated wilderness (MA 1a) are higher in the hierarchy than designated wild and scenic river (MA2a), resulting in acres of designated wilderness being totaled prior to designated wild and scenic river. Designated wild and scenic river acres overlapping with designated wilderness total 24,551 acres.

Suitability

- Wild river corridors are not suitable for timber production and timber harvest is not allowed.
- Scenic and recreational river corridors are not suitable for timber production; however, timber harvesting for other multiple-use purposes, for salvage logging, and to achieve desired vegetation conditions could occur.
- Scenic corridors are suitable for non-commercial (personal) use of non-timber forest products.

- Recreational rivers corridors are suitable for the commercial and non-commercial (personal) use of non-timber forest products.
- Scenic and recreational river segments are suitable for commercial communication sites or utility corridors. The scenic section of the North Fork of the Flathead is not suitable for utility corridors.
- Wild river corridors are suitable for non-motorized travel.
- Wild river corridors outside of designated wilderness (section of the South Fork of the Flathead) are suitable for mechanized equipment (e.g. but not limited to mechanical transport and battery operated pumps).
- Recreation segments are not suitable for boats with motors exceeding 10 horsepower. Scenic segments are not suitable for motorized boat use.
- Scenic and recreational river corridors are suitable for wheeled motorized travel on designated routes.
- Some scenic and recreational corridors are suitable for winter motorized use. Specific routes and areas generally suitable for motorized use by over-snow vehicles in portions of the management area that are identified in the over-snow vehicle use map.
- Wild river corridors are not suitable for mineral production.
- In scenic and recreation segments, areas not withdrawn from mineral entry are suitable for mineral exploration and development while protecting the ORV for what it was designated for.

2b Eligible Wild and Scenic River

A total of 273 miles of river within NFS lands have been identified as eligible wild and scenic rivers in the proposed action (table 25). For more information about rivers identified as eligible for wild and scenic classification refer to appendix G.

Table 25. Eligible Wild and Scenic Rivers

River	Segment	Potential Classification	Outstandingly Remarkable Values	Length (miles)	Acres[a]
Aeneas	Headwaters to Hungry Horse Reservoir	Scenic	History, prehistory, recreation, scenery	5	1,770
Big Salmon	Lena Lake to South Fork of Flathead River, includes Big Salmon Lake.	Wild	Recreation, geology, fish, prehistory	19	4,727
Clack Creek	Headwaters to Middle Fork of Flathead River	Wild	Geology, scenery	8	2,021
Danaher	Headwater to Youngs Creek.	Wild	Scenery, recreation, fish, wildlife, history, prehistory, botany, natural areas	23	6,042
Elk	Headwaters to forest boundary	Scenic	Fish	10	2,636
Gateway	Headwater to Strawberry Ck	Wild	Scenery, geology, history	5	1,745
Glacier	Headwaters to outlet of Glacier Slough	Wild: within Mission Mountains Wilderness; Scenic: wilderness boundary to outlet of Glacier Slough	Geology, wildlife, scenery	6	1,774

River	Segment	Potential Classification	Outstandingly Remarkable Values	Length (miles)	Acres[a]
Graves	Headwaters to Hungry Horse Reservoir	Wild: within Jewel Basin; Scenic: from boundary of Jewel Basin to Hungry Horse Reservoir	Prehistory	10	2,467
LeBeau	Headwater to LeBeau RNA boundary	Wild	Scenic, geological, natural area	4	1,325
Lion	Source to Lion Creek TH	Scenic	Wildlife	11	3,315
Little Salmon	Headwater to South Fork of Flathead River	Wild	Scenery, fish, prehistory	19	5,513
Logan	From Rd 539 to Tally Lake	Recreation	Scenic, recreational	4	1,274
Schafer	Headwaters to Middle Fork of Flathead River	Wild	Prehistory, history	11	2,947
Spotted Bear	Headwater to South Fork of Flathead River	Wild: headwaters to end of Blue Lake Recreation: Blue Lake to SF of Flathead	Recreation, wildlife, geology	35	10,261
Strawberry	Headwaters to Middle Fork of Flathead River	Wild	Fish	14	3,869
Lower Swan River	Swan River State Forest to Swan Lake	Recreation	Wildlife	11	1,431
Whale	Headwaters to FS boundary	Scenic: Headwaters to confluence to Shorty Creek; Recreation: Shorty Creek to FS boundary	Wildlife	21	6,263
White River	White River	Wild	Geology, fish, history, prehistory, scenery	24	6,964
Yakinikak Trail Nokio		Scenic	Fish, prehistory, geology	8 3 2	4,250
Youngs	Headwaters to South Fork of the Flathead	Wild	Fish, recreation, prehistory, history, scenery	23	6,462

a. Total acres are more than those shown in table 21 because of overlapping management areas. As noted with table 21 several management areas are higher in the hierarchy than MA 2b. There are 46,204 acres of MA2b within MA1a,11,479 acres in MA1b, and 1,325 acres in MA 4a.

Desired Conditions (MA-2b-DC)

01 The free-flowing condition, water quality, and outstandingly remarkable values that made river segments eligible for designation, are protected and perpetuated.

02 Eligible wild river segments are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted.

03 Eligible scenic river segments are free of impoundments, with shoreline or watersheds still largely primitive and undeveloped but accessible in places by roads.

04 Eligible recreational river segments are accessible by road or railroad, may have some shoreline development and may have had an impoundment or diversion in the past.

Suitability

- Eligible wild river segments are not suitable for timber production and timber harvest is not allowed.
- Eligible scenic and recreational river segments are not suitable for timber production; however, timber harvesting for other multiple-use purposes, for salvage logging, and to achieve desired vegetation conditions could occur.
- Eligible scenic and recreational rivers segments are suitable for the commercial and non-commercial (personal) use of non-timber forest products.
- Eligible scenic and recreational river segments are suitable for commercial communication sites or utility corridors.
- Eligible wild river classification segments are suitable for non-motorized travel.
- Eligible wild river classification segments outside of designated wilderness (Le Beau Creek) are suitable for mechanized travel.
- Eligible scenic and recreational river classification segments are suitable for wheeled motorized travel on designated routes.
- Some eligible scenic and recreational classification segments are suitable for over-snow vehicle use. Specific routes and areas suitable for motorized use by over-snow vehicles in portions of the management area that are identified in the over-snow vehicle use map.
- Scenic and recreation corridors are suitable for mineral developments under the mining laws, minerals leasing laws and aggregate development.
- Areas not withdrawn from mineral entry are suitable for exploration and development while protecting ORV.

MA 3: Special or Administrative Area

Introduction

Located across the Forest, these special places have unique, unusual or important characteristics. They are administratively designated areas. Special areas are managed for public use and enjoyment to protect and conserve the values for which they were identified. Administrative areas are areas designated as necessary for the administration of duties associated with management on NFS land.

3a Administrative Area

Administrative areas are facilities and infrastructure, typically buildings and their appurtenance, necessary to support the employees, equipment and activities necessary for the administration and management of the national forests. Refer to table 26 for administrative sites on the Flathead NF.

Table 26. Administrative sites on the Flathead NF

GA	Site Name	Acres[a]
	Ranger Stations (RS)	
HH	Hungry Horse RS	202
SF	Spotted Bear RS	148

GA	Site Name	Acres[a]
SV	Old Condon RS (historical)	13
SM	Swan Lake RS	13
	Work Centers	
NF	Big Creek Environmental Education Center	12
HH	Coram	355
HH	Betty Creek (historical)	7
MF	Fielding (historical)	14
MF	Schafer Meadows	7
SF	Big Prairie	70
SV	Condon	10
SM	Tally Lake (historical)	13
	Guard Stations	3
NF	Nasukoin Lake (historical)	0
NF	Ninko	1
NF	Whale Lake (historical)	0
HH	Crevice Cabin	0
MF	Challenge Cabin	3
MF	Gooseberry Park	2
MF	Granite Creek	1
MF	Sabido	1
MF	Spruce Park	2
SF	Basin	4
SF	Black Bear	2
SF	Danaher	1
SF	Hahn	2
SF	Pendant	1
SF	Pentagon	1
SF	Salmon Forks	45
SF	Shaw	2
SV	Elbow (historical)	0
SV	Swan Lake	0
SV	Trinkus Cabin	0
SV	Upper Holland Lake	1
SM	Star Meadows	4
	Fire Lookouts	
NF	Coal Ridge (historical)	1
NF	Cyclone	4
NF	Thoma	5
HH	Baptiste	3
HH	Firefighter	8
MF	Red Plume Mountain (historical)	0
SF	Jumbo Mountain	0

GA	Site Name	Acres[a]
SF	Limestone	0
SF	Mud Lake Mountain	0
SF	Spotted Bear	2
SV	Cooney	1
SV	Holland	0
	Airstrips	
MF	Schafer	33
SF	Meadow Creek	32
SF	Spotted Bear	37
SV	Condon	28
	Communication Site – Commercial	
HH	Desert Mountain	1
SM	Big Mountain	1
SM	Blacktail	17
	Communication Site – FS Administration	
NF	Mount Hefty	0
NF	Werner Peak	0
HH	Mount Baptiste	0
MF	Patrol Ridge	0
SF	Stony Hill	0
SV	Elbow	1
SV	Mount Aeneas	0
SV	Napa	1
SM	Ashley Mountain	0
SM	Big Mountain	1
SM	Kerr Mountain	1
	Silviculture	
NF	Elelehum Test Plantation	12
NF	Mud Lake Test Plantation	14
HH	Firefighter Test Plantation	8
SV	Cold Ridge Test Plantation	27
SV	Condon Test Plantation	78
SV	Weed Hill Test Plantation	7
SM	Bigfork Tree Improvement	92
SM	Plume Creek Test Plantation	18
	Miscellaneous	
NF	China Basin (historical)	0
NF	Coal Ridge Cabin (historical)	1
NF	Funk Schoolhouse	0
NF	Kintla Ranch	3
NF	Moose Creek Cabin (historical)	0

GA	Site Name	Acres[a]
SF	East-side Cable Car over South Fork (USGS permitted)	0
SF	Upper Big Bill admin. trailhead	1
SF	West-side Cable Car over South Fork (USGS permitted)	0
SV	Jewel Basin Camp Misery cabin	0
SV	Owl Creek Packer Barn	0
SM	Kalispell Maintenance Shop	2
	Snowtel & Snow Monitoring Sites (summarized, not listed individually)	
HH	2 sites	0
MF	1 site	0
SF	2 sites	1
SV	5 sites	0
SM	7 sites	1
	Gravel Pits, Quarries, Borrow Sources (summarized, not listed individually)	
NF	12 sites	27
HH	14 sites	35
MF	4 sites	11
SF	3 sites	14
SV	13 sites	43
SM	33 sites	68

a. Total acres are more than those shown in table 21 as only Hungry Horse Ranger Station, Spotted Bear Ranger Station, Swan Lake Ranger Station, Big Creek Environmental Center, Condon Work Center, and Bigfork Tree Improvement area are mapped in the GIS dataset. Additionally, as noted with table 21, several management areas are higher in the hierarchy than MA 3a. There are 33 acres of MA3a within MA2a,and 21 acres in MA2b.

Desired Conditions (MA-3a Admin-DC)

01 Administrative facilities serve land management needs and purposes of the forest in a sustainable, economical and cost effective manner. The size, number, and location of facilities meet management needs; are affordable, safe, and energy efficient; and meet all applicable accessibility standards and guidelines. Existing facilities are included in a current, facilities master plan.

02 Airstrips serve the land management and public needs and purpose of the Forest. Existing airstrips are maintained at historical site conditions to provide safe and functioning airstrips.

Objectives (MA-3a Admin-OBJ)

01 Complete 5 to 15 facilities projects to improve energy efficiency or safety.

Suitability

- Administrative sites are not suitable for timber production. Timber harvest or other vegetation management activities may be allowed to maintain desired conditions for the specific administrative site.
- Administrative sites are not suitable for commercial use of non-timber forest products.
- Administrative sites are suitable for motorized travel on designated routes unless otherwise restricted.

- Administrative sites are withdrawn from mineral entry.
- Gravel pits and quarries are suitable for the production of minerals materials.

3b Special Area

Condon Creek Botanical Area is the only existing special area. This area is located on gently rolling lands in the valley bottom area of the Swan River watershed and is mapped at 226 acres. It supports a significant concentration of water howellia, a federally-listed threatened plant species. Adjacent uplands support forests of mixed conifer species, including several groves of mature ponderosa pine. Table 27 shows the proposed special areas.

Table 27. Proposed special areas

Name	Location/Ranger District (RD)	Type/importance	Acres[a]
Bent Flat Fen	Spotted Bear River, Spotted Bear RD	Botanical: Well-developed fen, large number of rare plants and extensive marl deposits	11
Gregg Creek Fen	Salish Mountains, Tally Lake RD	Botanical: Peatland and wet forest and shrub communities. Rare plants.	8
Lost Creek Fens	Swan Valley, Swan Lake RD	Botanical: A number of rare plants occupy these two different types of fens. The northern fen is fed by an upwelling spring that gently slopes southward. The southern fen has two shallow potholes that draw down in the summer.	10
Meadow Lake Fen	Swan Lake RD	Botanical/hydrologic: One of the few places on the forest that has a floating organic mat. A couple rare plants exist there. Loons have also been observed at this lake.	85
Sanko Creek Fen North	Salish Mountains, Tally Lake RD	Botanical/hydrologic: Floating and anchored organic mat and a wet meadow. A couple rare plant species have been observed at the site.	13
Sanko Creek Fen South	Salish Mountains, Tally Lake RD	Botanical: Small peatland with a number of seeps and springs. One rare plant species has been observed here, as well as a possible bog lemming sighting	2
Trail Creek Fen	Spotted Bear River, Spotted Bear RD	Botanical: Several rare plants occupy this relatively large, well-developed peatland.	36
Windfall Creek Fen	Swan Valley, Swan Lake RD	Botanical: Fen occupies a basin formed by glacial scouring. A couple rare plant species have been observed here.	6
Glacier Slough	Glacier Creek, south end of the Swan Valley, Swan Lake RD	Botanical: Large wetland area and associated adjacent forests; rated of “outstanding significance” by MT Natural Heritage Program	1,688
Johnson Terrace	Evers Creek, a tributary of Logan Creek, Tally Lake RD	Botanical and Geological elements: Topographic features that harbor a diversity of plants unique among the forested landscape. Includes mossy forb meadow on shallow residual soils over a Pre-Cambrian argillite bedrock dip slope that is inundated with water in the spring and dries out during summer. There are many diminutive plants that are restricted to this type of ephemeral spring habitat.	331
Fatty Creek Cedars	Swan Lake RD, in Fatty Creek	Botanical: Moist, riparian-associated western redcedar forest type, supporting groves of very large, old cedar trees.	171

a. Total acres are more than those shown in table 21 as only Condon Botanical, Glacier Slough, Johnson Terrace, and Fatty Creek Cedars areas are mapped in the GIS dataset. Additionally, as noted with table 21, several management areas are higher in the hierarchy than MA 3b. There are 929 acres of MA3b within MA2b.

Desired Conditions (MA-3 Special Area-DC)

01 Special areas are in a substantially natural condition, where ecosystems primarily reflect the influence of natural processes, and where the plant and wildlife habitat values for which the special area was identified are maintained.

02 Minimal to no invasive plant species occur within the special areas.

03 Educational and research opportunities featuring the plant communities are provided.

Desired Conditions (MA-3a Condon-DC)

01 Habitat conditions support sustainable and healthy populations of water howellia.

02 Mature ponderosa pine and western larch forests occur, contributing to the landscape conditions that sustain water howellia habitat, as well as providing educational and research opportunities.

Guidelines (MA-3 Special Area-GDL)

01 Vegetation management or other activities near special areas should be evaluated for potential impacts to the plant species, plant communities, or other qualities for which the areas were designated. These areas should be protected from human disturbances that would adversely affect these qualities.

Suitability in Special Areas

- Special areas are not suitable for timber production. Timber harvest or other vegetation management activities (such as prescribed fire) may be allowed for reasons specifically designed to maintain or achieve the desired conditions and purpose for the special area.
- Special areas are not suitable for commercial use of non-timber forest products. Administrative and personal use of non-timber forest products is allowed.
- Special areas are suitable for summer wheeled motorized travel on designated routes.
- Some special areas are suitable for over-snow vehicle use. Specific routes and areas generally suitable for motorized use by over-snow vehicles in portions of the management area are identified in the over-snow vehicle use map.
- Special areas are not suitable for mineral development.
- The fens, and Glacier Slough and Johnson Terrace special areas are not suitable for new trail construction and associated structures. Existing trails that access these areas may be maintained.

MA 4: Research Natural Areas, Experimental and Demonstration Forests

Introduction

The Flathead NF has one experimental forest, one demonstration forest, and six Research Natural Areas (RNAs). RNAs are permanently established to maintain representative areas of natural ecosystems and areas of special ecological significance. The demonstration forest was established to study the effect of prescribed fire and silvicultural treatments on regeneration. The experimental forest was established to study the ecology and silviculture of western larch in a mix with other commonly associated species.

4a Designated Research Natural Area

Description

The Flathead NF has six designated Research Natural Areas (RNAs), listed in table 28. The RNAs are part of a national network of ecological areas designated in perpetuity for research and education and/or to maintain biological diversity on NFS lands. They serve as baseline areas for non-manipulative research, observation and study. Each RNA has its own establishment record[10], which contains detailed location maps, information on distinguishing features, and the purpose for establishment of the RNA. The RNAs are cooperatively managed with the Rocky Mountain Research Station.

Table 28. Existing research natural areas (RNAs)

RNA	**Location/**Ranger District (RD)	**Target** element	**Date** established	**Acres**[a]
Coram	Within Coram Experimental Forest, Hungry Horse-Glacier View RD	Forests of late-successional/old growth western larch and interior Douglas-fir stands.	1988	875
East Shore	Crane Mountain area, Swan Lake RD	Forests representing the transition between moist Douglas-fir and grand fir habitat types, including Douglas-fir/common snowberry and Douglas-fir ninebark.	1991	654
Le Beau	Stillwater River drainage, Tally Lake RD	Western redcedar, western hemlock, grand fir, larch and herbaceous plant communities on glacier-formed rockland, lake, ponds, and wetlands. Warm/moist grand fir/Clintonia uniflora, western redcedar/Clintonia uniflora, and spruce/Clintonia uniflora habitat types.	1997	2,633
Little Bitterroot	Swan Lake RD	Within a narrow, steep-walled canyon with two narrow lakes, a stream and riparian area. Douglas-fir dominated forests representing all four phases of the dry Douglas-fir/pinegrass habitat type.	1991	202
Swan River	Swan Lake RD	Wetland and riparian shrub and herbaceous plant communities. Peatlands. Moist and wet forests of mature western redcedar, spruce, cottonwood, grand fir, western larch, Douglas-fir.	1997	687
Tuchuck	Tuchuck Creek, North Fork Flathead River, Hungry Horse-Glacier View RD	Upper montane and subalpine vegetation types: whitebark pine, alpine larch and subalpine fir; subalpine shrubs, herbaceous species and wet meadows; talus slopes.	1991	2,050

a. The establishment record has the official acres. Acres presented here are from the GIS datasets. Total acres are more than those shown in table 21 because of overlapping management areas. As noted with table 21 Recommended Wilderness (MA 1b) is higher than Designated RNA (MA 4a), resulting in acres of recommended wilderness being totaled prior to Designated RNA. Recommended wilderness acres overlapping with Designated RNA total 2,050 acres.

Desired Conditions (MA4a-DC)

01 RNA lands are generally natural-appearing. Ecological processes such as plant succession and fire, insect, and disease activity function with limited human influences.

[10] Establishment records are located at the Flathead NF Supervisor's Office.

02 RNAs serve as areas for the study of ecosystems and ecological processes, including succession, and baseline areas for measuring ecological change due to disturbances or stressors, such as climate change.

03 The ecological features and values for which each RNA was established are protected and managed in accordance with the establishment records.

Suitability

- RNAs are not suitable for timber production. Timber harvest and other vegetation management (such as prescribed fire) may be allowed for study and research purposes.
- RNAs are suitable for the observation and study of undisturbed, unique habitats and non-manipulative research.
- RNAs are suitable for non-motorized travel with limited motorized travel to meet administrative, research and educational objectives.
- Some areas are suitable for winter motorized use. Specific routes are suitable for motorized use by over-snow vehicles in portions of the management area and are identified on the over-snow vehicle use map in the project file.
- These areas are not suitable for mineral developments under the mining laws, minerals leasing laws and aggregate development.

4b Experimental and Demonstration Forest

Coram Experimental Forest

Description

The approximately 7,600-acre Coram Experimental Forest (CEF) was established in 1933 to study the ecology and silviculture of western larch in a mix with other commonly associated species. Management of the CEF is the responsibility of the Rocky Mountain Research Station.

The Coram RNA is located within the CEF. More information about the Coram RNA is located in the description under MA 4a, and in the Hungry Horse GA section in chapter 4.

Desired Conditions (MA4b CEF-DC)

01 The CEF serves as a demonstration and study area for researchers, educators, forest managers, and the public. Areas are provided for research studies to help answer current and future management questions.

02 Re-measurement and evaluation of long-term studies continue as well as the collection of baseline hydrology and climate information.

Standards (MA4b CEF-STD)

01 Roads and trails shall be maintained to the level needed to access research or demonstration areas.

Suitability for the CEF

- The CEF is not suitable for timber production; however, timber harvesting for multiple use purposes, for salvage logging, for research purposes and to achieve desired vegetation conditions could occur, as mutually agreed upon between RMRS and the Flathead NF.

- The CEF is not suitable for the removal of non-timber forest products for commercial use.
- The CEF is not suitable for the removal of the following non-forest products for personal use: firewood; Christmas trees; boughs; surface rock. Removal of other non-forest products for personal use (e.g. huckleberries, mushrooms) may occur.
- The CEF is not suitable for livestock grazing.
- The CEF has been withdrawn from mineral entry under the 1872 Mining laws. Mineral leasing laws and mineral materials laws remain in effect.
- The CEF is suitable for a few facilities to provide comfort or interpretation that support the research program. Permanent recreation improvements are not permitted unless for research.
- Overnight camping or campfires are not permitted on the CEF.
- The CEF is suitable for recreation activities such as hunting, fishing, berry picking, picnicking and wildlife viewing.
- The CEF is suitable for wheeled motorized travel on designated roads and trails. Administrative use will be allowed for researchers to complete research and monitoring.
- The CEF is suitable for mechanized use (e.g., mountain biking) on designated routes.
- Some areas are suitable for winter motorized travel. Specific routes and areas suitable for motorized use by over-snow vehicles in portions of the management area are identified on the over-snow vehicle use map in the Plan Set of Documents.

Miller Creek Demonstration Forest

Description

The approximately 4,900 acre Miller Creek Demonstration Forest (MCDF) was set aside in 1989 by the Flathead NF and its management is the responsibility of the Flathead NF. Research in this area began 23 years earlier in 1966 to study the effect of prescribed fire and silvicultural treatments on regeneration. The MCDF was established to encourage continuing research and to recognize the value of the area for educational and demonstration purposes.

The MCDF is a multiple-use area and will have regularly scheduled timber harvest, active vegetation management practices (e.g., timber harvest, thinning, planting, prescribed burning), and provide ecosystem services and a diversity of recreation opportunities.

Desired Conditions (MA4b MCDF-DC)

01 The MCDF serves as a demonstration and study area for researchers, educators, forest managers, and the public. Areas are provided for studies that help answer current or future management questions.

02 Although natural ecological processes and disturbances are present, vegetation management activities have a dominant role in affecting the composition, structure, and pattern of vegetation. These management activities trend the vegetation towards the forestwide desired conditions for each biophysical setting.

Suitability for the MCDF

- The MCDF is suitable for timber production.

- The MCDF is suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- The MCDF is suitable for facilities to provide comfort or interpretation that support the research or educational programs.
- The MCDF is suitable for wheeled motorized travel on designated roads and trails. It is also suitable for winter motorized travel, as identified on the over-snow vehicle use map in the Plan Set of Documents.
- The MCDF is suitable for mineral developments under the mining laws, minerals leasing laws and for aggregate development.

MA 5: Backcountry

Introduction

These management areas consist of relatively large areas characterized by an environment influenced primarily by natural ecological processes, such as natural succession, fire, insects, and disease. They provide a variety of motorized and non-motorized recreation opportunities. Trails are the primary improvements constructed and maintained for recreation users. In some areas, lookouts, cabins, or other structures are present as well as some evidence of management activities. There are four different backcountry MAs shown in table 29.

Table 29. Acres of backcountry management areas (MAs)

Backcountry MA	Motorized Use	Acres
5a	Non-motorized year-round	148,323
5b	Motorized year-round	50,160
5c	Motorized over-snow vehicle use	97,743
5d	Motorized summer	10,044

Desired Conditions (MA5-DC)

01 Backcountry areas provide for less developed, semi-primitive recreation opportunities with motorized travel as described in each backcountry MA.

02 Fire and other natural ecological processes play a major role in influencing vegetation conditions, with relatively low level of human influence, which provides for secure wildlife habitat. Desired vegetation conditions are achieved primarily through use of fire (prescribed and wildfire) and to a lesser extent through other methods (e.g., salvage harvest, whitebark pine thinning).

Suitability

- Backcountry areas are not suitable for timber production; however, low levels of timber harvesting for multiple-use purposes, for salvage logging and to achieve desired vegetation conditions could occur.
- Backcountry areas are suitable for the removal of non-timber products for commercial or personal use.
- Backcountry areas are suitable for the use of prescribed fire to achieve desired conditions for vegetation, wildlife habitat and other resources.

- Backcountry areas are suitable for the use of motorized tools and equipment associated with management activities.
- Lands that are open to mineral entry under the mining and mineral leasing laws are suitable for mineral development.
- Sources of aggregate can be used to maintain roads and trails, and reduce erosion impacts to streams and lakes when needed.

5a Backcountry non-motorized year-round

Description

These are backcountry areas that provide for non-motorized recreation opportunities.

Suitability

- MA 5A is not suitable for motorized travel. Mechanized use is suitable.

5b Backcountry motorized year-round (wheeled vehicle use only on designated routes/areas)

Description

These are backcountry areas with limited motorized opportunities during the summer on designated routes.

Suitability

- Suitable for wheeled vehicle motorized travel on designated routes. Mechanized use is suitable.
- Suitable for over-snow motorized use.

5c Backcountry motorized over-snow vehicle use

Description

These are backcountry areas with motorized opportunities available during the winter on designated routes and areas and non-motorized opportunities during the summer.

Suitability

- Suitable for over-snow motorized travel and summer mechanized travel.
- Wheeled motorized is not suitable in this MA.

5d Backcountry motorized summer (wheeled vehicle use only on designated routes/areas)

Description

These are backcountry areas with motorized opportunities available during the summer on designated routes and areas and non-motorized opportunities during the winter.

Suitability

- Not suitable for over-snow motorized travel.

- Wheeled motorized use is suitable on designated routes during the summer only.
- Mechanized use is suitable.

MA 6: General Forest

This MA is divided into three designations, 6a, 6b, and 6c. These designations display different levels of timber product outputs at a landscape level, across the area as a whole. The timber outputs are expected to differ based upon various resource considerations, which are described under each designation below. Though landscape level output levels may differ between these designations, at the site specific project level timber outputs may be similar. For example, a 500 acre timber sale in MA 6a may result in similar total timber volume as a 500 acre sale in MA 6c.

Acres within each designation are displayed in table 30.

Table 30. Acres of general forest management areas (MAs)

General Forest MA	Acres
6a-Low	131,139
6b-Moderate	435,773
6c-High	169,068

6a General Forest–Low

Description

These multiple-use areas will have active vegetation management and other activities to achieve desired vegetation and wildlife habitat conditions, but will not have regularly scheduled timber harvest (unsuitable for timber production). Resource considerations such as sensitive and/or shallow soils, low site productivity, high scenic integrity, areas within grizzly bear secure core, or inventoried roadless areas limits regularly scheduled timber harvest. These areas would provide a variety of ecosystem services and diverse recreation opportunities.

Desired Conditions (MA6a-DC)

01 Vegetation management activities occur and are evident on the landscape. Desired conditions are achieved primarily through use of fire (prescribed and wildfire) and to a lesser extent through other methods (e.g., timber harvest, thinning). These activities trend the vegetation towards the desired conditions for each biophysical setting as described under forestwide Terrestrial Ecosystems section.

02 There are opportunities for both motorized and non-motorized recreation opportunities with some areas restricted by yearlong or seasonal closures to protect big game winter habitat or grizzly bear secure core.

Suitability

- These areas are not suitable for timber production; however, timber harvest for multiple-use purposes, for salvage logging, and to achieve desired vegetation conditions could occur.
- These areas are suitable for the removal of non-timber products for commercial or personal use.
- Lands that are open to mineral entry under the mining and mineral leasing laws are suitable for mineral development.

- Sources of aggregate can be used to maintain roads and trails, and reduce erosion impacts to streams and lakes when needed.
- These areas are suitable for motorized travel on designated roads, trails and areas identified on the motorized vehicle use map.

6b General Forest–Moderate

Description

These multiple-use areas will have active vegetation management and other activities to achieve desired vegetation and wildlife habitat conditions, and will have regularly scheduled timber harvest (suitable for timber production). These areas are generally found within the PCA for grizzly bear, in areas of white tail deer winter range, or in areas of other resource concerns which in combination are expected to limit the scheduling and/or intensity of timber harvest. These areas would provide a variety of ecosystem services and diverse recreation opportunities.

Desired Conditions (MA6b-DC)

01 In much of this MA, vegetation management activities have a dominant role in affecting the composition, structure, and pattern of vegetation. These management activities trend the vegetation towards the desired conditions for each biophysical setting as described under forestwide Terrestrial Ecosystems section. Although natural ecological processes and disturbances are still present, they are influenced more by human activity in this MA than in MA 6a and others.

02 Both motorized and non-motorized recreation opportunities exist, although some areas such as big game winter or security habitat or grizzly bear secure core would have yearlong or seasonal motorized use restrictions.

Suitability

- These areas are suitable for timber production.
- These areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- These areas are suitable for motorized and mechanized travel on designated roads, trails, and areas as displayed on motor vehicle use maps.
- Lands that are open to mineral entry under the mining and mineral leasing laws are suitable for mineral development.
- Sources of aggregate can be used to maintain roads and trails, and reduce erosion impacts to streams and lakes when needed.

6c General Forest–High

Description

These multiple-use areas will have active vegetation management and other activities to achieve desired vegetation and wildlife habitat conditions, and will have regularly scheduled timber harvest (suitable for timber production). These areas are located outside the NCDE PCA for grizzly bear in the Salish Mountains GA. These areas would provide a variety of ecosystem services and diverse recreation opportunities.

Desired Conditions (MA6c-DC)

01 In most of this MA, vegetation management activities have a dominant role in affecting the composition, structure, and pattern of vegetation. These management activities trend the vegetation towards the desired conditions for each biophysical setting described under forestwide Terrestrial Ecosystems. Although natural ecological processes and disturbances are still present, they are influenced more by human activity in this MA than in others.

02 Motorized and non-motorized recreation opportunities are readily available, with some areas closed to motorized use to protect/maintain big game winter habitat, wildlife security, or habitat connectivity.

Suitability

- These areas are suitable for timber production.
- These areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- These areas are suitable for motorized travel on designated roads, trails and areas as displayed on the motor vehicle use maps.
- Lands that are open to mineral entry under the mining and mineral leasing laws are suitable for mineral development.
- Sources of aggregate can be used to maintain roads and trails, and reduce erosion impacts to streams and lakes when needed.

MA 7: Focused Recreation Area

Introduction

Focused recreation areas typically have certain types of recreation uses featured such as a large lake or reservoir, developed ski area or year-round resort, large campgrounds, or trail system for recreational activities. Additional recreation opportunities, such as hiking, mountain biking, over-snow, and motorized use are available throughout much of the Forest and are not specifically designated at MA 7. The suitability of some of these activities is identified in MA descriptions and displayed on associated over-the-snow, motor vehicle use, and district maps. See table 31 for focused recreation MAs.

Table 31. Focused recreation areas, primary activities, and acres

Focused Recreation Area	Ranger District	Primary activities	Acres[a]
Whitefish Mountain Resort	Tally Lake and Hungry Horse-Glacier View	Downhill skiing, snowboarding, hiking, mountain biking, conservation education	4,111
Hungry Horse Reservoir	Hungry Horse-Glacier View and Spotted Bear	Developed and dispersed recreation including camping, boating, fishing, hiking.	13,113
Cedar Flats OHV Area	Hungry Horse-Glacier View	Motorized trail riding opportunities	2,008
Hungry Horse Track OHV Area	Hungry Horse-Glacier View	Motorized trail riding opportunities	71
Blacktail Mountain Ski Area	Swan Lake	Downhill skiing, hiking, mountain biking, conservation education	891

Focused Recreation Area	Ranger District	Primary activities	Acres[a]
Blacktail Wild Bill Trail System	Swan Lake	Motorized trail riding opportunities	4,966
Tally Lake Campground	Tally Lake	Developed recreation including camping, boating, fishing and hiking	159
Ashley Lake North	Tally Lake	Developed recreation including camping, fishing, and boating	93
Ashley Lake South	Tally Lake	Camping	10
Holland Lake Campground	Swan Lake	Developed recreation including camping, boating, fishing and hiking	593
Crane Mountain	Swan Lake	Mountain biking and dispersed recreation	1,780
Nordic groomed ski areas	Tally Lake, Hungry Horse-Glacier View, and Swan Lake	Cross country ski areas: Round Meadows (Tally Lake), Essex (Hungry Horse-Glacier View), Blacktail Mountain (Swan Lake)	3,906
Upper Stillwater Campground	Tally Lake	Camping, boating, swimming, fishing	4
Krause Basin	Swan Lake	Motorized trails on designated routes	1,578
Swan Lake Campground and day use area	Swan Lake	Developed recreation including camping, boating, fishing and hiking	95
Lion Lake	Hungry Horse-Glacier View	Day use picnic site, hiking, fishing and, swimming	99

a. Total acres are more than those shown in table 21 because of overlapping management areas. As noted with table 21 several management areas are higher in the hierarchy than MA 7. There are 116 acres of MA2a within MA7 (Tally Lake Campground & Day Use area).

Desired Conditions (MA7-DC)

01 Focused recreational opportunities are provided in specific areas in response to increasing demand. Local communities can easily access these areas for a variety of motorized and non-motorized experiences.

02 Higher levels of social interaction may occur with large groups assembling for family gatherings, as well as competitive and non-competitive events.

03 Although natural ecological processes and disturbances are still present within this MA, vegetation management activities play a dominant role in affecting the composition, structure, and pattern of vegetation across most of the MA 7 lands. These management activities trend the vegetation towards the desired conditions for each biophysical setting described under forestwide Terrestrial Ecosystems.

04 Forest conditions within Whitefish Mountain Resort and Blacktail Mountain Ski area contribute to the enjoyment and use of the area by recreationists.

Guidelines (MA7-GDL)

01 When developing or expanding ski areas, inter-trail islands that provide winter snowshoe hare habitat and connectivity to allow for lynx travel should be maintained.

Suitability

- The following MA 7 areas are suitable for timber production at a moderate level: Hungry Horse Reservoir (except within the developed recreation areas), Cedar Flats Motorized Trails, Nordic Groomed Ski Areas, Krause Basin.
- The following MA 7 areas are suitable for timber production at a high level: Blacktail Wild Bill Trail System, Crane Mountain.
- The following MA 7 areas are not suitable for timber production: developed campgrounds and day use areas within Hungry Horse Reservoir MA7, Hungry Horse Track, Whitefish Mountain Resort, Blacktail Mountain Ski area, and other developed campgrounds and day use areas.
- All MA 7 areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- These areas are suitable for commercial communication sites or utility corridors.
- These areas are suitable for motorized travel on designated roads, trails and areas as displayed on the motor vehicle use maps
- These areas are suitable for winter motorized travel on designated trails and areas displayed on the district's over-snow vehicle use maps.
- Lands that are open to mineral entry under the mining and mineral leasing laws are suitable for mineral development.
- Sources of aggregate can be used to maintain roads and trails, and reduce erosion impacts to streams and lakes when needed.

Suitability

Table 32 displays a summary by MA of the activities that may be allowed to move towards or maintain desired conditions. This chart is not intended as a substitute for the actual desired conditions, standards, and guidelines found in each MA. It is intended as a summary and a reference for the reader to see what activities are generally allowed within different MAs. Please refer to the direction for each MA for specific direction. **Note: Planned activities may occur in areas that are not identified as suitable under the auspices of agency policy.**

Table 32. Suitability table

Management Area	Timber production (scheduled on rotation basis)[a]	Timber harvest allowed	Commercial use–special forest products and firewood	Personal use–special forest products and firewood	Grazing allotments	Minerals–leasables	Minerals materials–saleables	Minerals locatable	New facilities	Wheeled motor vehicles	Over-snow motor vehicle	Mechanized (e.g., mountain bike)	Road construction (permanent)	Road reconstruction	Use of wildland fire to meet desired conditions	Planned fire ignitions
1a Designated Wilderness	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	N
1b Recommended Wilderness	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y	Y
2a/2b Designated/Eligible WSR (Wild Classification)	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	Y	Y
2a/2b Designated and Recommended Scenic and Recreation Rivers	N	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
3a/3b Designated and Recommended Special and Administrative Areas	N	Y/N	N	Y	Y/N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
4a Research Natural Areas	N	Y	N	N	N	N	N	N	N	N	N	Y	N	N	Y	Y
4b Experimental and Demonstration Forests	Y/N	Y	Y/N	Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
5a Backcountry non-motorized year-round	N	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	N	N	Y	Y
5b Backcountry motorized year-round, summer only on designated routes/areas	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5c Backcountry motorized winter, non-motorized summer	N	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y
5d Backcountry motorized summer only on designated routes	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
6a General Forest Low	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
6b General Forest Moderate	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Management Area	Timber production (scheduled on rotation basis)[a]	Timber harvest allowed	Commercial use–special forest products and firewood	Personal use–special forest products and firewood	Grazing allotments	Minerals–leasables	Minerals materials–saleables	Minerals locatable	New facilities	Wheeled motor vehicles	Over-snow motor vehicle	Mechanized (e.g., mountain bike)	Road construction (permanent)	Road reconstruction	Use of wildland fire to meet desired conditions	Planned fire ignitions
6c General Forest High	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
7 Focused Recreation Areas	Y/N	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Inventoried Roadless Areas	N	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y

a. Y = suitable, N = not suitable

Chapter 4. Proposed Geographic Area Direction

Introduction

While the forestwide desired conditions indicate broad trends which we would expect to see over the next 10 to 15 years, we recognize that individual places across the Flathead NF have their own unique characteristics and conditions. These places, referred to as "geographic areas" (GAs), define a landscape that people associate with on the Forest. Identifying these areas gives us the opportunity to fine-tune our forestwide management to better respond to more local conditions and situations. The Flathead NF has been divided into the following six GAs (see figure 2):

- Hungry Horse (HH)
- Middle Fork Flathead (MF)
- North Fork Flathead (NF)
- Salish Mountains (SM)
- South Fork Flathead (SF)
- Swan Valley (SV)

GAs provide a means for describing conditions and trends at a more local scale if appropriate. GAs are ecological areas that are synonymous with basin and watershed. Table 33 displays total acres and the acres of the Flathead NF by GA.

Table 33. Acres within the six geographic areas (GAs) on the Flathead NF

GA	Total acres all ownerships	Flathead NF acres	Percent of GA in NFS lands
Hungry Horse	331,850	286,497	86
Middle Fork	375,236	370,026	99
North Fork	389,682	320,032	82
Salish Mountains	836,681	262,870	31
South Fork	790,722	789,211	100
Swan Valley	531,814	364,370	69
Total acres	3,255,986	2,393,006	

Each GA section on the following pages provides an overview of the area, including unique characteristics, and GA desired conditions that describe what we want to achieve in specific GAs that are not necessarily covered by forestwide or MA desired conditions. GA objectives, and in some cases standards and guidelines, are also specified. Maps of each GA can be found in appendix C. Each GA map (figures C-18 to C-23) shows MA allocation, location of unique features, primary population centers, and major rivers and roads. Descriptions of the MAs can be found in chapter 3. Information on the biophysical settings referred to in each GA description, and the proportion within each GA, can be found in appendix A.

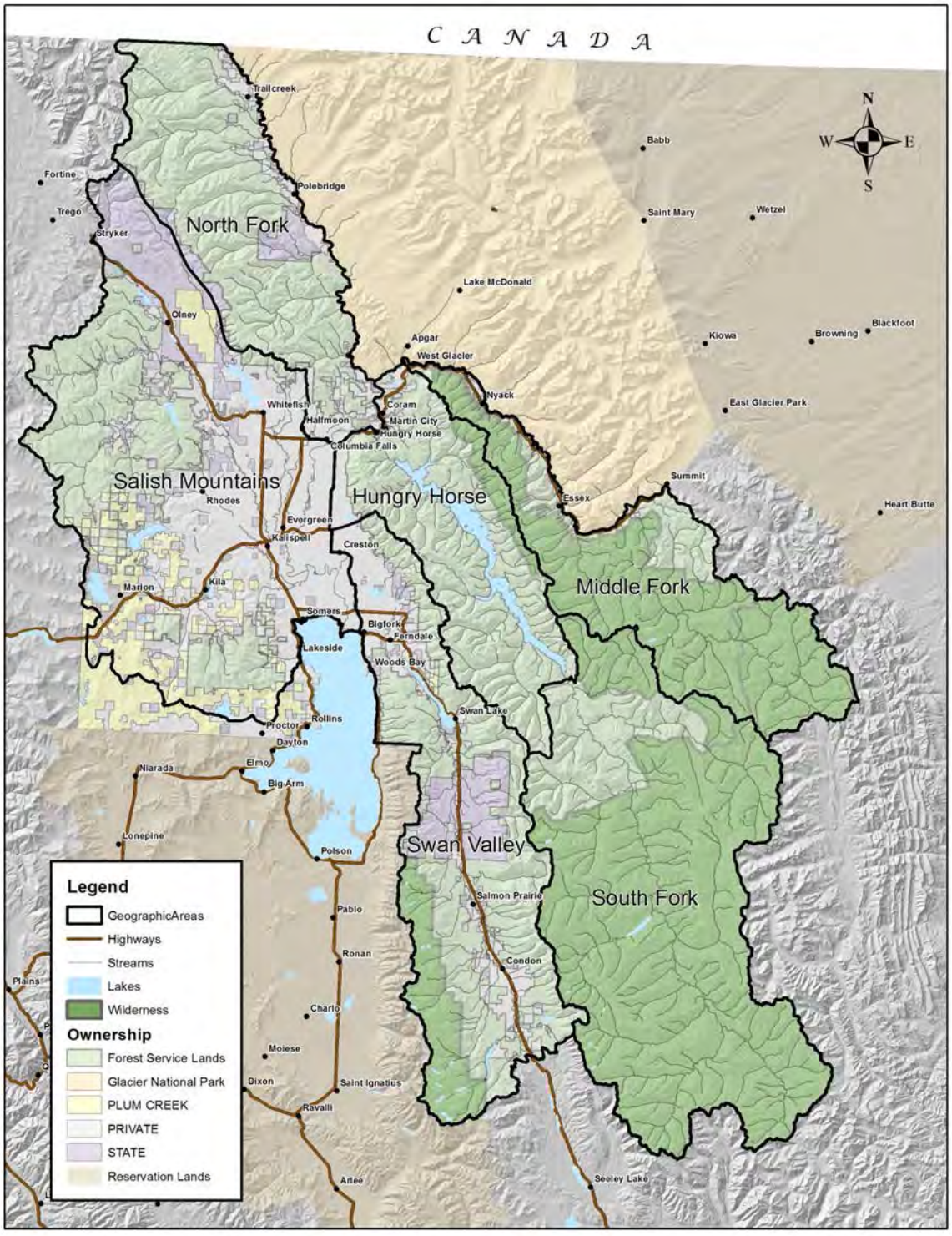


Figure 2. Geographic areas on the Flathead National Forest

Hungry Horse Geographic Area

General Overview

The Hungry Horse GA encompasses the lower half of the South Fork Flathead River basin, bordered by the Middle Fork Flathead River to the north, and dropping over the Swan Ridge to extend down to the Flathead Valley. The vast majority is in NFS ownership, with private lands primarily along the far north and east boundaries along the Highway 2 corridor and adjacent to the Flathead Valley. Portions of the Great Bear Wilderness lie within this GA. Portions of the Hungry Horse-Glacier View and Spotted Bear Ranger Districts lie within this GA.

Steep mountain slopes dissected by narrow stream channels characterize much of this GA. The Hungry Horse Reservoir is a primary feature within this GA. Elevations range from 3200 feet near the town of Hungry Horse, to well over 8000 feet on the highest mountain peaks. The vast majority of the GA is covered by forests on the cool moist-moderately dry biophysical setting. A small amount of cold, warm-moist and warm-dry sites also occur. For a map of the biophysical settings see appendix C, figure C-6, and refer to appendix A for a description and acres of the biophysical settings within this GA.

The Hungry Horse Reservoir provides the focal point for much of the recreation activities that are popular in this area, including boating, fishing, camping, hiking and driving for pleasure on the open loop road that surrounds the reservoir. More primitive recreational activities are also popular in the wilderness and large, roadless areas of the GA. Timber production has been a primary use within this GA also. The crest of the Swan Range runs north-south and provides limited motorized recreation in a semi-primitive setting. The section of Highway 2 between Hungry Horse and West Glacier provides the gateway to Glacier NP. This corridor has high use during the summer.

Unique Characteristics

- Contains the Hungry Horse Dam and Reservoir on the South Fork Flathead River. The dam, completed in 1953, impounds a reservoir, which is 35 miles long and covers over 23,000 acres.
- There is a popular 110-mile-long driving loop around the Hungry Horse Reservoir that provides access to areas of the reservoir and driving for pleasure opportunities.
- The area has a high quality fishery with a healthy bull trout population and an intact native fish assemblage; non-native fish, except grayling are not present.
- Most of the 15,300 acre Jewel Basin Hiking Area lies within this GA, and contains hiking trails without motorized, mechanized, or stock use.
- The Swan Crest Trail (Alpine #7) provides a long stretch of trail on a high mountain ridge.
- The Coram Experimental Forest in this GA and has been set aside for forest/ecological research purposes. Embedded in this experimental forest is the Coram RNA. .
- Hungry Horse Dam Visitor Center, operated by the Bureau of Reclamation, provides an opportunity for cooperative interpretation of Hungry Horse Reservoir and surrounding environment.

Table 34 displays the MA acres for the Hungry Horse GA. See figure C-18 for a depiction of the MAs in the Hungry Horse GA.

Table 34. Hungry Horse GA management area (MA) acres

MA	Name	Categories	Acres[a]	Percent
1	Wilderness	1a Designated	20,646	7.2
		1b Recommended	19,669	6.9
2	Wild and Scenic Rivers	2a Designated	747	0.3
		2b Eligible	1,726	0.6
3	Special and Administrative Areas	3a Existing	202	0.1
		3b Proposed	–	–
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	875	0.3
		4b Experimental and Demonstration Forests	6,766	2.4
5	Backcountry	5a Non-motorized year-round	30,356	10.6
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	30,983	10.8
		5c Motorized over-snow vehicle use	44,984	15.7
		5d Wheeled motorized vehicle use only on designated routes/areas	639	0.2
6	General Forest	6a Low	30,647	10.7
		6b Moderate	84,982	29.7
		6c High	–	–
7	Focused Recreation Areas		13,276	4.6
		Total NFS Lands	**286,497**	**100**

a. Similar to table 21, some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA2b – Proposed WSR).

Desired Conditions (GA-HH-DC)

01 The Hungry Horse Reservoir area provides a diverse spectrum of recreational opportunities ranging from developed fee sites to dispersed (non-fee) sites.

02 High quality recreation opportunities exist at the Hungry Horse Reservoir with concentrated use areas throughout the MA 7 designations.

03 The north end of the Hungry Horse Reservoir has recreational development that accommodates high use levels at concentrated developed sites.

04 Highly developed day use boat launches exist at multiple locations and have sufficient capacity to meet the public's needs on the north end of the Hungry Horse Reservoir.

05 Dispersed recreation sites in the Hungry Horse Reservoir area, along the shoreline and on islands have minimal impacts to shoreline vegetation, meet health and safety requirements, and bear-human interactions are minimized.

06 Motorized and non-motorized water-based recreation opportunities have sufficient reservoir access points along the Hungry Horse Reservoir for users to access the reservoir.

07 Water-based outfitter and guides and livery provide water-based outfitting experience for the public on the Hungry Horse Reservoir.

08 The Hungry Horse Race Track and other motorized trail systems (including Alpine 7, Columbia Mountain, and interconnecting trails along the Swan Divide) provide summer motorized opportunities close to local communities.

09 The loop road around the Hungry Horse Reservoir provide driving for pleasure opportunities and has vistas to view the reservoir and surrounding landscape and allow for passenger vehicles to travel in a moderate degree of user comfort and conveniences.

10 Hungry Horse Reservoir provides angling opportunities for bull trout and supports an intact native fish assemblage. Non-native species are not present in this GA except for Handkerchief Lake.

11 Lands in the area from Firefighter Mountain to Abbott Bay and in the Lion Lake area provide desired winter habitat conditions, including snow intercept cover, for big game species.

12 The area from the from Badrock Canyon east to Hungry Horse provides habitat connectivity for wide-ranging species (e.g., grizzly bear, Canada lynx, wolverine) moving between the South Fork, North Fork and the Middle Fork Flathead River watersheds.

Objectives (GA-HH-OBJ)

01 Improve 1 to 5 campgrounds.

02 Complete 2 to 5 vista enhancement projects along the Hungry Horse Reservoir.

03 Maintain the 110- mile loop around Hungry Horse Reservoir at ML 4.

Guidelines (GA-HH-GDL)

01 Timber harvest activities should maintain sufficient canopy to provide snow intercept cover to meet desired conditions for winter big game habitats, as determined by site-specific analysis.

Middle Fork Flathead Geographic Area

General Overview

The Middle Fork GA encompasses most of the Middle Fork Flathead River basin, and is bordered to the north by Glacier NP, which contains the remaining part of the river basin. The east boundary of the GA follows the crest of the Continental Divide, adjacent to the Lewis and Clark NF. The Great Bear Wilderness and a portion of the Bob Marshall Wilderness make up the vast majority of this geographic area, and the GA is largely wild and undeveloped. Only about 1 percent of the GA is in non-NFS ownership. This GA encompasses portions of the Hungry Horse-Glacier View and Spotted Bear Ranger Districts.

Rugged, remote terrain, including high, jagged mountain peaks (most reaching 7,000 to 8,000 or more feet in elevation), encasing moist cirque basins, and steep mountain slopes dissected by narrow stream channels characterize much of the area. Cool moist-moderately dry and cold biophysical settings cover the vast majority of this GA. Very little to no warm-moist or warm-dry types are present. For a map of the biophysical settings see appendix C, figure C-7, and refer to appendix A for a description and acres of the biophysical settings within this GA.

The Montana State Highway 2 corridor, on the northern boundary of this GA, is a busy area separating Glacier NP on the north and the Great Bear Wilderness to the south. This corridor includes heavy recreational use on the Middle Fork River, heavy recreational and general traffic on the state highway, the Burlington Northern-Santa Fe railroad line, a natural gas line, electrical transmission lines, and other utility and communications facilities. The GA is popular for recreational use and is a focal point for hiking, horseback riding, hunting, fishing, and for river float trips on the Middle Fork of the Flathead Wild and Scenic River. Snowmobiling is popular in the Skyland Creek area, near Marias Pass. Cross-country skiing and snowshoeing are also popular activities.

Unique Characteristics

- The area has some of the highest densities of grizzly bears in the lower 48 states and is key grizzly bear habitat.
- The area has a high quality fishery with a healthy bull trout population.
- The Middle Fork Flathead River, a designated Wild and Scenic River, is a free-flowing river that originates in the Bob Marshall Wilderness.
- The Schafer Meadows Ranger Station is a seasonally operating historical facility. This, along with several backcountry guard stations, and an intricate trail system make up the Flathead NF Backcountry Administrative Facilities Historic District..
- The GA contains the Schafer Meadows Airstrip, the only open airstrip within the BMWC.
- Soils are highly unstable in the Puzzle/Morrison Creek areas which are east of the Lewis overthrust. Mass failures are more common in this area than other parts of the Forest.

Table 35 displays the MA acres for the Middle Fork GA. See figure C-19 for a depiction of the MAs in the Middle Fork GA.

Table 35. Middle Fork GA management area (MA) acres

MA	Name	Category	Acres[a]	Percent
1	Wilderness	1a Designated	305,017	82.4

MA	Name	Category	Acres[a]	Percent
		1b Recommended	9,161	2.5
2	Wild and Scenic Rivers	2a Designated	5,128	1.4
		2b Eligible	–	–
3	Special and Administrative Areas	3a Existing	–	–
		3b Proposed	–	–
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	–	–
		4b Experimental and Demonstration Forests	–	–
5	Backcountry	5a Non-motorized year-round	12,156	3.3
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	–	–
		5c Motorized over-snow vehicle use	18,371	5.0
		5d Wheeled motorized vehicle use only on designated routes/areas	–	–
6	General Forest	6a Low	12,751	3.4
		6b Moderate	7,280	2.0
		6c High	–	–
7	Focused Recreation Areas		163	<0.1
		Total NFS Lands	**370,026**	**100**

a. Similar to table 21, some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

Desired Conditions (GA-MF-DC)

01 The lower Middle Fork of the Flathead Wild and Scenic River corridor (from Bear Creek to Blankenship) is managed in cooperation with Glacier NP to protect its outstandingly remarkable values. Management of infrastructure (e.g., pipelines, railroad, gas lines, highways) within the wild and scenic river corridor is coordinated with Glacier NP.

02 The Challenge-Skyland groomed trails provide quality motorized over-snow recreational opportunities.

03 The Essex area provides quality groomed Nordic skiing opportunities for the public that is easily accessed from local communities.

04 Safe winter parking opportunities and access to NFS lands and trailheads off of US Highway 2 are provided in conjunction with support from partners (e.g., Montana Department of Transportation, Issac Walton Inn, Burlington Northern Santa Fe Railroad (BNSF).

05 Essex Creek provides clean water for the Essex community.

06 The area from Lake Five to West Glacier and the area from Essex to the east provide habitat connectivity for wide-ranging species (e.g., grizzly bear, Canada lynx, wolverine) moving between Glacier NP and the Middle Fork watershed.

07 The Schafer Meadows Airstrip provides public and administrative access for small aircraft not exceeding 550 landings annually. .

08 Emergency disaster response plans developed cooperatively with BNSF Railroad will be implemented immediately to protect the Middle Fork Flathead River corridor.

09 A portion of the Middle Fork GA is withdrawn from mining and mineral leasing laws, subject to valid and existing rights per the North Fork Watershed Protection Act of 2013[11]. See figure C-25.

10 The Flathead NF Backcountry Administrative Facilities Historic District adjacent to and within the Bob Marshall and Great Bear Wilderness areas provide recognition for national and regional wilderness and land management history.

Objectives (GA-MF-OBJ)

01 Acquire one parcel and/or provide an easement for one wildlife crossing structure along Highway 2 and the BNSF railway.

[11] Sec. 3063, North Fork Federal Lands Withdrawal Area, of the Buck McKeon National Defense Authorization Act was enacted fiscal year 2015.

North Fork Flathead Geographic Area

General Overview

The North Fork GA lies within the North Fork Flathead River basin, and encompasses all the lands on the west side of the river. Lands on the east side of the river are managed by Glacier NP. The headwaters of the North Fork Flathead River lie in Canada to the north. The crest of the Whitefish Range forms the west boundary of this GA, with the highest peaks reaching close to 8,000 feet in elevation. The northwest boundary of this GA is adjacent to the Kootenai NF. The southern boundary of this GA extends down to about 3000 feet in elevation, and borders the Middle Fork Flathead River and the town of Columbia Falls. Private and state land holdings are dispersed from the southern end of this GA north to the Canadian border, concentrated in the regions of gentler terrain nearest the river and nearest the town of Columbia Falls. The GA includes the approximately 20,000 acre Coal Creek State Forest. This GA includes portions of the Hungry Horse-Glacier View Ranger District.

Steep mountain slopes bisected by narrow stream channels characterize most of this GA. From the Canadian border the North Fork is generally wide, with large areas of rolling terrain and terraces bordering the river Flathead River valley bottom and narrows at its southernmost end. The cool moist-moderately dry biophysical setting covers the great majority of this GA. Most of the remaining land is high elevation, with cold settings. A fairly good representation of sites in the warm-moist biophysical setting occurs in the far southern end of the GA. Almost no warm-dry sites occur in the GA. For a map of the biophysical settings see appendix C, figure C-8, and refer to appendix A for a description and acres of the biophysical settings within this GA.

The combination of large inventoried roadless areas and its proximity to Glacier NP influence the kind of uses that this area has traditionally received. Recreational activities are popular, ranging from backcountry non-motorized uses to high quality snowmobile experiences. Timber production has been a major activity in portions of this GA. The small community of Polebridge is within the GA. Other nearby communities include Hungry Horse and Columbia Falls.

Unique Characteristics

- The North Fork Flathead River is a free-flowing, designated Wild and Scenic River that originates in Canada and is managed cooperatively with Glacier National Park.
- Contains seven significant wetland complexes; some of the least impacted wetlands in the Flathead River watersheds.
- The Big Creek Work Center is currently occupied by Glacier Institute, which provides quality environmental education in cooperation with the Forest Service and other resource management agencies.
- The area has some of the highest densities of grizzly bears in the lower 48 states and is key grizzly bear habitat.
- Shares a border with Glacier NP and an international border with Canada referred to as the Transboundary Flathead.
- Contains Tuchuck RNA, which is a reference habitat for a subalpine larch/subalpine fir habitat type.
- A portion of the Whitefish Mountain Resort is within this GA.

Table 36 displays the acres identified within each MA for the North Fork GA. See figure C-20 for a depiction of the MAs in the North Fork GA.

Table 36. North Fork GA management area (MA) acres

MA	Name	Category	Acres[a]	Percent
1	Wilderness	1a Designated	–	–
		1b Recommended	80,662	25.2
2	Wild and Scenic Rivers	2a Designated	6,801	2.1
		2b Eligible	5,817	1.8
3	Special and Administrative Areas	3a Existing	12	<0.1
		3b Proposed	–	–
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	–	–
		4b Experimental and Demonstration Forests	–	–
5	Backcountry	5a Non-motorized year-round	55,685	17.4
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	–	–
		5c Motorized over-snow vehicle use	9,339	2.9
		5d Wheeled motorized vehicle use only on designated routes/areas	–	–
6	General Forest	6a Low	67,114	21.0
		6b Moderate	90,904	28.4
		6c High	–	–
7	Focused Recreation Areas		3,697	1.2
		Total NFS Lands	**320,032**	**100**

a. Similar to table 21 some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

Desired Conditions (GA-NF-DC)

01 The Canyon Creek groomed trails provide quality motorized over-snow recreation. Mixed-use of over-snow vehicles and downhill skiers would be compatible in the Canyon Creek area.

02 Commercial outfitted river use continues to be a key element in providing guided fishing and rafting experience on the North Fork of the Flathead River.

03 Additional over-snow opportunities exist in designated areas in the McGinnis, Deep and Look-out Creek areas.

04 Designated over-snow motorized areas remain on the landscape to continue to provide over-snow opportunities.

05 The North Fork road has vistas and vehicle pullouts to view Glacier NP and the North Fork of the Flathead River.

06 Cedar Flats OHV Area area provides summer motorized opportunities close to local communities. Opportunities for expansion are considered when compatible with other resource needs.

07 A mountain bike trail would provide alpine riding opportunities in the Whitefish Range.

08 The North Fork of the Flathead Wild and Scenic River corridor is managed in cooperation with Glacier NP to protect its outstandingly remarkable values.

09 Big Creek Work Station provides a base for facilitated education on NFS land.

10 The Cedar Creek/Crystal Creek/Teakettle Mountain areas provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, wolverine) moving between the Swan Valley, Hungry Horse, Middle Fork, and North Fork watersheds.

11 The Transboundary Flathead River Basin provides habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, wolverine) moving between Glacier National Park and the Whitefish Range.

12 The North Fork GA is withdrawn from mining and mineral leasing laws, subject to valid and existing rights per the North Fork Watershed Protection Act of 2013[12] (refer to figure C-25).

13 Aggregate sources from existing quarry sources or gravel pits will be available to maintain roads and as a source of building material. If materials are exhausted at existing sites, potential new sites will be developed.

14 Lands in the lower elevations and valley bottoms from lower Big Creek to Polebridge provide desired winter habitat conditions, including snow intercept cover, for big game species.

15 Migratory bull trout and westslope cutthroat trout populations exist and Transboundary agreements with Canada protect water quality to sustain these important native fish.

Objectives (GA-NF-OBJ)

01 Complete one vista enhancement and vehicle pull out project.

02 Complete 1 to 3 trails that provide for mountain bike opportunities in the Whitefish Range vicinity.

03 Acquire one parcel and/or provide an easement for one wildlife crossing structure along Highway 2, the North Fork Road #486, and/or the BNSF railway.

04 Improve 1-2 campgrounds.

Guidelines (GA-NF-GDL)

01 Timber harvest activities should maintain sufficient canopy to provide snow intercept cover to meet desired conditions for winter big game habitats, as determined by site-specific analysis.

[12] Sec. 3063, North Fork Federal Lands Withdrawal Area, of the Buck McKeon National Defense Authorization Act was enacted fiscal year 2015.

Salish Mountains Geographic Area

General Overview

The Salish Mountain GA lies in the relatively gently sloped, rolling terrain of the Salish Mountain range, and includes most of the main Flathead River valley. National forest lands comprise 31 percent of the area, with most land in private or state ownership, including the Stillwater State Forest (refer to figure C-21). Elevations are relatively low and the terrain relatively rolling when compared to the rest of the forest, ranging from about 2,900 feet in the Flathead River valley bottom up to about 6,500 feet on the peaks that form the western boundary of the GA, adjacent to the Kootenai National Forest. Private ownership and Flathead Indian Reservation lands border to the south. The Tally Lake Ranger District and the portion of the Swan Lake Ranger District that lies west of the community of Lakeside are within this GA.

Due to the favorable topography and relatively close proximity to human settlements, lands within this GA were some of the earliest to be influenced by activities, such as logging, grazing and fire suppression, associated with settlement of the surrounding area by Euro-Americans in the mid to late 1800s. A wide network of roads currently exists to access private ownership and federal lands that have been managed primarily for timber production during the last several decades. Communities near this area include Whitefish, Kalispell, Olney, Lakeside, Marion, Kila and Somers.

The cool-moist to moderately dry biophysical setting covers the majority of the GA. However, nearly a quarter of the total acres on the Flathead NF in the warm-dry biophysical setting lie within this GA, due to the preponderance of lower elevation sites and generally drier soils and weather patterns. A small portion of the Flathead NF sites in the warm-moist biophysical setting also occur, concentrated in the north end within the Stillwater River basin. Very little high elevation, cold settings occur in this GA. For a map of the biophysical settings see appendix C, figure C-9, and refer to appendix A for a description and acres of the biophysical settings within this GA.

Recreation is a major use within this GA, including hiking, hunting, mountain biking, motorized trail riding, horseback riding, snowmobiling and skiing. Timber production is another major use.

Unique Characteristics

- Numerous large lakes, including Tally Lake, Little Bitterroot Lake, Upper and Lower Stillwater Lakes, Ashley Lake, and Whitefish Lake, provide a variety of water-based recreational opportunities.
- Whitefish Mountain Resort and Blacktail Mountain Ski Area are popular destinations for both local residents and visitors.
- The Pete Ridge area is one of the most important white-tailed deer winter ranges in Montana.
- Lebeau and Little Bitterroot RNAs and Johnson Terrace are unique topographic features that harbor a diversity of plants unique among the forested landscape.
- Seven ecologically significant wetland complexes with a diversity of plants and features.

Table 37 displays the acres identified within each MA for the Salish GA. Figure C-21 depicts the MAs in the Salish Mountains GA.

Table 37. Salish GA management area (MA) acres

MA	Name	Category	Acres[a]	Percent
1	Wilderness	1a Designated	–	–
		1b Recommended	–	–
2	Wild and Scenic Rivers	2a Designated	–	–
		2b Eligible	1,274	0.5
3	Special and Administrative Areas	3a Designated	107	<0.1
		3b Recommended	331	0.1
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	5,589	2.1
		4b Experimental and Demonstration Forests	4,942	1.9
5	Backcountry	5a Non-motorized year-round	6	<0.1
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	–	–
		5c Motorized over-snow vehicle use	–	–
		5d Wheeled motorized vehicle use only on designated routes/areas	–	–
6	General Forest	6a Low	8,769	3.3
		6b Moderate	60,613	23.1
		6c High	169,068	64.3
7	Focused Recreation Areas		12,170	4.6
		Total NFS Lands	**262,870**	**100**

a. Similar to table 21, some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

Desired Conditions (GA-SM-DC)

01 Within NCDE Zone 1 (including the Salish DCA (see Appendix D, figure D-2), roads provide for public and administrative access to National Forest System lands while keeping disturbance and displacement of grizzly bears (during the non-denning season) at levels known to have been compatible with a stable to increasing grizzly bear population in the NCDE. The DCA provides habitat that can be used by female grizzly bears and allows for bear movement between grizzly bear ecosystems.

02 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. Summer recreation opportunities in the Whitefish Mountain Resort permit area are concentrated on the south facing slope. Recreation use on the north slope of the permit area and in the Hellroaring drainage is not encouraged during the grizzly bear non-denning season in order to reduce the risk of grizzly bear-human conflicts in the PCA (figure C-2).

03 Forest conditions within the Whitefish Mountain Resort and Blacktail Mountain Ski area are conducive to achieving the desired recreational setting and experience for users.. Forests have structure, composition and densities that are resilient to disturbances such as fire, insects and disease.

04 Groomed over-snow vehicle routes would continue to provide recreation opportunities to Whitefish Mountain Resort on Big Mountain.

05 A connective non-motorized trail system exists linking the Whitefish Legacy Trails to NFS lands in the Haskill Basin area, summit of Big Mountain and the Whitefish Divide.

06 The Round Meadows Cross-country Ski Area provides Nordic skiing opportunities in the winter and non-motorized recreation opportunities such as hiking, mountain biking and equestrian use in the summer.

07 The three campgrounds on Ashley Lake provide a quality developed camping opportunities that complements the existing built environment of the Ashley Lake community.

08 A non-motorized trail system exists on NFS lands that connects to the Foy's to Blacktail Trail System to provide a non-motorized linked trail system to Blacktail Mountain close to local communities.

09 Maintain a non-motorized trail system that connects the community of Lakeside to Blacktail Mountain.

10 The Blacktail Mountain Cross-country Ski Trail system provides Nordic skiing opportunities.

11 The Wild Bill OHV National Recreation Trail provides yearlong recreation opportunities allowing wheeled motorized vehicle use on designated routes, with loop trails and connectors to the Blacktail and Truman Creek OHV Trail systems. Developed challenge features are provided along a portion of the trail system.

12 Facilities at the ski area provide year-round recreation within the existing Blacktail Mountain Ski Area permit boundary.

13 Motorized trails (single track or OHV) provide high-elevation loop opportunities.

14 The area along Highway 93 near the boundary of the Flathead NF and Kootenai NF provides habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx) moving between the Whitefish and Salish Mountain Ranges.

15 Sufficient security from disturbance exists for all big game species during the hunting and winter seasons (e.g. security for wintering white-tailed deer on NFS lands adjacent to private lands in the Pete Ridge/Pilot Knob and Rogers Lake to Smith Lake areas).

16 Lands in the following areas provide desired winter habitat conditions, including snow intercept cover, for big game species: 1) Pete Ridge, Pilot Knob, the area from Rhodes Draw to just north of Good Creek and from the Stillwater River west to Tally Lake and Lost Creek; 2) Porter, Mount, Truman, Emmons, Stoner, and Cramer Creek sub-watersheds.

17 A hut-to-hut system provides for progressive use of forest facilities that link Round Meadow with Sylvia Lake.

18 Transitory forage is available within active grazing allotments that are compatible with other resources.

19 Habitat conditions in fens within this GA (Bowen Creek, Gregg Creek, and Sanko Creek fens) support sustainable and healthy populations of the plant and animal species or communities associated with this feature. (Also see forestwide and MA 3 plan components for peatlands and fens).

20 Haskill Basin which is the municipal watershed for Whitefish is managed to reduce the risk of high intensity fires that have the potential to affect water quality.

Objectives (GA-SM-OBJ)

01 Reconstruct three campgrounds at Ashley Lake within the next 10 years.

02 Construct a non-motorized trail that connects NFS lands in the Blacktail vicinity to the Foy's to Blacktail Trail System.

03 Construct and designate motorized trail connectors that provide high elevation loop opportunities.

04 Construct a non-motorized trail that connects the Whitefish Trails[13] to NFS lands.

05 Implement vegetation treatments within Haskill Basin (Whitefish) municipal watershed to reduce the risk of high severity fire that could potentially affect water quality. Also see GA-SM-DC-17.

Standards (GA-SM-STD)

01 Within the Flathead National Forest portion of NCDE Zone 1 (including the Salish DCA)(see figure C-1), there shall be no net increase in the density of roads that are open yearlong to public use above the levels displayed in table 38, for each geographic unit[14] (see figure C-26) on National Forest System lands. This does not apply to the following:

- motorized use of roads for National Forest land management activities (e.g., timber sales, landscape restoration, and other treatments).
- motorized use by agency personnel or others authorized by the appropriate agency personnel
- updated/improved road data without an actual change on the ground;
- changes in technology or projections result in changed calculations without actual change on the ground (e.g., a switch from NAD27 to NAD83 projection);
- a road closure device that is moved a short distance (often <0.25 miles) to a better location to allow turn-arounds providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- Road density changes resulting from the agency exchanging, buying or selling lands;
- 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 valid existing rights and have a separate set of standards and guidelines;
- a change in an open road is necessary to comply with Federal laws (e.g., Federal Rehabilitation Act);

[13] Find additional information about this trail system at http://whitefishlegacy.org.
[14] The term "geographic unit" is a unique term used to express the area that was used for calculating the density of roads open yearlong to public motorized use in the Salish GA. The term originates from the 1986 Flathead Forest Plan.

- a change in an open road is necessary to address grizzly bear-human conflicts, resource damage, or human safety concerns;
- a change in a motorized route is made that has been evaluated through the USFWS Section 7 consultation process and was shown to be acceptable while grizzly bears were listed as Threatened under the ESA;
- motorized use for emergency situations as defined by 36 CFR 215.2;
- temporary roads (see glossary).

Table 38. Maximum density of roads open to the public yearlong by geographic unit

Geographic Unit	Maximum density requirement (avg. linear miles/section of NFS lands)
Swan Lake Ranger District	
Island Geographic Unit	3.2
Tally Lake Ranger District	
Olney-Martin Creek Geographic Unit	1.8
Upper Good Creek Geographic Unit	1.8
Sylvia Lake Geographic Unit	1.8
Star Meadow-Logan Creek Geographic Unit	2.2
Tally Lake-Round Meadow Geographic Unit	2.2
Mountain Meadow-Rhodes Draw Geographic Unit	2.2
Upper Griffin Geographic Unit	3.2
Ashley Lake Geographic Unit	3.2

Guidelines (GA-SM-GDL)

01 Elk security areas should be provided in proximity to key habitats during key seasons (e.g., known calving or calf-rearing areas or winter habitats). Elk security areas provided during the elk hunting season (to be determined and assessed at the project level) should be coordinated with Montana Fish Wildlife and Parks in order to balance desired elk populations with desired levels and types of hunter access.

02 Timber harvest activities should maintain sufficient canopy to provide snow intercept cover to meet desired conditions for winter big game habitats, as determined by site-specific analysis. On big game winter range lands in the Pete Ridge/Pilot Knob and Rogers Lake to Smith Lake areas, provide contiguous areas of snow-intercept cover that are at least 200 acres in size shaping such areas in a way that minimizes edge habitat.

South Fork Geographic Area

General Overview

The South Fork GA is the largest on the Flathead NF, and encompasses the upper half of the South Fork Flathead River basin. It is bordered by the peaks of the Swan Mountain range to the west and the crest of the Continental Divide to the east, adjacent to the Lewis and Clark NF. This GA includes the vast, undeveloped area of the Bob Marshall Wilderness and portions of the Great Bear Wilderness, highly variable in topography and elevation. Wide, gently sloped river valley bottom lands contrast with very high, rugged, and steeply sloped mountain peaks and cirque basins, with elevation ranging from 3600 to over 8000 feet. These lands support a great diversity of vegetation types and outstanding habitats for native fish and wildlife species such as grizzly bears, gray wolves, and bull trout. This GA includes all of the Spotted Bear Ranger District, and is entirely in NFS ownership.

The cool-moist to moderately dry biophysical setting covers the majority of the GA. Because of the preponderance of high elevation lands, the cold biophysical setting is well represented. Nearly half of all acres on the Flathead NF in the warm-dry biophysical setting are located in this GA, concentrated in the lower elevations, southerly aspects, and terraces along the South Fork Flathead River valley. Many of these sites support stands of ponderosa pine. Almost no sites in the warm-moist biophysical setting occur, due to the generally drier conditions within this GA compared to others. This is partly due to the "rain shadow" effect of the Swan Mountain Range to the west. For a map of the biophysical settings see appendix C, figure C-10, and refer to appendix A for a description and acres of the biophysical settings within this GA.

This GA is popular for recreational use. It is a focal point for hiking, horseback riding, hunting, fishing, and for river float trips on the Wild and Scenic South Fork of the Flathead River. Many of the visitors to the wilderness utilize outfitter services given the vastness and remoteness.

Unique Characteristics

- The Bob Marshall Wilderness and a portion of the Great Bear Wilderness make up the majority of this geographic area. They are part of the BMWC, which includes lands on the Flathead, Lewis and Clark, Lolo, and Helena NFs. The BMWC is part of one of the largest remaining wildland areas in the lower 48 states, containing world-class backcountry and is entirely in NFS lands ownership.
- There is a popular 110-mile-long driving loop around the Hungry Horse Reservoir that provides access to areas of the reservoir and driving for pleasure opportunities.
- Very large expanses of unroaded lands characterize most of this GA, allowing for fire and other natural processes to play a dominant role in the ecosystem.
- The South Fork of the Flathead River, from Youngs Creek to the Hungry Horse Reservoir, is a designated Wild and Scenic River.
- Two airstrips, Meadow Creek and Spotted Bear, are within the Wild and Scenic River Corridor.
- Bent Flat and Trail Creek, two significant, high quality fens located along the Spotted Bear River, harbor numerous rare wetland plant species.
- The Dry Park, Horse Ridge, lower Spotted Bear River, and Danaher to Big Prairie areas provide key winter habitat for big game species.

- Bull trout migrate from Hungry Horse Reservoir and provide catch and release angling that is found nowhere else in Montana; Westslope cutthroat trout populations are non-hybridized as there are no non-native fish populations.

The Spotted Bear Ranger Station and Big Prairie Ranger Station are seasonally operating historical facilities. These, along with several backcountry guard stations, 40 miles of operational historic phone line and an intricate trail system makes up the Flathead NF Backcountry Administrative Facilities Historic District .Table 39 displays the acres identified within each MA for the South Fork GA. Figure C-22 depicts the MAs in the South Fork GA.

Table 39. South Fork GA management area (MA) acres

MA	Name	Category	Acres[a]	Percent
1	Wilderness	1a Designated	671,778	85.1
		1b Recommended	27,709	3.5
2	Wild and Scenic Rivers	2a Designated	4,679*	0.6
		2b Eligible	4,507	0.6
3	Special and Administrative Areas	3a Existing	94	<0.1
		3b Proposed	–	–
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	–	–
		4b Experimental and Demonstration Forests	–	–
5	Backcountry	5a Non-motorized year-round	40,829	5.2
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	–	–
		5c Motorized over-snow vehicle use	7,473	0.9
		5d Wheeled motorized vehicle use only on designated routes/areas	0	<0.1
6	General Forest	6a Low	6,615	0.8
		6b Moderate	25,521	3.2
		6c High	–	–
7	Focused Recreation Areas		7	<0.1
		Total NFS Lands	**789,211**	**100**

a. Similar to table 21, some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

Desired Conditions (GA-SF-DC)

01 The 40 miles of operational historic phone line is maintained for continued use for wilderness management.

02 Habitat conditions in fens within this GA (Bent Creek, Trail Creek, and several fens within the Bob Marshall Wilderness Complex) support sustainable and healthy populations of the plant species or communities associated with this feature. (Also see forestwide and MA 3 plan components for peatlands and fens.)

03 The Flathead NF Backcountry Administrative Facilities historic district adjacent to and within the Bob Marshall and Great Bear Wilderness areas provide recognition for national and regional wilderness and land management history.

04 The Spotted Bear and Meadow Creek Airstrips provide public and administrative access for small aircrafts.

05 The Dry Park, Horse Ridge, lower Spotted Bear River and Danaher to Big Prairie areas provide desired winter habitat conditions, including snow intercept cover, for big game species.

06 Non-native fish populations are absent. Fishing for bull trout and westslope cutthroat trout provide for unique angling opportunities. High mountain lakes contribute to those angling opportunities.

Objectives (GA-SF-OBJ)

01 Annually, maintain 40 miles of the historic phone line.

02 Improve 1-2 campgrounds.

Guidelines (GA-SF-GDL)

01 Timber harvest activities should maintain sufficient canopy to provide snow intercept cover to meet desired conditions for winter big game habitats, as determined by site-specific analysis.

Swan Valley Geographic Area

General Overview

The Swan Valley GA encompasses the entire Swan River basin, as well as extending north into the eastern portion of the Flathead River valley and extending west to encompass a portion of the east shore Flathead Lake. The Flathead Indian Reservation borders the GA to the west, following the shore of Flathead Lake and the Mission Mountains divide. The divide between the Swan River and Clearwater River basins forms the southern border, shared by the Lolo NF. The peaks of the Swan Range form the eastern border.

The Flathead River Valley in the northern portion of the GA is mostly non-NFS ownership. A substantial portion (about 28%) of the Swan River watershed is also non-NFS ownership, about half of which is the approximately 61,000 acre Swan River State Forest. Acres in the Swan Valley in private ownership were much higher prior to 2010, when the Forest Service acquired about 45,000 acres of Plum Creek Timber lands through the Montana Legacy Land Donation. Portions of the Swan Lake Ranger District are within this GA.

The Swan River watershed is characterized by a wide valley bottom of flat to rolling, gently sloped terrain, bordered on both sides by rugged mountains jutting up steeply from the valley floor. Elevation ranges from about 3000 feet at the mouth of the Swan River on the shore of Flathead Lake, to over 8000 feet on the highest peaks of the Swan Range and Mission Mountains. Terrain, soils, and weather patterns all contribute to the generally high precipitation and productivity of lands within the Swan River valley, when compared to other regions of the Flathead NF. The majority of the warm-moist biophysical settings, the most productive lands that occur on the Flathead NF, are within this GA. Warm-dry biophysical settings also occur on some of the drier aspects and soil types. The high elevations of the Mission and Swan Mountain ranges support a good representation of cold biophysical settings. For a map of the biophysical settings see appendix C, figure C-11, and refer to appendix A for a description and acres of the biophysical settings within this GA.

This GA links the BMWC and the Mission Mountains Wilderness and is an important connectivity zone for many species of wildlife including grizzly bears. Recreation is a major use within this GA, as well as timber management.

Unique Characteristics

- The Mission Mountains Wilderness is within this GA.
- This GA contains Swan, Holland, and Lindbergh lakes, which are popular day-use and camping areas.
- The GA contains large acreage of riparian habitats, including the most extensive, floristically diverse concentration of peatlands (fens) on the valley floor of this GA.
- This GA contains most of the known populations of water howellia, a federally-listed, threatened plant that depends on seasonally drying ponds. Condon Creek Botanical Area supports a significant concentration of water howellia.
- The Swan Valley provides key winter habitat for big game species.
- Swan River RNA occurs in this GA and is managed in partnership with the Nature Conservancy to preserve rare aquatic habitats.
- The Swan Crest Trail (Alpine #7) provides a long stretch of trail on a high mountain ridge.
- A portion of the 15,350 acre Jewel Basin Hiking Area lies within this GA, and contains hiking trails without motorized, mechanized, or stock use.

- The Condon Airstrip is an open public airstrip in the Swan Valley.

Table 40 displays the acres identified within each MA for the Swan Valley GA. Figure C-23 depicts the draft MAs in the Swan Valley GA.

Table 40. Swan Valley GA management area (MA) acres

MA	Name	Category	Acres[a]	Percent
1	Wilderness	1a Designated	74,778	20.5
		1b Recommended	51,005	14.0
2	Wild and Scenic Rivers	2a Designated	–	–
		2b Eligible	4,902	1.3
3	Special and Administrative Areas	3a Existing	10	<0.1
		3b Proposed	1,156	0.3
4	Research Natural Areas and Experimental and Demonstration Forests	4a Existing Research Natural Areas	1,340	0.4
		4b Experimental and Demonstration Forests	–	–
5	Backcountry	5a Non-motorized year-round	9,292	2.6
		5b Motorized year-round, wheeled vehicle use only on designated routes/areas	19,177	5.3
		5c Motorized over-snow vehicle use	17,577	4.8
		5d Wheeled motorized vehicle use only on designated routes/areas	9,404	2.6
6	General Forest	6a Low	5,211	1.4
		6b Moderate	166,470	45.7
		6c High	–	–
7	Focused Recreation Areas		4,047	1.1
		Total NFS Lands	**364,370**	**100**

a. Similar to table 21, some MAs overlap (e.g., MA1b – Recommended Wilderness may have an overlapping MA4 – RNA).

Desired Conditions (GA-SV-DC)

01 Known sites and habitat for the threatened species water howellia (*Howellia aquatilis*) persist over time in special aquatic habitats and backwaters in larger, low elevation valleys (also see FW-PLANTS).

02 A system of trails provide mountain biking opportunities in the Crane Mountain area.

03 The Crane Mountain groomed over-snow vehicles trail system provides for motorized winter recreation opportunities close to local communities.

04 The Swan Highway (MT 83) from Swan Lake to Holland Lake has vistas to view the Mission Mountains and Swan Range.

05 Lands acquired in the Swan Valley provide access to the public while maintaining and improving water quality, wildlife habitat conditions, and water howellia habitat.

06 Educational guided services would be provided in the Mission Mountains Wilderness.

07 The Swan Valley, from the Swan Lake Ranger District boundary on the south to the Swan Lake State Forest boundary on the north, provides desired winter habitat conditions, including snow intercept cover, for big game species.

08 The mosaic pattern created by variable forest compositions, age classes and/or structural characteristics is trending towards desired conditions for vegetation (refer to forestwide desired conditions under Terrestrial Ecosystem and Vegetation section), particularly in areas of the Swan Valley landscape where past land ownership patterns and management practices have created an unnatural "checkerboard" pattern of vegetation conditions.

09 The extensive and floristically diverse concentration of peatlands and fens within this GA supports sustainable and healthy populations of the plant species or communities associated with this feature. (Also see forestwide and MA 3 plan components for peatlands and fens.)

10 Glacier, Cold, and Upper Cold Lakes provide day use only opportunities in the Mission Mountains Wilderness.

11 The area along Highway 83 near the boundary of the Flathead NF and Lolo NF, the area near Condon, and the area near Swan Lake provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, and wolverine) moving between the Swan and Mission Mountain Ranges.

12 Educational guide service would be provided in the Mission Mountains Wilderness.

Objectives (GA-SV-OBJ)

01 Construct a mountain bike trail in the Crane Mountain area.

02 Complete one vista enhancement project along the Swan Highway (MT 83).

03 Construct a second public access to Swan Lake.

04 Improve 1 to 3 campgrounds.

Guidelines (GA-SV-GDL)

01 The number of open and active cattle grazing allotments should be reduced when opportunities with willing permittees arise (e.g., when base properties are sold).

02 Consultation with the Confederated Salish and Kootenai Tribes should occur prior to authorization of new permits that provide educational guided services in the Mission Mountains Wilderness.

03 Timber harvest activities should maintain sufficient canopy to provide snow intercept cover to meet desired conditions for winter big game habitats, as determined by site-specific analysis.

04 If talus slopes with known locations for the Carinate mountainsnail are proposed for use as a gravel source, or if vegetation management activities (e.g. timber harvest, weed spraying) are proposed on or adjacent to talus slopes with known Carinate mountainsnail populations, detrimental effects should be avoided.

List of Abbreviations

A21	Amendment 21 to the Flathead NF Forest Plan
A24	Amendment 24 to the Flathead NF Forest Plan
BASI	best available scientific information
BMP	best management practice
BMU	bear management unit
BMWC	Bob Marshall Wilderness Complex
BNSF	Burlington Northern Santa Fe Railroad
CDNST	Continental Divide National Scenic Trail
CEF	Coram Experimental Forest
CFR	Code of Federal Regulations
d.b.h.	diameter at breast height
DC	desired condition
DCA	demographic connectivity area
ESA	Endangered Species Act
FIA	Forest Inventory and Analysis
FSM	Forest Service Manual
FW	Forestwide
GA	geographic area
GBCS	grizzly bear conservation strategy
GDE	groundwater dependent ecosystem
GDL	guideline
GIS	geographic information system
HFRA	Healthy Forest Restoration Act (of 2003)
INFISH	Inland Native Fish Strategy
IRA	inventoried roadless area
LAU	lynx analysis unit
LCAS	Lynx Conservation and Assessment Strategy
MA	management area
MCDF	Miller Creek Demonstration Forest
mi	mile
MMBF	million board feet
MMCF	million cubic feet
NCDE	Northern Continental Divide Ecosystem
NF	National Forest
NFMA	National Forest Management Act
NFS	National Forest System
NRHP	National Register of Historic Places
NP	National Park

NRLA	Northern Rockies Lynx Amendment
NRLMD	Northern Rockies Lynx Management Direction
NRV	natural range of variation
OBJ	objective
OHV	off-highway vehicle
OMRD	open motorized route density
ORV	outstanding remarkable value
PCA	primary conservation area
PNST	Pacific Northwest National Scenic Trail
PTSQ	projected timber sale quantity
PWSQ	projected wood sale quantity
RACR	Roadless Area Conservation Rule
RHCA	riparian habitat conservation area
RMO	Road management objective
RNA	research natural area
ROS	recreational opportunity spectrum
SCC	species of conservation concern
SIO	scenic integrity objective
SOPI	species of public interest
STD	standard
SVGBCA	Swan Valley Grizzly Bear Conservation Agreement
SYL	sustained yield limit
TMDL	Total Maximum Daily Load
TMO	trail management objective
TMRD	total motorized route density
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WCF	Watershed Condition Framework
WUI	wildland-urban interface
WSR	Wild and scenic river

Glossary

The glossary defines terms used throughout the document. If a term's definition(s) is associated with a particular species, management direction, or originates from a specific source, the source is cited or applicable direction is referenced with the following bracketed abbreviations:

- [GBCS] Grizzly Bear Conservation Strategy for the Northern Continental Divide Ecosystem (draft 2013, final in progress).
- [NCDE Food/Wildlife Attractant Storage Orders] one or more special orders related to occupancy and use restrictions for the Northern Continental Divide Ecosystem for grizzly bears
- [NRLMD] Northern Rockies Lynx Management Direction 2007
- [LCAS] Lynx Conservation and Assessment Strategy 2013
- [NWCG] National Wildfire Coordinating Group 2013.

activity area a land area affected by a management activity to which soil quality standards are applied. An activity area must be feasible to monitor and includes harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within range allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are considered to be part of an activity area.

adaptive management the general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 Code of Federal Regulations (CFR) 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

administrative site a location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on National Forest Service lands include, but are not limited to, ranger stations, warehouses, and guard stations. [GBCS]

administrative use a generic term for authorized agency activity. Specifically, in the portion of the Northern Continental Divide Ecosystem (NCDE) for grizzly bears mapped as the primary conservation area, motorized use of roads closed to the public is permitted for federal agency personnel or personnel authorized to perform duties by appropriate agency officials, as long as it does not exceed either 6 trips (3 round trips) per week OR one 30-day unlimited use period during the non-denning season (see also **non-denning season**). [GBCS]

animal unit month the amount of dry forage required by one mature cow of approximately 1,000 pounds or its equivalent, for one month, based on a forage allowance of 26 pounds per day.

attractant a nourishing substance, which includes human food or drink (canned, solid or liquid), livestock feed (except baled or cubed hay without additives), pet food, and garbage. [NCDE Food/Wildlife Attractant Storage Order]

baseline the environmental conditions at a specific point in time. The baseline is defined as December 31, 2011, as modified by exceptions specified in the standards or guidelines. The baseline will be updated to reflect exceptions allowed under the standards and guidelines.

bear management subunit an area of a bear management unit, in the portion of the NCDE for grizzly bears mapped as the primary conservation area, representing the approximate size of an average annual female grizzly bear home range (e.g., 31–68 mi^2 (Mace and Roberts 2012)). [GBCS]

bear management unit an area about 400 m^2, in the portion of the NCDE for grizzly bears mapped as the primary conservation area, that meets yearlong habitat needs of both male and female grizzly bears. [GBCS]

best management practice (BMP) the method(s), measure(s), or practice(s) selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 CFR 219.19).

biological assessment a document prepared by a federal agency for the purpose of identifying any endangered or threatened species that is likely to be affected by an agency action. A biological assessment document facilitates compliance with the Endangered Species Act. The federal agency, in consultation with the Secretary of Interior, must ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of its habitat.

biological evaluation a document, or portion of a document, prepared by the Forest Service to review programs or activities to determine how an action might affect a species listed by the U.S. Fish and Wildlife Service as a threatened, endangered, proposed, or candidate species; or a species listed by the Regional Forester as a species of conservation concern on a particular national forest. If the threatened, endangered, or proposed species will be addressed in a biological assessment then the species would not be addressed in a biological evaluation.

biophysical settings a grouping of potential vegetation types based on broad climatic and site conditions, such as temperature and moisture gradients. See also **potential vegetation types**.

board foot a unit of measurement represented by a board one foot square and one inch thick.

bone yard an established site that is used repeatedly by a grazing permittee for disposing of entire animal carcasses.

boreal forest (lynx) a forest type to which lynx and snowshoe hares are strongly associated. The predominant vegetation of boreal forest is conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.). At the landscape scale within each region, natural and human-caused disturbance processes (e.g., fire, wind, insect infestations and forest management) influence the spatial and temporal distribution of lynx populations by affecting the distribution of good habitat for snowshoe hares. (USFWS Critical Habitat Final Rule 2009)

broad scale assessment a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social, and economic components of an area. [NRLMD]

broadcast burn a management treatment where a prescribed fire is allowed to burn over a designated area within well-defined boundaries. A broadcast burn is used for reduction of fuel hazard, as a resource management treatment, or both.

candidate species a status (1) for U.S. Fish and Wildlife Service candidate species, a species for which the U.S. Fish and Wildlife Service possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the U.S. Fish and Wildlife Service; (2) for National Marine Fisheries Service candidate species, a species that is: (i) the subject of a petition to list and for which the National Marine Fisheries Service has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 United States Code (U.S.C.) 1533(b)(3)(A)), or (ii) not the subject of a petition but for which the National Marine Fisheries Service has announced in the Federal Register the initiation of a status review

canopy the forest cover of branches and foliage formed by tree crowns.

canopy base height the lowest height above the ground at which there is a sufficient amount of canopy fuel to propagate fire vertically into the canopy; canopy base height is an effective value that incorporates ladder fuels such as shrubs and understory trees.

canopy fuel the live and dead foliage, live and dead branches, and lichen of trees and tall shrubs that lie above the surface fuels.

capability the potential of an area of land and/or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions (climate, slope, landform, soils, and geology), as well as the application of management practices (silviculture systems, or protection from fires, insects, and disease).

capacity the number of people that an overnight developed recreation site is designed to accommodate. [GBCS]

carbon pool an area that contains an accumulation of carbon or carbon-bearing compounds or having the potential to accumulate such substances. May include live and dead material, soil material, and harvested wood products.

carbon stock the amount or quantity contained in the inventory of a carbon pool.

clearcut a harvest technique: 1) a stand in which essentially all trees have been removed in one operation. *Note*: depending on management objectives, a clearcut may or may not have reserve trees left to attain goals other than regeneration. 2). A regeneration or harvest method that removes essentially all trees in a stand (synonym is clearcutting). See also **regeneration method**.

climax the final stage of succession in a plant community. A relatively stable condition where plant species on the site are able to perpetuate themselves indefinitely.

closed canopy structural stage see **stem exclusion structural stage**

coarse woody debris a piece or pieces of larger sized dead woody material (e.g., dead boles, limbs, and large root masses) on the ground or in streams. Minimum size to be defined as "coarse" is generally 3 inches diameter.

commercial thinning a treatment that selectively removes trees large enough to be sold as products, such as sawlogs, poles or fence posts, from an overstocked stand. This treatment is usually carried out to improve the health and growth rate of the remaining crop trees, or to reduce fire hazard.

commercial use/activity a use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 CFR 251.51).

climate change adaptation an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. This adaption includes initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Adaptation strategies include the following: building resistance to climate-related stressors; increasing ecosystem resilience by minimizing the severity of climate change impacts, reducing the vulnerability and/or increasing the adaptive capacity of ecosystem elements; facilitating ecological transitions in response to changing environmental conditions.

cohort a group of trees developing after a single disturbance, commonly consisting of trees of similar age, although it can include a considerable range of tree ages of seedling origin and trees that predate the disturbance

condition class a function of the degree of departure of an area from historical fire regimes, resulting from alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure.

connectivity the ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 CFR 219.19). Connectivity needs vary by species. For example, bull trout are able to move upstream to spawn as long as there is not a barrier to connectivity, such as a dam.

conservation the protection, preservation, management, or restoration of natural environments, ecological communities, and species.

consumptive water use the act of removing water from an available supply and utilizing it in a manner that it is not returned to a waterbody.

cover the elements of the environment used by an animal for hiding. Cover varies depending upon the species or the time of year and may include a variety of vegetation types as well as topography. The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas.

cover type the vegetation composition of an area, described by the dominant plant species. See also **forest type**.

critical habitat (for a threatened or endangered species) (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (ESA) (16 United States Code (USC) 1533), on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the ESA (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the

species. ESA, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce. ESA, sec. 4 (a)(3) and (b)(2) (16 USC 1533 (a)(3) and (b)(2)).

crown the part of a tree or other woody plant bearing live branches and foliage.

culmination of mean annual increment of growth see **mean annual increment of growth**

d.b.h. see **diameter breast height**

daylight thinning a form of precommercial thinning that removes the trees and brush inside a given radius around a tree. [NRLMD]

decision document a record of decision, decision notice, or decision memo (36 CFR 220.3).

dedicated skid trail a pathway used repeated, and only, to move logs or trees from the stump to a landing, where they are processed and loaded onto trucks.

deferred trail maintenance the backlog of trails in need of maintenance.

demographic connectivity area an area intended to allow female grizzly bear occupancy and potential dispersal beyond the NCDE to other recovery areas. [GBCS]

denning habitat (lynx) the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat. The typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed (piled one on top of the other). [LCAS]

denning season the typical time period, within the NCDE, during which most grizzly bears are hibernating in dens. There are no restrictions on motorized use related to grizzly bears during the denning season, which occurs [GBCS]:

- West side of the Continental Divide: from 1 December through 31 March.
- East of the Continental Divide: from 1 December through 15 April.

density (stand) the number of trees growing in a given area usually expressed in terms of trees per acre.

designated area an area or feature identified and managed to maintain its unique special character or purpose; some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the federal executive branch; examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas; examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves.

designated over-the-snow route a course managed under permit or agreement or by the agency, where use is encouraged, either by on-the ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency. The

routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition.

diameter breast height/d.b.h. the diameter of a tree measured 4.5 feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5 feet from the large end of the log.

disturbance an event that alters the structure, composition, or function of terrestrial or aquatic habitats; any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens; human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species.

disturbance regime a description of the characteristic types of disturbance on a given landscape; the frequency, severity, size, and distribution of these characteristic disturbance types, and their interactions. The natural pattern of periodic disturbances, such as fire or flooding

disturbance/displacement the repeated avoidance of humans by a species by shifting its habitat use in space or time.

driver (ecology) see **ecosystem driver**.

duff the partially decayed organic matter on the forest floor.

early-seral/successional stage (forest) the earliest stage in the sequence of plant communities that develop after a stand replacing disturbance, such as fire or regeneration harvest. On the forested communities of the Flathead National Forest, this stage typically occurs in the period from 1 to 30 or 40 years after the disturbance, and is dominated by grass, forbs, shrubs, and seedling/sapling sized trees.

ecological condition the biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems; ecological conditions include habitat and other influences on species and the environment; examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species.

ecological integrity the quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence. The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future.

ecological sustainability see **sustainability**.

ecosystem (36 CFR 219.19**)** a spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. An ecosystem is commonly described in terms of its:

- composition: The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

- structure: The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity.
- function: Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.
- connectivity: See **connectivity**.

ecosystem driver a natural or human-induced factor that directly or indirectly causes a change in an ecosystem. Examples include climate change, fire events, invasive species and flooding.

ecosystem resilience see **resilience**

ecosystem service the benefit(s) people obtain from an ecosystem, including: (1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities.

ecosystem stressor a factor that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime.

emergency situation a circumstance on National Forest System (NFS) lands for which immediate implementation of all or part of a decision is necessary for relief from hazards threatening human health and safety or natural resources on those NFS or adjacent lands; or that would result in substantial loss of economic value to the Federal Government if implementation of the decision were delayed. (36 CFR 215.2)[GBCS]

endangered species a species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Endangered species are listed at 50 CFR sections 17.11, 17.12, and 224.101.

environmental document a written analysis that provides sufficient information for a responsible official to undertake an environmental review. Examples include: a categorical exclusion, an environmental assessment, and an environmental impact statement.

epidemic (outbreak) the rapid spread, growth, and development of pathogen or insect populations that affect large numbers of a host population throughout an area at the same time.

even-aged stand a stand of trees composed of a single age class (cohort). Usually trees in a single age class are within + 20 years of each other.

fine fuel the fast-drying dead or live materials, generally characterized by a comparatively high surface area-to-volume ratio, which is defined as less than 0.25 inches in diameter and having a timelag of 1 hour or less. Fine fuels (grass, leaves, needles, etc.) ignite readily and are consumed rapidly by fire when dry. [NWCG]

fire control see **fire suppression**

fire exclusion the disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

fire hazard the potential fire behavior for a fuel type, regardless of the fuel type's weather-influenced fuel moisture content or its resistance to fireline construction. Fire behavior assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

fire regime the ecological effects of frequency, intensity, extent, season, and synergistic interactions with other disturbances, such as insects and disease, classified into generalized levels of fire severity. The periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and aerial extent (Anderson 1982). The five natural fire regimes on the Flathead National Forest follow:

- I 0 to 35 year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);
- I 0 to 35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- III 35 to 100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);
- IV 35 to100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);
- V 200+ year frequency and high (stand replacement) severity.

fire risk the probability or chance of fire starting determined by the presence and activities of causative agents.

fire suppression the work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

fire use the combination of wildland fire use and using prescribed fire to meet resource objectives. Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term "prescribed natural fire." (Wildland and Prescribed Fire Management Policy, August 1998) [NRLMD]

fire-adapted species a plant type that has evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver, including tree species that are termed fire-tolerant as well as trees and other plant species that have a myriad of other types of adaptations. Some examples of adaptations are the serotinous cones of lodgepole pine (which open only when heated in a fire); fast early tree growth for rapid site domination; rhizomatous (below ground) root systems or root crowns; seeds with hard, fire resistant seed-coats; or very lightweight, wind-dispersed seed (see also **fire-tolerant species**).

fire-intolerant tree species a tree type that is susceptible to severe damage or mortality in a fire event. Characteristics typically include thin bark at maturity, crowns that retain lower branches (close to the ground), less protected buds and needles. For example, subalpine fir, grand fir and spruce are fire-intolerant species in the Flathead National Forest.

fire-tolerant tree species a tree type resistant to severe damage or mortality in a fire event. Characteristics include thick bark at maturity, readily self-pruning (i.e., lower branches are shed as the

tree grows), and protected buds. Examples of fire-tolerant species on the Flathead National Forest are western larch, ponderosa pine and, to a lesser extent, Douglas-fir.

fish passage a clear access for migrating fish through a potential barrier.

flame length the distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity. [NWCG]

focal species a small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 CFR 219.19).

food/wildlife attractant special order a legal notice regarding the use and storage of wildlife attractants on National Forest Service lands. An example is the "Occupancy and Use Restrictions for National Forest System lands in the Primary Conservation Area, Zone 1 (including the demographic connectivity areas) and Zone 2 of the NCDE on the Flathead, Kootenai, Lewis and Clark, Lolo, and Helena National Forests in Montana, pursuant to 36 CFR 261.50 (a) and (b)."

forage the browse and non-woody plants available to livestock or wildlife for feed.

foraging habitat (lynx) an area that supports the primary prey (snowshoe hare) of lynx and has the vegetation structure suitable for lynx to capture prey. These conditions may occur in early successional stands following some type of disturbance, or in older forests with a substantial understory of shrubs and young conifer trees. Coarse woody debris, especially in early successional stages (created by harvest regeneration units and large fires), provides important cover for snowshoe hares and other prey. [LCAS]

forb a herbaceous (herb-like) plant other than grass or grass-like plants.

forest connectivity an area for wildlife species that prefer to remain within or close to forested cover.

forest dominance type a classification that reflects the most common tree species within a forest stand. The dominant species comprises at least 40 percent of the stocking, as measured by canopy cover, basal area, or trees per acre, depending on available information and stand characteristics.

forest health the perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance. A useful way to communicate about the current condition of the forest, especially with regard to the ability of the ecosystem to respond to disturbances. *Note*: perception and interpretation of forest health are influenced by individual and cultural viewpoints, land management objectives, spatial and temporal scales, the relative health of the stands that comprise the forest, and the appearance of the forest at a point in time.

forest highway a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (U.S.C. Title 23, Section 101(a)), designated by an agreement with the Forest Service, state transportation agency, and Federal Highway Administration. [NRLMD]

forest land an area at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative sites, improved roads of any width and adjoining road clearing, and power line clearings of any width.

forest management the practical application of biological, physical, quantitative, managerial, economic, social, and policy principles to the regeneration, management, utilization, and conservation of forests to meet specified goals and objectives while maintaining the productivity of the forest. *Note:* forest management includes management for aesthetics, fish, recreation, urban values, water, wilderness, wildlife, wood products, and other forest resource values. Forest management varies in intensity from leaving the forest alone, to a highly intensive regime composed of periodic silvicultural treatments.

forest plan a document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 CFR 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code (U.S.C.) 528–531), the Forest Service manages National Forest Service lands to sustain the multiple use of its renewable resources in perpetuity while maintaining the long-term health and productivity of the land. Resources are managed through a combination of approaches and concepts for the benefit of human communities and natural resources.

forest structure a complex three-dimensional construct consisting of the various horizontal and vertical physical elements of the forest, including tree diameters, tree heights, tree ages, stand density, canopy layers, quantity/quality of deadwood, herbaceous species, and the clumpiness of the stand. There is no one measure to quantify or describe structure. Often individual forest attributes are described and integrated to evaluate forest structure, such as tree sizes or ages or number of canopy layers.

forest system road see **National Forest System road.**

forest type a category of forest usually defined by its vegetation, particularly its dominant vegetation as based on percentage cover of trees, e.g., subalpine fir/spruce; lodgepole pine.

fuel management an act or practice of controlling flammability and reducing resistance to control of wildand fuels through mechanical, chemical, biological or manual means, or by fire, in support of land management objectives. [NWCG]

fuel model a set of surface plant material characteristics (e.g., load and surface-area-to-volume-ratio by size class, heat content, and depth) organized for input to a fire model. Standard fuel models (e.g., Anderson 1982) have been stylized to represent specific fuel conditions.

fuel treatment the manipulation or removal of dead or live plant materials to reduce the likelihood of ignition and/or lessen potential damage and resistance to fire control (example treatments include, lopping, chipping, crushing, piling and burning). [NWCG]

fuelwood a term for wood that is used for conversion to a form of energy (e.g., firewood, biomass).

fuels reduction zone an area in which continuous high hazard fuels are broken up. These zones are designed to increase firefighter safety and reduce resistance to fire control efforts. Fuels reductions zones may be of any size or shape. They may have a higher number of snags, down logs, and canopy closure than other fuels treatment zones. They are recognized as being a significant portion of a complete fuels management program.

geographic area a spatially contiguous land area identified within the planning area. A geographic area may overlap with a management area (36 CFR 219.19).

geographic information system (GIS) a computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

gradient (stream) the slope of a streambed.

grazing allotment a designated area of land that is available for livestock grazing and is represented on a map. A grazing allotment can include National Forest Service (NFS) and non-NFS lands. Permits are issued for the use of allotments or portions of allotments. Allotments may be (Forest Service Manual (FSM) 2205):

- active: Livestock grazing allotments, including pack and saddle stock allotments.
- closed: Areas having suitable livestock range that have been closed to livestock grazing by administrative decision or action.
- combined: An allotment that has been combined into another allotment, and therefore, no longer exists as an independent allotment.
- vacant: An allotment that does not have a current grazing permit issued.

grazing permit in non-use status a term that applies to livestock numbers. Non-use of a term grazing permit, in whole or in part, must be approved by a Forest Supervisor and is allowed for permittee convenience, resource protection or development, or range research (FSM 2231.7).

Grizzly Bear Conservation Strategy a document published by the U.S. Fish and Wildlife Service that describes the regulatory framework for management of the NCDE grizzly bear population and its habitat upon recovery and subsequent removal from the Federal list of Threatened and Endangered Species.

grizzly bear–human conflict an interaction between a grizzly bear and human in which bears either do, or attempt to, injure people, damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods or attractants or agricultural crops. [GBCS]

ground fire a term used to describe organic material, such as duff, organic soils, roots, and rotten buried logs, burning beneath the surface. [NWCG]

ground-based logging system a log skidding method using tracked or wheeled tractors. These tractors or "skidders" typically operate on gentle slopes (e.g., <40%). Steeper slopes may require cable logging systems.

groundwater-dependent ecosystem a community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include many wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, springs, and seeps.

group selection method a cutting method to develop and maintain uneven-aged stands by the removal of small groups of trees (generally up to 0.5 acre in size) at periodic intervals to meet a predetermined goal of size distribution and species composition in remaining stands.

group use an activity conducted on National Forest System lands that involves a group of 75 or more people, either as participants or spectators (36 CFR 251.51).

guide to provide services or assistance (such as supervision, protection, education, training, packing, touring, subsistence, transporting people, or interpretation) for pecuniary remuneration or other gain to individuals or groups on National Forest System lands (36 CFR 251.51).

habitat type an aggregation of plant communities of similar biophysical characteristics, and similar function and response to disturbances. A habitat type will produce similar plant communities at climax. On the Flathead National Forest, habitat types are based upon Pfister et al. 1977. See also **potential vegetation type**.

hazard tree a tree that has the potential to cause property damage, personal injury or fatality in the event of a failure, where failure is the mechanical breakage of a tree or tree part. Failures often result from the interaction of defects, weather factors, ice or snow loading or exposure to wind. Tree hazards may include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of people or property (a target). Defects are flaws in a tree that reduce its structural strength. Trees may have single or multiple defects, which may or may not be detectable. Failures result in accidents only if they strike a target.

Healthy Forests Restoration Act the public law (108-148), passed in December 2003, which provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management managed public lands. The Healthy Forests Restoration Act also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. [NRLMD]

highway a term that includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

historical range of variability the variation in ecological conditions resulting from disturbance regimes and other natural influences under which the ecosystem and forests evolved. Typically refers to the period prior to the dramatic changes in human land uses and patterns beginning with the influx of European-Americans about the mid-1800s. Historical range of variability is considered valuable for providing a context or frame of reference to evaluate current ecosystem conditions and understanding what an ecologically healthy and sustainable condition might look like. See also **natural range of variation**.

home range an area, from which intruders may or may not be excluded, to which an individual animal restricts most of its usual activities.

horizontal cover the visual obscurity or cover provided by habitat structures that extend to the ground or snow surface primarily provided by tree stems and tree boughs, but also includes herbaceous vegetation, snow, and landscape topography. [NRLMD]

inherent capability of the plan area the ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances.

initial attack a planned response to a wildfire given the wildfire's potential fire behavior. The objective of initial attack is to stop the fire and put it out in a manner consistent with firefighter and public safety and values to be protected.

integrated resource management a means to realize many benefits from a forest or other natural area and assure the renewable benefits are there for future generations. [NWCG]

integrity (ecology) see **ecological integrity**

interagency consultation a process required by Section 7 of the Endangered Species Act whereby federal agencies proposing activities in a listed species habitat confer with the U.S. Fish and Wildlife Service about the impacts of the activity on the species.

intermediate harvest a removal of trees from a stand between the time of its formation and a regeneration harvest. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.

intermittent stream a stream that flows only at certain times of the year when it receives water, usually from springs or a surface source such as melting snow.

invasive species an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

key ecosystem characteristic the dominant ecological characteristic(s) that describes the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about a land management plan. Key ecosystem characteristics are important to establishing or evaluating plan components that would support ecological conditions to maintain or restore the ecological integrity of ecosystems in the plan area.

ladder fuel a term to describe plant materials that provide vertical continuity between forest strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease

land management plan see **forest plan**

landscape a defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 CFR 219.19).

landtype a unit shown on an inventory map with relatively uniform potential for a defined set of land uses. Properties of soils landform, natural vegetation, and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

late-seral/successional stage (forest) a late stage in the sequence of plant communities that develops after a disturbance, such as fire or harvest. On the forested communities of the Flathead National Forest, this stage may begin to develop 140 years or more after the disturbance. Forest structures can be very diverse, with wide range in densities, number of canopy layers and trees sizes. Usually larger trees are dominant (>16 inches diameter breast height).

linkage (also **linkage habitat**, **linkage area**, or **linkage zone**) an area that will support a low density population of a species during certain parts of the year, and that facilitates demographic and genetic connectivity between geographically separate patches of habitat suitable for that species. Linkage areas facilitate movements of an animal (e.g., dispersal, breeding season movements, exploratory movements) beyond its home range. Linkage areas may include sizeable areas of non-habitat and areas influenced by human actions.

livestock a type of domestic animal raised for commercial production purposes, e.g., cattle. Small livestock includes animals such as sheep, goats, and llamas.

lynx analysis unit an area that approximates the size of a female lynx's annual home range and encompasses its seasonal habitats. Lynx analysis units (LAUs) may also include areas of non-lynx habitat, such as open meadows, especially in mountainous regions. An LAU is the unit for which the effects of a project (including direct, indirect and cumulative effects) would be analyzed; its boundaries should remain constant. [LCAS]

lynx critical habitat an area designated by the USFWS that provides the primary constituent element of lynx habitat, defined as boreal forest landscapes supporting a mosaic of differing successional forest stages and containing:

a) presence of snowshoe hares and their preferred habitat conditions, which include dense understories of young trees, shrubs or overhanging boughs that protrude above the snow, and mature multi-story stands with conifer boughs touching the snow surface;

b) winter snow conditions that are generally deep and fluffy for extended periods of time;

c) sites for denning that have abundant coarse woody debris, such as downed trees and root wads;

d) matrix habitat (e.g., hardwood forest, dry forest, non-forest) 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 (Federal Register, Vol. 74, No. 36, February 25, 2009, pp. 8635–8641).

lynx habitat an area within a boreal forest with gentle rolling topography, dense horizontal cover, deep snow, and moderate to high snowshoe hare densities (i.e., more than 1 hare/2 ha (0.4 hares/2 ac)). In the western United States, forest cover types dominated by Engelmann spruce, subalpine fir and lodgepole pine provide habitat for lynx. [LCAS]

lynx habitat currently in unsuitable condition an area within the boreal forest that is in the early stand initiation stage (typically less 30 years old) or has been silviculturally treated to remove cover, in which the vegetation has not developed sufficiently to support snowshoe hare populations during all seasons. Stand-replacing (moderate to high intensity) fire, insect epidemics or wind events can create stand initiation structural stage. Vegetation management projects that may create unsuitable conditions for a period of time include clearcuts, seed tree harvest, precommercial thinning, or understory removal. [LCAS]

lynx habitat in suitable condition an area within the boreal forest that provides lynx habitat in all seasons. Forest stands may be in various ages or structural stages (i.e., young saplings in stand initiation structural stage, pole-size stands in stem exclusion structural stage, mature multi-story forest) provided that, following a stand-replacing disturbance or treatment that reduced the dense horizontal cover required by snowshoe hares, trees have grown tall enough and dense enough to protrude above the snow and provide food and cover for snowshoe hares and lynx in winter. [LCAS]

maintain to keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both.

management area a land area identified within the planning area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 CFR 219.19).

management system (timber) an administrative method that includes even-aged stand and uneven-aged stand protocols.

mature multi-story structural stage (forest) a phase characterized by understory reinitiation, resulting in several tree age classes and vegetation layers. Fallen trees may be present, creating gaps in the overstory canopy. In lynx habitat, these stands typically have high horizontal cover from young understory trees and lower limbs of mature trees that reach the ground or snow level. [LCAS]

mature tree a tree which has achieved its maximum or near-maximum mean annual rate of growth in height or diameter.

MBF/MMBF (thousand board feet and million board feet, respectively) a specialized unit of measure for the volume of lumber in the United States and Canada. One board foot is the volume of a 1-foot length of a board 1 foot wide and 1 inch thick.

mean annual increment of growth the total increment of increase in volume of a stand (standing crop plus thinning removals) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan.

mechanized travel/mmechanical transport a contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or nonliving power source. This includes, but is not limited to, sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts (36 CFR 2320.5(3)).

mesic a type of habitat that is moderately moist.

mid-seral/successional stage (forest) a mid-stage in the sequence of plant communities that develop after a disturbance, such as fire or harvest. On the forested communities of the Flathead National Forest, stands may be considered in this stage from about 40 to 140 years after the disturbance. Stand structure, such as density and number of canopy layers, can vary widely. Dominant tree sizes are typically from 5 to 15 inches diameter breast height.

mine reclamation the process of restoring land that has been mined to a natural or economically usable state. Although the process of mine reclamation occurs once mining is completed, the preparation and planning of mine reclamation activities occur prior to a mine being permitted or started.

minerals the Forest Service defines three types of mineral (and energy) resources:

- Locatable minerals: Commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones.
- Salable minerals: Common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite.
- Leasable minerals: Commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, sulfur, and solid leasable minerals on acquired lands.

mitigate to avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

mixed-severity fire/mixed-severity fire regime a combination of low- to high-severity fire effects within the perimeter of a single fire, or across consecutive events. Mixed-severity fire regimes give rise to unique patch dynamics and ecosystem responses.

modified thinning technique a precommercial thin prescription for a stand dominated by seedling or sapling size trees specifying use of techniques designed to develop multiple tree canopy layers over time, enhancing long-term species and structural diversity within forest stands, and contributing to forest

conditions more resilient to future disturbance and climate change (also see Appendix B, potential management strategies, Canada lynx habitat section).

monitoring a systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships.

motorized equipment a machine that uses a motor, engine, or other nonliving power sources. This includes, but is not limited to, such machines as chain saws, aircraft, snowmobiles, generators, motorboats, and motor vehicles. It does not include small battery or gas powered hand carried devices such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

motorized route a National Forest System (NFS) road or NFS trail that is designated for motorized use on a motor vehicle use map pursuant to 36 CFR 212.51

motorized use the designation of roads, trails, and areas that are open to motor vehicle use as specified in Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 /36 CFR Parts 212, 251, 261, Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule [GBCS].

moving window analysis a geographic information system procedure that quantifies the density of roads and trails by incrementally moving a template across a digital map.

multiple use the management of the various renewable surface resources of the National Forest Service lands so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531).

National Forest System the National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under title III of the Bankhead-Jones Farm Tennant Act (50 Stat. 525, 7 U.S.C. 1010-1012), and other lands, waters or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system**.**

native knowledge a way of knowing or understanding the world, including traditional ecological and social knowledge of the environment derived from multiple generations of indigenous peoples' interactions, observations, and experiences with their ecological systems. Native knowledge is place-based and culture-based knowledge in which people learn to live in and adapt to their own environment through interactions, observations, and experiences with their ecological system. This knowledge is generally not solely gained, developed by, or retained by individuals, but is rather accumulated over successive generations and is expressed through oral traditions, ceremonies, stories, dances, songs, art, and other means within a cultural context.

native species an organism that was historically or is present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate introduction into that ecosystem. An organism's presence and evolution (adaptation) in an area are determined by climate, soil, and other biotic and abiotic factors.

natural range of variation (NRV) the variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. See also historical range of variation (HRV). The NRV (or HRV) is a tool for assessing the ecological integrity and does not necessarily constitute a management target or desired condition. The NRV can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

natural regeneration a renewal of a tree crop by natural seeding, sprouting, suckering, or layering.

net change the difference in a measurement (such as road density) after on-the-ground changes are accounted for pre- and post-project; allows for temporary changes during a project. [GBCS]

non-attainment area an area within a State that exceeds the national ambient air quality standards.

non-consumptive water use the act of removing water from an available supply and utilizing it in a manner that it returns to a waterbody.

non-denning season the time period when grizzly bears typically are not hibernating [GBCS]:

- West side of the Continental Divide: from 1 April through 30 November.
- East side of the Continental Divide: from 16 April through 30 November.

nonpoint source pollution a discharge from a diffuse source, such as polluted runoff from an agricultural area or precipitation, to a water body.

Northern Continental Divide Ecosystem a region identified in the GBCS encompassing about 110,636 sq. km. of western and central Montana, that is one of five areas in the lower 48 states where grizzly bear populations occur.

Northern Continental Divide Ecosystem (NCDE) Coordinating Committee an interagency group that evaluates implementation of the NCDE GBCS, promotes the exchange of data and information about the NCDE grizzly bear population among agencies and the public, and makes recommendations to the management agencies regarding implementation of the NCDE GBCS. Member of the interagency group may include Montana Fish, Wildlife & Parks; U.S. Fish & Wildlife Service; U.S. Park Service; Forest Service; APHIS-Wildlife Services; U.S. Geological Survey; U.S. Bureau of Land Management; Blackfeet Tribe, and the Confederated Salish and Kootenai Tribes. [GBCS]

noxious weed an exotic plant species established, or that may be introduced in the area, which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses.

off-highway vehicle a motor vehicle designed for, or capable of, cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (36 CFR 212.1).

old growth forest an ecosystem that is distinguished by old trees and related structural attributes. This term is deliberately defined generically, as the use of the term old growth and definitions for old growth vary substantially by ecological regions, forest types, local conditions, literature source, and a host of other factors. In the context of the Flathead National Forest ecosystem the definitions for old growth are those provided within the document titled “Old Growth Forest Types of the Northern Region (Green et al. 1992, and errata 12/11).

old-growth associated species the group of wildlife species that is associated with old-growth forest plant communities on the Flathead National Forest.

old-growth habitat a community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multi-storied crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate. Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest (Green et al 1992).

open motorized route density a moving window analysis calculation that applies to the primary conservation area portion of the NCDE and includes Federal, State, and Tribal roads and motorized trails that are open to wheeled motor vehicle use by the public for any part of the non-denning season. *Note:* Motorized routes closed only by sign or order are considered to be open for purposes of this calculation. [GBCS] See also **moving window analysis**.

opening (as pertaining to maximum opening size standard for timber harvest) a forest patch in a seedling/sapling size class (average stand diameter breast height is less than 5 inches) created as a result of one even-aged harvest operation (i.e., clearcut, seedtree or shelterwood seed cutting). Legacy or reserve trees left to meet other desired conditions are not counted in the calculation of size class for determining the seedling/sapling classification. Adjacent seedling/sapling stands created as a result of an earlier harvest operation are not considered part of an opening.

outfitting to rent on, or deliver to, National Forest Service lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment (36 CFR 251.51).

over snow motorized use an activity involving a motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow (36 CFR 212.1, Definitions).

over snow standard season the time period for over snow motorized use. Generally, the season is defined as December 1 to March 31 of each year; however exceptions apply in specific areas and are noted at the applicable locations as well as in Over Snow Vehicle Use Maps for the Flathead National Forest.

overstory the portion of the trees that form the uppermost canopy layer in a forest of more than one story.

passive crown fire a type of fire in which individual or small groups of trees torch out, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fire encompasses a wide range of crown fire behavior from the occasional torching of an isolated tree to a nearly active crown fire. Also called torching and candling.

patch an area distinguished from its surroundings by environmental discontinuities, such as a small area of early seral/successional forest (seedling/sapling size class) surrounded by mid-seral and late-seral/successional forest (small to large tree size classes).

perennial a stream that flows continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

permit a special use authorization which provides permission, without conveying an interest in land, to occupy and use National Forest Service land or facilities for specified purposes, and which is both revocable and terminable (36 CFR 251.51).

plan a document, or set of documents, that provides management direction for an administrative unit of the National Forest System developed under the requirements of the 2012 planning rule or a prior planning rule. See also **forest plan**.

plan area the National Forest System lands covered by a forest plan.

point source pollution a discharge from a known pollutant source , such as a sewage treatment plant, to a water body from a single location.

pole a tree at least 5 inches diameter breast height (d.b.h.) and smaller than 8 inches d.b.h.

potential vegetation type/potential vegetation group an assemblage of habitat types on the basis of similar biophysical environments, such as climate, slope and soil characteristics. This biophysical environment influences the vegetation characteristics and ecosystem processes that occur. The vegetation communities and conditions that would develop over time given no major natural or human disturbances (i.e., the climax plant community) would be similar within a particular potential vegetation type classification.

precommercial thinning the selective felling, deadening, or removal of trees in a young stand dominated by trees less than 5 inches diameter breast height. Primary purposes for thinning include to accelerate diameter increment on the remaining stems, to maintain a specific stocking or stand density range, to develop desired tree species composition, and/or to improve the vigor and quality of the trees that remain.

prescribed burning or prescribed fire a fire ignited via management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements (where applicable) must be met, prior to ignition. [NWCG]

primary conservation area (PCA) an area identified in the NCDE GBCS to be managed as a source area for the grizzly bear population, where continuous occupancy by grizzly bears would be maintained. Habitat within the PCA would receive the most stringent protection. The PCA is the same area as the NCDE Grizzly Bear Recovery Zone identified in the Grizzly Bear Recovery Plan (http://www.fws.gov/mountain-prairie/species/mammals/grizzly/ (U.S. Fish and Wildlife Service 1993)

productivity the capacity of National Forest Service lands and their ecological systems to provide the various renewable resources (such as timber) in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term.

projected timber sale quantity (PTSQ) the estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the projected wood sale quantity (PWSQ), the projected timber sale quantity includes volume from timber harvest for any purpose from lands in the plan area based on expected harvests that would be consistent with the plan components. The PTSQ is also based on the planning unit's fiscal capability and organizational capacity. PTSQ is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

projected wood sale quantity (PWSQ) the estimated quantity of timber and other wood products that is expected to be sold from the plan area for the plan period. The PWSQ consists of the projected timber

sale quantity as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The PWSQ includes volume from timber harvest for any purpose based on expected harvests that would be consistent with the plan components. The PWSQ is also based on the planning unit's fiscal capability and organizational capacity. PWSQ is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

project an organized effort to achieve an outcome on National Forest Service lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 CFR 219.19).

project (in grizzly bear habitat in the NCDE) a project in grizzly bear habitat in the NCDE, for purposes of the motorized access standards and guidelines in the primary conservation area of the NCDE, refers to any temporary activity requiring construction of new roads, temporary roads, reconstruction or opening of restricted roads during the non-denning season, if such use exceeds administrative use levels, as defined elsewhere in this glossary. Activities involving recurring helicopter use (as defined in this glossary) are also considered to be a project. [GBCS]

proposed action a project, activity, or action that a federal agency aims to implement or undertake, and which is the subject of an environmental analysis. Proposed action is a specific term defined under the National Environmental Policy Act.

proposed species a type of animal or plant that is proposed by the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service, through the Federal Register to be listed for protection under Section 4 of the Endangered Species Act.

public involvement a process designed to broaden the information base upon which agency decisions are made. The process involves informing the public about Forest Service activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

rate of spread see **spread rate**

reach a length of stream channel, lake, or inlet exhibiting, on average, uniform hydraulic properties and morphology.

rearing habitat a stable and protected micro-environment for a species to birth and rear their young. For example, for juvenile westslope cutthroat trout, rearing habitat is primarily the pool environment found in streams.

recovery the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 CFR 219.19). This definition is for the purposes of the land management planning regulation at 36 CFR part 219 and Land Management Planning Handbook 1909.12, and with respect to threatened or endangered species.

recovery plan a document that details actions or conditions necessary to promote improvement in the status of a species listed under the Endangered Species Act, to the point at which listing is no longer appropriate.

recreation the set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations. See also **sustainable recreation.**

recreation event a recreational activity conducted on National Forest System lands for which an entry or participation fee is charged, such as animal, vehicle, or boat races; dog trials; fishing contests; rodeos; adventure games; and fairs.

recreation opportunity the opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include non-motorized, motorized, developed, and dispersed recreation on land, water, and in the air. The six classes are the following:

- **primitive** the primitive recreational opportunity spectrum (ROS) setting is large, remote, wild, and predominately unmodified landscapes. There is no motorized activity and little probability of seeing other people. Primitive ROS settings are managed for quiet solitude away from roads, people, and development. There few, if any facilities or developments. Most of the primitive ROS settings coincide with designated wilderness boundaries.
- **semi-primitive non-motorized** the semi-primitive non-motorized ROS settings include areas of the forest managed for non-motorized use. Mountain bikes and other mechanized equipment are often present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area. These settings are not as vast or remote as the primitive ROS settings, but offer opportunities for exploration, challenge, and self-reliance.
- **semi-primitive motorized** the semi-primitive motorized ROS settings area(s) of the forests are managed for backcountry motorized use on designated routes. Routes are designed for off highway vehicles and other high clearance vehicles. This setting offers visitors motorized opportunities for exploration, challenge, and self-reliance. Mountain bikes and other mechanized equipment are also sometimes present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area or providing portals to adjacent areas of primitive, or semi-primitive, non-motorized areas.
- **roaded natural** the roaded natural setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. System roads also provide easy access to adjacent in semi-primitive motorize, semi-primitive non-motorized and primitive areas.
- **rural** the rural settings represent the most developed recreation sites and modified natural settings Facilities are designed primarily for user comfort and convenience.
- **urban** the urban setting is characterized by a substantially developed environment although the background may have natural appearing elements. Highly developed ski areas and resorts are examples of an urban setting on National Forest Service lands.

recreation setting the social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. See also **recreation opportunity**.

recreation site a defined, public recreation area. The Forest Service uses two categories for recreation sites: dispersed and developed. Both types may have improvements needed to protect resources such as signs, road closure devices, bear resistant food storage devices, and/or sanitation facilities.

- Developed sites have agency improvements made out of manmade materials that are intended to provide for public recreation and user comfort/convenience (see 36 CFR 261.2). Examples

include, but are not limited to: ski areas, campgrounds, sites with cabins, huts, lodges, summer homes, restaurants, visitor centers, and trailheads. [GBCS]

- Dispersed sites have minimal to no agency improvements made out of manmade materials. Dispersed sites may include outfitter camps or other primitive camping spots along a road, trail, water body, or at a road closure. [GBCS]

recurring helicopter use a type of helicopter flight that involves multiple trips/passes each day consisting of low-altitude (< 500 m above-ground-level) flights that continues for a duration longer than 48 consecutive hours. [GBCS]

reforestation the renewal of forest cover by planting, seeding, and natural means (such as seed from existing trees on the site).

regeneration the renewal of a forest, whether by natural or artificial means. This term may also refer to a tree crop itself.

regeneration harvest the cutting of trees and creation of an entirely new age class; an even-age or uneven-aged harvest. The primary methods used for regeneration harvest are clearcutting, seed tree, shelterwood, and group selective cuts. [NRLMD]

regeneration method the cutting approach used to regenerate a stand. Example methods include clearcut, seedtree and shelterwood cutting methods.

resilience (ecology) the capacity of a (plant) community or ecosystem to maintain or regain normal function and development following disturbance.

resource selection function the relative probability of an animal using a unique set of habitat (landscape) characteristics. For studies involving radio-collared animals, "use" of landscape combinations is compared to the "availability" of those combinations in a designated study area.

restoration the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed; ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions (36 CFR 219.19).

riffle a shallow rapid where the water flows swiftly over completely or partially submerged obstructions (rocks, etc.) to produce surface agitation, but standing waves are absent.

riparian area a three-dimensional ecotone of interaction that include terrestrial and aquatic ecosystems that extend into the groundwater, above the canopy, and outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths.

riparian ecosystem a transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. A riparian ecosystem is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

riparian habitat conservation area (RHCA) a portion, or portions, of the watershed where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. RHCAs widths are defined as follows:

- category 1, Fish-bearing streams: RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100 year floodplain, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.
- category 2, Permanently flowing non-fish bearing streams: RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
- category 3, Ponds, lakes, reservoirs, and wetlands greater than 1 acre: RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the distance of the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond, or lake, whichever is greatest.
- category 4, Seasonally flowing or intermittent streams, wetlands less than 1 acre, and lands identified as landslide prone: This category includes features with high variability in size and site-specific characteristics. At a minimum, the RHCA must include: (1) the intermittent stream channel and the area to the top of the inner gorge; (2) the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation; (3) for Priority watersheds as identified in Appendix E, the area from the edges of the stream channel , wetland, or landslide prone terrain to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest; or (4) for watersheds not identified as Priority watersheds, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greater.

riparian wildlife habitat an environment that occurs along lakes, rivers, streams, springs, and seeps where the vegetation and microclimate are influenced by year-round or seasonal water and associated high water tables. Plant and animal species in these areas are more productive and diverse than on nearby uplands, making these areas very important to many wildlife species.

road a motor vehicle route more than 50 inches wide, unless identified and managed as a trail. (36 CFR 212.1, FSM 7705):

- decommissioned: The stabilization and restoration of an unneeded road to a more natural state (36 CFR 212.1). Decommissioned roads do not count towards Total Motorized Route Density as long as they meet the definition of impassable.
- forest road or trail: A route wholly or partly within or adjacent to and serving the National Forest Service (NFS) that is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 CFR 212.1 – Definitions)
- impassable: A road that has been treated in such a manner that the road is blocked and there is little resource risk if road maintenance is not performed on a regular basis (self-maintaining).These roads are not counted in the total motorized route density as long as the road (generally the first 50 to 300 feet) has been treated to make it inaccessible to wheeled motorized vehicles during the non-denning season. Roads may become impassable as a result of a variety of means, including but not limited to one or more of the following: natural vegetation growth, road entrance obliteration, scarified ground, fallen trees, boulders, culvert or bridge removal, etc. Impassable roads may remain on the inventoried road system if use of the road is anticipated at

some point in the future. Some, but not all, roads placed in intermittent stored service may be impassable. [GBCS]

- intermittent stored service/intermittent service road, closed to traffic: The road is in a condition that there is little resource risk if maintenance is not performed.
- maintenance level: A term for the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (Forest Service Handbook 7709.59, 62.32)

  Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

  Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.

  Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities

  Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds

  Level 5: Assigned to roads that provide a high degree of user comfort and convenience.
- National Forest System: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 CFR 212.1)
- temporary: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 CFR 212.1). In the NCDE primary conservation area, temporary roads will meet the definition of impassable when no longer needed. [GBCS]

rotation the number of years (including the regeneration period) required to establish and grow timber under an even-aged management system to a specified condition or maturity for regeneration harvest.

running average a method for computing the average of a stream of numbers for a specified period. A 10-year running average computes the mean for the values in the current year plus the previous 9 years. A running average is commonly used with time series data to smooth out short-term fluctuations and highlight longer-term trends or cycles. [GBCS]

salvage harvest a commercial timber sale of dead, damaged, or dying trees. The harvest recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest. [NRLMD]

sapling a young tree that is larger than a seedling but smaller than a pole or small tree; typically 5 to about 25 feet tall and 1 to 5 inches diameter breast height.

sawtimber a collection of logs cut from trees with minimum diameter (typically greater than 6 or 7 inches diameter breast height) or trees of the same minimum diameter and of sufficient length and stem quality suitable for conversion to lumber.

scarification the removal of the surface organic material (duff) of an area, typically to prepare the site for reforestation.

scenic character a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place; scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity.

scion a detached living portion of a plant, such as a bud or shoot, often a branch tip, that is grafted onto the root-bearing part of another plant.

secure core (grizzly bear) an area of the NCDE primary conservation area more than 500 meters from a route open to wheeled motorized use during the grizzly bear non-denning season and that is greater than or equal to 2,500 acres in size. Roads restricted with physical barriers (not gates), decommissioned roads, impassable roads, temporary roads, over-the-snow motorized routes/areas, and non-motorized trails are allowed within secure core, unless otherwise restricted (e.g., by other national forest plan direction). [GBCS]

security habitat an area with low levels of human disturbance or habitat that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance. The components of security habitat can include vegetation, topography, the size of the patches of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing of the disturbance. This general definition covers most uses of the term security habitat, except for elk and grizzly bear, which have specific definitions.

security habitat (elk) the forested stands on National Forest Service lands at least 250 acres in size greater than 0.5 mile away from open motorized routes during the hunting season. Elk security habitat is calculated at the project level.. Roads that are not open to the public for motorized use during the hunting season are not included in this calculation. The effects of non-motorized use and/or administrative motorized use of closed or temporary roads during the hunting season are not included in this calculation and would instead be analyzed separately at the project level.

sediment solid material, both mineral and organic, that is in suspension, being transported, or has been moved from its site of origin by air, water, gravity, or ice.

seedling a young tree that has just germinated but has not yet reached sapling size, typically 1 to 5 feet tall.

seedling/sapling a size category for forest stands in which trees less than 5 inches in diameter and less than about 25 feet tall are the predominant vegetation.

seedtree method a cutting technique used to regenerate a stand in which nearly all trees are removed from an area, except for a small number of trees that are left singly or in small groups.

seedtree with reserves the application of the seedtree method with the intention of retaining or reserving all or a portion of the seed trees for future stand structure.

selection method a cutting technique used to regenerate a forest stand and maintain an uneven-aged structure, by periodically removing some trees within multiple size classes either singly or in small groups or strips.

seral a biotic community that is developmental; a transitory stage in an ecologic succession.

seral/structural stage a phase of development of an ecosystem in ecological succession from a disturbed, relatively unvegetated state to a complex, mature plant community.

severity the ecological effects of fires, usually on the dominant organisms of the ecosystem, such as the trees.

shade-intolerant a plant species that does not grow well or dies from the effects of too much shade.

shade-tolerant a plant species that can develop and grow successfully in the shade of other plants.

shelterwood method a cutting technique used to regenerate an even-aged stand in which some of the mature trees are left to provide protection for regeneration species (greater numbers of trees are left in this method than with the seedtree method). This technique may be performed uniformly throughout the stand, in strips, or in groups. Regeneration may be natural or artificial (planting).

shelterwood with reserves the application of the shelterwood cutting technique with the intention of retaining or reserving all or a portion of the shelterwood trees for future stand structure.

silvicultural diagnosis the compiling, summarizing, evaluation and analyzing of forest stand and/or landscape data. Includes describing desired conditions, interpreting management direction and determining feasible alternative silvicultural systems and initial treatments. Integrates other resource conditions and considerations, such as soils, wildlife habitat and visual sensitivity.

silvicultural prescription a written document that describes management activities needed to implement one or more silvicultural treatments, or a treatment sequence. The prescription documents the results of the analysis during the diagnosis phase.

silvicultural system a management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. It includes cultural management practices performed during the life of the stand, such as regeneration cutting, thinning, and use of genetically improved tree seeds and seedlings to achieve multiple resource benefits.

silviculture the theory and practice of controlling the establishment, composition, growth, and quality of forest stands in order to achieve the objectives of management.

site preparation a general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

site productivity the combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

ski area a site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and fees for ski rentals, for skiing instruction and trail passes for the use of permittee-maintained ski trails. A ski area may also include ancillary facilities directly related to the operation and support of skiing activities (36 CFR 251.51).

slash the residue left on the ground after felling and other silvicultural operations, or that has accumulated there as a result of storms, fire, or natural pruning.

snag a standing dead tree usually greater than 5 feet in height and 6 inches in diameter breast height.

snow intercept cover a forest canopy which lessens the snow depths for wintering big game animals so that they can forage and travel about.

snowshoe hare habitat an area within boreal and upper montane forest in North America with cold, moderately deep winter snowpack and dense horizontal cover in the understory. During the winter, hares are restricted to areas where young trees or shrubs grow densely (thousands of woody stems per hectare) and are tall enough to protrude above the snow during winter, or where numerous overhanging boughs of mature conifer trees touch the snow surface, providing cover and browse. Winter snowshoe hare habitat develops primarily in the later phase (15 to 40 years post-disturbance) of stand initiation structural stage and in multi-story mature stands. [LCAS] Snowshoe hare habitat is defined at the scale of a forest stand which is a minimum of 5 acres, consistent with the minimum home range size of a snowshoe hare in northwest Montana.

spread rate/rate of spread a measure of the final headfire extent (in the direction of maximum spread).

stand a community of trees occupying a specific area and sufficiently uniform in canopy composition , age, and size class to be a distinguishable unit, forming a single management entity.

stand initiation structural stage the phase following a stand-replacing disturbance or regeneration timber harvest, a new single-story layer of shrubs, tree seedlings, and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (In the years immediately following the disturbance, tree seedlings are too small to provide food and cover for snowshoe hares and lynx, particularly during the winter. (See also **lynx habitat currently in unsuitable condition**.) As time progresses, the trees grow tall and dense enough to provide food and cover for snowshoe hares and lynx during all seasons (see also the definition for lynx habitat in suitable condition). [LCAS]

stand-replacing disturbance an agent such as fire, blowdown, insect or disease epidemic, or timber harvest, which kills or removes enough trees (usually considered 80% or more of the tree component) to result in an early seral/successional forest.

stem exclusion structural stage (or **closed canopy structural stage**) a phase when trees initially grow fast and quickly occupy the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996) [NRLMD]

stocking a measure of timber stand density as it relates to the optimum or desired density to achieve a given management objective.

stressor (ecology) see **ecosystem stressor**

structural stage a particular forest condition, characterized by a set of forest structural characteristics (such as tree diameters, tree heights, tree densities, canopy layers) that is representative of a particular period of stand development. See also **stand initiation structural stage**, **stem exclusion structural stage**, and **understory reinitiation structural stage**.

structure see **forest structure**

substrate a mineral and/or organic material that forms the streambed (i.e., stream bottom).

subwatershed a 6th code hydrologic unit, as defined in the U.S. Geological Survey hierarchical system of watersheds.

succession/successional stage a predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as "seral," or "successional" stages.

suitability of lands a determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands. The terms suitable and suited and not suitable and not suited can be considered the same.

summer range a part of the overall range of a species where the majority of individuals are located between spring green-up and the first heavy snowfall; in some areas winter range and summer range may overlap.

sustainability the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For purposes of this part, "ecological sustainability" refers to the capability of ecosystems to maintain ecological integrity; "economic sustainability" refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and "social sustainability" refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 CFR 219.19).

sustainable recreation the set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations.

sustained yield limit (SYL) the amount of timber, meeting applicable utilization standards, "which can be removed from [a] forest annually in perpetuity on a sustained-yield basis" (NFMA at section 11, 16 USC 1611; 36 CFR 219.11(d)(6))). It is the volume that could be produced in perpetuity on lands that *may be suitable* for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the SYL is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The SYL is not a target but is a limitation on harvest, except when the plan allows for a departure.

system road see **National Forest System road**.

threatened species a species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Threatened species are listed at 50 CFR sections 17.11, 17.12, and 223.102.

timber harvest the removal of trees for wood fiber use and other multiple-use purposes (36 CFR 219.19).

timber management the growing of, tending to, commercial harvesting of, and regeneration of crops of trees. [NRLMD]

timber production the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR 219.19).

torching index the open wind speed (measured or forecasted for a standard height (6.1-m) above the tallest vegetation) at which crown fire activity can initiate for the specified fire environment.

total motorized route density a moving window analysis calculation that applies to the primary conservation area portion of the NCDE and includes Federal, State, and Tribal roads and motorized trails that do not meet the definition of an impassable road. [GBCS] See also **moving window analysis**.

trail a route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 CFR 212.1).

trail class the prescribed scale of development for a trail, representing its intended design and management standards.

underburning a fire that consumes surface fuels but not trees and some large shrubs.

understory the trees and other woody species which grow under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

understory re-initiation structural stage understory re–initiation structural stage – Establishment of a new age class of trees after overstory trees begin to die, are removed, or no longer fully occupy their growing space. The stand of trees begins to stratify into ver-tical layers, with some small shade-tolerant trees in the understory. [LCAS]

utilization standards utilization standards are specifications for merchantable forest products offered in a timber sale.

untrammeled a term defined in the context of the Wilderness Act as an area where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem.

vegetation management a process that changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this decision, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use. [NRLMD]

viable population a population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments.
(36 CFR 219.19)

viewshed the visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travelways.

water quality the physical, chemical, and biological properties of water.

water yield the runoff from a watershed, including groundwater outflow.

watershed a region or land area drained by a single stream, river, or drainage network; a drainage basin.

watershed condition the state of a watershed based on physical and biogeochemical characteristics and processes.

weighted average/weighted mean similar to an arithmetic mean or average, where instead of all data points contributing equally to the final average, some data points contribute more than others. In the example of patch sizes of early successional seedling/sapling forests, the data point is the patch. Patches are “weighted” by their acreage, and thus larger patches will contribute more to the determination of

average than the smaller patches. This statistic gives insight into how large the largest patches really are, and how the individual patches are distributed along the range from smallest to largest patch size.

wetland an area that under normal circumstances has hydrophytic vegetation, hydric soils, and wetland hydrology.

wild and scenic river a waterway designated by Congress as part of the National Wild and Scenic Rivers System, which was established in the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271, 1271–1287).

wilderness an area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 U.S.C. 1131–1136).

wildland fire a non-structure fire, other than prescribed fire, that occurs in the wildland. Any fire originating from an unplanned ignition.

wildland-urban interface a term is defined by the Healthy Forest Restoration Act § 101:

> (A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or
>
> (B) in the case of any area for which a community wildfire protection plan is not in effect—
>
> > (i) an area extending 1⁄2-mile from the boundary of an at-risk community;
> >
> > (ii) an area within 1 1⁄2 miles of the boundary of an at-risk community, including any land that—
> >
> > > (I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;
> > >
> > > (II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
> > >
> > > (III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and
> >
> > (iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

wind-dominated fire a state where the power of the wind is greater than the power of the fire in influencing its behavior.

windthrow a tree or stand of trees that have been blown over by the wind.

winter range the portion of the overall area a species inhabits where the majority of individuals are found from the first heavy snowfall to spring green-up, or during a site-specific period of winter. In the Rocky Mountains, winter range areas tend to have a relatively low amount of snow cover.

yarding the operation of hauling timber from the stump to a collecting point.

zone 1 an area surrounding the grizzly bear primary conservation area (PCA) in the NCDE, where the intent is to maintain occupancy by grizzly bears, but at expected lower densities than inside the PCA. Zone 1 also includes two demographic connectivity areas. [GBCS]

zone 2 an area adjacent to the grizzly bear zone 1 and/or zone 3 in the NCDE, where grizzly bears, particularly males, would have the opportunity to move between the NCDE and adjacent ecosystems. The intent of the zone 2 area is to allow for resource management and recreational opportunities while responding to grizzly bear-human conflicts with appropriate management actions.

zone 3 the area that primarily consists of areas where grizzly bears do not have enough suitable habitat to support population growth. Grizzly bear occupancy will not be actively discouraged in zone 3 and the management emphasis will be on conflict response. [GBCS]

Appendices

Appendix A—Species Habitat Associations

Appendix B—Potential Management Approaches and Possible Actions

Appendix C—Maps

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Appendix A: Species Habitat Associations

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Descriptions of Biophysical Settings and Plant Communities

Lands across the Flathead National Forest (NF) have been grouped into *biophysical settings*, based on broad climatic and site conditions, for purposes of analysis at the forest-wide scale and development of forest plan components. Biophysical settings serve as a basis for description of certain ecological conditions across the forest and are useful to understand the various ecosystems on the forest, their potential productivity, natural biodiversity, and what kind of processes sustain these conditions. *Plant communities* refer to the existing vegetation types that occur across the landscape at any one point in time. The same plant community may exist on more than one biophysical setting.

Biophysical settings are groupings of potential vegetation types (PVTs), which in turn are groupings of similar habitat types[1]. Habitat types are an aggregation of ecological sites of like biophysical environments (such as climate, aspect, soil characteristics) that produce plant communities of similar composition, structure and function. The vegetation communities that would develop over time given no major natural or human disturbances (i.e., the climax plant community) would be similar within a particular habitat type or PVT map unit. However, the existing vegetation condition or plant community would vary widely, reflecting each site's unique history, forest character, pattern of disturbances, and point in time along the successional pathways.

Table A-1 provides the acres and proportion of each biophysical setting within the geographic areas (GAs) on the Flathead NF. The variation in proportions of biophysical setting provides insight into the unique pattern of environmental, site and vegetation conditions within each GA, and how they differ from one another. Appendix C of the proposed action contains maps displaying biophysical settings forest-wide and for each GA.

Table A-1. Percent and acres of each biophysical setting on National Forest lands within the geographic areas

Biophysical setting	Hungry Horse GA	Middle Fork GA	North Fork GA	Salish Mtn GA	South Fork GA	Swan Valley GA	Total percent & acres Forestwide
Warm-Dry	5% 13,200	5% 17,600	2% 6,200	18% 48,400	14% 109,100	8% 28,000	9% 222,500
Warm-Moist	2% 6,200	<1% 800	4% 13,000	5% 13,000	<1% 600	20% 72,700	4% 106,300
Cool-Moist/ Moderately Dry	85% 242,800	75% 275,300	72% 228,100	76% 198,900	58% 459,700	57% 207,300	68% 1,612,100
Cold	6% 17,100	14% 53,000	21% 67,400	1% 1,800	21% 163,700	9% 32,500	14% 335,500
Grass/forb/shrub Hardwood Non-forest	2% 5,900	6% 21,900	1% 4,300	<1% 300	7% 54,300	6% 22,000	5% 108,700
Total acres[1]	285,200	368,600	319,000	262,400	787,400	362,500	2,385,200

1. Excludes water. All acre figures in the table are estimates and rounded to nearest 100 acres. They do not match exactly with acres in other sections of the proposed action, due to variations resulting from the GIS analysis process and the exclusion of water

[1] Habitat types are described in detail in: Pfister, Robert D., Bernard L. Kovalchik, Stephen F. Arno, and Richard C. Presby. 1977. Forest habitat types of Montana. USDA Forest Service General Technical Report INT-34. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 174p.

Mapping of PVTs was completed across the Forest Service Northern Region in 2004, using data sources that included field plots, remote sensing and modeling[2]. Table A-2 displays the habitat types and PVTs on the Flathead NF and how they were grouped into each biophysical setting. A slightly modified grouping of habitat types and PVTs was determined for the proposed action than was used during the assessment phase of the forest plan revision process as a result of closer review of the data. Both sets of settings are displayed in the table.

Table A-2. The modification of the potential vegetation types (PVTs) and biophysical settings from the Flathead National Forest Assessment to the proposed action.

Habitat Types[1]	PVT Description – FS Region 1[2]	PVT Code	*Assessment*[3] PVT Group	*Proposed Action* Biophysical Setting
pinpon; pinpon/andx; pinpon/agrspi; pinpon/fesida; pinpon/phymal; pinpon/purtri; pinpon/sitcom; pinpon/symalb	*Pinus ponderosa* (Ponderosa Pine)	pipo	warm, dry	**warm dry**
psemen/agrspi; psemen/fesida; psemen/fessca	*Pseudotsuga menziesii* (Douglas-fir) warm dry type 1	psme1	warm, dry	**warm dry**
psemen/corsto; psemen/linbor; psemen/phymal; psemen/symalb; psemen/vaccae; psemen/vacces; psemen/vacsco; psemen/vacglo; psemen/xerten; psemen/vacmem	*Pseudotsuga menziesii* (Douglas-fir) moist type 2	psme2	warm, dry	**warm dry**
psemen/arcuva; psemen/arncor; psemen/calrub; psemen/cargey; psemen/juncom; psemen/spibet	*Pseudotsuga menziesii* (Douglas-fir) cool dry type 3	psme3	warm, dry	**warm dry**
abigra/linbor; abigra/vacglo; abigra/xerten; abigra/vacmen	*Abies grandis* (Grand Fir) moist type 2	abgr2	warm, dry	**warm dry**
abigra/asacau; abigra/cliuni; abigra/sentri	*Abies grandis* (Grand Fir) wet type 3	abgr3	warm, moist	**warm moist**
thupli/asacau; thupli/cliuni	*Thuja plicata* (Western Red Cedar) moist type 2	thpl2	warm, moist	**warm moist**
abilas/arncor; abilas/calrub; abilas/cargey; abilas/vaccae; abilas/vacglo; abilas/vacsco; abilas/xerten; pincon/vacglo	*Abies lasiocarpa* (Subalpine Fir) dry type 3	abla3	cool, mod. dry	**cool moist to mod. dry**
pincon; pincon/calrub; pincon/linbor; pincon/vaccae; pncon/vacsco; pincon/xerten	*Pinus contorta* (Lodgepole Pine)	pico	cool, mod. dry	**cool moist to mod. dry**
tsumer/luzhit; tsumer/menfer; tsumer/xerten	*Tsuga mertensiana* (Mtn. Hemlock)	tsme	cool, mod. dry	**cool moist to mod. dry**
abilas/alnsin; abilas/menfer	*Abies lasiocarpa* (Subalpine Fir) moist type 2	abla2	cool, moist	**cool moist to mod. dry**

[2] USDA, Region 1, Forest Service. 2004. Potential Vegetation Type (PVT) Classification of Western Montana and Northern Idaho. Forest Service Northern Region, Missoula MT. www.fs.usda.gov/detailfull/r1/landmanagement/gis/

Habitat Types[1]	PVT Description – FS Region 1[2]	PVT Code	*Assessment*[3] PVT Group	*Proposed Action* Biophysical Setting
abilas/cliuni; abilas/linbor	*Abies lasiocarpa* (Subalpine Fir) moist type 2	abla2	cool, moist	**cool moist to mod. dry**
piceng; piceng/calcan; piceng/cliuni; piceng/corsto; piceng/equarv; piceng/galtri; piceng/linbor; piceng/phymal; piceng/senstr; piceng/smiste; piceng/vacces	*Picea* (Spruce)	picea	cool, moist	**cool moist to mod. dry**
tsuhet/asacau; tsuhet/athfil; tsuhet/cliuni; tsuhet/gymdry; tsuhet/menfer	*Tsuga heterophylla* (Western Hemlock)	tshe	cool, moist	**warm moist**
abilas/calcan; abilas/descae; abilas/galtri; abilas/oplhor; abilas/salix; abilas/stramp	*Abies lasiocarpa* (Subalpine Fir) wet type 1	abla1	cool, wet	**cool moist to mod. dry**
thupli/adiped; thupli/athfil; thupli/gymdry; thupli/oplhor	*Thuja plicata* (Western Red Cedar) wet type 1	thpl1	cool, wet	**warm moist**
abilas/luzhit; abilas/pinalb; abilas/ribmon	*Abies lasiocarpa* (Subalpine Fir) cold type 4	abla4	cold	**cold**
larlya; larlya/abilas	*Larix lyallii* (Subalpine Larch)	laly	cold	**cold**
pinalb; pinalb/abilas	*Pinus albicaulis* (Whitebark Pine)	pial	cold	**cold**

1. Ibid Pfister et al, 1977, with the difference being the five letter abbreviation for species, rather than the four letter abbreviation in the Pfister publication.
2. Ibid USDA 2004.
3. USDA, Forest Service. 2014. Assessment of the Flathead National Forest. Available online at www.fs.usda.gov/goto/flathead/fpr.

Table A-3. Wildlife species and habitat associations

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Acanthis flammea Common Redpoll	X					G5 S5N		X	X	
Acanthis hornemanni[4] Hoary Redpoll	X					G5 SNA			X	
Accipiter cooperii Cooper's Hawk	X					G5 S4B	X	X	X	X
Accipiter gentilis Northern Goshawk	X	X	X			G5 S3, FNF SOPI, viewing		X	X	X
Accipiter striatus Sharp-shinned Hawk	X					G5 S4B		X	X	X
Actitis macularius Spotted Sandpiper	X					G5 S5B	X	X	X	
Aechmophorus occidentalis Western Grebe						G5 S4B	X			
Aegolius acadicus Northern Saw-whet Owl	X		X			G5 S4		X	X	X
Aegolius funereus Boreal Owl		X	X			G5 S3S4			X	X
Aeronautes saxatalis White-throated Swift				Alpine, bedrock, and scree		G5 S5B				X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Agelaius phoeniceus Red-winged Blackbird	X					G5 S5B	X			
Aix sponsa Wood Duck			X		X	G5 S5B	X			
Alces americanus Moose				Burned forest	X	G5 S4, FNF SOPI, hunting	X	X	X	
Ambystoma macrodactylum Long-toed Salamander						G5 S4	X	X	X	X
Ambystoma mavortium Tiger Salamander	X					G5 S4	X			
Ammodramus savannarum Grasshopper Sparrow	X					G5 S4B		X	X	
Anas acuta Northern Pintail	X				X	G5 S5B	X			
Anas americana American Wigeon					X	G5 S5B	X			
Anas clypeata Northern Shoveler	X				X	G5 S5B	X			
Anas crecca Green-winged Teal					X	G5 S5B	X			
Anas cyanoptera Cinnamon Teal					X	G5 S5B	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Anas discors Blue-winged Teal					X	G5 S5B	X			
Anas penelope[4] Eurasian Wigeon					X	G5 SNA	X	X		
Anas strepera Gadwall					X	G5 S5B	X			
Anaxyrus boreas Boreal (Western) Toad			X	Burned forest		G4 S2, FNF SOPI, viewing	X	X	X	X
Anthus rubescens American Pipit				Alpine		G5 S4B	X	X		
Aquila chrysaetos Golden Eagle	X					G5 S3			X	X
Archilochus alexandri Black-chinned Hummingbird	X					G5 S4B	X	X		
Ardea herodias Great Blue Heron	X					G5 S3,FNF SOPI, viewing	X	X	X	
Ascaphus montanus Tailed Frog		X	X	Cold swift water		G4 S4	X			
Asio flammeus Short-eared Owl	X					G5 S4		X		
Aythya affinis Lesser Scaup					X	G5 S5B	X			
Aythya americana Redhead					X	G5 S5B	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Aythya collaris Ring-necked Duck					X	G5 S5B	X			
Aythya marila Greater Scaup					X	G5 SU	X			
Aythya valisineria Canvasback					X	G5 S5B	X			
Bombycilla cedrorum Cedar Waxwing	X					G5 S5B	X	X	X	X
Bombycilla garrulus Bohemian Waxwing	X					G5 S5N		X		X
Bonasa umbellus Ruffed Grouse	X		X		X	G5 S4	X	X	X	
Botaurus lentiginosus American Bittern						G4 S3B	X	X		
Branta canadensis Canada Goose	X				X	G5 S5B	X	X		
Bubo scandiacus[e] Snowy Owl	X					G5 SNA		X	X	
Bubo virginianus Great Horned Owl	X		X			G5 S5	X	X	X	X
Bucephala albeola Bufflehead			X		X	G5 S5B	X			
Bucephala clangula Common Goldeneye			X		X	G5 S5	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Bucephala islandica Barrow's Goldeneye			X		X	G5 S4	X		X	
Buteo jamaicensis Red-tailed Hawk	X					G5 S5B		X	X	X
Buteo lagopus Rough-legged Hawk	X					G5 S5N			X	X
Buteo swainsoni Swainson's Hawk	X					G5 S4B		X	X	
Calidris alba[4] Sanderling	X					G5 SNA	X			
Calidris pusilla[4] Semipalmated Plover	X					G5 SNA	X			
Callospermophius lateralis Golden-mantled Ground Squirrel				Krummholz		G5 S4				X
Canis latrans Coyote	X				X[5]	G5 S5		X	X	
Canis lupus Gray Wolf	X				X	G4 S4, FNF SOPI, trapping, hunting	X	X	X	X
Cardellina pusilla Wilson's Warbler	X					G5 S5B	X	X		X
Castor canadensis Beaver	X				X	G5 S5, FNF SOPI, trapping	X	X	X	

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Cathartes aura Turkey Vulture	X			Cliffs		G5 S4B		X	X	
Catharus fuscescens Veery	X					G5 S3B, FNF SCC	X	X	X	
Catharus guttatus Hermit Thrush		X				G5 S5B		X	X	X
Catharus ustulatus Swainson's Thrush	X	X				G5 S5B		X	X	X
Catherpes mexicanus[4] Canyon Wren						G5 S4			X	
Certhia americana Brown Creeper		X	X			G5 S3, FNF SOPI, viewing		X	X	
Cervus canadensis Elk	X			Burned forest	X	G5 S5, FNF SOPI, hunting		X	X	X
Chaetura vauxi Vaux's Swift		X	X			G5 S4B	X	X	X	
Charadrius vociferus Killdeer	X					G5 S5B	X	X		X
Charina bottae Rubber Boa						G5 S4	X	X	X	
Chen caerulescens Snow Goose	X				X	G5 S4N	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Chlidonias niger Black Tern						G4 S3B	X	X		
Chordeiles minor Common Nighthawk	X					G5 S5B		X		
Chrysemys picta Painted Turtle	X					G5 S4	X	X	X	
Cinclus mexicanus American Dipper						G5 S5	X			
Circus cyaneus Northern Harrier	X					G5 S4B	X	X	X	X
Cistothorus palustris Marsh Wren	X					G5 S5B	X	X		
Coccothraustes vespertinus Evening Grosbeak	X					G5 S3		X	X	X
Colaptes auratus Northern Flicker	X		X			G5 S5	X	X	X	X
Columba livia[4] Rock Pigeon	X			Cliffs, buildings		G5 SNA		X		
Contopus cooperi Olive-sided Flycatcher	X		X	Burned forest		G4 S4B, FNF SOPI, viewing		X	X	X
Contopus sordidulus Western Wood-Pewee	X					G5 S5B	X	X		

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Corvus brachyrhynchos American Crow						G5 S5B		X	X	X
Corvus corax Common Raven	X					G5 S5		X		X
Corynorhinus townsendii Townsend's Big-eared Bat	X		X	Caves		G3G4 S3, FNF SCC	X	X		
Molothrus ater Brown-headed Cowbird	X					G5 S5B	X	X	X	
Cyanocitta cristata Blue Jay						G5 S5	X	X		X
Cyanocitta stelleri Steller's Jay	X					G5 S5		X	X	X
Cygnus buccinator Trumpeter Swan	X					G4 S3	X	X		
Cygnus columbianus[4] Tundra Swan	X					G5 SNA	X	X		
Cypseloides niger Black Swift				Waterfalls		G4 S1B,FNF SCC	X	X	X	X
Dendragapus obscurus Dusky Grouse	X				X	G5 S4		X	X	X
Dolichonyx oryzivorus[4] Bobolink	X					G5 S3B	X	X		

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Dryocopus pileatus Pileated Woodpecker		X	X			G5 S3, FNF SOPI, viewing	X	X	X	X
Dumetella carolinensis Gray Catbird	X					G5 S5B	X	X	X	
Elgaria coerulea Northern Alligator Lizard				Rock		G5 S3		X		
Empidonax hammondii Hammond's Flycatcher	X	X				G5 S4B		X	X	X
Empidonax minimus Least Flycatcher	X					G5 S5B	X	X	X	
Empidonax oberholseri Dusky Flycatcher	X			Burned forest		G5 S5B		X	X	
Empidonax occidentalis Cordilleran Flycatcher	X			Cliffs		G5 S4B		X	X	
Empidonax traillii Willow Flycatcher	X					G5 S4B	X	X		X
Eptesicus fuscus Big Brown Bat			X	Caves		G5 S4	X	X	X	
Eremophila alpestris Horned Lark	X					G5 S5			X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Euphagus cyanocephalus Brewer's Blackbird	X					G5 S5B	X	X		X
Falcipennis canadensis Spruce Grouse		X			X	G5 S4			X	
Falco columbarius Merlin	X					G5 S4		X		
Falco mexicanus Prairie Falcon	X					G5 S4		X		X
Falco peregrinus Peregrine Falcon	X			Cliffs		G4 S3, FNF SOPI, viewing	X	X	X	X
Falco sparverius American Kestrel	X		X			G5 S5		X		X
Fulica americana American Coot					X	G5 S5B	X			
Gallinago delicata Wilson's Snipe	X				X	G5 S5	X	X		
Gavia immer Common Loon						G5 S3B, FNF SCC SOPI, viewing	X			
Geothlypis tolmiei MacGillivray's Warbler	X					G5 S5B	X	X	X	X
Geothlypis trichas Common Yellowthroat	X					G5 S5B	X	X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Glaucidium gnoma Northern Pygmy-Owl	X		X			G4G5 S4		X	X	X
Glaucomys sabrinus Northern Flying Squirrel		X	X			G5 S4	X	X	X	
Grus canadensis Sandhill Crane	X					G5 S5BS2N	X	X	X	
Gulo gulo Wolverine				Persistent snow	(Trapping currently on hold)	G4 S3, FNF SOPI viewing		X	X	X
Haemorhous cassinii Cassin's Finch	X			Burned forest		G5 S3, FNF SOPI, viewing		X	X	X
Haemorhous mexicanus House Finch	X					G5 S5		X	X	
Haliaeetus leucocephalus Bald Eagle	X	X	X			G5 S4, FNF SOPI, viewing	X	X	X	X
Hesperoperla pacifica Golden Stone	X					G5 SNR		X	X	
Hirundo rustica Barn Swallow	X					G5 S5B	X	X	X	
Histrionicus histrionicus Harlequin Duck		X	X	Cold swift water	X	G4 S2B, FNF SCC	X		X	

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Icterus bullockii[4] Bullock's Oriole	X					G5 S5B	X	X	X	
Ixoreus naevius Varied Thrush		X				G5 S3B		X	X	X
Junco hyemalis Dark-eyed Junco	X					G5 S5B		X	X	X
Lagopus leucura White-tailed Ptarmigan	X			Alpine, Krumholz, persistent snow		G5 S3, FNF SOPI				X
Lanius excubitor Northern Shrike	X					G5 S5N		X	X	
Larus californicus California Gull	X					G5 S5B	X	X	X	
Larus delawarensis Ring-billed Gull	X					G5 S5B	X		X	
Lasionycteris noctivagans Silver-haired Bat	X	X	X	Caves		G5 S4	X	X	X	
Lasiurus cinereus Hoary Bat	X			Caves		G5 S3	X	X	X	
Lepus americanus Snowshoe Hare	X					G5 S4	X	X	X	
Leucosticte tephrocotis Gray-crowned Rosy-Finch	X			Persistent snow		G5 S2BS5N, FNF SOPI, viewing			X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Limnodromus scolopaceus[4] Long-billed Dowitcher	X					G5 SNA	X			
Lithobates catesbeianus Bullfrog						G5	X			
Lithobates pipiens[4] Northern Leopard Frog	X					G5 S1S4	X	X		
Lontra canadensis Northern River Otter					X	G5 S4	X	X	X	
Lophodytes cucullatus Hooded Merganser			X		X	G5 S4	X			
Loxia curvirostra Red Crossbill						G5 S5			X	X
Loxia leucoptera White-winged Crossbill						G5 S4		X		X
Lynx canadensis Canada Lynx		X	X			G5 S3, Threatened		X (warm moist only)	X	X
Lynx rufus Bobcat	X		X		X	G5 S5	X	X	X	
Marmota caligata Hoary Marmot	X			Alpine boulder fields		G5 S3 S4, FNF SOPI, viewing			X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Marmota flaviventris Yellow-bellied Marmot						G5 S4		X		
Martes americana Marten		X	X		X	G5 S4, FNF SOPI, trapping		X	X	X
Martes pennanti Fisher		X	X		X	G5 S3, FNF SCC		X	X	
Megaceryle alcyon Belted Kingfisher	X					G5 S5B	X	X	X	X
Megascops kennicottii Western Screech-Owl	X		X			G5 S3S4	X	X	X	
Melanerpes lewis Lewis's Woodpecker			X	Burned forest		G4 S2B	X	X		
Meleagris gallopavo[4] Wild Turkey	X				X	G5 SNA	X	X		
Melospiza lincolnii Lincoln's Sparrow	X					G5 S5B	X	X	X	
Melospiza melodia Song Sparrow	X					G5 S5B	X	X	X	X
Mephitis mephitis Striped Skunk	X					G5 S5	X	X		

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Mergus merganser Common Merganser			X		X	G5 S5B	X			
Mergus serrator[4] Red-breasted Merganser					X	G5 SNA	X			
Microtus longicaudus Long-tailed Vole						G5 S4	X	X	X	
Microtus montanus Montane Vole						G5 S5	X	X	X	
Microtus pennsylvanicus Meadow Vole	X					G5 S5	X	X	X	
Microtus richardsoni Water Vole						G5 S4	X	X	X	
Mustela erminea Short-tailed Weasel	X				X	G5 S5	X	X	X	
Mustela frenata Long-tailed Weasel	X				X	G5 S5	X	X	X	
Mustela nivalis Least Weasel					X[f]	G5 S4		X		
Mustela vison Mink (American)	X				X	G5 S5	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Myadestes townsendi Townsend's Solitaire	X			Burned forest		G5 S5		X	X	X
Myodes gapperi Southern Red-backed Vole		X	X			G5 S4	X	X	X	X
Myotis californicus California Myotis				Caves		G5 S4	X	X	X	
Myotis ciliolabrum Western Small-footed Myotis				Caves		G5 S4	X	X	X	
Myotis evotis Long-eared Myotis			X	Caves		G5 S4	X		X	
Myotis lucifugus Little Brown Myotis			X			G3 S4	X	X	X	
Myotis volans Long-legged Myotis			X	Caves		G5 S4			X	
Myotis yumanensis Yuma Myotis			X			G5 S3S4	X			
Neotoma cinerea Bushy-tailed Woodrat			X	Caves, cliffs		G5 S5		X	X	
Nucifraga columbiana Clark's Nutcracker				Whitebark pine		G5 S3, FNF SCC		X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Numenius americanus Long-billed Curlew	X					G5 S3B	X			
Ochotona princeps Pika	X			Alpine talus, boulder fields		G5 S4			X	X
Odocoileus hemionus Mule Deer	X				X	G5 S5, FNF SOPI, hunting		X	X	X
Odocoileus virginianus White-tailed Deer	X				X	G5 S5, FNF SOPI, hunting	X	X	X	
Ondatra zibethicus Muskrat	X				X	G5 S5	X	X		
Oreamnos americanus Mountain Goat	X			Cliffs	X	G5 S4, FNF SOPI, hunting			X	X
Oreothlypis celata Orange-crowned Warbler	X					G5 S5B		X	X	X
Oreothlypis peregrina Tennessee Warbler						G5 S3S4B	X		X	
Oreothlypis ruficapilla Nashville Warbler	X					G5 S5B		X	X	
Otus flammeolus Flammulated Owl	X	X	X			G5 S3B, FNF SCC		X		

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Ovis canadensis[6] Bighorn Sheep	X			Cliffs	X	G4 S4				X
Oxyura jamaicensis Ruddy Duck					X	G5 S5B	X			
Pandion haliaetus Osprey	X		X			G5 S5B	X	X	X	X
Parkesia noveboracensis Northern Waterthrush	X					G5 S5B	X		X	
Passer domesticus[4] House Sparrow	X		X		X[5]	G5 SNA		X	X	X
Passerculus sandwichensis Savannah Sparrow	X					G5 S5B		X	X	
Passerella iliaca Fox Sparrow	X					G5 S5B	X	X	X	X
Passerina amoena Lazuli Bunting	X					G5 S4B	X	X	X	
Patagioenas fasciata[4] Band-tailed Pigeon						G4 SNA		X		
Perisoreus canadensis Gray Jay						G5 S5		X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Peromyscus maniculatus Deer Mouse	X					G5 S5	X	X	X	X
Petrochelidon pyrrhonota Cliff Swallow	X			Cliffs		G5 S5B	X	X		X
Phalacrocorax auritus Double-crested Cormorant						G5 S5B	X		X	
Phalaropus tricolor Wilson's Phalarope	X					G5 S4B	X			
Phenacomys intermedius Heather Vole						G5 S4	X	X	X	
Pheucticus ludovicianus[5] Rose-breasted Grosbeak						G5 SNA	X		X	
Pheucticus melanocephalus Black-headed Grosbeak	X					G5 S5B	X	X		X
Pica hudsonia Black-billed Magpie	X					G5 S5		X	X	
Picoides arcticus Black-backed Woodpecker			X	Burned forest		G5 S3,FNF SOPI, viewing		X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Picoides dorsalis American Three-toed Woodpecker		X	X	Burned forest		G5 S4		X	X	X
Picoides pubescens Downy Woodpecker			X			G5 S5	X	X	X	X
Picoides villosus Hairy Woodpecker		X	X	Burned forest		G5 S5		X	X	X
Pinicola enucleator Pine Grosbeak	X	X				G5 S5		X	X	X
Pipilo maculatus Spotted Towhee	X					G5 S5B	X		X	
Piranga ludoviciana Western Tanager	X					G5 S5B		X	X	X
Pituophis catenifer Gopher Snake	X					G5 S5		X		
Anas platyrhynchos Mallard					X	G5 S5	X			
Plectrophenax nivalis Snow Bunting	X					G5 S5N		X	X	
Podiceps auritus Horned Grebe						G5 S3B	X			
Podiceps grisegena Red-necked Grebe						G5 S4B	X			

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Podiceps nigricollis Eared Grebe						G5 S5B	X			
Podilymbus podiceps Pied-billed Grebe						G5 S5B	X			
Poecile atricapillus Black-capped Chickadee	X		X			G5 S5	X	X	X	X
Poecile gambeli Mountain Chickadee			X			G5 S5		X	X	X
Poecile hudsonicus Boreal Chickadee		X	X			G5 S3			X	X
Poecile rufescens Chestnut-backed Chickadee		X	X			G5 S4		X	X	X
Pooecetes gramineus Vesper Sparrow	X					G5 S5B		X	X	
Porzana carolina Sora	X					G5 S5B	X			
Procyon lotor Raccoon	X		X		X[5]	G5 S5	X	X		
Pseudacris regilla Pacific Treefrog	X					G5 S4	X	X	X	
Puma concolor Mountain Lion	X				X	G5 S4		X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Quiscalus quiscula[4] Common Grackle	X					G5 S5B	X	X		
Rallus limicola[4] Virginia Rail						G5 S5B	X	X		
Rana luteiventris Columbia Spotted Frog	X					G4 S4	X	X	X	X
Rangifer tarandus caribou[4] Woodland Caribou		X				G5T4 SX			X	
Recurvirostra americana American Avocet						G5 S4B	X	X		
Regulus calendula Ruby-crowned Kinglet						G5 S5B		X	X	X
Regulus satrapa Golden-crowned Kinglet		X				G5 S5		X	X	X
Riparia riparia Bank Swallow	X					G5 S5B	X	X	X	X
Sayornis saya Say's Phoebe	X					G5 S5B			X	
Selasphorus calliope Calliope Hummingbird	X					G5 S5B	X	X	X	X
Selasphorus rufus Rufous Hummingbird	X					G5 S4B	X	X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Setophaga coronata Yellow-rumped Warbler	X					G5 S5B		X		X
Setophaga petechia Yellow Warbler	X					G5 S5B	X	X		
Setophaga ruticilla American Redstart	X					G5 S5B	X	X	X	
Setophaga townsendi Townsend's Warbler		X				G5 S5B		X	X	X
Sialia currucoides Mountain Bluebird	X		X	Burned forest		G5 S5B		X		X
Sialia mexicana Western Bluebird	X		X			G5 S4B		X	X	
Sitta canadensis Red-breasted Nuthatch		X	X			G5 S5		X	X	X
Sitta carolinensis White-breasted Nuthatch		X	X			G5 S4	X	X		X
Sitta pygmaea Pygmy Nuthatch		X	X			G5 S4		X	X	
Sorex cinereus Masked Shrew	X					G5 S5	X	X	X	
Sorex hoyi Pygmy Shrew	X					G5 S3	X		X	

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Sorex monticolus Dusky or Montane Shrew						G5 S5		X	X	
Sorex palustris Water Shrew						G5 S4	X	X	X	
Sorex vagrans Vagrant Shrew	X					G5 S4	X	X	X	
Sphyrapicus nuchalis Red-naped Sapsucker			X			G5 S4B	X	X	X	X
Sphyrapicus thyroideus Williamson's Sapsucker			X			G5 S4B		X		
Spinus pinus Pine Siskin	X					G5 S5		X	X	X
Spinus tristis American Goldfinch	X					G5 S5B	X	X		X
Spizella arborea[4] American Tree Sparrow	X					G5 SNA		X	X	X
Spizella pallida Clay-colored Sparrow	X					G5 S4B		X		
Spizella passerina Chipping Sparrow	X					G5 S5B		X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Stelgidopteryx serripennis Northern Rough-winged Swallow	X					G5 S5B	X	X	X	X
Streptopelia decaocto[4] Eurasian Collared-Dove					X[5]	G5 SNA		X		
Strix nebulosa Great Gray Owl	X		X	Cliffs		G5 S3, FNF SOPI viewing		X	X	X
Strix varia Barred Owl			X			G5 S4	X	X	X	X
Sturnella neglecta Western Meadowlark	X					G5 S5B		X	X	X
Sturnus vulgaris[4] European Starling	X				X[5]	G5 SNA		X	X	X
Surnia ulula Northern Hawk Owl	X		X	Burned forest		G5 S3		X	X	
Synaptomys borealis Northern Bog Lemming				Peatlands		G5 S2, FNF SCC	X		X	
Tachycineta bicolor Tree Swallow	X		X			G5 S5B	X	X	X	
Tachycineta thalassina Violet-green Swallow	X		X	Cliffs		G5 S5B	X	X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Tamias amoenus Yellow-pine Chipmunk						G5 S5	X	X	X	
Tamias ruficaudus Red-tailed Chipmunk						G5 S4	X	X	X	
Tamiasciurus hudsonicus Red (Pine) Squirrel			X			G5 S5	X	X	X	X
Taxidea taxus Badger	X				X[5]	G5 S4		X	X	
Thamnophis elegans Terrestrial Gartersnake	X					G5 S5	X	X	X	X
Thamnophis elegans Western Terrestrial Garter Snake	X					G5 S5	X			
Thamnophis sirtalis Common Gartersnake	X					G5 S4	X	X	X	
Thomomys talpoides[4] Northern Pocket Gopher	X					G5 S5		X	X	X
Tringa flavipes[4] Lesser Yellowlegs	X					G5 SNA	X	X		

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Tringa melanoleuca[4] Greater Yellowlegs	X					G5 SNA	X	X		
Tringa solitaria[4] Solitary Sandpiper	X					G5 SNA	X			
Troglodytes aedon House Wren	X		X			G5 S5B		X	X	
Troglodytes pacificus Pacific Wren		X	X			G5 S3	X	X	X	X
Turdus migratorius American Robin	X			Burned forest		G5 S5B	X	X	X	X
Tyrannus tyrannus Eastern Kingbird	X					G5 S5B	X	X	X	
Tyrannus verticalis Western Kingbird	X					G5 S5B		X	X	
Urocitellus columbianus Columbian Ground Squirrel	X					G5 S5		X	X	X
Ursus americanus Black Bear	X	X	X		X	G5 S5	X	X	X	X
Ursus arctos Grizzly Bear	X			Burned forest		G4 S2S3, Threatened	X	X	X	X
Vireo cassinii Cassin's Vireo	X					G5 S4B		X	X	X
Vireo gilvus Warbling Vireo	X					G5 S5B	X	X	X	X

Species[1] Name	Habitat (from Montana National Heritage Program list, obtained December 2013)									
	Grass-forb-shrub	Old-growth	Snag or Downed Log	Unique Habitat Associate[2]	Hunted or Trapped	Species Status[3]	Aquatic, Wetland, and/or Riparian	Warm Moist to Warm-dry Biophysical Setting	Cool Wet to Cool-Dry Biophysical Setting	Cold Biophysical Setting
Vireo olivaceus Red-eyed Vireo	X					G5 S4B	X	X	X	
Vulpes vulpes Red Fox	X				X[5]	G5 S5	X	X	X	
Xanthocephalus xanthocephalus Yellow-headed Blackbird	X					G5 S5B	X			
Zapus princeps Western Jumping Mouse						G5 S4	X	X	X	
Zenaida macroura Mourning Dove	X				X[5]	G5 S5B	X	X	X	
Zonotrichia albicollis[3] White-throated Sparrow	X					G5 SNA		X	X	
Zonotrichia leucophrys White-crowned Sparrow	X					G5 S5B		X		X
Zonotrichia querula[4] Harris's Sparrow	X					G5 SNA			X	

1. Species with only 1 or 2 total observations in the MTNHP database were not listed. The species in this table have known occurrence on or within1/2 mile of FNF lands as of 2013. The list was reviewed and recommended SCC or SOPI status was corroborated by T. Their and C. Hammond (MTFWP).in December 2014. D. Casey of American Bird Conservancy, and S. Gniadek or Flathead Audubon reviewed the list and provided additional input on bird species and habitat associations.

2. Includes features such as caves, talus, snowfields/glaciers, fell/boulder fields, cliffs, waterfalls, intensively burned habitats

3. T&E, Proposed, or Candidate Species (2014), MTNHP Global (G1-5) and State (S1-5) Species (2013); and Flathead National Forest (FNF) Potential Species Status. Includes species status under the ESA as of 9/23/14; and proposed as Species of Conservation Concern (SCC) or Species of Public Interest (SOPI) according to the 2012 planning rule and USFS directives.

4. Species with more than 2 observations within ½ mi. of NFS lands, but MTNHP has determined a conservation status rank is not applicable because the species is not a suitable target for conservation activities as a result of being: 1) not confidently present in the state; 2) exotic or introduced; 3) a long distance migrant with accidental or irregular stopovers;

or 4) a hybrid without conservation value; 5) species is believed to be extinct throughout its range or extirpated in Montana; or is believed to be incidental on NFS lands based on specific observations of animals or their tracks.

5. Species hunted or trapped but not regulated by MTFWP R1.
6. Bighorn sheep occur in the warm-dry biophysical setting on in the Bob Marshall Wilderness in high elevation grasslands and on Wildhorse Island (not NFS lands).

Table A-4. Plant species and habitat associations

Species Name	Peatland	Marshes	Fen	Mesic	Disturbance	Rock/Talus/Scree	Species Status[1]	Montane Zone	Valley Zone	Foothill Zone	Subalpine Zone
Polygonum austiniae Austin's Knotweed						X	G4 S3S4	X			
Eleocharis rostellata Beaked Spikerush			X				G5 S3		X	X	
Cypripedium fasciculatum Clustered Lady's-slipper				X			G4 S2, FNF SCC	X			
Camassia quamash Common Camas		X		X			G5 S4S5, FNF SOPI		X	X	
Carex chordorrhiza Creeping Sedge			X				G5 S3	X			
Dryopteris cristata Crested shieldfern			X				G5 S3	X			
Dicranella grevillean Greville's dicranella moss					X		G3G5 S1, FNF SCC				
Carex lacustris Lake-bank Sedge		X	X				G5 S1S2, FNF SCC				
Liparis loeselii Loesel's Twayblade			X				G5 S2, FNF SCC	X	X		
Sphagnum magellanicum Magellan's Peatmoss	X		X				G5 S1, FNF SCC				
Meesia triquetra Meesia moss	X		X				G5 S2, FNF SCC				

Species Name	Peatland	Marshes	Fen	Mesic	Disturbance	Rock/Talus/Scree	Species Status[1]	Montane Zone	Valley Zone	Foothill Zone	Subalpine Zone
Lycopodium inundatum Northern Bog Clubmoss			X				G5 S2, FNF SCC	X	X		
Corydalis sempervirens Pale Corydalis					X	X	G4G5 S2, FNF SCC	X			
Botrychium paradoxum Peculiar Moonwort				X			G3G4 S3				X
Scorpidium scorpioides Scorpidium moss			X				G4G5 S2, FNF SCC				
Eriophorum gracile Slender Cottongrass			X				G5 S3	X	X	X	
Drosera linearis Slenderleaf Sundew			X				G4 S2, FNF SCC	X			
Silene spaldingii Spalding's Catchfly				X			G2 S2, Threatened		X	X	
Cypripedium passerinum Sparrow's-egg Lady's-slipper	X						G4G5 S2S3, FNF SCC	X		X	X
Botrychium pedunculosum Stalked Moonwort				X			G2G3 S2, FNF SCC	X	X	X	
Botrychium ascendens Upward-lobed Moonwort				X	X		G3 S3				
Howellia aquatilis Water Howellia		X					G3 S3, Threatened		X		

Species Name	Peatland	Marshes	Fen	Mesic	Disturbance	Rock/Talus/Scree	Species Status[1]	Montane Zone	Valley Zone	Foothill Zone	Subalpine Zone
Pinus monticola Western white pine				X			G4G5, S3 FNF SCC	X			
Pinus albicaulis Whitebark Pine							G3G4 S3, Sensitive Candidate				X

1. T&E, Proposed, or Candidate Species (2014), MTNHP Global (G1-5) and State (S1-5) Species (2013) and Flathead National Forest (FNF) Potential Species Status. Includes species status under the ESA as of 9/23/14; species with a state rank of 1 or 2, and proposed as Species of Conservation Concern (SCC) or Species of Public Interest (SOPI) according to the 2012 planning rule and USFS directives.

Table A-5. Invertebrate species and habitat associations

Species Name	Species Status[1]	Aquatic Wetland and/or Riparian	Caves and Springs	Rock/Talus/ Scree	Woodland	Open Meadow	Alpine	Little or no information available[2]
Salmasellus steganothrix[3] A Cave Obligate Isopod	G2G3 S1S2		X					
Ephydatia cooperensis[3] A Freshwater Sponge	G1 G3 S1 S3	X						
Caenis youngi[3] A Mayfly	G4 S2	X						
Parameletus columbiae A Mayfly	G2 S1	X						X
Endopus parvipes[2] A Millipede	G1G3 S1S3							X
Rhyacophila ebria[3] A Rhyacophilan Caddisfly	G2G3 S1	X						
Rhyacophila gemona A Rhyacophilan Caddisfly	G2G3 S2	X						X
Rhyacophila glacier[3] A Rhyacophilan Caddisfly	G3 S1	X						
Rhyacophila potteri[3] A Rhyacophilan Caddisfly	G3 S2	X						
Rhyacophila rickeri[3] A Rhyacophilan Caddisfly	G3G4 S2	X						
Isocapnia crinite A Stonefly	G4 S2	X						X
Stygobromus tritus[2] A Subterranean Amphipod	G1G2 S1S2	X						X

Species Name	Species Status[1]	Aquatic Wetland and/or Riparian	Caves and Springs	Rock/Talus/ Scree	Woodland	Open Meadow	Alpine	Little or no information available[2]
Boloria alberta[3] Alberta Fritillary	G3 S2 S3			X			X	
Isocapnia integra[3] Alberta Snowfly	G4 S2	X						X
Rhyacophila alexanderi[3] Alexander's Rhyacophilan Caddisfly	G2 S2	X						
Oreohelix alpina Alpine Mountainsnail	G1 S1,			X			X	
Agapetus montanus[3] An Agapetus Caddisfly	G3 S3	X						
Oreohelix amariradix[3] Bitterroot Mountainsnail	G1G2 S1S2			X		X		
Leucorrhinia borealis[3] Boreal Whiteface	G5 S1	X						
Somatochlora walshii Brush-tipped Emerald	G5 S1S2	X						
Oreohelix elrodi Carinate Mountainsnail	G1 S1, FNF SCC			X	X			
Soliperla salish[3] Clearwater Roachfly	G2 S2	X						
Utacapnia Columbiana[3] Columbian Snowfly	G4 S2	X						
Zapada cordillera[3] Cordilleran Forestfly	G3 S2	X						X
Boloria frigga[3] Frigga Fritillary	G5 S1 S2	X						
Euphydryas gillettii Gillette's Checkerspot	G3 S2,	X			X	X		X

Species Name	Species Status[1]	Aquatic Wetland and/or Riparian	Caves and Springs	Rock/Talus/ Scree	Woodland	Open Meadow	Alpine	Little or no information available[2]
Stygobromus glacialis[2] Glacier Amphipod	G1G3 S1S2	X						X
Polygonia progne[3] Gray Comma	G4G5 S2	X			X			
Polygyrella polygyrella[3] Humped Coin	G3 S1S2,			X	X			
Oreohelix carinifera[3] Keeled Mountainsnail	G1 S1			X				
Discus brunsoni[3] Lake Disc	G1 S1,			X				
Physa Physa megalochlamys[3] Large-mantle Physa	G3G4 S1	X						
Caurinella idahoensis[3] Lolo Mayfly	G3 S2	X						
Oreohelix haydeni[3] Lyrate Mountainsnail	G2G3 S1S3			X				
Magnipelta mycophaga Magnum Mantleslug	G3 S2S3	X		X	X			X
Hemphillia danielsi[3] Marbled Jumping-slug	G2 G3 S1 S2	X		X	X			
Lednia tumana Meltwater Lednian Stonefly	G1 G2 S1, Candidate, FNF SCC	X						
Goereilla baumanni Northern Rocky Mountains Refugium Caddisfly	G2 S2	X						X

Species Name	Species Status[1]	Aquatic Wetland and/or Riparian	Caves and Springs	Rock/Talus/ Scree	Woodland	Open Meadow	Alpine	Little or no information available[2]
Rossiana Montana Northern Rocky Mountains Refugium Caddisfly	G2G3 S2	X						X
Sericostriata surdickae[3] Northern Rocky Mountains Refugium Caddisfly	G3 S3	X						
Caudatella edmundsi[3] Northern Rocky Mountains Refugium Mayfly	G3 G4 S3	X						
Hemphillia camelus[3] Pale Jumping-slug	G4 S1	X						
Kootenaia burkei[3] Pygmy Slug	G2 S1S2	X			X			
Prophysaon andersoni[3] Reticulate Taildropper	G5 S1S2	X			X			
Haplotrema vancouverense[3] Robust Lancetooth	G5 S1 S2				X			
Acroloxus coloradensis[3] Rocky Mountain Capshell	G3 S1	X						
Colligyrus greggi[3] Rocky Mountain Duskysnail	G4 S1	X						
Soyedina potteri[3] *Northern* Rocky Mountains Refugium Stonefly	G2 S2	X						

Species Name	Species Status[1]	Aquatic Wetland and/or Riparian	Caves and Springs	Rock/Talus/ Scree	Woodland	Open Meadow	Alpine	Little or no information available[2]
Zacoleus idahoensis[3] Sheathed Slug	G3G4 S2S3,			X	X			
Pristiloma wascoense Shiny Tightcoil	G3 S1S3			X	X			X
Prophysaon humile Smoky Taildropper	G3 S2S3	X		X	X			
Isoperla petersoni[3] Springs Stripetail	G5 S2	X						
Discus shimekii[2] Striate Disc	G5 S1				X			X
Coenagrion interrogatum[2] Subarctic Bluet	G5 S1 S2	X						
Aeshna subarctica Subarctic Darner	G5 S1 S2	X						X
Zapada glacier[3] Western Glacier Stonefly	G1 S1	X						
Margaritifera falcata Western Pearlshell	G4G5 S2	X						

1. T&E, Proposed, or Candidate Species (2014), MTNHP Global (G1-5) and State (S1-5) Species (2013) and FNF Potential Species Status. Includes species status under the ESA as of 9/23/14; species with a state rank of 1 or 2, and proposed as Species of Conservation Concern (SCC) according to the 2012 planning rule and USFS directives.
2. Species may have been observed only once or twice, or long ago on the FNF.
3. Species has not been documented on FNF lands.

Table A-6. Aquatic vertebrate species and habitat associations

Species Name	Lentic	Lotic	Fished	Species Status[1]
Thymallus arcticus Arctic Grayling	X		X	G5-S1 Non-native FNF SOPI
Salvelinus confluentus Bull trout	X	X	X	G4 S2, Threatened,
Salvelinus fontinalis Brook Trout	X	X	X	G5 SNA, Non-native FNF SOPI
Oncorhynchus mykiss Rainbow Trout	X	X	X	G5 S5, Non-native FNF SOPI
Oncorhynchus clarkii lewisi Westslope Cutthroat trout	X	X	X	G4T3 S2, FNF SCC

1. T&E, Proposed, or Candidate Species (2014), MTNHP Global (G1-5) and State (S1-5) Species (2013) and FNF Potential Species Status. Includes species status under the ESA as of 9/23/14; species with a state rank of 1 or 2, and proposed as Species of Conservation Concern (SCC) or Species of Public Interest according to the 2012 planning rule and USFS directives. There are other fish that occur on the forest, however they are not listed since they do not fall into one of the above categories.

Appendix B: Potential Management Approaches and Possible Actions

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Introduction

This appendix describes the possible actions and potential management approaches and strategies the Flathead National Forest (NF) may undertake to make progress in achieving the desired conditions described in the plan. Management approaches and strategies presented in this section may include processes such as suggestions for on-the-ground implementation, analysis, assessment, inventory or monitoring, and partnership and coordination opportunities the forest is proposing as helpful to make progress in achieving its desired conditions. The potential approaches and strategies are not intended to be all-inclusive, nor commitments.

The 2012 Planning Rule requires land management plans to "…contain information reflecting proposed and possible actions that may occur on the plan area during the life of the plan, including: the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used (16 United State Code (U.S.C.) 1604(e)(2) and (f)(2)). Such information is not a commitment to take any action and is not a 'proposal' as defined by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA) (40 CFR 1508.23, 42 U.S.C. 4322(2)(C)). (36 CFR 219.7(f)(1))."

This appendix includes a list of types of possible projects for the next 3 to 5 years to move toward the desired conditions and objectives. The possible actions are displayed as a brief summary of the types of possible projects expected. The types of actions described do not commit the Flathead NF to perform or permit those actions, but they are provided as possible actions that would likely be consistent with plan components, particularly the desired conditions and objectives.

The possible actions listed include exhibits of the possible timber sale program, timber-harvesting levels, and the proportion of probable methods of forest vegetation management practices expected to be used. The identification of possible actions could include an estimate of timber harvesting level, but does not include speculation about the specific amount, frequency, location, magnitude, or numbers of actions during the plan period. This appendix does not serve as a "to do" list of projects and expected dates in the plan. Potential management approaches included may be used to inform future proposed and possible actions. A plan may also include additional optional content, such as strategies and partnership opportunities or coordination activities.

Possible Forest Management Actions and Timber Harvest Levels

As required by the 2012 Planning Rule, this section identifies the possible actions and proportion of probable methods of forest vegetation management practices expected to be used to achieve desired timber harvesting levels and outputs. The identification of possible actions includes an estimate of timber harvesting levels anticipated over the next 1 to 2 decades, but does not include speculation about the specific amount, frequency, location, magnitude, or numbers of actions during the plan period.

Estimated acres of treatment and associated timber product outputs were determined through use of the Spectrum model. This model is an analytical tool used to evaluate vegetation management scenarios that achieve resource objectives. Among other things, the model provides an estimate of the level of timber products expected and the management practices applied to achieve that level, given a set of inputs that includes existing and desired vegetation conditions, budget and resource constraints, and expected vegetation change pathways.

Table B-1 displays the acres and probable treatments expected in the proposed action for the first decade of the plan period, estimated by management area group and treatment type. Production of sawtimber and other wood products is expected through commercial timber harvest activities, which includes even-aged

regeneration harvests (clearcut, seedtree, shelterwood), uneven-aged regeneration harvests (group selection) and intermediate harvests (commercial thin). Planned fire ignition (prescribed fire) is an additional method analyzed by the Spectrum model that contributes towards achieving desired vegetation conditions. The appropriate or optimum methods of harvest or other treatments would be based upon site-specific determinations, as evaluated and determined during project planning and documented in a silvicultural prescription.

Table B-1. Vegetation management practices by management area group, annual average acres for the first decade of the plan period

Management Area Group	Treatment Type	1st Decade (acres)
Not suitable for timber production or timber harvest	Planned Fire Ignitions	2,356
Not suitable for timber production, suitable for timber harvest	Planned Fire Ignitions	1,177
	Group Selection	371
	Regeneration harvest (even-aged)	0
	Intermediate harvest (commercial thin)	321
Suitable for timber production	Planned Fire Ignitions	1,423
	Group Selection	0
	Regeneration harvest (even-aged)	1,156
	Intermediate harvest (commercial thin)	1,658
Total Treatments	Planned Fire Ignitions	4,957
	Group Selection	371
	Regeneration harvest (even-aged)	1,156
	Intermediate harvest (commercial thin)	1,978

Table B-2 displays the projected timber sale quantity (for products meeting utilization standards) and the projected wood sale quantity (for products such as fuelwood or biomass that does not meet timber product utilization standards) for lands suitable and not suitable for timber production.

Table B-2. Projected timber sale program, annual average volume outputs for 1st decade of the plan period

Timber Products – Volumes other than salvage or sanitation volumes that meet timber product utilization standards	MMCF	MMBF
A1. Lands suitable for timber production	5.3	25.7
A2. Lands not suitable for timber production	0.5	2.6
Projected Timber Sale Quantity (PTSQ) (A1 + A2)	5.8	28.3
Other Wood Products – Fuelwood, biomass, and other volumes that do not meet timber product utilization standards	**MMCF**	**MMBF**
B. All lands	0.4 – 1.2	2 - 6
Projected Wood Sale Quantity (PWSQ) (A + B)	6.2 – 7.0	30.3 – 34.3

As required by the 2012 Planning Rule, the estimates in table B-2 take into account the fiscal capability of the planning unit and are consistent with all plan components. They are based on Flathead NF average budget levels over the past 3 years. However, the estimates of timber outputs may be larger or smaller on an annual basis, or over the life of the plan, if budget or other constraining factors change in the future.

The maximum quantity of timber that may be sold is limited to the sustained yield limit (refer to the Proposed Action, Ecosystem Services, Forest Vegetation Products: Timber section).

Management Strategies and Approaches

Watershed, Riparian Habitat, Aquatic Species, and Soils

Watersheds, habitats, and aquatic species exist within a larger, interconnected hydrological system, which often extends beyond forest management boundaries such as Flathead Lake or even to Canada.

The Flathead NF's plan components for aquatic ecosystem diversity and species diversity involve a two-tiered approach. First, in a coarse filter approach, aquatic ecosystems are managed toward reference conditions, which are approximated by conditions found in watersheds that have experienced minimal human disturbances. The assumption is that managing toward reference conditions would provide the majority of necessary habitat conditions to support the native aquatic species that have evolved here. Due to societal and ecological changes, the Flathead NF cannot be managed to exactly mimic reference conditions, but managing aquatic ecosystems within this context would provide suitable aquatic habitats for native species. A primary mechanism of the coarse filter is the designation of riparian habitat conservation areas (RHCAs). These are areas along streams, lakes, ponds, and other wetland areas that have specific protections in the form of the proposed action's guidelines and suitability designations. In addition, "Montana Best Management Practices" and "Soil and Water Conservation Practices" are implemented to protect or restore water quality under the Clean Water Act. These practices are also considered a key element of the coarse filter.

Second, using a fine filter assessment, species are evaluated to determine limiting habitats, population influences, and whether they have special habitat needs that may not be provided through coarse filter plan components. Fine filter plan components are listed for species in one of the following categories: threatened and endangered species (bull trout), species of conservation concern (westslope cutthroat trout), and species of public interest (grayling, rainbow trout, brook trout). Species identified through the fine filter may need additional protection as specified in conservation strategies for individual species or groups of species. Bull trout is currently listed as a threatened species under the Endangered Species Act. Through the proposed action's plan components, including desired conditions, objectives, standards and guidelines, this species would be anticipated to trend toward recovery and subsequent delisting.

The following subsections present potential management approaches and strategies identified to move these resource areas within the larger landscape toward the specific desired conditions and objectives presented in the proposed action.

The Watershed Condition Framework establishes a systematic process for determining watershed conditions. One of the key elements of the forest plan, in keeping with the Watershed Condition Framework, is the identification of the highest priority areas for restoration. These priority areas are places where site-specific analysis may help us assess site-specific conditions and further prioritize restoration needs. Using this "step-down" approach, we plan to emphasize the following strategies in Flathead forest watersheds with an emphasis in priority watersheds (see appendix E for identification of priority watersheds):

a. Improving habitat for bull trout and westslope cutthroat trout. (FW-DC-WTR-01, 04, 11; FW-DC-RHCA-01, 02, 03; FW-GDL-RHCA-01-11)

b. Improving water quality by implementing "Montana Best Management Practices" (BMPs) and "Soil and Water Conservation Practices." (FW-DC-WTR-02; FW-GDL-WTR-03)

c. Restoring water quality and stream habitats by improving watershed scale processes and through direct riparian and in-channel treatments. (FW-DC-AQH-01,02; FW-DC-AQS-01-05)

d. Reducing aquatic habitat fragmentation through removal of man-made, native fish migration barriers. Where appropriate, create barriers to prevent invasion of non-native species. (FW-GDL-WTR-04; FW-GDL-IFS-05, 08)

e. Working toward the delisting of impaired water bodies in cooperation with Montana Department of Environmental Quality (MDEQ) and Environmental Protection Agency (EPA) through water quality assessment, total maximum daily loads (TMDLs), restoration plans, BMP implementation, and monitoring. (FW-DC-WTR-02, 05, 09; FW-GDL-WTR-01)

f. Cooperating with private land owners and other agencies to improve water quality and restore aquatic ecosystems across multiple ownerships. (FW-DC-P&C- 01-10)

g. Cooperating with Montana Fish, Wildlife and Parks, organizations, and other agencies to reduce the spread of aquatic invasive species. (FW-DC-P&C-01; FW-DC-AQS-02, 03)

h. Removal, reconstruction, or improved maintenance of roads located in riparian areas to improve watershed health and reduce sediment delivery to the aquatic ecosystem. (FW-GDL-SOIL-02, 04; FW-GDL-RHCA-09, 11)

i. Treating upland roads to reduce water interception and reduce landslide risk; (FW-GDL-RHCA-02)

j. Complete the development of Watershed Restoration Action Plans (WRAPs) for all identified priority watersheds and continue WRAP implementation and identification of essential projects in the Watershed Improvement Tracking database. (FW-DC-WTR-01)

k. Collaborate with partners to identify additional priority watersheds corresponding to a reasonable and achievable 5-year program of work. (FW-DC-P&C- 01, 02)

l. Engage with youth and veterans through the 21st Century Conservation Service Corps to accomplish climate-informed restoration work on public lands (i.e., watershed restoration, hazardous fuel reduction). (FW-DC-S&E-03)

Terrestrial Ecosystems and Vegetation

This section presents a list of a wide array of possible strategies that may be used to move toward and/or achieve desired conditions and objectives outlined in the Terrestrial Ecosystem and Vegetation section of the proposed action. The list is not inclusive of all possible strategies, but the most probable strategies that are likely to contribute to achieving objectives. Strategies could include the use of single methods and/or practices, or combinations of methods and practices. However, the specific strategy chosen would depend on numerous factors, such as site-specific forest conditions and other management objectives for the area.

Primary strategies to achieve FW-OBJ-TE&V-01 are the following:

- Regeneration harvest methods, implementing even-aged, two-aged or uneven-aged silvicultural systems (e.g., clearcut, seed tree, shelterwood or group/single tree selection)
- Intermediate harvest methods (e.g., commercial or pre-commercial thinning, sanitation or salvage cut)
- Pruning or daylight thinning of western white pine to reduce incidence of blister rust
- Planting of conifers to reforest areas after harvest or fire

- Use of mechanical methods (e.g., excavator scarification) or prescribed fire to prepare sites for reforestation
- Post-fire salvage harvest or salvage after epidemic insect infestations
- Management of fire (i.e., prescribed fire and wildfire) to achieve desired vegetation structure, composition, pattern and function
- Mechanical treatments including commercial and noncommercial treatments to alter forest structure and fuel loadings.
- Treating insects and disease using integrated pest management practices.

Primary strategies to achieve FW-OBJ-TE&V-02 are the following:

- Removal of understory conifers in aspen or cottonwood plant communities, through cutting or understory trees or use of prescribed fire
- Thinning around individual hardwood trees where of high value
- Retention of hardwood trees to the degree possible within harvest units
- Root-cutting, burning, or cutting of hardwood trees less than 10 inches diameter breast height (d.b.h.) to promote suckering
- Flooding (by beavers) to maintain and regenerate hardwoods and other riparian areas

A primary strategy to achieve FW-OBJ-TE&V-03 is the following:

- Treating invasive weeds, with biological, chemical, or mechanical means, as appropriate.

Primary strategies to achieve FW-OBJ-TE&V-04 are the following:

- Slashing and/or management of fire (i.e., prescribed fire and wildfire) to maintain or create grass/forb/shrub openings
- Revegetation of disturbed sites with native grass/forb/shrub species.

Other silvicultural practices that may be used to move towards or achieve desired conditions:

- Removing slash from the base of snags and other leave trees prior to prescribed burning
- Topping trees to create snags or collect cones
- Cone collection, including caging cones to collect seed (whitebark pine).

The following subsections describe potential management strategies, at both the landscape and stand level, designed to trend towards desired conditions for the terrestrial ecosystem, vegetation and wildlife species presented in the proposed action. Refer also to appendix A of this proposed action for information on biophysical settings and species habitat associations.

Coniferous Forest Types

This section provides guidance and clarification for forest plan components (desired conditions, objectives, standards and guidelines) related to coniferous forest types and the associated wildlife habitat.

General Strategies

The following strategies would be considered during landscape and stand level project analyses to meet or trend toward achieving desired conditions for forest size classes, species composition, patterns, and structures:

- Evaluate areas proposed for vegetation management activities for the presence of occupied or suitable habitat for threatened and endangered plant species. If needed, based on pre-field review, conduct field surveys and provide mitigation or protection to maintain occurrences or habitats that are important for species sustainability.
- Complete effectiveness evaluations of fuel treatments to better understand how hazardous fuels treatments affect wildfire behavior, fire severity and fire suppression effectiveness.
- Thin in immature stands where it would improve individual tree and stand growth rates. These may be stands currently in sapling, small or medium tree size classes.
- Where treatment and site conditions are suitable, promote increase of the following species in stand and landscape level prescriptions:
    - For ponderosa pine, especially on the warm dry biophysical setting, planting if often needed to ensure its successful establishment.
    - For western larch, especially on the warm moist and cool moist to mod dry biophysical settings, planting may be needed to ensure successful establishment, if a reliable seed source is not present. Thinning in the sapling stage may also be needed to ensure continued presence and growth.
    - For rust-resistant western white pine, especially on the warm moist biophysical setting, restoration activities may include creating suitable sites for western white pine establishment and growth through harvest, burning or mechanical site preparation; planting of rust-resistant seedlings; thinning; and pruning of young sapling trees.
    - For western red cedar, focus on the sites where it currently or has the potential to achieve larger sizes and, possibly, late successional or old growth habitat in the future.
    - For whitebark pine, use a variety of restoration treatments, e.g., planting, thinning, and fuel reduction, in stands that contain phenotypically rust-resistant trees.

Strategies for forest pattern, patch sizes

Analyses of the natural range of variation (NRV) indicate that the range in variation of early successional seedling/sapling forest patch sizes is naturally very wide in the ecosystems of the Flathead NF, due to the predominance of moderate and high severity fire disturbance regimes (refer to the Assessment of the Flathead NF[1] for details on this analysis). The proposed action includes components that address desired forest patterns and patch sizes, particularly related to early successional seedling/sapling dominated openings across the landscape. Current average patch sizes are considerably lower than the NRV in some areas of the forest (refer to (FW-DC-TE&V-11). In other areas, average patch sizes are consistent with NRV, mainly due to the effects of recent (within past 15 years) wildfires.

Early successional forest openings dominated by seedling/sapling trees transition relatively quickly out of this condition and into mid-successional stands, with larger trees and dense forest canopies. This may

[1] 3. USDA, Forest Service. 2014. Assessment of the Flathead National Forest. Available online at www.fs.usda.gov/goto/flathead/fpr.

occur 30 to 40 years after the disturbance that established the new forest. Stands can remain in this mid-successional, closed canopy, densely forested condition for many decades, or centuries, without disturbance. Both fire (prescribed and wildfire) and timber harvest can be tools for maintaining and creating desired amount and distribution of young, early successional forest patches.

Application of the standard specifying maximum opening size for timber harvest

Standards for timber harvest in the proposed action include an exception to the 40 acre maximum opening size for regeneration harvest units (FW-STD-ECOS TIMB-07). The standard is consistent with the average opening size created under the natural disturbance regime in the ecosystem, and is designed to facilitate the maintenance or trend towards the desired conditions for forest pattern and patch sizes.

For the warm dry and warm moist biophysical settings, the standard is set at the lower end of the NRV average patch size in consideration of where the lands suitable for timber production within these biophysical settings are located. These settings lie in the lower elevation areas of the forest, often in areas of intermingled ownerships and nearer to homes and communities. These settings tend to have higher concentrations of roads and are more easily accessible to people for recreation and other human activities. Big game winter range areas lie within these biophysical settings. Though a trend towards larger patches is desired, these other factors could influence the size of openings created in a harvest operation. The maximum opening size is also set at the lower end of the NRV range for the cool moist-mod dry and the cold biophysical settings. This is in consideration of the current conditions, which is near the NRV average due to recent fires, and the expected future emphasis on use of fire (both prescribed and wildfire) to maintain/create early successional forest patches within these landscapes. In all cases, application of the maximum opening size standard would be evaluated at the project level through an interdisciplinary analysis, considering the desired conditions for other resources and site-specific issues and conditions.

Following are strategies to consider during project level analysis, at both the landscape and stand level, to trend toward or maintain desired conditions for forest patterns and patch sizes:

Trend towards creation of larger opening sizes across landscapes where analysis has indicated that the size and/or pattern of openings in not consistent with what would have occurred historically under the NRV. Larger openings have less edge per unit area, which is desirable for wildlife species that avoid edge habitats or experience greater mortality near edge habitats.

Management strategies to create larger patch sizes across the landscape could include:

- Retaining additional forest structural components within larger regeneration harvest areas to provide greater short and long-term structural diversity and provide a more visually pleasing landscape. This strategy could include leaving patches of uncut forest or individual/small groups of live trees distributed throughout the harvest openings and also may include retaining greater numbers of snags.
- To lessen the visual impact, larger harvest openings can have irregular shapes that are blended to the natural terrain. Retention of individual or patches of trees within the opening would also create a more visually pleasing appearance.
- Locate new harvest openings immediately adjacent to existing patches of sapling size trees. This initially creates a larger patch of early successional forest, where trees are of the same cohort (i.e., ages are within 20 years of each other), while lessening potential concerns related to larger openings.
- Location of larger units is a key consideration. When determining where a larger opening might be created, consider factors such as: wildlife security (e.g., adjacency to open roads or viewpoints); visibility from areas with high level of public use; desired conditions related to potential fire behavior

and fuel loadings; watershed conditions related to water yields; big game winter range desired conditions.

- Consider desired conditions for development of future late successional and old growth forests. Larger patches of young, seedling/sapling forests can eventually develop into larger patches of old growth or late successional forest over time, which is a desired long term condition for the ecosystem (FW-DC-TE&V-18).
- For projects planned in the Swan Valley, unit location and treatment prescriptions could consider the long-term desired condition to create more "natural" forest patterns, patch sizes, and shapes across the landscape, and reduce the checkerboard pattern caused by the arrangement of past land ownerships. An example of a method to accomplish this strategy would be to create new, irregular shaped harvest openings adjacent to existing seedling/sapling stands that have a straight edge, to make the total opening blend in with the surrounding landscape.
- Maintain connectivity for wildlife species associated with forest interior conditions. An example of a method to accomplish this strategy would be to retain patches of trees with an average d.b.h. of at least 5 inches that are shaped so that a large portion of the patch is more than 100 meters from the edge (of a stand with an average d.b.h. of less than 5 inches). This can be determined by taking the forest patch that is greater than 5 inches average d.b.h. and using the geographic information system (GIS) spatial buffer analysis tool to do create an interior buffer of 100 meters.

Old Growth/Late Successional Forests

This section provides strategies for FW-DC-TE&V-13, FW-GDL-TE&V-05, and FW-GDL-TE&V-06.

Old growth, as referenced in the proposed action, is defined by specific structural attributes and other characteristics as described in the Forest Service publication, Old growth forest types of the Northern Region.[2] In the Flathead NF, old growth forests are not usually in a fully climax successional stage, because of the presence and persistence of early successional species within the stand. The largest, oldest trees within stands are typically long-lived, fire tolerant western larch, ponderosa pine or Douglas-fir, which may have survived repeated wildfires.

Landscape or Watershed Level

In areas where it is desirable to alter old growth forest conditions at the watershed level (e.g., the size, shape, structure and connectivity of old growth forest patches), a possible management strategy may include the following:

- When planning timber harvest, retain stands adjacent to existing old growth forest stands that would provide future old growth in the shortest time frame possible. Selection of forest stands for development of future old growth may be emphasized in watersheds where existing old growth acres are less than the desired conditions at the forest-wide scale; where shape of old growth patches is largely linear and narrow; where individual patches of old growth are relatively small (e.g., average less than 100 acres), and/or where connectivity of patches is poor. Examples strategies to develop future old growth are listed under the following, Stand Level, section.

[2] Green, P., J.Joy, D.Sirucek, W.Hann, A.Xack, and B.Naumann. 1992. Old growth forest types of the Northern Region. Errata corrected 2005, 2007, 2008, 2011. USDA Forest Service, Northern Region Document Number R-1 SES 4/92. Missoula, MT. 609 pgs.

Stand Level

Promote development of future old growth or late successional forest structure. Any stand where current or potential tree growth, species composition, or other forest components are conducive to development of old growth forest over time may be considered for prescriptions to encourage that development. Example prescriptions include:

- Managing mature or late successional forests that do not meet *all of* the Greene and other's (1992) criteria for old growth, but have characteristics of old growth that are important for wildlife (e.g., large live trees with heart rot for nesting and denning, medium-sized live trees to provide bird feeding perches, larger snags, favorable species composition, and diverse stand structures). These stands may be retained or may have vegetation treatments to make them more resilient to fire or climate change. For example, timber harvest could occur within these stands to remove intermediate canopy trees and reduce ladder fuels or to reduce the basal area of remaining trees to make them more resistant to insect infestation or drought.
- Retaining overstory trees and selectively thinning young understory trees in previously harvested stands that contain residual large trees. These may be past seedtree or shelterwood cuts.
- Long-term retention of live leave trees within new harvest units, as well as in salvage units in burn areas. These may be healthy immature or mature trees with good growth rates, with good potential to achieve larger size classes over shorter time periods. They may be large trees with heartrot fungi, wounds, or broken tops that predispose them to dying in the future.
- Retention of snags, especially large snags, both soft and hard, arranged as solitary trees or in small clumps. In areas which are lacking the minimum number of snags specified in the guidelines, techniques to create nesting/denning habitat can be used such as girdling or topping, and/or installation of artificial structures such as nest boxes/platforms.
- Leaving the largest live, diseased, or dead trees available in timber harvest units, to meet the needs of a larger number of wildlife species.
- To protect trees that have been retained in harvest units, using "wildlife tree" signs and/or clearing fuels beneath leave trees in units that will have slash treated with prescribed fire.
- In wildland-urban interface (WUI) or areas that do not provide mature multi-storied hare/lynx habitat, clearing trees and other fuels around the base of "legacy trees" (e.g., large, old western larch or ponderosa pine trees exceeding 25 inches d.b.h.) to increase their resilience to climate change, fire and other disturbances.
- Using modified thinning prescriptions in young stands of seedling/sapling or small tree sizes where species composition and stand structure are favorable for relatively rapid development of desirable future old growth structures.
- An example of a strategy that may occur to address the maintenance or development of old growth or late successional forest to restore historic stand structure and improve habitat for associated bird species could occur within ponderosa pine stands. Prescribed fire, harvest, and/or thinning could be used to create a small-patch mosaic of grassy openings, shrubs, dense patches of saplings, very large live trees, and large snags. Snags would be arranged singly as well as in clumps, to provide habitat for species such as flammulated owls, mountain bluebirds, pygmy nuthatches, and Williamson's sapsuckers.

Burned Forests

This section provides strategies for FW-DC-TE&V-14, 15, 16.

Black-backed woodpeckers (BBWO) are closely associated with intensively burned areas that have at least 50 percent crown closure prior to wildfire. Following wildfire, use of burned areas by BBWO changes over time and they move from areas where trees have died immediately after fire, to areas where trees die slowly after fire, to unburned areas. Example strategies that could be used when considering post-fire salvage harvest of wildfire areas include:

- At a landscape scale maintain contiguous, moderate to intensively burned forest patches
- In addition to dead trees, retain live trees that are scorched because they die over a longer period of time, helping to maintain higher populations of black-backed woodpeckers.
- Retain a range of snag species preferably with a minimum d.b.h. greater than 10 inches d.b.h. for nesting.
- Retain clumps of trees, including both nest trees and trees with high densities of wood-boring beetles for feeding, because food sources near nest trees appear to be limiting to BBWO populations
- Retain snags in the interior of the fire area, if possible, where snags would not be susceptible to loss due to firewood cutting.

Strategies for Each Biophysical Setting

This section provides some additional strategies that could be applied, specific to each biophysical setting.

Warm dry

In the warm, dry biophysical setting, vegetation management strategies would focus on maintaining or increasing representation of early seral, shade-intolerant, drought and fire tolerant, insect/disease resistant species. Specific activities could include timber harvest, prescribed fire, planting, pre-commercial thinning, and commercial thinning.

- Thin young stands to encourage growth and vigor of trees, and develop future large diameter ponderosa pine, western larch and Douglas-fir. This creates forest compositions and structures better able to survive future fire, insects, disease, drought and other disturbances, and provide seed sources for future forest regeneration after disturbance.
- Favor the retention and increase proportions of ponderosa pine on all sites, and western larch on the more mesic sites.
- Reduce stand densities and inter-tree competition to increase resilience to drought that may be associated with future climates and to meet desired conditions with respect to fire behavior.
- Trend towards an increase in the average patch size of early successional forest. This may be accomplished through regeneration harvest or prescribed burning.
- Retain ponderosa pine and Douglas-fir live trees and snags, greater than 20 inches d.b.h. where available. Use timber harvest and prescribed fire to create a landscape mosaic with a variety of canopy cover classes, dense understory thickets of trees and shrubs, and gaps in the forest canopy. Leave these understory thickets in areas where they would not act as ladder fuels that carry fire into crowns of trees.

Warm moist

Within the Flathead's warm-moist biophysical setting, vegetation treatment selections would generally favor the retention and increase of western larch, rust-resistant western white pine, ponderosa pine, and cedar on the more mesic sites. Specific activities include timber harvest, prescribed fire, planting, pre-commercial thinning, and commercial thinning, consistent with big game winter range desired conditions.

- Thin young stands to encourage growth and vigor of trees, and develop future large diameter western larch, Douglas-fir, western white pine and ponderosa pine. This creates forest compositions and structures better able to survive future fire, insects, disease, drought and other disturbances, and provide seed sources for future forest regeneration after disturbance.
- Conserve existing large live trees and snags, greater than 20 inches d.b.h. where available.
- Trend towards an increase in the average patch size of early successional forest. This may be accomplished through regeneration harvest or prescribed burning.
- Reduce stand densities and inter-tree competition to increase resilience to expected future climates and to meet desired conditions with respect to fire behavior.
- In cedar-hemlock sites, where it is desired to encourage presence of these species, maintain overstory shade to protect understory trees, while reducing stand densities overall to promote tree growth and development into larger diameter future trees.
- Protect existing old cedar groves by management of surrounding stands to lower risk of future high severity fire. This may include reducing tree densities and downed woody material.
- Promote increase in presence of western white pine by planting in harvest units or areas burned by fire, and thinning/pruning in existing sapling stands.

Cool moist-moderately dry

Within the Flathead's cool-moist to mod dry biophysical setting, vegetation treatment selections would generally favor the retention and increase of western larch and Douglas-fir, and of rust-resistant western white pine in the overstory on the more mesic and warm sites within this setting.

- Thin young stands to encourage growth and vigor of trees, and develop future large diameter western larch, Douglas-fir and western white pine in the upper canopy layers, while retaining sub-alpine fir and spruce in the understory. This creates forest compositions and structures better able to survive future fire, insects, disease, drought and other disturbances, and provide seed sources for future forest regeneration after disturbance.
- Conserve existing large live trees and snags, greater than 20 inches d.b.h. where available.
- In the WUI, or in the stem exclusion structural stage, reduce stand densities and inter-tree competition to increase resilience to expected future climates and to meet desired conditions with respect to fire behavior. In other areas, increase the presence of western larch, particularly as larger tree components and in overstory canopy layers, and in areas dominated by lodgepole pine, to promote species tolerant of insects, disease and fire and with the potential to provide high quality habitat for cavity nesting/denning species.
- To increase forest structure and species diversity, create openings in areas of moderately to densely stocked mid-successional forest, particularly areas dominated by lodgepole pine. Regenerate to fire tolerant species, especially western larch or western white pine (where suited).

Cold

Within the Flathead's cold biophysical setting, vegetation treatment strategies would generally favor the retention and increase of whitebark pine. Whitebark pine trees and stands that contain phenotypically resistant trees would be identified for potential cone collection, seed production for natural regeneration, scion collection, or other purposes for the whitebark pine restoration program. Strategies that may be used include:

- Reducing stand density and fuels by thinning/felling of trees, to improve resilience of stand and lower fire hazard.
- Insect control activities, such as application of pheromones packets
- Thinning of sapling or larger sized whitebark pine stands
- Identification and collection of seed from phenotypically superior trees
- Planting whitebark pine seedlings
- Prescribed burning on sites that best support whitebark pine establishment and growth (either natural regeneration-seed caching by Clark's nutcracker, or by planting).

Non-coniferous Plant Communities—Hardwood tree and grass/forb/shrub communities

Potential strategies (for FW-DC-TE&V-17) to increase the presence of hardwood trees may include:

- Creating suitable sites for hardwood establishment and growth through prescribed burning, mechanical treatment to promote root sprouting; pre-commercial and commercial thinning activities; maintenance of variable stream flows; and maintenance and/or reintroduction of beavers.
- Planting of hardwood seedlings and/or stems.
- Retaining vegetation adjacent to large cottonwood trees if needed to help prevent blowdown.
- Retaining cottonwood trees in largest size classes to provide nest sites for species such as Pileated woodpeckers or Great-blue herons and provide den sites for fishers and black bears.

Threatened Wildlife Species

The 2012 planning rule adopts a complementary ecosystem and species-specific approach to provide for the diversity of plant and animal communities and the long-term persistence of native species in the plan area, known as a coarse-filter/fine-filter approach. The coarse-filter plan components are designed to maintain or restore ecological conditions for ecosystem integrity and ecosystem diversity in the plan area within Agency authority and the inherent capability of the land. Additional species-specific or fine-filter plan components provide for additional specific habitat needs, when those needs are not met through the coarse filter plan components. The following subsections provide possible strategies for threatened wildlife species (also see strategies identified for Terrestrial Ecosystem and Vegetation Management, Fire Management, Terrestrial Plants; Watershed, Riparian Habitat, and Aquatic Species).

Canada lynx habitat and/or critical habitat

This section provides strategies for FW-DC-TE&V-03; FW-DC-TE&V-04; FW-DC-TE&V-11; FW-DC-TE&V-12; FW-DC-TE&V-23; FW-STD-TE&V-02; FW-STD-TE&V-03; FW-STD-TE&V-04; FW-STD-TE&V-05; FW-STD-TE&V-06

The critical habitat primary constituent element for Canada lynx would be available at a landscape scale, changing over time as a result of fire, forest succession, timber harvest and other vegetation management techniques that create a mosaic of structural stages and species compositions. National Forest System (NFS) lands in the warm dry biophysical setting provide matrix habitat for lynx, if within the area mapped as lynx critical habitat. The warm moist, cool moist to moderately dry, and cold biophysical settings may provide lynx foraging or denning habitat, where appropriate forest stand structures and elevations occur.

At any given point in time, some forested stands in mapped lynx habitat would provide lynx habitat in a suitable condition and some would not. Timber harvest and prescribed burning may be used to create lynx habitat in a suitable condition, for example:

- Timber harvest methods could include regeneration harvest, group selection or intermediate harvest methods, in the stem exclusion structural stage or in multi-story stands that currently do not provide hare habitat. Prescriptions would be designed to favor dense regrowth of coniferous trees and shrub species such as willow (*Salix sp*.), alder (*Alnus sp*.), globe huckleberry (*Vaccinium globulare)* and Pacific yew (*Taxus brevifolia*). Treatments would be determined by site-specific analysis of potential vegetation types and current vegetation conditions at the forest stand and lynx analysis unit (LAU) scale.
- Salvage harvest could be conducted in areas that currently do not provide hare habitat.

In some forested stands within mapped lynx habitat that have been recently harvested or burned, pre-commercial thinning may occur to promote development of future mature multi-storied winter snowshoe hare habitat. The location and amount of pre-commercial thinning would be based upon an analysis of vegetation conditions at the LAU scale and would be guided by the best available scientific information.

Vegetation management strategies could be used to promote mature multi-story hare habitat, to increase resilience to expected future climates, and to meet desired conditions with respect to fire behavior. Methods to create mature multi-story hare habitat include modified thinning techniques in young (seedling/sapling) stands which change the future forest structure and composition in ways that create winter snowshoe hare and lynx habitat (see FW-STD-TE&V-05, Exception #7). Examples of modified thinning techniques include the following:

- One example of a modified pre-commercial thinning prescription may occur in coniferous forest stands in the stand initiation structural stage, where there is Engelmann spruce and sub-alpine fir mixed with western larch and/or Douglas-fir. The taller trees (typically shade-intolerant species, such as western larch or Douglas-fir) may be thinned to a relatively wide spacing (i.e., 15 feet or more average spacing) and the shorter trees (typically shade-tolerant species, such as subalpine fir and Engelmann spruce) left unthinned. An example of a means to implement this prescription might be to require all trees below a certain height, such as six feet, to be retained, and thinning only the tree layer that is over six feet tall. This thinning method increases the growing space and sunlight received by all trees in the stand, allowing the subalpine fir and spruce to establish and flourish in lower canopy tree layers, while also developing an upper canopy of western larch and/or Douglas-fir with improved growth and vigor. This promotes development into mature multi-storied forest that can provide winter snowshoe hare and lynx habitat in the long-term. Field examinations of forest stands that were thinned using this method in the 1980s have shown that these stands developed a multi-storied stand structure in a shorter time frame than they would have without thinning. Lynx telemetry data on the Forest shows that stands thinned in the 1980s are being used by Canada lynx in winter. Since western larch and Douglas-fir are adapted to surviving fire if they reach a large enough size between wildfires (and sub-alpine fir or Engelmann spruce are not adapted to surviving fire), this strategy could help to maintain greater structural and species diversity over time, even if wildfires become more frequent. If species such as western larch are able to grow to large sizes and survive repeated fires, they can provide key habitat for a wide variety of bird species.
- Another example of a modified thinning prescription may occur in areas of the forest where there have been recent large, intense wildfires covering thousands of contiguous acres. Large portions of these wildfire areas are now regenerating with 14,000 to 50,000 lodgepole pine and/or western larch stems per acre, creating extremely dense forest conditions. These extremely dense stands may initially provide snowshoe hare habitat, but very quickly grow into the stem exclusion structural stage, where

they do not have lower live limbs providing forage for snowshoe hares. Extremely high tree densities also retard establishment and growth of an understory tree and/or shrub layer. Portions of these large burned areas could be pre-commercially or mechanically thinned using the "patch cut" method described by Bull and others (2005)[3]. This would create a mosaic across the landscape, composed of patches of different tree sizes. Bull found that this pre-commercial thinning method resulted in snowshoe hare abundance that was significantly higher after thinning than before. In addition, field examination of areas on the Flathead NF burned in the Red Bench fire of 1988 have shown that pre-commercial thinning of extremely dense lodgepole pine stands prolongs the time that trees retain their lower live limbs and allows ingrowth of new shrubs and/or conifers. Pre-commercial thinning can help to maintain branches at the snow surface, prolonging the period that the stand provides winter snowshoe hare foraging habitat, as well as providing forage for a variety of other wildlife species such as moose, elk and deer.

Grizzly bear habitat

This section provides strategies for FW-DC-TE&V-01; FW-DC-TE&V-02; FW-DC-TE&V-04; FW-DC-TE&V-11; FW-DC-WL-01

- Grizzly habitat quality may be improved through vegetation management activities including fire, timber harvest and other vegetation management techniques that create a mosaic of successional stages, stand structures, and species compositions. Sale area improvement and restoration may include methods and prescriptions to promote growth of grizzly bear foods, where appropriate. In appropriate locations and habitat types, vegetation management activities can increase light available for berry-producing shrubs that bears use for food, increasing their berry production. Examples of berry-producing shrubs include, but are not limited to, huckleberries (*Vaccinium globulare, Vaccinium membranaceum*), serviceberries (*Amalanchier alnifolia*), mountain ash (*Sorbus scopulina*), and buffaloberry (*Shepherdia Canadensis*).
- Where there is an intent to promote growth of grizzly bear foods, desirable regeneration harvest and slash disposal methods include options such as: (1) methods to minimize the distance to cover (e.g., oblong or irregularly shaped harvest units, retention of one or more leave patches in units larger than 10 acres that won't be broadcast burned); (2) minimum soil scarification in habitat types where soil disturbance impedes the reestablishment of grizzly foods; (3) slash disposal by broadcast burning or whole-tree yarding to maintain or improve grizzly foods in suitable habitat types and terrain; and (4) protection of hydric stream bottoms, wet meadows, marshes, and bogs from soil disturbance and excessive cover removal.
- To reduce human-bear conflicts, bear education personnel could inform the public, contractors, and agency employees about conflict reduction techniques and monitor/enforce the Food/Wildlife Storage Order(s).

Strategies for Other Wildlife Species

Potential species-specific strategies to move toward desired conditions for terrestrial wildlife species may include the following:

- Where cottonwood trees are actively used by nesting colonies of great-blue herons, maintain a buffer zone from the periphery of colonies to reduce disturbance during the nesting season.

[3] Bull, Evelyn L., Thad W. Heater, Abe A. Clark, Jay F. Shepherd, and Arlene K. Blumton. 2005. Influence of Precommercial Thinning on Snowshoe Hares. USDA Forest Service Research Paper PNW-RP-562. 16 pages,

- Work cooperatively with other federal agencies, the Montana Natural Heritage Program, and Montana Fish, Wildlife and Parks (MTFWP) to monitor potential and known loon nesting lakes. At potential or active common loon nest sites, nests could be protected by using loon education personnel, shoreline signs, or floating signs and/or nesting platforms, in cooperation with others, such as the Common Loon Working Group.
- Work cooperatively with researchers and educational caving clubs to inventory caves for bats. Work cooperatively with other agencies and organizations, such as the Montana Natural Heritage Program and MTFWP, to monitor aquatic and riparian habitats for bats using mist-netting and/or acoustic surveys. To reduce the risk of white-nose syndrome in bats, inform the public and cave inventory personnel of proper decontamination techniques. If bridge replacement or cave closure or building removal is proposed, evaluate the structure for the presence of bat species of conservation concern prior to closure and mitigate as needed (e.g., install bat-friendly gates or roosting structures).
- Cooperate in interagency, non-government organizations, and citizen science survey efforts for species associated with alpine-subalpine habitats (e.g., wolverine, White-tailed ptarmingan, Gray-crowned rosy finch, pika, and hoary marmot) that may be susceptible to effects of climate change.
- Participate in cooperative efforts to survey waterfalls that provide potential breeding sites for Black swifts to determine species presence and habitat condition, including canopy shading and water flow throughout the nesting season.
- Participate in cooperative efforts to survey swiftly flowing mountain streams with characteristics that can provide habitat for harlequin ducks for presence of harlequin ducks during the nesting and brood rearing seasons. Maintain dense vegetation and/or high densities of down logs adjacent to stream reaches with known harlequin duck nesting sites to provide cover, protection from disturbance, and protection from predators.
- In areas mapped as white-tailed deer winter habitat by MTFWP, strategies include removal of trees in the understory and mid-story using fire or timber harvest, provided that a sufficiently dense canopy remains to provide snow intercept cover. The density of trees needed to provide snow intercept cover varies according to tree species composition and elevation. Also, provide dense thickets in the understory to provide wind protection and arboreal lichens for feeding, where it does not conflict with fire management desired conditions.
- Activities in grass-forb-shrub habitats may include slashing small conifers around the perimeter of openings and/or burning to reduce conifer densities and promote resprouting/seeding of new plants.
- Biological and chemical treatments could be used to control invasive plants in grass-forb-shrub habitats, especially in elk winter-spring habitats;
- In cooperation with MTFWP objectives for each hunting district, balance elk security with hunter access through road management.
- Use a combination of GIS analysis techniques and available wildlife habitat models, and field survey to design site-specific vegetation treatments.
- Cooperate in continued citizen science efforts to monitor birds of prey.

Fire Management

Fire management strategies would be those that are anticipated to restore fire-adapted landscapes; reduce risk to people, communities and values; support the three objectives of the National Cohesive Wildland Fire Management Strategy; restore resilient landscapes; maintain fire adapted communities; and provide

for effective, safe fire response; and address climate change through landscape-scale collaboration and coordination.

Wildland fire and fuels management strategies would emphasize hazard fuels reduction to mitigate the risk of wildfire to communities and important values in the WUI. Restoration projects would be integrated to include hazardous fuel treatments that help restore fire resilient ecosystems in support of restoration goals and the National Wildland Fire Cohesive Strategy.

Management Approaches for Unplanned Ignitions

Potential strategies for fire management (unplanned ignitions, wildfire) could include the following:

- Assessment of risk can occur at multiple scales, both spatial and temporal. These assessments are grounded in experience and analyzed with data and models appropriate to the scale of analysis. Risk assessments could include the following elements:
    - Analyzing the existing conditions that change only in the 5–10 year time frame and informs broad questions and decisions for programmatic risk assessments.
    - Utilizing components such as seasonal weather, fuels condition, drought impacts to inform decisions as fire season evolves for annual risk assessments.
    - Utilizing the now known condition, location, etc., to specifically analyze the situation for incident risk assessments.
- Communicating and collaborating with appropriate agency(s) leadership during fire incident management, for wildfires that affect identified areas of local, state or tribal importance, to identify and, to the extent practical, protect these values and minimize impacts to resources or areas of importance.

Management Approaches for Prescribed Fires (Planned Ignitions)

Potential strategies that could be used to trend toward desired conditions and objectives for prescribed fire management include the following:

- Burning in autumn when grasses and shrubs have initiated dormancy to promote resprouting of species such as willows, serviceberry, and maple to provide food for wildlife species. At a landscape scale, retaining unburned areas over at least 50 percent of a winter range herd unit to provide forage for the upcoming winter.
- Using burning prescriptions that maintain the deep duff layer to promote survival of huckleberry plants, if present.
- Using burning prescriptions that are relatively hot to scarify the seed of redstem ceanothus, if present.
- Conducting education/outreach to communities.
- Supporting air quality related value monitoring activities and determination of sensitive indicators for the wilderness areas.
- Reviewing all projects and management activities that may affect air quality related values.
- Reviewing local external sources that cause deterioration of air quality related values and make recommendations to appropriate authorities.

Recreation

Potential management strategies are those that assist in providing a range of recreation opportunities across the Forest while controlling visitor impacts to resources and other visitors; constructing, maintaining and controlling use of facilities and trails; and providing a positive visitor experience. Potential strategies include the following:

- Prioritizing reconstruction of campgrounds based on the Forest's recreation niche and the updated recreation site facility master planning document. Aligning and right sizing recreation infrastructure to complement regional and forest niche.
- Evaluating potential for new over-snow opportunities and evaluating areas for restricting over-snow opportunities.
- Developing a comprehensive river management plan (CRMP) for the Flathead Wild and Scenic River. Coordinating with appropriate State and Federal agencies when developing and implementing the CRMP.
- Completing a needs assessment to determine new outfitter, guide, and livery service on the Forest, outside designated wilderness.
- Evaluating the need and location for a hut to hut system on the forest. Work with partners on funding needs.
- Informing and educating users about Leave No Trace techniques for responsible, outdoor activities with minimal impacts on NFS lands.
- Integrating the recreational opportunity spectrum into project level designs and management decisions.
- During consideration of dispersed campsites with erosion or sanitation issues for rehabilitation, focus on sites that would protect or maintain wild and scenic river corridors, bull trout habitat, or that are within the grizzly bear primary conservation area.
- During consideration of developed campgrounds to improve, focus on improvements that address accessibility, health and safety, type of use, and reduction of grizzly bear-human interaction.
- Integrating the scenic integrity objectives into project level designs and management decisions.
- Consider protecting, or maintaining, historic character and meeting public needs when identifying cabins to put on the National Reservation System.

Wilderness

Potential strategies for wilderness include the following:

- Revising existing wilderness management plan for the Mission Mountains Wilderness and coordinating with the Confederate Salish Kootenai Tribe when revising. Developing limits of acceptable change plan through public participation.
- Implementing the National wilderness stewardship performance measures and wilderness character monitoring.

Infrastructure

The overall maintenance strategy for NFS roads is to efficiently maintain NFS roads and reduce the backlog of deferred maintenance. Specific elements of this strategy could include the following:

- Store infrequently used roads for the long-term.
- Reduce maintenance levels on low-use roads while maintaining road drainage features.
- Shift roads with high residential access needs to non-Forest Service jurisdictions.
- Improve, close, or decommission roads that have adverse impacts on aquatics, watersheds, wildlife.
- Apply dust abatement treatments during weather conditions that promote the binding of treatments to road surface materials.
- When placing road segments in intermittent stored service, at stream crossings consider:
    - Replacing or removing culverts or drainage structures that do not meet size or capacity requirements
        - If removing a culvert, excavation to natural stream grade could be performed and side slopes could be excavated to natural gradient or 1:1, whichever is less
    - Constructing armored overflow channels if culverts are retained
    - Stabilizing areas prone to erosion and/or cut and fill failure
- Complete a trails assessment that uses a systematic approach to define the Forest's desired and sustainable trail system.
- During project-level NEPA, identify forest system trails for mitigation measures to protect the trail tread.
- Identify the trail corridor and associated features for the Pacific Northwest National Scenic Trail Comprehensive Management Plan.
- Use the Travel Analysis Plan to inform project-level decisions.

Lands

Strategies for land adjustments could include the following:

- Adjusting land ownership through purchase, exchange or other authority, to protect resources and improve efficiency of management.
- Considering the following criteria (not presented in any particular order) when evaluating land adjustments:
    - Lands that can contribute to recovery of threatened or endangered species.
    - Lands important for wildlife connectivity and big game winter range.
    - Lands needed for the protection of important historical or cultural resources.
    - Lands that enhance recreation, public access, and protection of aesthetic values.
    - Lands that contain rivers with potential for Wild and Scenic designation.
    - Other environmentally sensitive lands.
    - Lands that reduce expenses and support more logical and efficient management.
- Considering the following criteria (not presented in any particular order) when evaluating land adjustments for conveyance:
    - Lands and administrative buildings adjacent to communities that are chiefly valuable for non-NFS uses.

  - Lands with low resource value.
  - Inaccessible, isolated, or intermingled ownership parcels.
  - Lands with long-term special use permits non consistent with national forest purposes and character.
  - Lands not logical and efficient to manage.
  - Lands eligible under the Small Tracts Act.
- Prioritizing NFS land boundaries surveys to areas where trespass is most likely.
- Identifying areas generally suitable for utility corridors and communication sites.
- Authorizing and administering appropriate occupancy and use of NFS lands.

Research and Education

Strategies for research and education could include the following:

- Developing a forestwide conservation education, interpretive and visitor information strategic plan to guide program delivery, ensure coordinated and effective services, and build strong relationships with partners and communities
- Using diverse methods and media for program delivery and making best use of new technologies to help maintain audience relevancy in the areas of social media, web/internet presence, self-guided media using smart phones and other devices

Cultural Resources

The cultural resources strategy could include the following elements:

- Relying on a strong heritage program to fulfill the Forest's legal obligation for public outreach and education about heritage resources.
- Conducting surveys to identify sites, and follow-up actions necessary to protect, stabilize, or salvage sites.
- Identifying and evaluating cultural resources for the National Register of Historic Places.
- Using partnership arrangements to help preserve and interpret significant heritage resources.
- Guiding project planning and heritage preservation/interpretation efforts with knowledge and information gained through inventories, site evaluations, tribal consultation, and other sources.
- Developing and participating in national, regional, interregional, and interagency programmatic agreements and memoranda with the State Historic Preservation Office, the Advisory Council on Historic Preservation, and other partner agencies and Tribes.
- Stabilizing, rehabilitating, restoring, and caring for cultural resources.
- Conducting maintenance to historic facilities.
- Promoting heritage values through public education, outreach, and interpretative programs.
- Conducting scientific and historic research on cultural resources.

Minerals

The minerals strategy could include the following elements:

- Providing mineral materials such as gravel, rip-rap, and landscape rock for Forest Service, personal, interagency, and limited commercial sales in accordance with material source development and rehabilitation plans.
- Managing the exploration, development and reclamation of mineral resource development including locatable mining claims and currently suspended oil and gas leases.
- Identifying, evaluating, mapping, inventorying, and nominating as significant all known cave resources not previously designated as significant.
- Evaluating and mitigating geologic hazards associated with the location and construction of new facilities before they are approved, designed, and constructed.
- Managing caves to minimize evidence of human use and to protect cave resources. Partnerships and mutually-supported agreements could be used to specify schedules, party sizes, skills required, equipment, and handling. Pursue funding and partnerships to manage the cave resources.
- Inspecting minerals materials
- Responding to proposed minerals activities (both locatable and leasable) in a timely manner.

Livestock Grazing

The general approach to grazing management implements resource management practices to maintain the health of all occupied livestock grazing allotments and rangelands. Strategies for accomplishing this approach could include the following:

- Assessing and updating allotment management plans to ensure that sustainable stocking levels, forage utilization standards, mitigation measures, and appropriate grazing systems are used and that lands are still suitable for livestock grazing.
- Eliminating grazing allotments or pastures as they become vacant if there is no demand for livestock forage or if desired vegetation conditions cannot be met.

Special Forest Products

To lessen impacts on huckleberry plants, the following approaches may be considered:

- Within harvest units, use logging and site preparation methods that lessen mechanical disturbance to roots and root crowns of huckleberry plants.
- Leaving greater density of overstory trees (i.e., 20+ mature trees per acre) within units on drier, more exposed aspects may improve conditions for huckleberry growth and berry production.

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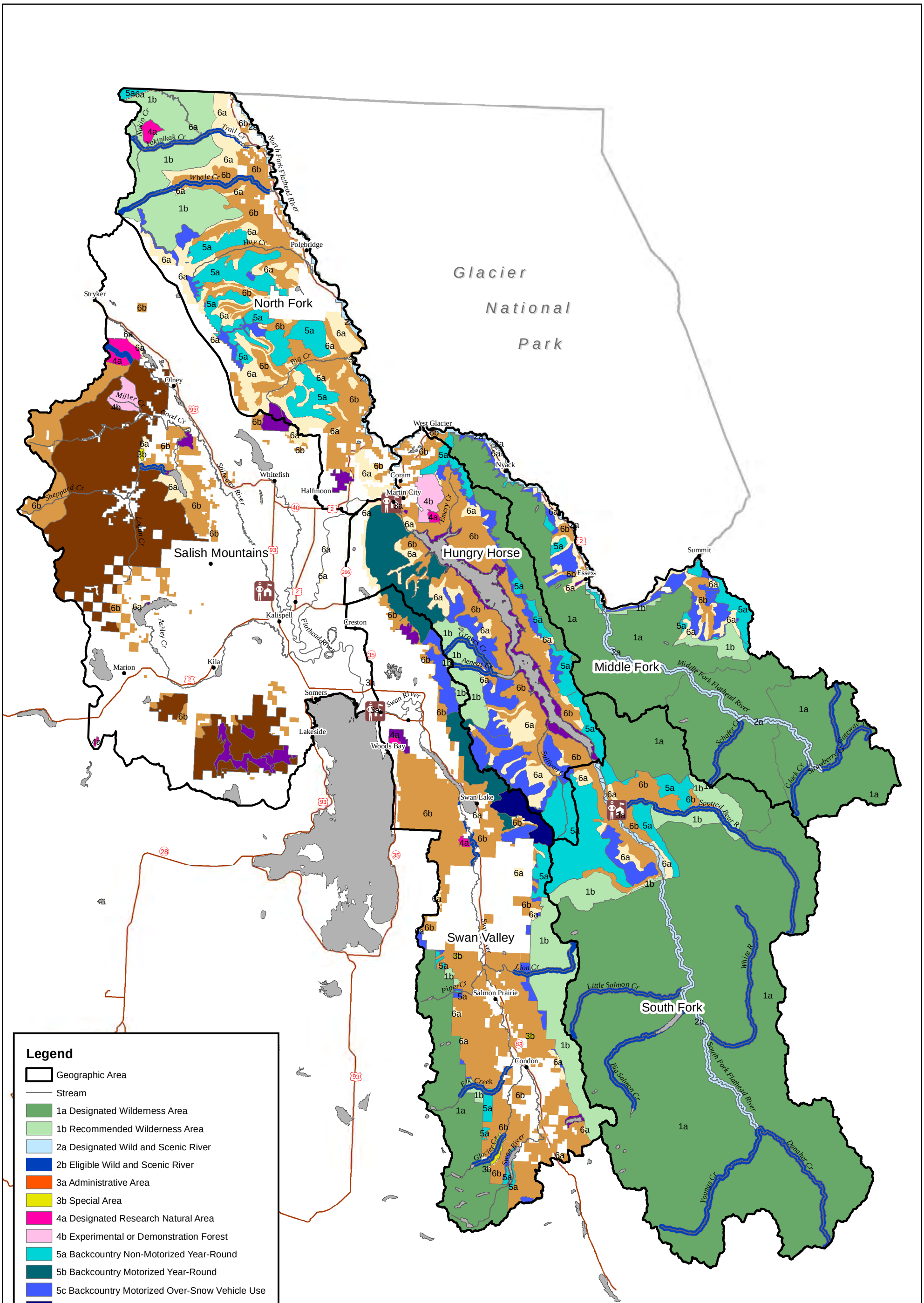
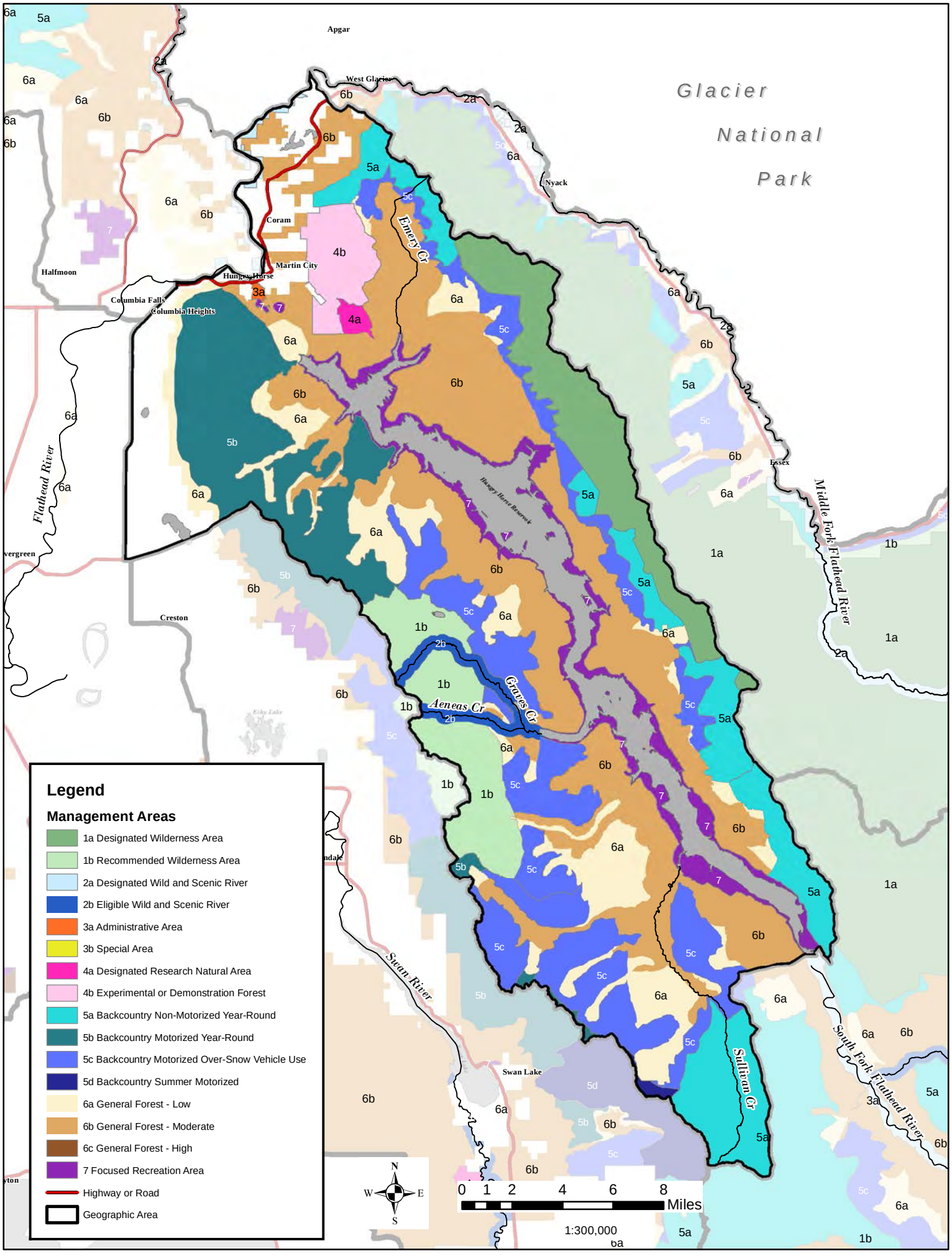

Glacier
National
Park
North Fork
Salish Mountains
Hungry Horse
Middle Fork
Swan Valley
South Fork
Polebridge
West Glacier
Nyack
Coram
Martin City
Essex
Summit
Stryker
Olney
Whitefish
Halfmoon
Kalispell
Creston
Marion
Kila
Somers
Lakeside
Woods Bay
Swan Lake
Salmon Prairie
Condon
North Fork Flathead River
Trail Cr
Yakinikak Cr
Whale Cr
Hay Cr
Big Cr
Stillwater River
Sheppard Cr
Loth Cr
Ashley Cr
Flathead River
Swan River
Graves Cr
Aeneas Cr
Sullivan Cr
Middle Fork Flathead River
Schafer Cr
Gateway
Strawberry Cr
Clack Cr
Spotted Bear R
Emery Cr
Lion Cr
Piper Cr
Little Salmon Cr
White R
South Fork Flathead River
Big Salmon Cr
Elk Creek
Glacier Cr
Youngs Cr
Danaher Cr
Legend
Geographic Area
Stream
1a Designated Wilderness Area
1b Recommended Wilderness Area
2a Designated Wild and Scenic River
2b Eligible Wild and Scenic River
3a Administrative Area
3b Special Area
4a Designated Research Natural Area
4b Experimental or Demonstration Forest
5a Backcountry Non-Motorized Year-Round
5b Backcountry Motorized Year-Round
5c Backcountry Motorized Over-Snow Vehicle Use
5d Backcountry Summer Motorized
6a General Forest - Low
6b General Forest - Moderate
6c General Forest - High
7 Focused Recreation Area
Highway or Road
0 2 4 8 12 16
Miles
1:600,000
N
W
E
S

Figure C-18. Hungry Horse GA with MAs



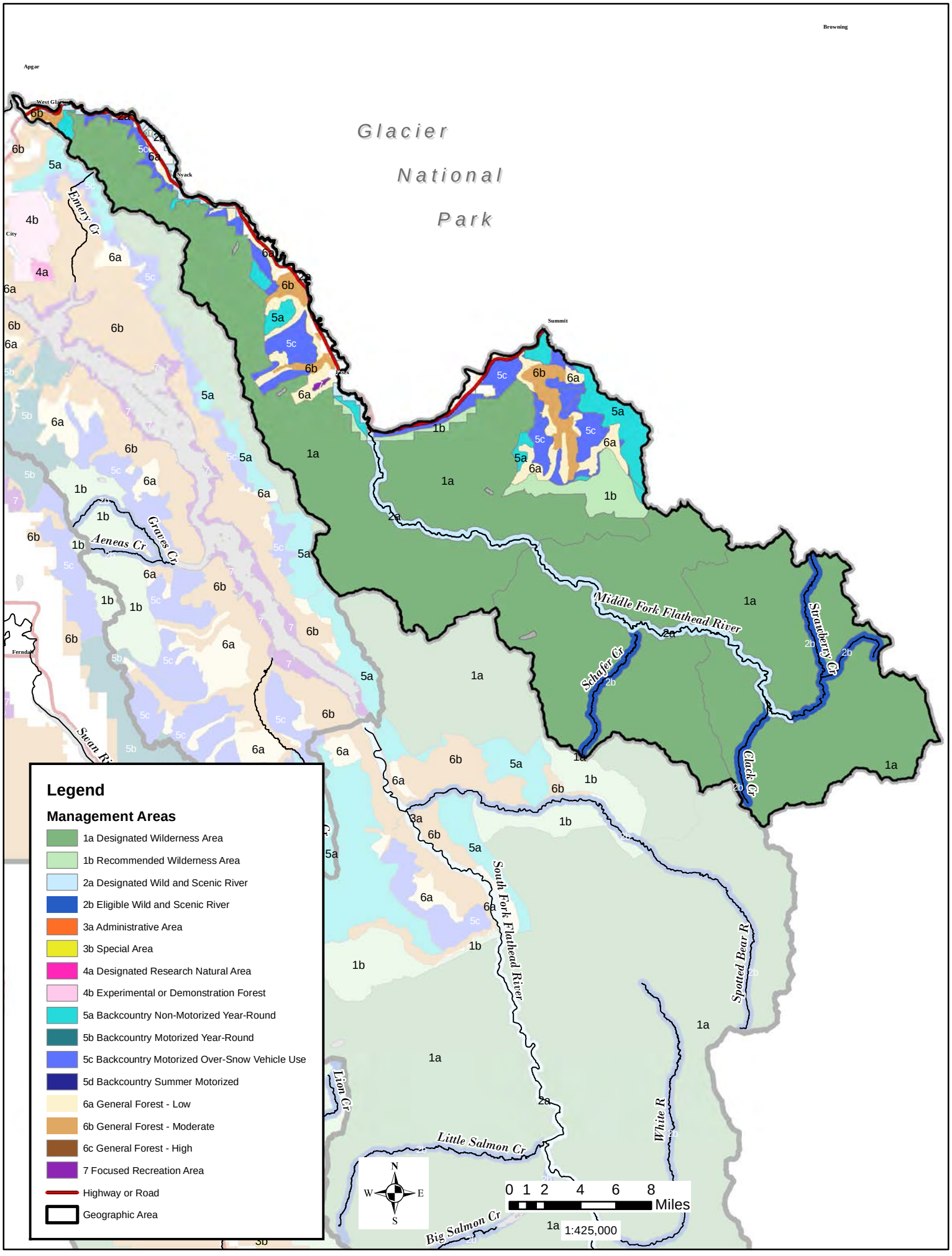

Glacier
National
Park
Middle Fork Flathead River
Schafer Cr
Strawberry Cr
Clack Cr
Aeneas Cr
Graves Cr
Emery Cr
South Fork Flathead River
Spotted Bear R
White R
Lion Cr
Little Salmon Cr
Big Salmon Cr
Swan Ri
Legend
Management Areas
1a Designated Wilderness Area
1b Recommended Wilderness Area
2a Designated Wild and Scenic River
2b Eligible Wild and Scenic River
3a Administrative Area
3b Special Area
4a Designated Research Natural Area
4b Experimental or Demonstration Forest
5a Backcountry Non-Motorized Year-Round
5b Backcountry Motorized Year-Round
5c Backcountry Motorized Over-Snow Vehicle Use
5d Backcountry Summer Motorized
6a General Forest - Low
6b General Forest - Moderate
6c General Forest - High
7 Focused Recreation Area
Highway or Road
Geographic Area
N
W
E
S
0 1 2 4 6 8
Miles
1:425,000

Figure C-20. North Fork Flathead GA with MAs

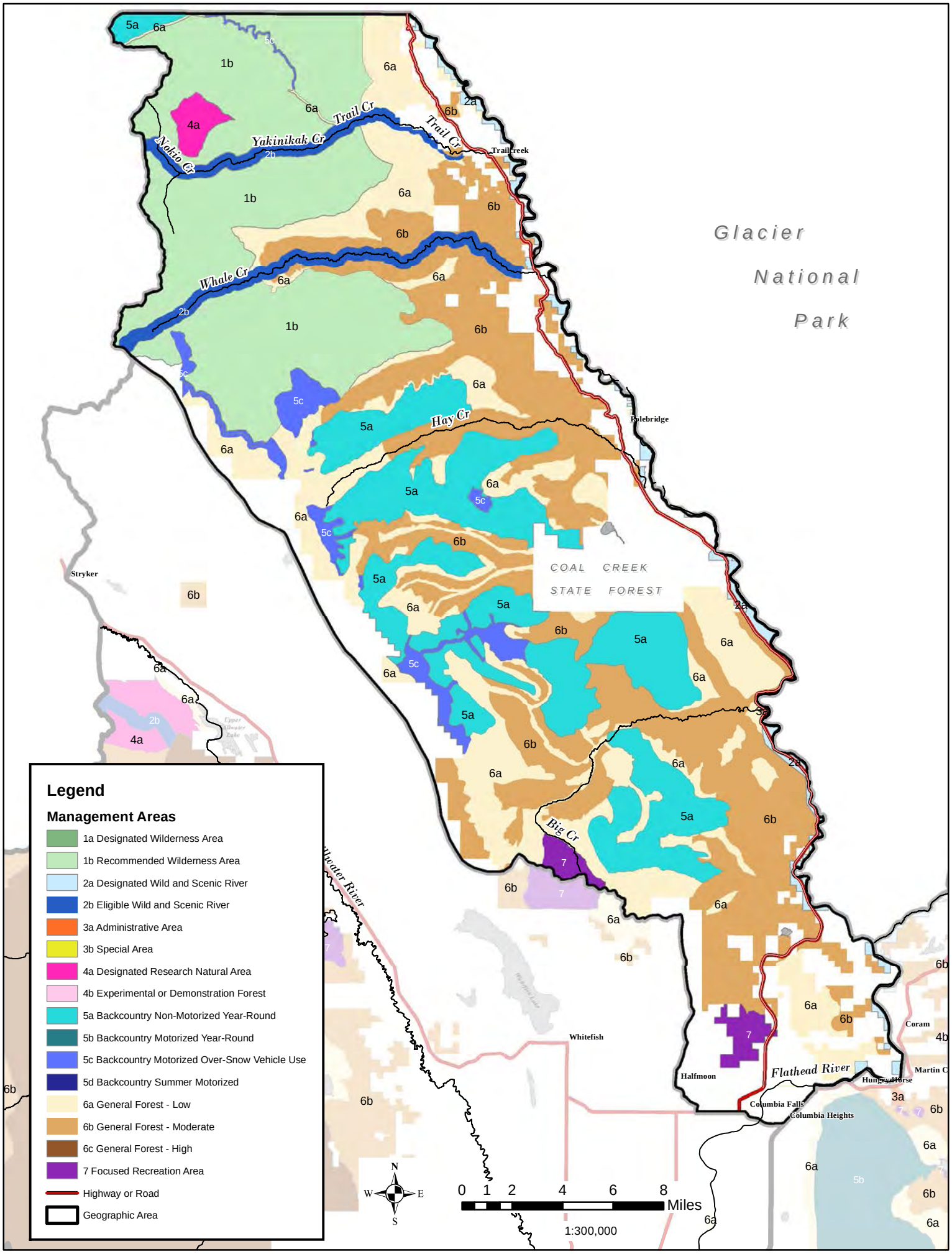
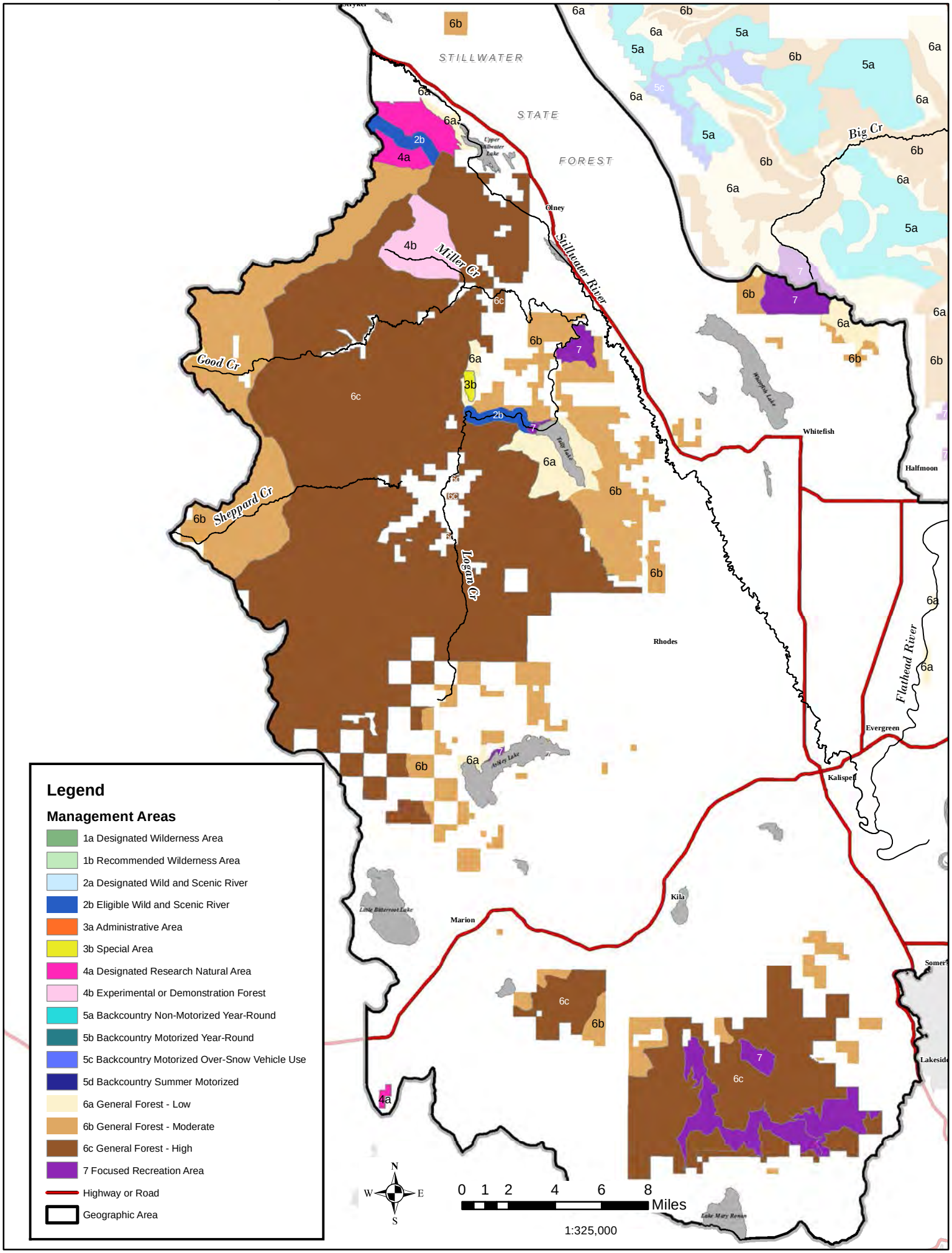


Figure C-21. Salish Mountains GA with MAs



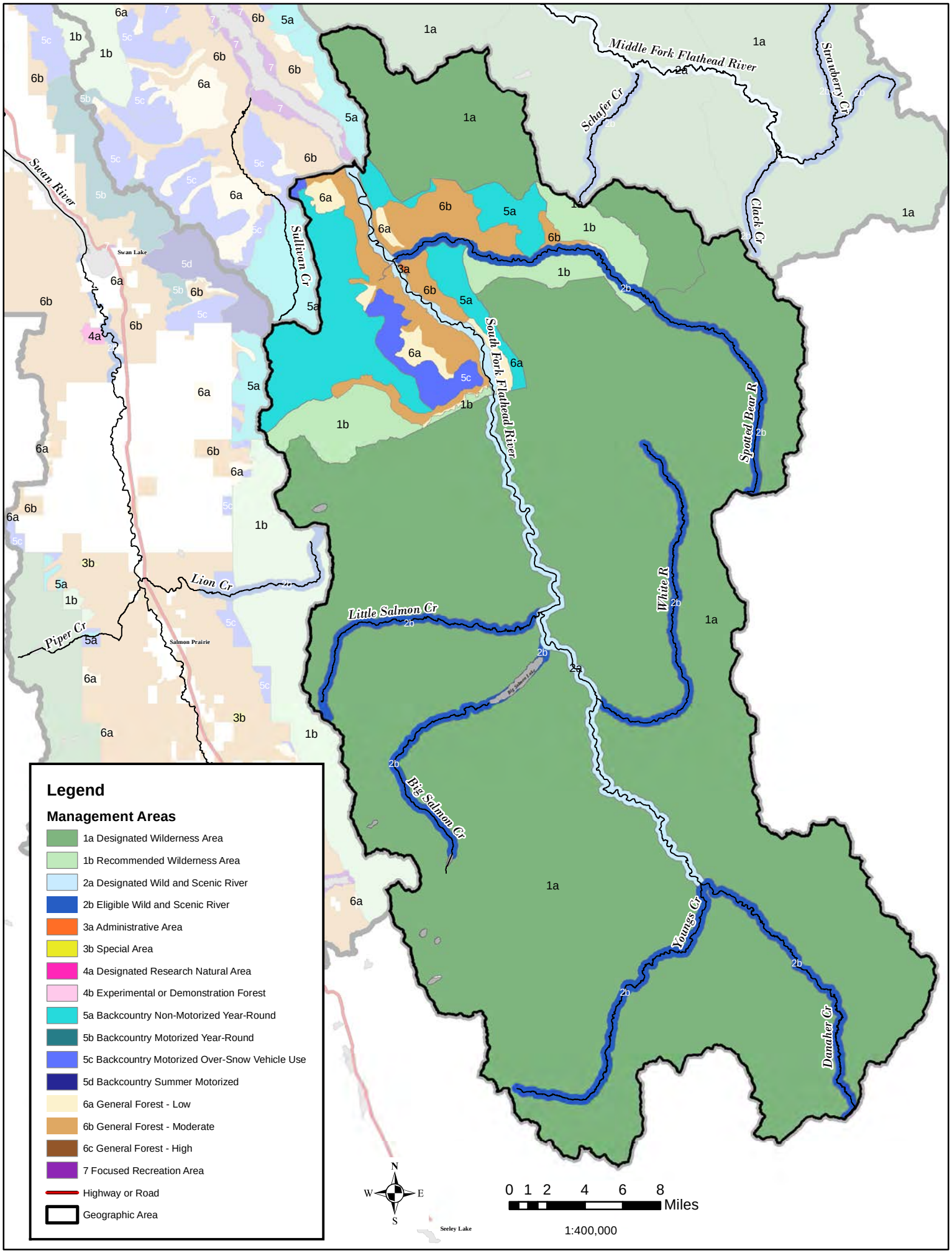
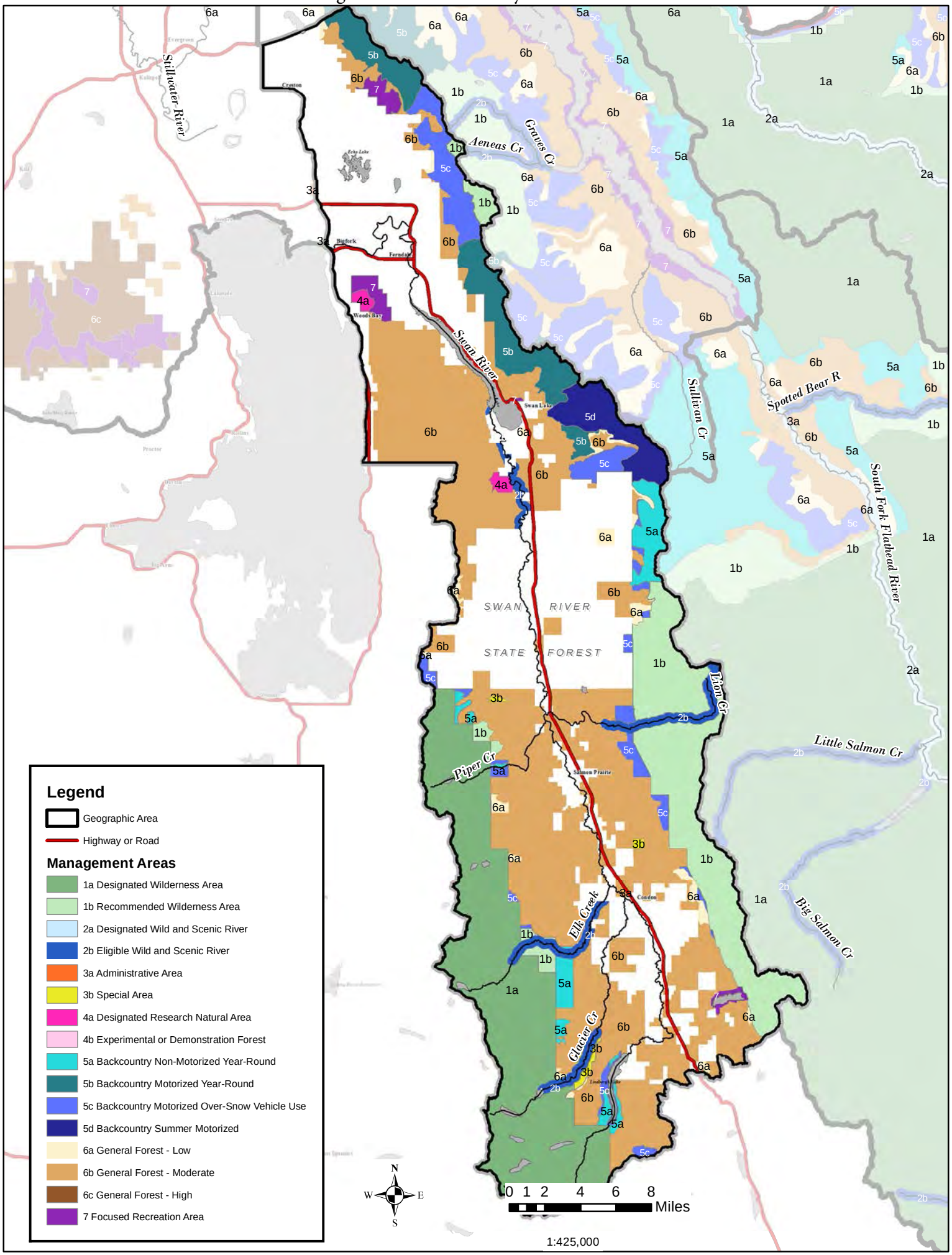

Middle Fork Flathead River
Schafer Cr
Strawberry Cr
Clack Cr
Swan River
Swan Lake
Sullivan Cr
South Fork Flathead River
Spotted Bear R
White R
Little Salmon Cr
Big Salmon Cr
Youngs Cr
Danaher Cr
Lion Cr
Piper Cr
Salmon Prairie
Seeley Lake
Legend
Management Areas
1a Designated Wilderness Area
1b Recommended Wilderness Area
2a Designated Wild and Scenic River
2b Eligible Wild and Scenic River
3a Administrative Area
3b Special Area
4a Designated Research Natural Area
4b Experimental or Demonstration Forest
5a Backcountry Non-Motorized Year-Round
5b Backcountry Motorized Year-Round
5c Backcountry Motorized Over-Snow Vehicle Use
5d Backcountry Summer Motorized
6a General Forest - Low
6b General Forest - Moderate
6c General Forest - High
7 Focused Recreation Area
Highway or Road
Geographic Area
N
W
E
S
0 1 2 4 6 8
Miles
1:400,000

Figure C-23. Swan Valley GA with MAs



Appendix D: Drivers and Stressors and Related Plan Components

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Introduction

One of the goals of the revised plan is to maintain or restore ecological integrity; the quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 CFR 219.19).

Drivers and stressors are factors that may directly or indirectly affect ecological integrity. The Flathead National Forest considered conditions, trends, drivers or stressors identified in the *Assessment of the Flathead National Forest*[1] related to the need to change the plan components (§ 219.6). Tables D-1 and D-2 provide a cross-walk of the primary plan components that would address those drivers or stressors and their anticipated effects on key ecosystem characteristics or aquatic and terrestrial species. Appendix A provides a more extensive listing of species associated with the riparian, wetland, and aquatic habitats discussed in tables D-1 and D-2.

[1] USDA, Forest Service. 2014. Assessment of the Flathead National Forest. Available online at www.fs.usda.gov/goto/flathead/fpr.

Table D-1. Drivers and stressors of aquatic ecosystems and species

Primary Drivers and Stressors	Potential Effects to All Aquatic Species	Plan Components Addressing Driver or Stressor
Climate Change	Climate change may result in a warming climate that elevates water temperatures, changes the timing of rain events and spring run-off and alters flow regimes. Elevated temperatures favor non-native rainbow and brook trout.	FW-DC-WTR 01, 03, 04 FW-DC-AQH 01
Fire	Fire has a highly variable effect on aquatic resources. Fire may increase water temperatures if riparian areas burn severely and may contribute large amounts of sediment to streams from erosion. Conversely, fires can be extremely beneficial and increase nutrients in nutrient poor aquatic environments and also increase large amounts of beneficial wood to streams.	FW-DC-FIRE-01 FW-DC-FIRE-03 FW-DC-FIRE-04 FW-STD-FIRE-01
Flooding	Some streams on the Flathead National Forest are still recovering from the 1964 flood. Flooding can scour and simplify stream habitats at extremes but regular flooding can be highly beneficial by reclaiming floodplains and establishing new vegetation.	FW-DC-WTR 01, 03, 04, 10
Forest Insects and Disease	In general, insect and disease outbreaks are beneficial for aquatic environments by providing dead trees that are recruited to the stream network. If epidemic levels of insects or disease kill trees in riparian areas it could lead to high intensity, high severity fires which could have detrimental effects to aquatic species, for example, by reducing stream shading.	FW-DC-WTR 01,04, 10, 11 FW-DC-RHCA 1-6
Human Land Uses and Development	Land uses, primary road networks, tend to have negative effects to aquatic habitats. Culvert barriers and elevated sediment levels both restrain fish populations. Dams also fall into this category and create barriers for fish passage. However, the barriers dams create can have beneficial effects, for example by preventing upstream migration of non-native species (e.g., lake trout and Hungry Horse dam).	FW-GDL-WTR 01-05 FW-GDL-RHCA 01-11
Invasive Species	Invasive species are perhaps the single greatest threat to aquatic resources. Non-native lake trout in Swan and Flathead lakes have impacted native fish populations, rainbow trout have hybridized with pure cutthroat populations and brook trout have outcompeted and hybridized with native fish populations. Invasion by New Zealand mud snails and quagga mussels are potential threats.	FW-DC-AQS 01-05
Vegetation Treatments	Vegetation treatments themselves have had little effects on aquatic habitats; historically elevated water yields led to in-channel erosion but this effect is rarely seen today on the Forest's watersheds. The associated road networks that support the treatments tend to have more of an effect by elevating sediment levels.	FW-DC-RHCA 01-06 FW-GDL-RHCA 01-11
Drought	Drought plays a critical role in that sediments are not flushed from stream systems. Low flows can cause an armoring of the streambed and make it difficult for redd construction or fry emergence for salmonids.	FW-GDL-AQS 01 FW-DC-WTR 03, 04, 09
Avalanches	Avalanches can deliver large amounts of sediment into stream networks but also provide large amounts of beneficial wood.	FW-DC-WTR 03, 04, 11

Primary Drivers and Stressors	Potential Effects to All Aquatic Species	Plan Components Addressing Driver or Stressor
Cattle Grazing	Grazing can cause long-term negative effects to aquatic habitats through bank trampling and reduction of streamside vegetation.	FW-GDL-ECOS GR 04, 04

Table D-2. Drivers and stressors of terrestrial ecosystems and species

Primary Drivers and Stressors	Potential Effects to Wildlife Threatened and Endangered, Species of Conservation Concern, and Species of Public Interest	Plan Components Addressing Driver or Stressor
Climate Change–Snowpack	Climate change may result in reduced acreage with persistent spring snow–there is a high level of uncertainty associated with expected winter changes to climate in northwest Montana. Loss of persistent spring snow may reduce habitat available for associated species such as the wolverine, White-tailed Ptarmigan, Grey-crowned Rosy-finch, and Hoary marmot.	FW-DC-SOPI-WL-01 FW-GDL-SOPI-WL-02,03
Climate Change–Drought	Black swifts nest behind waterfalls. Waterfalls may dry up sooner or altogether if the frequency or severity of droughts increases, reducing available nesting habitat. Boreal toads breed in ponds and shallow lake margins. Ponds may dry up sooner or altogether if the frequency or severity of droughts increases, reducing available breeding habitat. Changes in water levels may result in loss of peatlands, reducing habitat or habitat connectivity for associated species such as the Northern Bog Lemming.	FW-DC-WTR-01 through 04,06,09,10,11 FW-DC-WET-01 through 07 FW-DC-RHCA-01
Climate Change–Avalanches	Avalanches are a natural ecosystem process. They may increase or decrease with changes in climate. There is a high level of uncertainty associated with expected winter changes to climate in northwest Montana. Avalanche chutes provide food and cover for species such as the grizzly bear throughout the non-denning season. Wolverines may feed on carcasses of animals found in avalanche chutes. Many avalanche areas are in wilderness or proposed wilderness where natural ecosystem processes prevail.	MA-1a-DC-03 MA-1b-DC-02
Climate Change–Wildfires	Climate change may result in increased acreage and/or severity of wildfires. Moose, Elk, Black-backed woodpecker, Olive-sided flycatcher, Cassin's finch, and other species associated with burned habitats or earlier successional forest may benefit from increases in wildfires. Fisher, Canada lynx, marten and other species associated with forest cover may have reductions in available habitat and/or habitat connectivity for a period of about 20 years or more until forested stands recover.	FW-DC-RHCA-05,
Climate Change–Frequency or Severity of Floods	Regular flooding may be beneficial by reclaiming floodplains, promoting regeneration of cottonwood trees, and establishing new shrubs, providing habitat for the veery and other species associated with riparian, wetland, or aquatic habitats. However, if flooding becomes more extreme, more frequent, or if it occurs later in the spring, it may have detrimental effects. Harlequin ducks nest on log jams or densely vegetated shorelines of clear, fast-moving streams. If the frequency or severity of floods increases, it could result in higher levels of nest failure and harlequins do not typically re-nest. Common loons nest on islands in lakes or on the shoreline of lakes. If the frequency or severity of floods increases, it could result in higher levels of nest failure	FW-DC-WTR-01 through 04,06,09,10,11 FW-DC-WET-01 through 07 FW-DC-RHCA-01,02

Primary Drivers and Stressors	Potential Effects to Wildlife Threatened and Endangered, Species of Conservation Concern, and Species of Public Interest	Plan Components Addressing Driver or Stressor
	and loons may or may not re-nest.	
Change in Aquatic, Wetland or Riparian Habitat Quality and/or Quantity	Species such as the Great blue heron, Common loon, Harlequin duck, Boreal Toad, Townsend's big-eared bat, and Bald eagle breed and/or feed in or near lakes, ponds, rivers or wetlands. Poisoning of non-desirable fish species, filling of wetlands, accumulation of lead shot or pesticides may reduce or contaminate their food supply. Lead accumulation may also cause direct mortality. Changes in water flows or chemistry may affect peatlands. Loss of very large cottonwood trees used for nesting by bald eagles and for communal nesting by Great blue herons may also result in decreased reproductive success. Removal of beavers may cause reductions in the quantity or quality of riparian, wetland, or aquatic habitats for many wildlife species.	FW-DC-RHCA-03, 05,06 FW-DC-WET-05 FW-STD-RHCA-01 FW-GDL-RHCA-01 through 05,08,09,10 FW-DC-AQH-01,02 FW-OBJ-AQH-01,02 FW-DC-AQS-01,03,06,07 FW-GDL-AQS-02
Forest Insects and Disease	The primary insect on the Flathead National Forest is Mountain pine beetle, affecting whitebark pine, lodgepole pine, and ponderosa pine. Root diseases are widespread, affecting mainly Douglas-fir and true firs (*Abies* spp). Blister rust is an introduced disease that severely impacts western white pine and whitebark pine. Pileated woodpeckers, Flammulated owls, Black-backed woodpeckers, and other cavity nesting species may benefit by insects and diseases that create snags suitable for nesting and feeding. Epidemic levels of insect or disease may reduce result in loss of old growth stand structure needed by associated species. The loss of cone-producing whitebark pine trees has reduced the summer food supply for Clark's nutcrackers, a species which has a mutualistic relationship with whitebark pine. Spruce budworm may kill small spruce and sub-alpine fir trees, reducing understory tree density in lynx habitat. Insect and disease infestations may become more extreme during drought conditions.	FW-DC-TE&V-11,12,18 FW-DC-ECOS TIMB MA-1a-DC-03 MA-1b-DC-02
Terrestrial Invasive Species	Invasive plant species may out-compete native forage plants and most wildlife species do not eat invasive plants. Warmer temperatures, associated drier conditions, and more severe or frequent droughts, may provide more opportunities for invasive plants to gain an advantage over native species, as invasive species are well adapted to using resources and reproducing quickly. Species with the greatest potential to be affected by invasive plants are those associated with grass-forb-shrub communities.	FW-GDL-RHCA-04 FW-DC-TE&V-06 FW-GDL-TE&V-04 MA-3 Special Area-DC-02 MA-1a-DC-04
Human Land Uses– Vegetation Treatments	Forest succession moves forests from early to late successional stages, changing the forest composition, structure and pattern over long periods of time. Vegetation treatments (e.g., timber harvest, pre-commercial thinning, fuels reduction, prescribed fire, and planting) alter forest composition, structure, processes, and patterns. Treatments may have beneficial, benign, or detrimental effects depending upon the animal species and whether treatments are moving forests towards desired ecosystem conditions or not.	FW-DC-RHCA-03, 05,06 FW-OBJ-RHCA-01 FW-STD-RHCA-01 FW-DC-WET-07 FW-DC-TE&V-01 through 06, 08 through 23 FW-OBJ-TE&V-01,02,03 FW-STD-TE&V-01 through 06

Primary Drivers and Stressors	Potential Effects to Wildlife Threatened and Endangered, Species of Conservation Concern, and Species of Public Interest	Plan Components Addressing Driver or Stressor
		FW-GDL-TE&V-01 through 14 FW-OBJ-SCC-WL-02 FW-GDL-SCC WL-02,04 FW-DC-SOPI-WL-01,02,03 FW-GDL-SOPI-WL-01 FW-DC-FIRE-03,04 FW-STD-FIRE-01,02,03 FW-GDL-FIRE-01 through 04
Human Land Uses and Development–Open Road Network	Open roads may result in seasonal loss of habitat security for species such as grizzly bears, black bears, gray wolves, mule deer, white-tailed deer, elk, and moose. Species associated with snags and down logs (e.g., pileated woodpecker, bald eagle, flammulated owl, marten, and fisher) may lose large snags or down logs used for cavity-nesting or denning in areas with open roads. Highways may result in reduced habitat connectivity and increased mortality of some wildlife species. Carinate mountainsnails may be affected by weed spraying on talus slopes adjacent to roads, or crushing of talus rock for gravel to maintain roads.	FW-GDL-RHCA-08,10 FW-GDL-SOIL-10 FW-GDL-TE&V-07 FW-DC-SCC WL-01 FW-OBJ-SCC-WL-02 FW-DC-SREC-02,03 FW-DC-IFS-05 FW-OBJ-IFS-01 FW-STD-IFS-01 through 04 FW-GDL-IFS-01 through 07,09,10 GA-SM-DC-01 GA-SM-STD-01 MA6c-DC
Human Land Uses and Development–Cities, Towns, Developments, and Broad Expanses of Unforested Land	Great gray owls, elk, white-tailed deer, and bald eagles are known to feed in agricultural areas. Birds such as bald eagles may be killed by ingesting poisons or lead shot used to control ground squirrels or other predators. Cities, towns, and broad expanses of un-forested lands may reduce habitat connectivity for species such as the Canada lynx, wolverine, or fisher.	FW-DC-LSU-01 FW-STD-ECOS E&M-05 through 08 FW-GDL-ECOS E&M-03,04 FW-STD-ECOS E&M-01 through 07 MA7–GDL-01 GA-HH-DC-12 GA-MF-DC-06 GA-NF-DC-10,11 GA-SM-DC-14 GA-SV-DC-11

Primary Drivers and Stressors	Potential Effects to Wildlife Threatened and Endangered, Species of Conservation Concern, and Species of Public Interest	Plan Components Addressing Driver or Stressor
Human Land Uses and Development–Human Activities (e.g., boating, fishing)	Common loons, Bald eagles and Peregrine falcons may be disturbed by some human activities close to their nests during the nesting season, which may result in lower productivity and/or chick survival.	FW-DC-SCC WL-01 FW-OBJ-SCC-WL-01 FW-GDL-SCC WL-03,04 FW-DC-SOPI-WL-01, 02,03
Human Land Uses–Caves, Old Mines and Buildings; Bridges	Townsend's big-eared bats use caves as maternity roosts and hibernacula. Recreational caving may introduce diseases such as white-nose syndrome. Closure of caves, old mines or buildings,or removal of bridges used by bats can make breeding, over-wintering and/or roosting habitat less available to bats.	FW-DC-SCC WL-01 FW-GDL-SCC WL-01
Human Uses–Hunting and Trapping	Species such as moose, gray wolf, beaver, marten, fisher, mule deer, white-tailed deer, mountain goat are hunted or trapped under regulated seasons managed by Montana Fish, Wildlife and Parks. Populations of these and other species may increase or decrease as a result of hunting and trapping activities.	These activities are managed by Montana Fish Wildlife and Parks
Human Uses–Livestock	Carcasses of grazing animals may become bear attractants. Grazing in riparian areas may decrease habitat quality if not managed properly. See table D-1, which also applies to aquatic and riparian wildlife species.	FW-DC-S&E-01 FW-DC-ECOS GR-01,02 FW-GDL-ECOS GR-03 FW-STD-ECOS GR-01 through 06 FW-GDL-ECOS GR-01 through 04
Human Uses–Food, Garbage	Human food and garbage may attract grizzly bears and other wildlife species, resulting in conflicts.	FW-STD-WL-02 FW-GDL-WL-01 through 04 FW-OBJ-REC-02 FW-STD-ECOS E&M-03,04,05

Appendix E: Priority Watersheds

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Introduction

One of the original purposes for establishing the National Forest System was to protect our Nation's water resources. The 2012 planning rule includes a strong set of requirements associated with maintaining and restoring watersheds and aquatic ecosystems, water resources, and riparian areas in the plan area. The increased focus on watersheds and water resources in the 2012 planning rule reflects the importance of this natural resource, and the Department and Agency's commitment to stewardship of our Nation's waters.

The 2012 planning rule requires that plans identify watersheds that are a priority for restoration and maintenance. The 2012 planning rule requires all plans to include components to maintain or restore the structure, function, composition, and connectivity of aquatic ecosystems and watersheds in the plan area, taking into account potential stressors, including climate change, how they might affect ecosystem and watershed health and resilience. Plans are required to include components to maintain or restore water quality and water resources, including public water supplies, groundwater, lakes, streams, wetlands, and other bodies of water. The planning rule requires that the Forest Service establish best management practices for water quality, and that plans ensure implementation of those practices.

Plans are also required to include direction to maintain and restore the ecological integrity of riparian areas. The Flathead National Forest (NF) proposes to maintain riparian areas through riparian habitat conservation areas and standards and guidelines.

Watershed Condition Framework

The watershed condition framework (WCF) will be used to identify priority watersheds, develop watershed action plans, and implement projects to maintain or restore conditions in priority watersheds.

Priority areas for potential restoration activities could change quickly because of events such as wildfire or the introduction of invasive species. Therefore, the 2012 planning rule includes priority watersheds as plan content, so that an administrative change could be used to quickly respond to changes in priority.

Benefits from implementing the WCF are as follows:

- Strengthens the effectiveness of Forest Service watershed restoration
- Establishes a consistent, comparable, credible process for determining watershed condition class
- Enables a priority-based approach for the allocation of resources for restoration
- Improves Forest Service reporting and tracking of watershed condition
- Enhances coordination with external agencies and partners.

The Forest Service Manual (FSM) 2520, Watershed and Air Management, uses three classes to describe watershed condition:

- Class 1 watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

- Class 2 watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 3 watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

The FSM classification defines watershed condition in terms of "geomorphic, hydrologic and biotic integrity" relative to "potential natural condition." Geomorphic functionality or integrity can be defined in terms of attributes such as slope stability, soil erosion, channel morphology, and other upslope, riparian, and aquatic habitat characteristics. Hydrologic functionality or integrity relates primarily to flow, sediment, and water-quality attributes. Biological functionality or integrity is defined by the characteristics that influence the diversity and abundance of aquatic species, terrestrial vegetation, and soil productivity.

In each case, integrity is evaluated in the context of the natural disturbance regime, geoclimatic setting, and other important factors within the context of a watershed. The definition encompasses both aquatic and terrestrial components, because water quality and aquatic habitat are inseparably related to the integrity and, therefore, the functionality of upland and riparian areas within a watershed. The three watershed condition classes are directly related to the degree or level of watershed functionality or integrity:

- Class 1 = Functioning Properly
- Class 2 = Functioning at Risk
- Class 3 = Impaired Function.

In this framework, a watershed is considered in good condition if it is functioning in a manner similar to one found in natural wildland conditions (Karr and Chu 1999,[1] Lackey 2001[2]). This characterization should not be interpreted to mean that managed watersheds cannot be in good condition. A watershed is considered to be functioning properly if the physical attributes are appropriate to maintain or improve biological integrity. This consideration implies that a Class 1 watershed in properly functioning condition has minimal undesirable human impact on natural, physical, or biological processes and is resilient and able to recover to the desired condition when or if disturbed by large natural disturbances or land management activities (Yount and Neimi 1990[3]). By contrast, a class 3 watershed has impaired function because some physical, hydrological, or biological threshold has been exceeded. Substantial changes to the factors that caused the degraded state are commonly needed to set them on a trend or trajectory of improving conditions that sustain physical, hydrological, and biological integrity. Defining specific classes for watershed condition is obviously subjective and, therefore, problematic for several reasons. First, watershed condition is not directly observable (Suter 1993[4]). In nature, no distinct lines separate a watershed that is functioning properly from impaired condition, and every classification scheme is arbitrary to some extent. Second, watershed condition is a mental construct that has numerous definitions and interpretations in the scientific literature (Lackey 2001). Third, the attributes that reflect the state of a watershed are continually changing because

[1] Karr, J.R.; Chu, L.W. 1999. Restoring life in running rivers:better biological monitoring. Washington, DC: Island Press.206 p.
[2] Lackey, R.T. 2001. Values, policy, and ecosystem health. Bioscience. 51: 437–443.
[3] Yount, J.D.; Niemi, G.J. 1990. Recovery of lotic communities and ecosystems from disturbance—a narrative case study. Environmental Management. 14: 547–570.
[4] Suter, G.W. 1993. Critique of ecosystem health concepts and indexes. Environmental Toxicology and Chemistry. 12: 1533–1539.

of natural disturbances (e.g., wildfire, landslides, floods, insects, and disease), natural variability of ecological processes (e.g., flows and cycles of energy, nutrients, and water), climate variability and change, and human modifications.

The Flathead NF completed our WCF in 2011. The Forest Service identified 5 Class 2 hydrologic unit code (HUC) 12 watersheds and 176 Class 1 HUC 12 watersheds. There were no Class 3 watersheds identified. Table E-1 identifies the Class 2, Functioning at Risk, watersheds and their priority for restoration and figure E-1 shows the locations of the Class 2 watersheds.

Table E-1. WCF Class 2 watersheds on the Flathead National Forest

Current Priority Level	Watershed Name	Attributes Rated at Risk in Watershed Condition Framework Assessment	Current Planning Efforts	Overlapping Priorities and Partnerships	Notes
High	Cold Creek	Riparian/wetlands, road density, best management practices (BMPs), soil productivity	Chilly James. Scoped in February 2014	SW Crown Collaborative Forest Landscape Restoration Program (CFLRP), Bull Trout Cons Strategy Priority Watershed	Cold Ponds Wetland Restoration Project, Bull trout Conservation Strategy Watershed. Bull trout numbers are decreasing due to lake trout in Swan Lake.
High	Jim Creek	303(d) listed stream, riparian/wetlands, soil productivity, road density, functioning at risk condition class (FRCC), weeds	Chilly James. Scoped in February 2014	SW Crown CFLRP, Bull Trout Conservation Strategy Priority Watershed, Swan Total Maximum Daily Load Tech Advisory Group.	Bull trout numbers are decreasing due to lake trout in Swan Lake. Opportunity for riparian/wetland restoration and weed treatments. No in-stream fish habitat restoration needs identified (303d listing resulting from historic logging practices and poor road conditions.
High	Beaver Creek	Road density, BMPs, weeds, insects and disease, non-native fish	Beaver Creek. Proposed Action March 2014	SW Crown CFLRP	Opportunities to slow non-native fish invasion and reduce road density.
High	Meadow Creek	Channel morphology, riparian/wetlands, water quality, non-native species	Griffin Creek II Decision. December 2013	Montana Fish Wildlife & Parks	Opportunities to restore riparian conditions and water quality in Meadow Creek. Riparian fencing followed by large scale willow planting. Remove lodgepole pine encroachment. Establish beaver populations.
Moderate	Middle Logan	303(d) listed stream, non-native fish, road density, riparian/wetlands, FRCC, water quality	None	Montana Fish Wildlife & Parks	Logan Creek road relocation, Sanko Creek cutthroat restoration, road treatments into gravel pit.

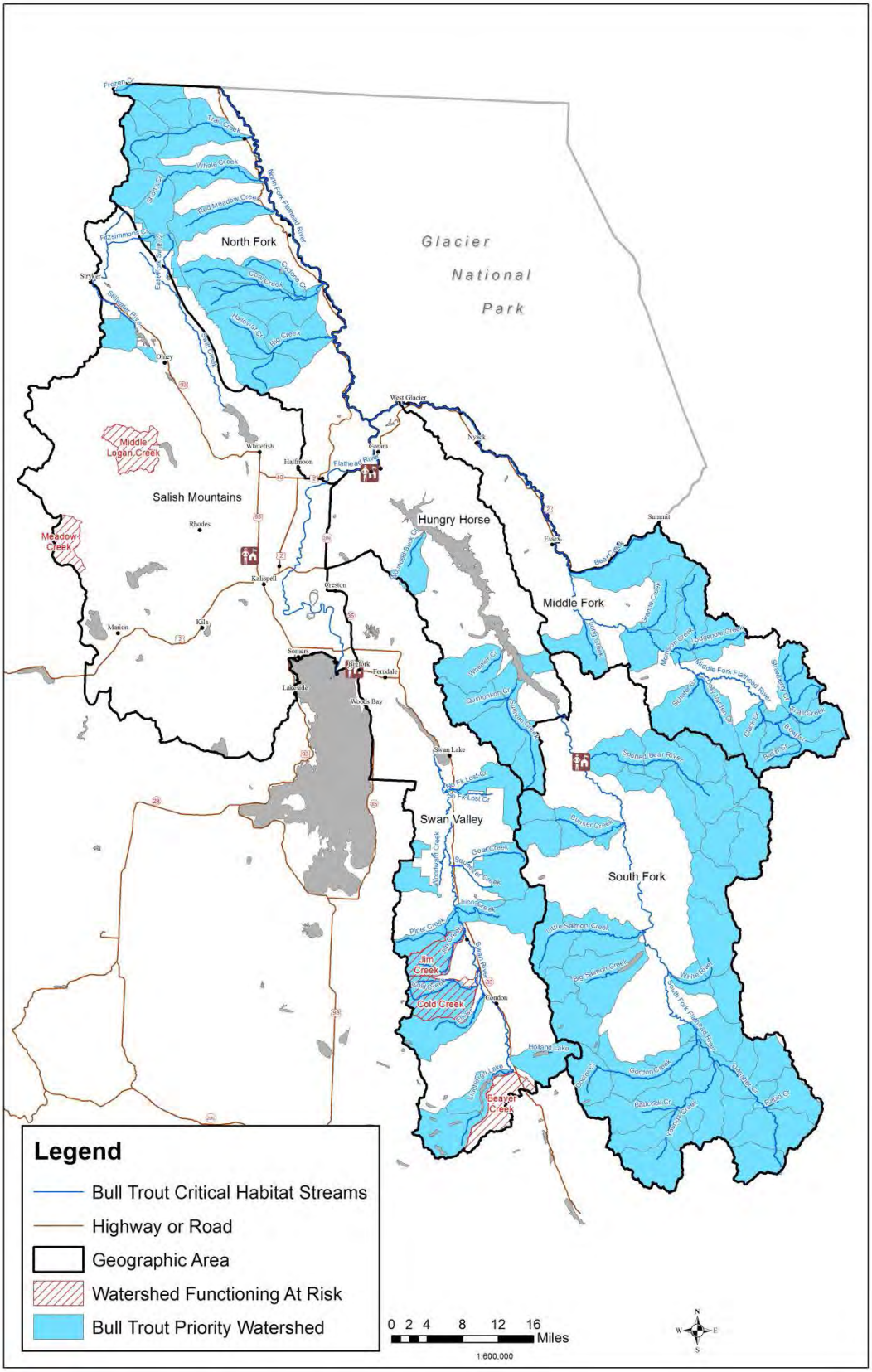


Figure E-1. Class 2, functioning at risk, watersheds and bull trout priority watersheds on the Flathead National Forest

Priority Watersheds

Priority watersheds are also being proposed for primary bull trout streams to provide an extra level of protection for this Federally listed threatened fish. These watersheds overlap with designated “critical habitat” for bull trout. Management in these watersheds would differ from other watersheds in that the riparian habitat conservation area would be 100 feet for intermittent streams rather than 50 feet. Intermittent streams are part of the stream network primarily in the headwaters and the additional protection would aid in large woody debris recruitment to the stream network, provide bank stability, and may reduce sediment that is routed to the stream network.

The following listing names the priority watersheds and associated primary bull trout streams (HUC 12 under the National Hydrologic Dataset). These watersheds are shown on figure e-1:

North Fork Flathead

Frozen Lake

Trail Creek

Whale Creek

Red Meadow Creek

Cyclone Lake

Coal Creek

Big Creek

Stillwater

Upper Stillwater Lake

Whitefish Lake/Upper Whitefish Lake

Middle Fork Flathead

Bear Creek

Granite Creek

Morrison Creek

Lodgepole Creek

Strawberry Creek

Long Creek

Schafer Creek

Clack Creek

Dolly Varden Creek

Bowl Creek

Trail Creek

South Fork Flathead

Spotted Bear River

Wounded Buck

Wheeler Creek

Sullivan Creek

Quintonkon Creek

Bunker Creek

Little Salmon Creek

Big Salmon Creek

White River

Gordon Creek

Danaher Creek

Rapid Creek

Swan River

Lost Creek

Woodward Creek

Goat/Squeezer Creek

Lion Creek

Piper Creek

Jim Creek

Cold Creek

Elk Creek

Lindbergh Lake

Holland Lake

Appendix F: Evaluation of Wilderness Inventory Areas

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Introduction

This appendix presents the draft results of the wilderness evaluation process for 25 wilderness inventory areas on the Flathead National Forest (NF) (see figure F-1). Each area in the wilderness inventory was evaluated using criteria from the proposed Forest Service Handbook (FSH) 1909.12, chapter 70. The Flathead NF plan revision interdisciplinary team developed measures for these criteria that were developed to address the specific questions posed by the criteria and provide a consistent way to evaluate each area in the wilderness inventory in a comparable manner. This is a draft evaluation and will not be finalized until the Record of Decision is signed.

The forest plan revision team developed a wilderness evaluation worksheet for each area that includes a map of the area, the evaluation criteria, and associated questions and measures to address the criteria.

Public Participation

The Flathead NF engaged the public to acquire feedback and input on the inventory, evaluation, and analysis of areas for wilderness recommendation. The two formats for public input included: 1) through individual worksheets provided for each inventory area, or 2) by commenting on areas with the interactive Talking Points Collaborative Map (TPCM) tool.

The TPCM of the wilderness inventory and the wilderness evaluation worksheets were posted on the Flathead NF website on August 9, 2014, originally for a 3-week comment period, which was later extended to a 30-day comment period. During this period, the public was asked to provide feedback on the measures proposed for the wilderness evaluation. In addition, the Flathead NF requested input about the areas included in the inventory. While some measures are dependent on a geospatial analysis of our data, such as acres of maternal denning areas or percent of areas without invasive weeds, other measures are dependent on field knowledge such as the sights and sounds of the area or knowledge of outstanding geological formations in an area.

The rest of this appendix presents the wilderness evaluations for the 25 wilderness inventory areas considered, in the following order:

- Beaver Lake
- Bob North
- Canyon
- Coal
- Cold Creek
- Crane Porcupine
- Demers
- Elk Creek
- Essex
- Fatty Creek
- Glacier Creek
- Hungry Horse Reservoir East
- Hungry Horse Reservoir West
- Jim Creek
- Le Beau
- Lindbergh Lake
- Meadow Lake
- North Fork Cold Creek
- Piper Creek
- Puzzle
- Sky West
- Swan Face South
- Tuchuck
- Whale
- Woodward Creek

The following 11 table notes/footnotes apply, and are repeated, throughout this appendix.

1. Whitebark pine plus trees are defined as genetically superior trees which show natural resistance to blister rust. As part of the whitebark pine restoration program, these trees provide seed for natural regeneration and for growing seedlings in nursery for planting. Protection includes reducing adjacent fuel loads, treatment to protect from beetle attack, and thinning young (sapling) stands to increase vigor and potential to survive mortality.
2. Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest) means: Past timber harvests of all types, both regeneration harvests (clearcut, seedtree and shelterwood cuts) and intermediate cuts (e.g., commercial thins, salvage cuts). Information on timber harvests is from the Forest Service Activity Tracking System database.
3. Maintenance level 1 Roads: Roads that have been placed in storage between intermittent uses.
4. Solitude or a primitive and unconfined type of recreation. The area does not have to possess outstanding opportunities for both elements, nor does it need to have outstanding opportunities on every acre. Consider impacts that are pervasive and that influence a visitor's opportunity for solitude.
5. Rare (i.e., vegetation types) can be determined locally, regionally, nationally, or within the system of protected designations.
6. Minimally represented vegetation types is an analysis of species that are minimally represented or rare in existing Region 1 Congressionally designated wilderness. Rare plants are those listed in the *Montana Natural Heritage Program.*
7. Species richness % of total acreage was determined via state wildlife agencies of the United States. West-wide crucial habitat data Set. Western Governors' Crucial Habitat Assessment Tool: Mapping Fish and Wildlife across the West. Western Governors' Association. Published 8/7/14. Accessed 8/7/14. http://www.westgovchat.org
8. Acres of key conservation areas for wolverine were defined by Weaver, John L. 2014. Conservation Legacy on a Flagship Forest: Wildlife and Wildlands on the Flathead NF, Montana. Working Paper Number 43, May 2014.
9. Acres of key conservation areas for mountain goat were determined by Weaver, John L. 2014. Conservation Legacy on a Flagship Forest: Wildlife and Wildlands on the Flathead NF, Montana. Working Paper Number 43, May 2014.
10. Narrative of coarse scale key connectivity for multiple species. A variety of sources were used, including Squires et al. 2013, McKelvey et al. 2011, Waller and Servheen 2005, Weaver 2014, Ament et al. 2014, National Fish and Wildlife Foundation (in press).
11. Standard/terra trail - is defined as the predominant foundation of the trail is ground (as opposed to snow or water), which is designed and managed to accommodate ground-based trail use. INFRA Trails User Guide dated October 27, 2008, p.152.

In this appendix, for each area evaluated, there is a map of the area evaluated and the area evaluation worksheet. Figure F-1 shows all 25 areas that were evaluated.

The next step in the wilderness recommendation process is the analysis. In this step, the responsible official will determine which areas to carry forward as recommended wilderness for analysis in the environmental impact statement (EIS) for the forest plan revision. In the final step, the responsible official will review the analysis disclosed in the EIS along with all tribal, governmental, and public input and decide which areas, if any, to recommend for inclusion in the National Wilderness Preservation System.

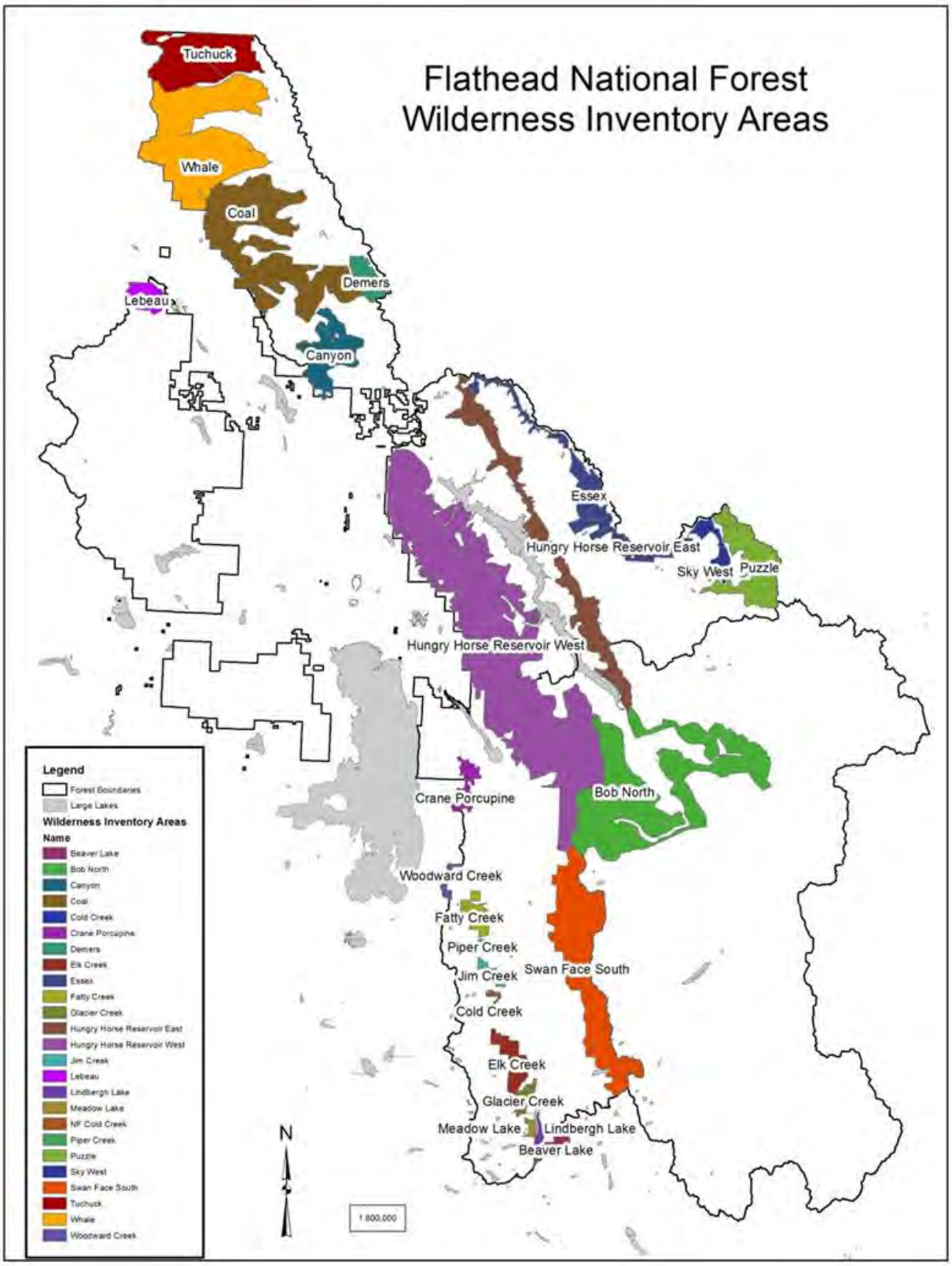


Figure F-1. Wilderness inventory areas on the Flathead National Forest

Beaver Lake Area

A total of 3,542 acres was included in the Beaver Lake wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-2 shows the Beaver Lake wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 98% lodgepole pine, subalpine fir; common types on the Flathead NF. Whitebark pine is present in the area (including whitebark pine plus trees[1]) which is a candidate for threatened/endangered species listing by U.S. Fish and Wildlife Service.

Potential vegetation types: ~99% cool/cold types, supporting typical mixed conifer forests. There may be potential for mountain hemlock, a more rare type on Flathead NF.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-1. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	86%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	98%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish, plants and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within the remaining area.

Past harvest and road building is dispersed through area (490 acres). Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this

inventory area is primarily affected by natural ecological processes, including fire (~80% burned in 1919). There are long term human-caused departures from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g. dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary watershed in this area is Beaver Creek. There are no bull trout in Beaver Creek; however westslope cutthroat trout are present in limited numbers. Invasive brook trout and central mud minnows are present.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-2. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred during the 1950s to1973 on gentle slopes. The harvested units are fully reforested and not visible; however, the major road that bisects the area may be evident in the foreground view, while the portions on steeper slopes may be evident when viewing from the background.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None

Improvement Type	Extent of departures
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Jocko Trail Native American Indian travel route with visible remains in and near this inventory area.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

TableF-3. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	3,453 acres (97%)
Area and % total available for winter non-motorized opportunity	200 acres (6%)

Portions of this area have outstanding opportunities for solitude due to the limited amount of open roads and trails in the inventory area. The topography consists of steep creek drainages with some rolling slopes on the southern portion of the area. There is an abundance of vegetation providing screening to sight and sound.

This area is surrounded by national forest system lands with the southeastern boundary adjacent to the Lolo NF. Adjacent to the inventory area, on the south-facing slope of the Swan Clearwater Divide is an area (West Fork Clearwater wilderness addition) being considered for wilderness designation in the Forest Jobs and Recreation Act. On the western boundary is the Mission Mountains Wilderness.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-4. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	2,719 acres (77%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	210 acres (6%)

Describe the types of primitive recreation activities in the area.

There are many opportunity for primitive and unconfined recreation in this inventory area. This area offers primitive recreation opportunities as there is no road or trail access; access is by cross-country in a remote, steep drainage. Backpacking, fishing, hunting, hiking, and viewing wildlife are some of the primitive recreation activities in this area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented/rare vegetation types[5]?

Table F-5. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	2 miles (20%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	Whitebark pine is present and estimated at 300 acres. Potentially, the area could support more whitebark pine. Genetically superior whitebark pine trees are identified and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	No acres of level 3/4
Acres of key conservation areas for wolverine[8]	582 acres (16%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Very high lynx use, high-very high composite score for grizzly bear.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-6. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	2,086 acres (59%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72 and 75.	105 acres (3%)

Describe if there are any unique geologic features in the area.

Sunset Peak is 7,146 feet which provides viewing opportunities into the Swan Valley and Clearwater drainage of the Lolo NF. There are no known caves present in this inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

The Jocko Trail is a Native American Indian travel route with visible remains in and near this inventory area. There was a Forest Service Lookout (Sunset Point) on the divide between the Lolo and Flathead NF that was removed in 1955.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports westslope cutthroat trout that are hybridized with rainbow trout. The area has been assessed for watershed conditions under the watershed condition framework. Beaver Creek is a class 2 watershed due to some impairment which exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-7. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

There are no known education features in the inventory area. Whitebark pine plus trees[1] have been identified in this inventory area, which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-8. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Southern and southeastern boundary borders Lolo National Forest. A portion of the western boundary is adjacent to the Mission Mountains Wilderness. The northern boundary follows section lines.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	Lolo management areas MA 11C (roadless). Adjacent to land that was previously Plum Creek lands which have been harvested and contain roads.
Describe the current management of the area.	11 miles of closed roads; 0 miles terra[11] trails; 10 miles motorized over-snow routes; 3,268 acres (92%) allow motorized over-snow. 15% MA 1 (non-forest lands); 5% MA 2 (unroaded lands for dispersed recreation); 79% MA 11C (grizzly bear habitat); 1% MA 12 (riparian area).

Measures	Outcome
Acres and % total of wildland urban interface in the area.	0 acres
Type and extent of management restrictions within the area.	No bull trout critical habitat. 3,542 acres (100%) of critical lynx habitat. 841 acres (24%) of grizzly bear security core. 0% of inventoried roadless areas

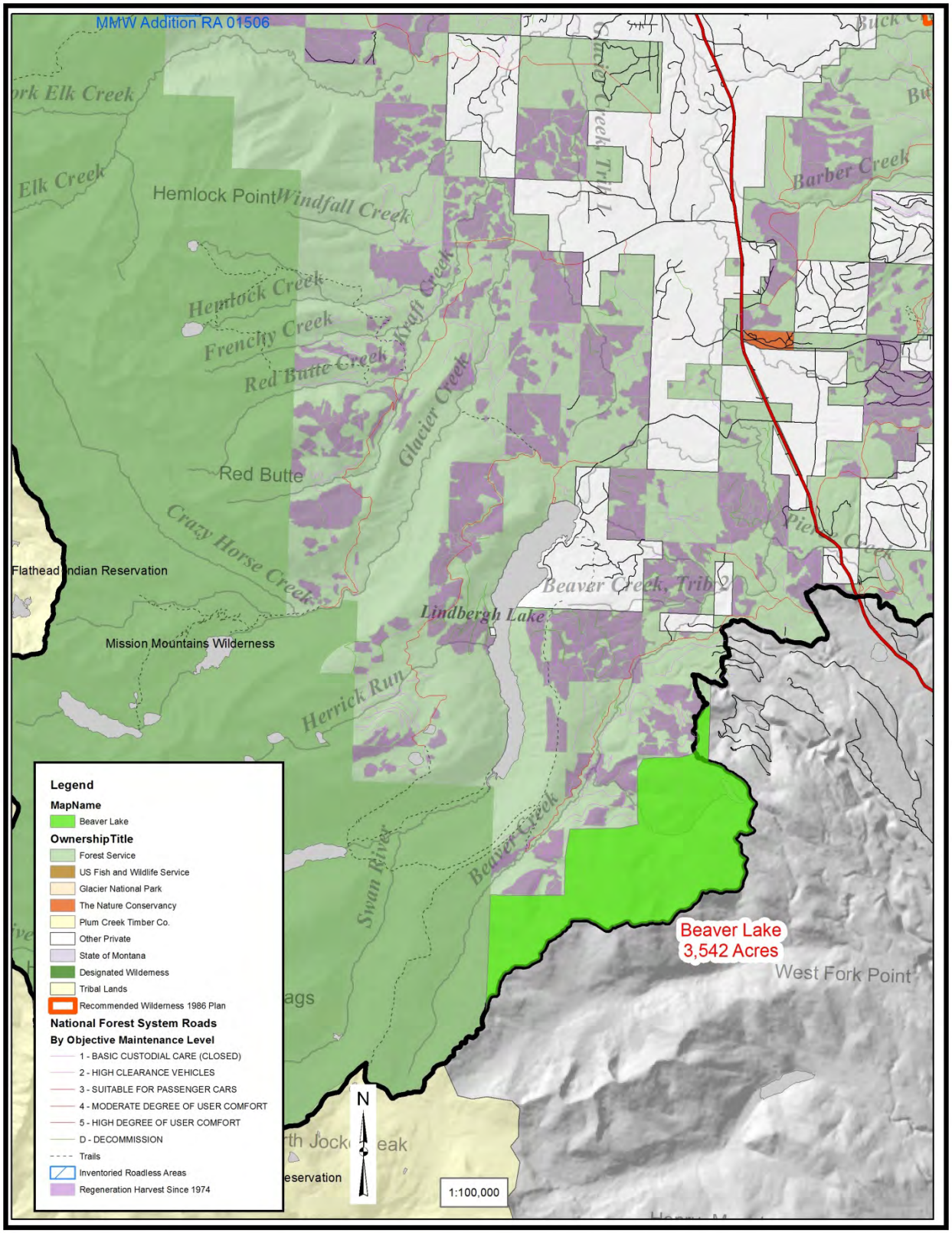


Figure F-2. Beaver Lake wilderness inventory area

Bob North Area

A total of 88,041 acres was included in the Bob North wilderness inventory area. This area is located on the Hungry Horse–Glacier View and Spotted Bear Ranger Districts. Figure F-3 shows the Bob North wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 86% subalpine fir, Douglas-fir, lodgepole pine, larch – common types on the Flathead NF. There is about 13% high elevation sparse vegetation and avalanche chutes in this inventory area.

Potential vegetation types are cool/cold types dominant, supporting typical mixed conifer types, including whitebark pine. There is a small amount of warm dry types, supporting some ponderosa pine which is a less common type on the Forest.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-9. Measures for 1b.

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	96%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish, plant and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

No non-native or parasitic wildlife species are present. There is low level of past harvest and associated roads (3,329 acres), mostly in stream bottoms bisecting west side of area (Bunker, Jungle, Addition, Tin/Soldier creeks). Forest composition, structure, patterns in harvest areas have been influenced by past

human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~40% burned 1889-1929; 8% recent fire 2000, 2007). There are long term human-caused departures from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g. dozer skid and pile), but those impact are typically scattered/disconnected spots and actively recovering.

Weeds are limited mostly to roads, except for large weed infestations in heavy use areas along the South Fork River corridor. There is low probability of weed within most of inventory area, except in areas adjacent to roads and weed concentrations.

There are numerous watersheds in this area; the primary ones are Bunker Creek, Spotted Bear River, and Addition Creek. There are no aquatic invasive species in this area. There are strong populations of bull trout in Bunker Creek and Spotted Bear River, and many of the smaller watersheds also support westslope cutthroat trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-10: Measures for 1c

Improvement Type	Extent of departures
Airstrips	Meadow Creek Airstrip
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	See response to 1b
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Most harvest occurred during the 1950-60s with some harvest in the mid-1970s in Bunker Creek area. All harvested areas fully reforested, mostly not visibly evident. There are some existing historic road templates but generally not evident, except major roads (e.g. Bunker Creek, the upper end Bent Creek) or where slopes are steeper and jammer roads exist (some units in Addition/Little, Jungle/Larch Creeks).
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	Electronic site on Stony Hill Two repeaters on Spotted Bear Mountain Snow course site adjacent to Spotted Bear Mountain trail
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	Jack-leg fence in the Bunker Park area
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	Meadow Creek Campground Cedar Flats River Access

Improvement Type	Extent of departures
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	There is a hydro dam in Bunker Creek just downstream from this area that supplies water to Spotted Bear Ranger Station.
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Spotted Bear Lookout

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-11. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	88,030 acres (100%)
Area and % total available for winter non-motorized opportunity	68,217 acres (77%)

Portions of this area provide outstanding opportunities for solitude especially as you move away from the Hungry Horse Reservoir. With much of the area moderately steep to very steep, and ranging from heavily timbered to subalpine land forms, sights and sounds are buffered and allow for the feeling of solitude. Eighty-one percent of the area is within inventoried roadless areas (IRAs) (Bear-Marshall-Scapegoat-Swan IRA #1485). To get to the wilderness areas, one usually travels several miles through this wilderness inventory area; some people view some of this area as part of their wilderness experience.

Solitude may be impacted along major access trails but this is not pervasive – as you move away from the activity, opportunities for solitude can be found. There is 1 mile of over-snow route and about 23% of the area allows over-snow vehicle use. The Meadow Creek Airstrip is within this inventory area and was allowed within the wild and scenic river corridor of the Flathead River. This may impact solitude but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-12. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	78,159 acres (89%)

Measures	Outcome
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	67,465 acres (77%)

Describe the types of primitive recreation activities in the area.

Portions of this wilderness inventory area have special importance to many people because it is adjacent to the Great Bear and Bob Marshall Wilderness areas. Primitive recreation activities in this area include horseback riding, hiking, backpacking, fishing, hunting, wildlife viewing and cross country skiing. There are 94 miles of non-motorized terra[11] trails in this area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-13. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	38 miles (14%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is about 240 acres mapped whitebark pine dominance type. Many thousands of acres of potential high elevation (>6,000 feet) sites suitable for whitebark pine. Mapped 15,451 acres whitebark pine potential vegetation type. Genetically superior whitebark pine trees are identified in Bill Creek and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region 1[6]	The presence of a rare plant: *Botrychium sp.* (Moonworts)
Species richness % of total acreage[7]	37,403 acres (43%) of level 3/4.
Acres of key conservation areas for wolverine[8]	35,596 acres (40%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	8,975 acres (10%) of habitat.
Narrative of coarse scale key connectivity for multiple species[10]	Portions of this inventory area are key for wolverine, and grizzly bear; moderate for lynx. There is very high radioed lynx use in this area. East of South Fork River has lower values for all species but lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-14. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	51,877 acres (59%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	23,854 acres (27%)

Extensive limestone caves are found in the eastern portion of this area, in the vicinity of Sergeant Mountain and Spotted Bear Mountain. The Spotted Bear country is dominated by an upwarp of the Earth's crust known as the White River Syncline. Erosion ultimately wore away the center of the syncline, leaving the tilted cliffs that face each other on either side of the South Fork of the Flathead River. From the mountain range from Sergeant Mountain, to the east and the tilted walls of Picture Ridge defines its western boundary. The bending of the rock strata is particularly evident of the northern end of the syncline and is evident in the twisted bands of rock that make up the backbone of Sergeant Mountain. Elevation varies from 3,500 to 7,900 feet.

Question 3c

Are there historic or cultural resources of historic value in the area?

Spotted Bear Lookout

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-15. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

Exploration of the cave systems in the Spotted Bear River portion of this area has been ongoing for many years, with continued opportunities to provide both scientific and educational value. Grizzly bears use this area for summer habitat and winter denning sites. There is also opportunity to study and learn from the fire history and frequency. Whitebark pine and larch stands have and will continue to be studied in this area. Whitebark pine plus trees[1] have been identified, which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-16. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shaped. The eastern node is along the Spotted Bear River. The Bunker Creek Road is buffered out 33 feet from either side creating a cherry stem.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	The wild and scenic river designation of the Flathead River allows for the use of the Meadow Creek airstrip and adjacent campground. This area is within the inventory area.
Describe the management of adjacent lands.	MA 2b (unroaded), MA 11 (grizzly bear management), MA 13 (timberlands in mule deer and elk winter habitat), MA 21 (wilderness)
Describe the current management of the area.	13 miles of closed roads; 27 miles of decommissioned roads; 94 miles of terra[11] trails (0 miles motorized; 7 miles allow mountain bike); 1 mile of motorized over-snow routes; 19,824 acres (23%) allow motorized over-snow. 25% MA 2 (unroaded lands for dispersed recreation); 1% MA 7 (timberlands of high scenic values); 47% MA 11A (grizzly bear habitat); 4% MA12/17 (riparian habitat); 6% MA 13 (mule and elk winter habitat); 15% MA 15/16(timber management); 2% MA 18 (wild and scenic river).
Acres and % total of wildland urban interface in the area.	1,319 acres (<1%)
Type and extent of management restrictions within the area.	21 miles of bull trout critical habitat (3 different streams). 82,092 acres (93%) of lynx critical habitat 71,679 acres (81%) are in the Bear-Marshall-Scapegoat-Swan inventoried roadless area #1485

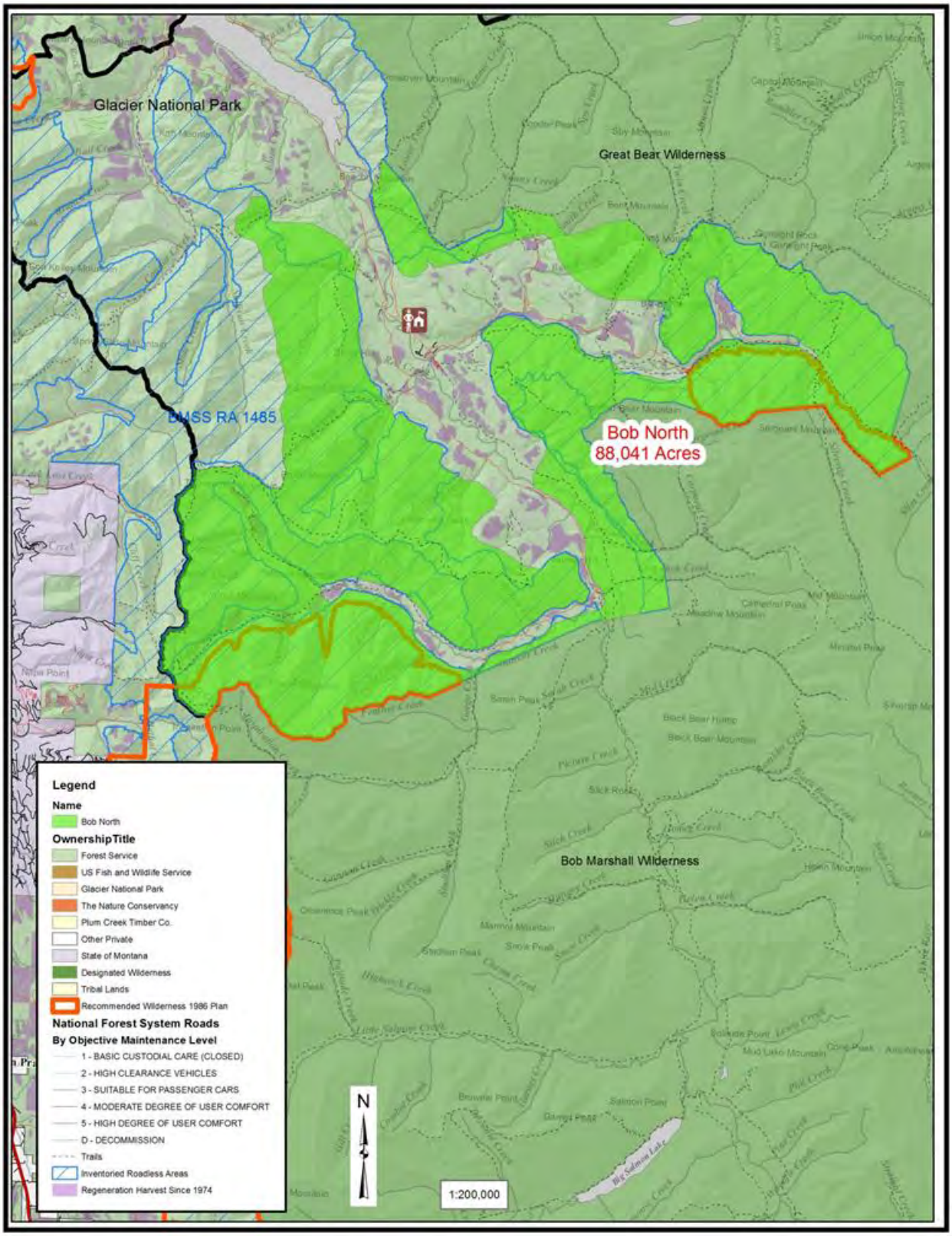


Figure F-3. Bob North wilderness inventory area

Canyon Area

A total of 18,812 acres was included in the Canyon wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-4 shows the Canyon wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 90% subalpine fir (Douglas-fir, larch) common types on the Flathead NF. There is about 10% permanent non-forest types, mainly avalanche chutes, in this inventory area.

Potential vegetation types: cool/cold moist type most common, supporting typical mixed conifer forests. There are patches of warm moist grand fir/cedar types in lower Haskill Basin with potential to support western red cedar, grand fir, western hemlock, and western white pine; rarer types on the Flathead NF. In some higher elevation (>6,000 feet) there is whitebark pine type, and possibly alpine larch.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-17. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	87%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Invasive weeds are limited to existing and decommissioned roads; there is a low probability of invasive weeds within remaining area.

Watersheds in this area include Haskill Creek, Canyon Creek and Big Creek. Haskill Creek is fishless at this elevation but supports pure westslope cutthroat trout in lower reaches off forest. Canyon Creek supports pure populations of westslope cutthroat trout but no bull trout due to a barrier falls near it's confluence with the North Fork. Big Creek supports both cutthroat and bull trout but an increasing number of cutthroat/rainbow hybrids are found. No other aquatic invasive species are found within this area.

Numerous past harvest units (2,426 acres) and associated roads are within and bisect the area. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~11% of area burned 1919; 9% in 2001). There is some long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads (including jammer roads). Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but typically those impacts are scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-18. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable. These are the non-timber harvesting treatments.	Discussed in measures for 1b, if applicable.
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Mostly (70%) harvested in 1950s and 1960s on gentle to steep slopes. These harvest units are fully revegetated to trees, shrubs and not visible, with exception of some of associated roads, skid trails/jammer roads. These roads are likely visible in foreground view, but not in mid- or background view.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	Micho Mine at the southwest boundary
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Remains of Standard Peak Lookout.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-19. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	18,799 acres (100%)
Area and % total available for winter non-motorized opportunity	16,483 acres (88%)

Portions of this area provide for outstanding opportunity for solitude. Forty-two percent of the inventory area is located in an IRA (Standard Peak IRA #1129). The majority of the area is timbered and valley bottoms. There is adequate screening for solitude in the majority of the area, with sights and sounds of human activities more apparent in the southern portion of the area which is adjacent to private land comprised mostly of Stoltze timber lands, and a small portion of Whitefish Mountain Resort. A portion of the area in north and east was burned in the Moose Fire in 2001.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-20. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	17,942 acres (95%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	12,038 acres (64%)

Describe the types of primitive recreation activities in the area.

The area contains the majority of the Smokey Range National Recreation Trail. This trail offers hiking and horseback riding. The western portion of the trail has been lost in portions due to fire in the past. There are numerous opportunities for on-trail and off-trail hiking. Other activities include hunting, fishing, forest product gathering. In the winter, the area is used for cross country and backcountry skiing. The backcountry skiing is popular in the southern portion adjacent to Whitefish Mountain Resort because of the easy access from the ski area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-21. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	8 miles (21%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There are some whitebark pine present in the area, estimated at 25 acres of whitebark pine dominance type. There are thousands of acres that are potentially capable of supporting whitebark pine. There is about 6,300 acres of mapped whitebark pine potential vegetation type.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	5,427acres (29%) has level 3/4
Acres of key conservation areas for wolverine[8]	8,648 acres (46%) very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, key for grizzly bear, key for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-22. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high scenic public value.	12,860 acres (68%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	6,775 acres (36%)

Describe if there are any unique geologic and cave features in the area.

None

Question 3c

Are there historic or cultural resources of historic value in the area?

The remains of Standard Peak Lookout are in this area.

Question 3d

Are there high quality water resources or important watershed features in the area?

Stoltze diverts water from upper South Canyon into Trumball Creek on dry years. This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed; class 1 watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. This area includes Haskill Basin watershed which is the drinking water source for the City of Whitefish,

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-23. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

No known unique scientific or educational features.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-24. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape with boundary following some contours, roads and buffering from harvest areas. From the northwest boundary into the interior of the polygon there is a winter motorized route #9316E that is buffered 33 feet on either side to a substantially noticeable harvest area.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	No
Describe the management of adjacent lands.	MA 3 (non-forested lands), MA 15 (timberlands), and MA 20 (Big Mountain Winter Sports Area).

Measures	Outcome
Describe the current management of the area.	13 miles closed roads; 8 miles decommissioned roads; 10 miles terra trails[11] (0 miles motorized); 14 miles motorized over-snow routes; 2,329 acres (12%) allows motorized over-snow; 59% MA 2 (unroaded areas); 12% MA 3 (non-forested areas); 2% MA 7 (timberlands in areas of high scenic value); 4% MA 12/17 (riparian areas); 2% MA 13 (timber lands in mule deer and elk winter habitat); 19% MA 15 (timberlands); 3% MA 20 (Big Mountain Winter Sports Area)
Acres and % total of wildland urban interface in the area.	1,552 acres (8%)
Type and extent of management restrictions within the area.	2 miles of bull trout critical habitat (1 stream); 18,702 acres (99%) of lynx critical habitat; 16,992 acres (90%) of grizzly bear security core; 7,893 acres (42%) of Standard Peak inventoried roadless area #1129.

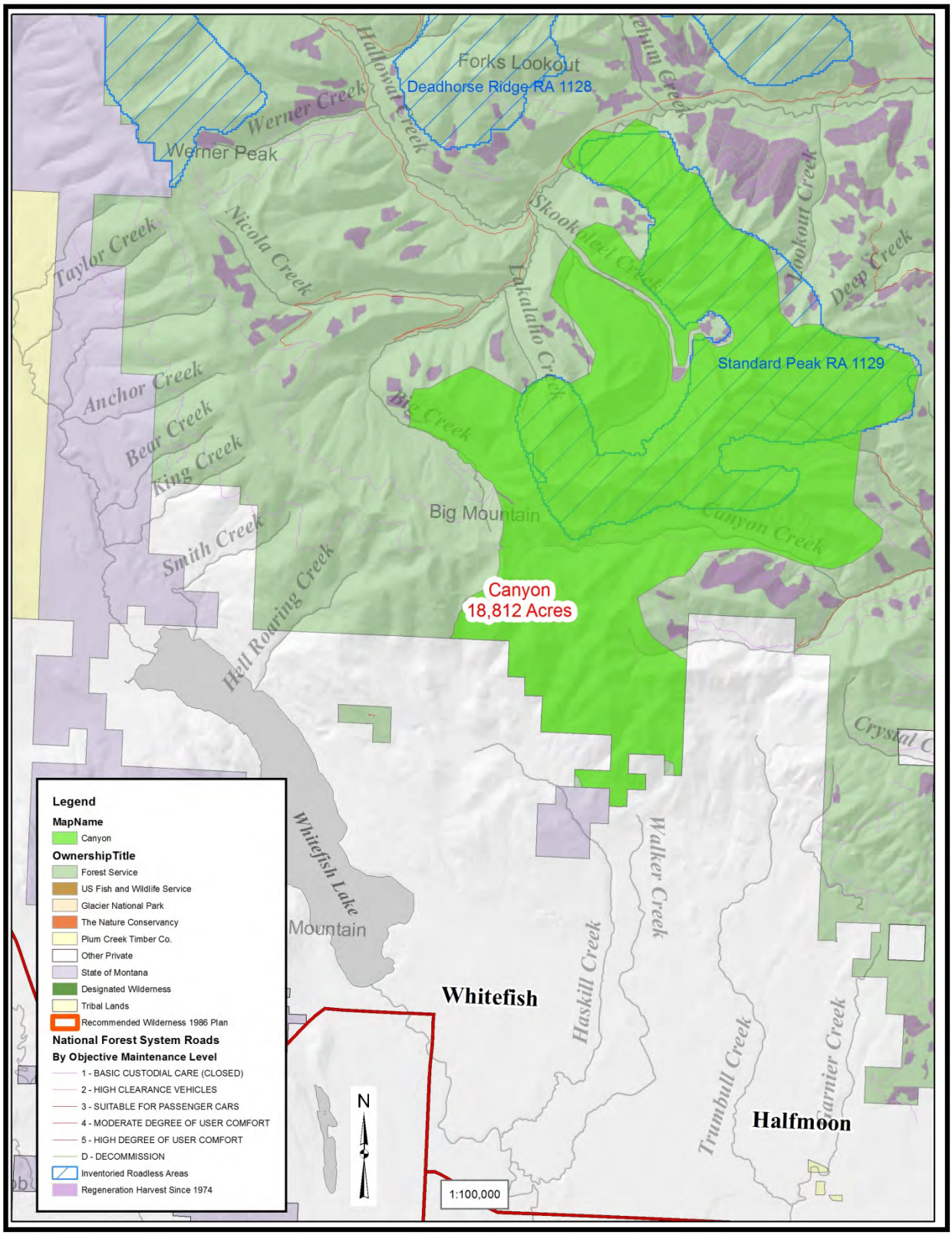


Figure F-4. Canyon wilderness inventory area

Coal Area

A total of 67,181 acres was included in the Coal wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-5 shows the Coal wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 87% subalpine fir (Douglas-fir, larch), common types on the Flathead NF. About 9% sparse vegetation, shrubs, mainly avalanche chutes. There is about 3% whitebark pine dominance type.

Potential vegetation types: cool/cold moist types dominate, supporting typical mixed coniferous forest types. There is a considerable amount of areas in cold, higher elevation sites that are capable of supporting whitebark pine, a more rare type.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-25. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	90%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within most of remaining area, except within recent burn area. Heavy weed concentration exists along southeast edge, adjacent to and within the inventoried area.

Watersheds within this area include Big, Coal, Moran, Hay and Red Meadow Creeks. These watersheds contain both pure and hybridized populations of westslope cutthroat trout and bull trout. Rainbow trout and hybrids are the only aquatic invasive species found in these watersheds.

Numerous past harvest units (6,635 acres) and associated roads, are concentrated along streams that bisect the area, and in the upper basins. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~40% of area burned 1919-1929, 25% burned in 2001). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-26. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable. These are the non-timber harvesting treatments.	Discussed in measures for 1b, if applicable.
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Most (~80%) of the harvest occurred from 1950s through 1970s, predominantly on gentle to moderate slopes. These harvest units are densely stocked with trees, shrubs, and not visible. Some associated roads templates may be noticeable in foreground views, but likely not evident from mid- or background view except within recent burn area, where old road templates and jammer logging roads are visibly evident.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	Some dispersed camping sites exist
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Remains of 3 historic lookouts on Coal Ridge, Coal Ridge Cabin, and China Basin cabin.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-27. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	67,121 acres (100%)
Area and % total available for winter non-motorized opportunity	59,786 acres (89%)

Portions of this area provide for outstanding opportunity for solitude. The sights and sounds of human activities and improvements are screened well by the topography or do not have impact due to distance. About 65% of the area is within three inventoried roadless areas (IRAs) (Benchmark IRA #1126, Coal Ridge IRA #1127and Deadhorse IRA #1128).

The eastern boundary is close to the North Fork Road and in some places the boundary is adjacent to private land with residential homes which may influence solitude but would not be pervasive. The area boundary is adjacent to the Coal Creek State Forest to the east.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-28. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	60,794 acres (90%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	34,839 acres (52%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities in the area include hiking, backpacking horseback riding, fishing, hunting, forest product gathering, cross country skiing and backcountry skiing. The Pacific Northwest National Scenic Trail passes through the northern part of the area (trails #3 and #26). The western boundary of the

area is along the Whitefish Divide, with the Ralph Thayer National Recreation Trail (trail#26) running along it north to south. Other ridge top trail experiences exist on Coal Ridge and Moose Peak.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-29. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	23 miles (14%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is a large amount of existing whitebark pine dominance type, estimated at 2,000 acres, with many 1000s more acres potentially able to support whitebark pine. Large amount of higher elevation sites, suitable for whitebark pine - approximately 24,000 acres of mapped whitebark pine potential vegetation type. Genetically superior whitebark pine trees on Moose Peak are identified and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	Presence of a rare plant: *Botrychium sp.* (Moonworts)
Species richness % of total acreage[7]	26,006 acres (39%) of level 3/4
Acres of key conservation areas for wolverine[8]	35,023 acres (52%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	All key for wolverines *except* for area south of Coal Creek State Forest, moderate for grizzly bear; low for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-30. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high scenic public value.	30,350 acres (45%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	22,719 acres (34%)

Describe if there are any unique geologic features in the area.

No known caves in the area. The Whitefish Divide makes up the western boundary of the area as well as Moose Peak (7,531 feet) in the south and Moran Peak (7,404 feet) in the north. The area includes higher elevation ridgelines and the upper reaches and small tributaries of Hay, Moran, Coal, and Hallowat Creeks. A few pockets of small pothole lakes exist in a few of the upper basins along the Whitefish Divide.

Question 3c

Are there historic or cultural resources of historic value in the area?

There are the remains of three historic lookouts on Coal Ridge. Coal Ridge Cabin is currently being worked on to stabilize the structure. The remains of the China Basin Cabin and an old trapper's cabin are along the Whitefish Divide in the top of China Basin.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-31. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

Narrative response for 3f: No known significant educational features in the area. Whitebark pine plus trees[1] are identified in this area which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-32. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	The area is irregular in shape. A portion of the eastern boundary is the Coal State Forest and follows state forest boundary lines which are straight lines. The upper northeastern boundary is adjacent to private land. The north boundary follows along past harvest units. There are numerous nodes in this inventory area due excluding open roads. The western boundary follows the Kootenai NF/Flathead NF boundary line.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	Kootenai NF, MA 3 (non-forested lands), MA 15 (timberlands)
Describe the current management of the area.	4 miles seasonally open road (part of RD# 1691 & 1693 to be decommissioned); 16 miles closed roads; 43 miles decommissioned or historical roads; 50 miles terra[11] trails (0 miles motorized); 22 miles motorized over-snow routes; 7,395 acres (11%) allows motorized over-snow. 56% MA 2 (unroaded lands for dispersed recreation); 8% MA 3 (non-forested lands); 8% MA 12/17 (riparian habitat); 27% MA 15/16 (timberlands).
Acres and % total of wildland urban interface in the area.	1,556 acres (2%)
Type and extent of management restrictions within the area.	9 miles of bull trout critical habitat (6 streams). 67,107 acres (100%) of lynx critical habitat 59,115 acres (88%) of grizzly bear security core 6,218 acres (9%) of Benchmark inventoried roadless area (IRA) #1126 13,997 acres (21%) of Coal Ridge IRA #1127 23,319 acres (35%) of Deadhorse IRA #1128 65% (43,534 acres) in IRA

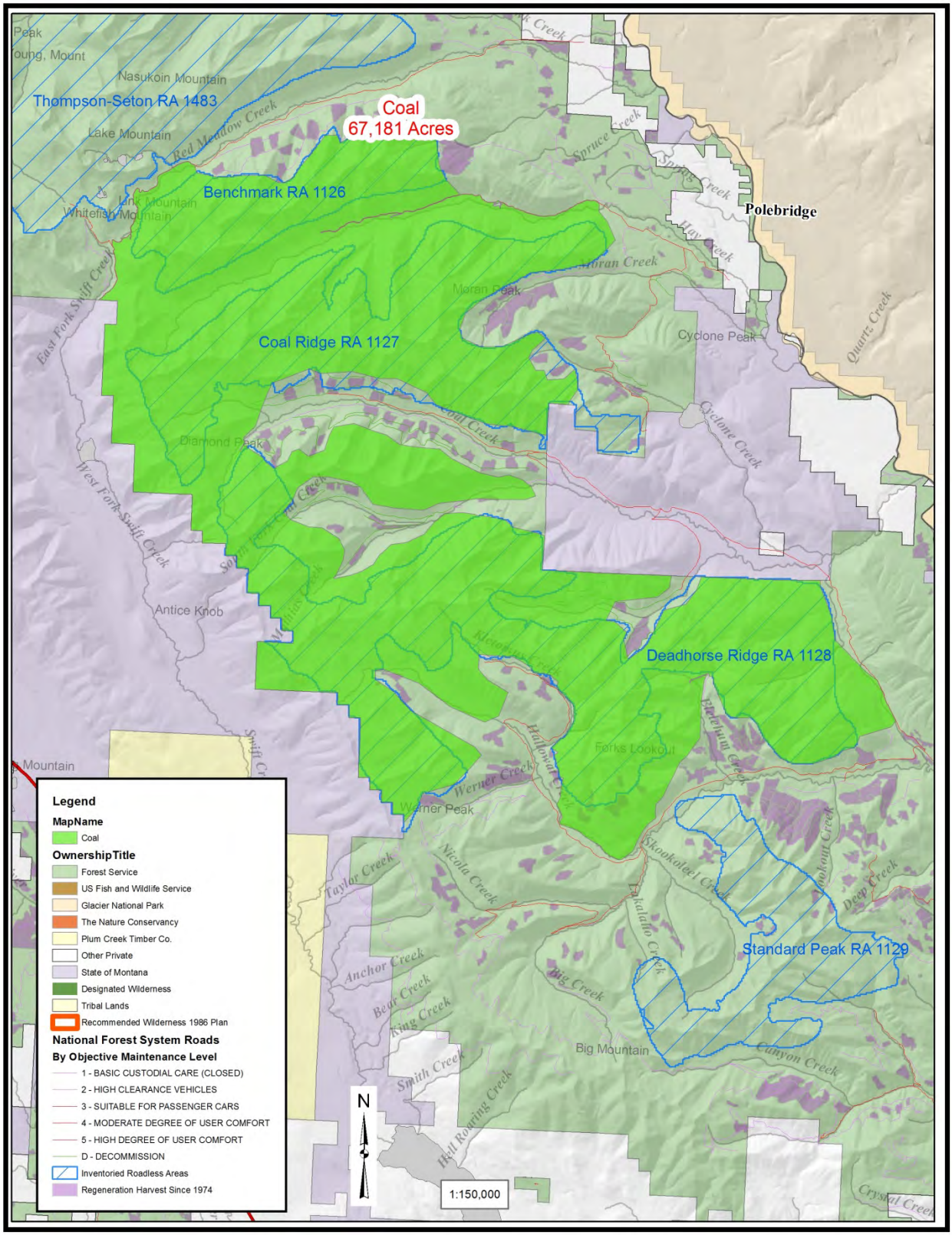


Figure F-5. Coal wilderness inventory area

Cold Creek Area

A total of 674 acres was included in the Cold Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-6 shows the Cold Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation types: 100% subalpine fir, western larch (Douglas Fir); common types on the Flathead NF.

Potential vegetation types: ~100% cool moist/moderate dry types. A small portion on the west side is >6,000 feet elevation, which has potential for whitebark pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-33. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest [2]).	64%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	96%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within most of area.

Numerous past harvest units (240 acres) are spread throughout the relatively large portion of the area. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The

current vegetation within this inventory area is primarily affected by natural ecological processes. No known major fire has occurred in the past 120 years.

There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary watershed in this area is Cold Creek. Invasive rainbow trout and brook trout are present. Bull trout and westslope cutthroat trout are also present.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-34. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1b
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred in 1957, 1970-74 and 3 harvest units in 1987. Most of the older harvests was on gentle slopes, except for 1987 harvests. The earlier harvests units are not visible. Both the 1987 and 1974 clearcuts, are substantially noticeable, especially on steeper slopes.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.

Improvement Type	Extent of departures
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-35. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	659 acres (98%
Area and % total available for winter non-motorized opportunity	186 acres (28%)

This area provides outstanding opportunities for solitude. All roads within the inventory area are closed yearlong and this area is adjacent to the Mission Mountains Wilderness. About 14% of this inventory area is within the Mission Addition #01505 inventoried roadless area. Topography elevation ranges from approximately 6,000 feet in the southwest corner to approximately 4,800 feet down in the Cold Creek drainage, resulting in steep slopes which provide buffering of sound. There are also large amounts of vegetation to provide screening to sight and sound. About 72% of the area is open to over-snow vehicles which may influence solitude but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-36. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	357 acres (53%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	7 acres (1%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities are available such as hiking, camping, backpacking, snowshoeing and fishing.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-37. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	1 mile (51%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	Small amount of potential habitat for whitebark pine.
Acres and number of water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	No acres of level 3/4.
Acres of key conservation areas for wolverine[8]	3 acres (<1%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, key for grizzly bear; N/A for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-38. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	474 acres (70%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72 75,	0 acres

Describe if there are any unique geologic features in the area.

To our knowledge, no caves are present in the inventory area. There is one large wetland or bog located in the southwest portion of the inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and hybridized westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. Cold Creek is a class 2 watershed which has some degree of impairment and exhibits moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-39. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, no scientific or education features are located within the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-40. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Western boundary and portion of northern boundary are adjacent to the Mission Mountains Wilderness.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 15 (timberlands) and MA 22 (Mission Mountains Wilderness). Adjacent to previously Plum Creek lands which were harvested and roaded.
Describe the current management of the area.	4 miles of closed roads; 0 miles terra[11] trails; 4 miles motorized over-snow routes; 488 acres (72%) allow motorized over-snow. 100% MA 15 (timberlands)
Acres and % total of wildland urban interface in the area.	0 acres
Type and extent of management restrictions within the area.	1 mile of bull trout critical habitat (1 stream). 674 acres (100%) of lynx critical habitat 96 acres (14%) of grizzly bear security core. 94 acres (14%) in the Mission Addition inventoried roadless area #01505

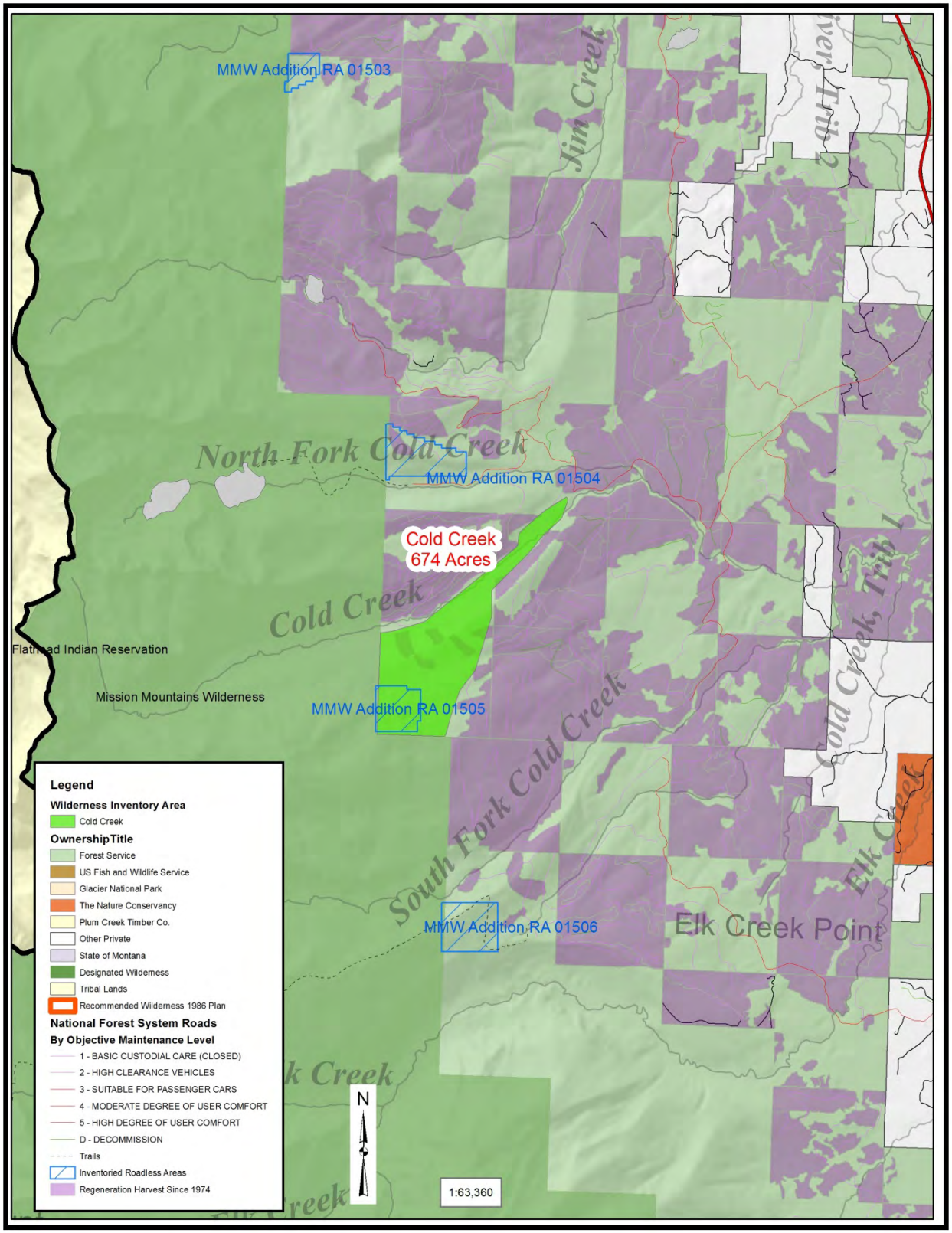


Figure F-6. Cold Creek wilderness inventory area

Crane Porcupine Area

A total of 5,338 acres was included in the Crane Porcupine wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-7 shows the Crane Porcupine wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 99% lodgepole pine, larch, Douglas-fir, subalpine fir; common types on the Flathead NF.

Potential vegetation types: cool types, supporting typical mixed conifer forest types. The elevation extends down to about 3,800 feet, and warm-moist grand fir, western red cedar, western hemlock, and western white pine potential vegetation types occupy much of these areas, supporting typical mixed conifer forest types.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-41. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	79%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	98%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	99%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within remaining area.

There are numerous past harvest area across nearly 20% of area (1,112 acres). Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes; though past fire suppression has probably influenced current vegetation conditions in some areas (~50% of area burned 1919; no recent fire). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary stream in this area is Porcupine Creek. Invasive brook trout are present and there are no bull trout or westslope cutthroat in this area.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-42. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred in the 1950s to early 1970s, on gentle to steep slopes. Harvest areas are fully reforested. Associated historic road templates and skid trails/jammer roads may be visible in foreground view, especially in steeper units.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.

Improvement Type	Extent of departures
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-43. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	5,297 acres (99%)
Area and % total available for winter non-motorized opportunity	8 acres (0%)

This area provides very high opportunities for solitude with many of the roads on FS lands closed yearlong. The topography consists of rolling slopes and an abundance of vegetation which provides buffering of sound and sights. Over-snow vehicles are allowed on 100% of the area and may influence solitude during the winter. There is 11 miles of groomed over-snow routes within the area. The area is close to private lands near the southeast shore of Swan Lake and there may be noise from motor boats on Swan Lake but it would not be pervasive. The Flathead Indian Reservation borders much of the western boundary.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-44. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	4,985 acres (93%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	0 acres (0%)

Describe the types of primitive recreation activities in the area.

The area provides opportunities for primitive recreation such as cross-country hiking, wildlife viewing, hunting and fishing. There are no trails within the inventory area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-45. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	None.
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known existing whitebark pine dominance type. The area in the south half above 6,000 feet potentially could support whitebark pine.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	No acres of level 3/4
Acres of key conservation areas for wolverine[8]	1 acre (<1%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Moderate-high for lynx; high for connectivity between Mission and Swan Range.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-46. Measures for 3b

Measures	Outcome
Acres and % total of distinctive scenic class 1 and 2, which have a high public value.	4,074 acres (76%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	0 acres

Describe if there are any unique geologic features in the area.

To our knowledge, no caves or unique geologic features are present.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

Brook trout is the only salmonid present. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-47. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

None

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-48. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular configuration. Tribal lands adjacent to the western boundary. Boundary follows past harvest units and roads.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 15 (timberlands); tribal lands
Describe the current management of the area.	<1 mile of seasonally open road (part of RD# 498 to be decommissioned); 10.5 miles closed roads; 7 miles of decommissioned or historical roads; 11 miles motorized over-snow routes; 5,328 acres (100%) allow motorized over-snow; 100% MA 15 (timberlands)
Acres and % total of wildland urban interface in the area.	155 acres (3%)
Type and extent of management restrictions within the area.	No bull trout critical habitat. 4,831 acres (90%) of lynx critical habitat. 3,184 acres (60%) of grizzly bear security core. 0% in inventoried roadless area

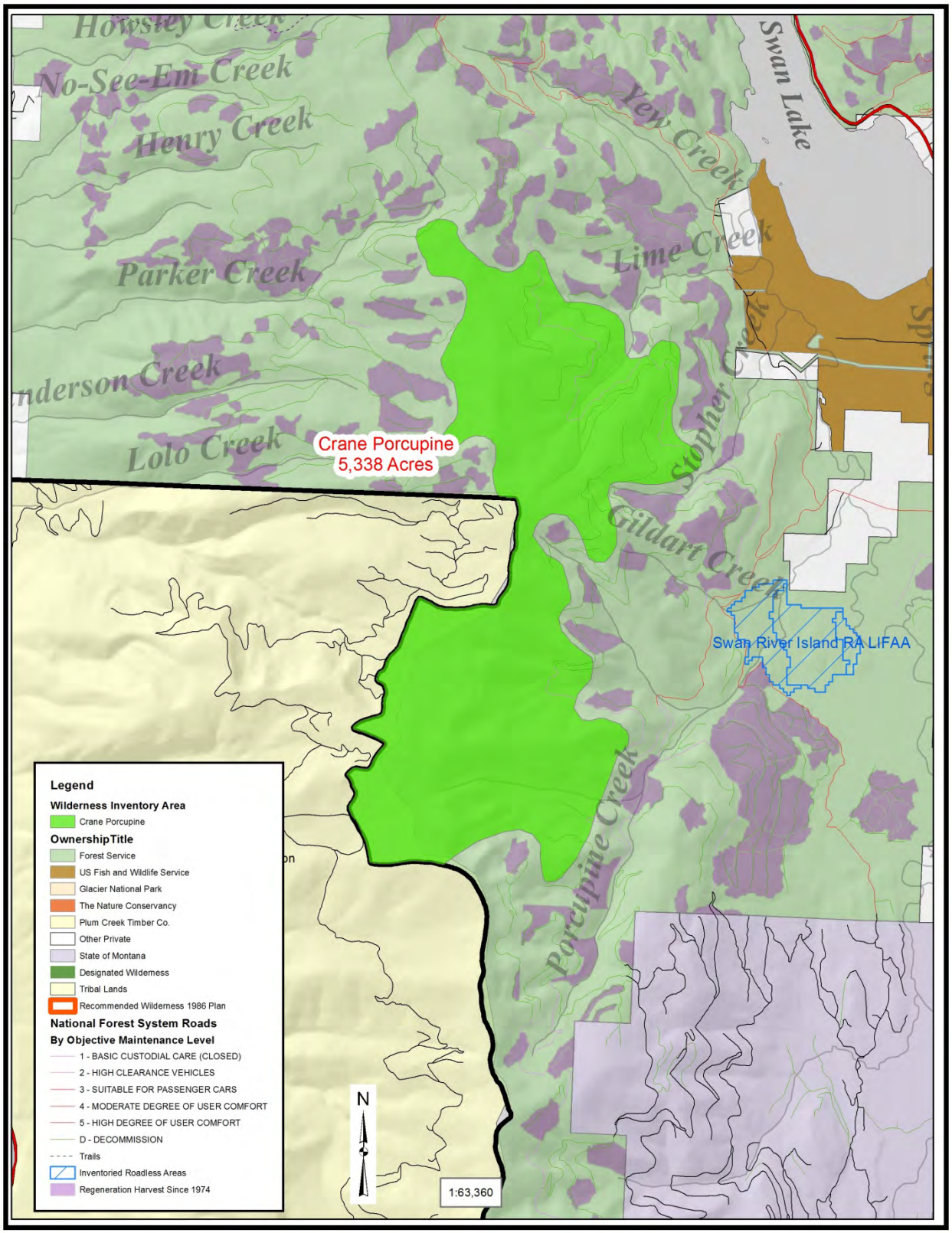


Figure F-7. Crane Porcupine wilderness inventory area

Demers Area

A total of 6,959 acres was included in the Demers wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-8 shows the Demers wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

The existing vegetation dominance types is 99% lodgepole (Douglas-fir, larch) in the area; common types on the Flathead NF. Potential vegetation types: 90% cool types, supporting mostly lodgepole pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action plan lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-49. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	84%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads, and small areas adjacent to roads (trailheads, gravel pits). There is a high potential for weeds within area due to recent severe fire and warm-dry vegetation types.

The westside of this area drains into Langford Creek and Swamp Creek, a tributary to Coal Creek. There is a small degree of hybridization of westslope cutthroat trout with rainbow trout in Langford Creek. Swamp Creek supports pure westslope cutthroat trout. Bull trout are not present in these streams. There are no other aquatic invasive species in these watersheds.

Past harvested areas total 1,130 acres. There was a high severity fire in 2001 that killed 90%+ of trees. Very little harvest took place prior to the fire; salvage of fire-killed trees accounts for nearly all harvest area. Fire severity and effects are largely considered natural, except in some areas of southwest aspect where pre-fire forests were mature, uneven-aged Douglas fir (ponderosa pine) on warm/dry sites. Fire suppression likely influenced pre-fire forest density and fuel loadings.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-50. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable.	Mostly post fire-salvage, with no associated roads, gentle slopes, and not visibly evident.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Remains of Demers Ridge Lookout

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-51. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	6,955 acres (100%)
Area and % total available for winter non-motorized opportunity	6,851 acres (98%)

Portions of this area provide outstanding opportunities for solitude, particularly as you move away from the North Fork Road. This inventory area is adjacent to private land with residential structures, to the Coal Creek State Forest and to the North Fork Road. The entire area was burned during the 2003 Roberts Fire. The sights and sounds of human habitation and activities are somewhat apparent on the North Fork Road and the Camas Road, heading in to Glacier National Park but would not be pervasive. About 2% of the area allows for over-snow vehicle use.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-52. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	4,096 acres (59%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	0 acres (0%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities in the area include hiking, horseback riding, forest product gathering, and hunting. Trails in the area are limited to Trails #266 and #381 which all go to or loop off of Glacier View Mountain. Winter use includes cross country and/or backcountry skiing.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-53. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	2 miles (6%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is no whitebark pine dominance type within the area and very small area of potential whitebark pine habitat.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None

Measures	Outcome
Minimally represented or rare vegetation types in region[6]	Presence of a rare plant: *Corydalis sempervirens* (pale corydalis)
Species richness % of total acreage[7]	No acres with level 3/4
Acres of key conservation areas for wolverine[8]	52 acres (1%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	Low-moderate for wolverines, moderate for grizzly bear, low for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-54. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high scenic public value.	6,253 acres (90%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	664 acres (10%)

Describe if there are any unique geologic features in the area.

No known cave or unique geologic features are in the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

Remains of Demers Ridge Lookout.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-55. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

No known significant scientific or education features.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-56. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. The northern boundary is adjacent to private land and adjacent to the Coal Creek State Forest. The eastern boundary is adjacent to the North Fork Road. The western boundary is adjacent to FS Road #317.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	Coal Creek State Forest, MA 15 (timberlands), MA 18 (Flathead wild and scenic river), MA 12 (riparian), MA 9 (timberlands and whitetail deer habitat)
Describe the current management of the area.	<1 mile of historical roads; 10 miles terra[11] trails (0 miles motorized); 0 miles motorized over-snow routes; 108 acres (2%) allows motorized over-snow; 26% MA 2 (unroaded lands); 22% MA 9/13 (timberlands whitetail deer, mule deer and elk habitat); 5% MA 12 9riparian); 47% MA 15/16 (timberlands); 1% MA 18 Flathead wild and scenic river)
Acres and % total of wildland urban interface in the area.	2,989 acres (43%)
Type and extent of management restrictions within the area.	1 mile of bull trout critical habitat (1 stream) 6,106 acres (88%) of lynx critical habitat 4,689 acres (67%) of grizzly bear security core 0% in inventoried roadless area

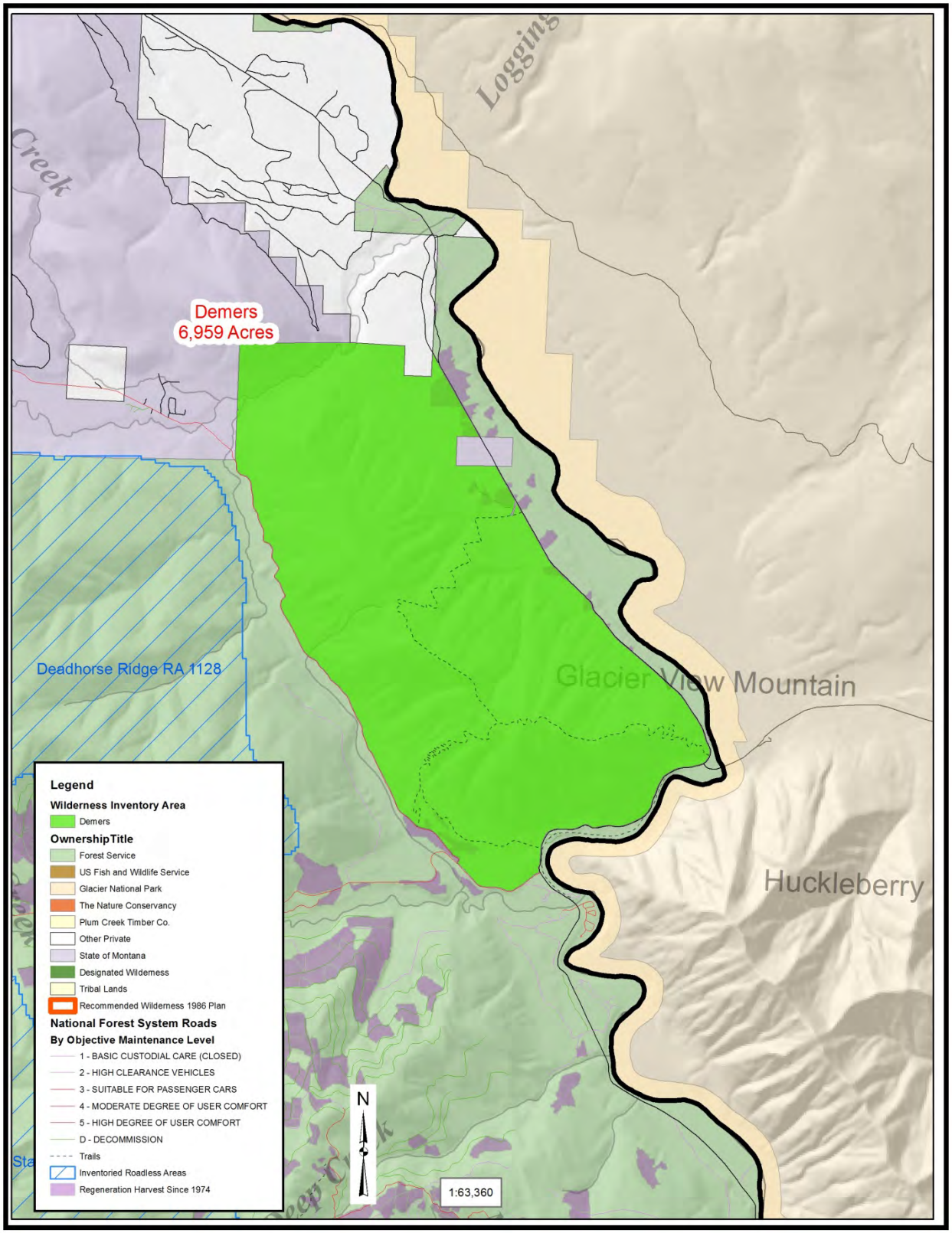


Figure F-8. Demers wilderness inventory area

Elk Creek Area

A total of 7,733 acres was included in the Elk Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-9 shows the Elk Creek wilderness inventory area**.**

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 96% lodgepole pine, Douglas-fir, larch and subalpine fir; common types on the Flathead NF. There are some hardwood types in the bottom of Windfall Creek.

Potential vegetation types: ~90% cool types, supporting typical mixed conifer forests. Elevation within inventory area extends down to 4,200 feet in Elk Creek, 4,100 feet in south end (Windfall and Hemlock creeks). Warm, moist potential vegetation types exist in these lower elevations, mostly grand fir types, with potential to support western hemlock and western white pine; currently supporting mixed conifer forests. There is some cedar potential vegetation type in south half also, unknown whether cedar currently occurs on these sites. Much of this type is within recent fire area, so there is likely no existing cedar there presently.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-57. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	77%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	97%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within area.

There is a substantial amount of past harvest (1,799 acres), mostly concentrated in the south half of area and within the 2003 burn area. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~70% burned 1919; 50% burned 2003). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary watersheds in this area are Elk Creek and Kraft Creek. Elk Creek is the most important bull trout spawning stream on the Flathead NF and also supports westslope cutthroat trout. Kraft Creek supports westslope cutthroat trout, brook trout, and some bull trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-58. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred from 1960s to 2005 (latter was post fire salvage), and concentrated in south half of area. Legacy lands (previously Plum Creek lands) are present and had both pre and post fire harvesting activities. Harvest units are not visible. There are many existing roads in the south part of area and in many cases; the road template is exposed by fire. These road templates may be visible in foreground view, with some portions likely evident from mid/back ground views.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None

Improvement Type	Extent of departures
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	Red Butte fish barrier is a large concrete fish barrier on Red Butte Creek.
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-59. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	7,588 acres (98%)
Area and % total available for winter non-motorized opportunity	5,597 acres (72%)

Portions of this inventory area provide for outstanding opportunity for solitude, mainly in the north portion. In the southern portion of this area, opportunities for solitude are influenced by the sight and sounds of the Kraft Creek Road #56. Users in the southern portion of this inventory area may experience the sights and sounds of road use but this is not pervasive use. This road is a popular route to the Glacier Creek Trailhead. Vegetative screening is limited in the southern section because of the Crazy Horse Fire (2003) of and provides limited buffers to sound and sight. The area is about 1 mile away from private lands and some residential buildings.

Over-snow vehicle use is allowed on 28% of the area and there is 25 miles of over-snow routes. This may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-60. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	3,977 acres (51%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	4,274 acres (55%)

Describe the types of primitive recreation activities in the area.

Elk, Windfall, Hemlock, Frenchy, and Red Butte Creeks offer opportunities for primitive recreation activities such fishing, paddling, hiking, backpacking, snowshoeing and possible backcountry skiing in this area. Trails #607, #515, and #301 offer hiking opportunities.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-61. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	14 miles (46%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is no known existing whitebark pine dominance type; there is a small region above 6,000 feet elevation where whitebark pine may potentially occur.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	Includes 3 unoccupied ponds (<1 acre); part of 1 unoccupied pond (<1acres); and part of Windfall Creek fen (1. acres).
Minimally represented or rare vegetation types in region[6]	The presence of the rare plant: *Lycopodium inundatum* (Northen Bog Clubmoss) Minimally represented species: May support the presence of Grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	147 acres (2%) of level 3/4.
Acres of key conservation areas for wolverine[8]	154 acres (2%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	Negligible (<1 acre (0%) of habitat.
Narrative of coarse scale key connectivity for multiple species[10]	Central portion key for grizzly bear— the rest is low, to mostly low for wolverine and low for lynx. Refer to the maps in the cited works. Species – stronghold for grizzly bear (threatened and endangered, T&E), wolverine (proposed T&E), Rocky Mountain tailed frog stronghold (species in decline), heavy elk use (potential species of public interest, SOPI), mountain goat (potential SOPI), and western toad (potential SOPI).

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, caves, or other geologic features?

Table F-62. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	4,784 acres (62%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types map 17, 54, 55, 72, 75	1,541 acres (20%)

Describe if there are caves or any unique geologic features in the area.

To our knowledge, no caves or unique geological features are present.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-63. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in this area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-64. Measures for 4a

Measures for 4a	Outcome
Describe the shape and configuration of the area.	Irregular shape. The west border is contiguous to the Mission Mountains Wilderness. The northeast border follows section lines that were former Plum Creek lands. The south eastern border follows past harvest units.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	none
Describe the management of adjacent lands.	MA 22 (Mission Mountains Wilderness), MA 15c (timberlands)
Describe the current management of the area.	0.3 miles of open yearlong roads (RD# 561F to be decommissioned); 24.5 miles of closed roads; 0.3 miles of decommissioned roads; 6 miles terra[11] trails (0 miles motorized); 25 miles motorized over-snow routes; 2,137 acres (28% allow motorized over-snow; 6% MA 1 (non-forest lands); 93% MA 15 (timberlands)
Acres and % total of wildland urban interface in the area.	563 acres (7%)
Type and extent of management restrictions within the area.	4 miles of bull trout critical habitat (1 stream). 7,733 acres (100%) of critical lynx habitat. 3,808 acres (49%) of grizzly bear security core. 132 acres (<1%) are within Mission Addition #01506 inventoried roadless area.

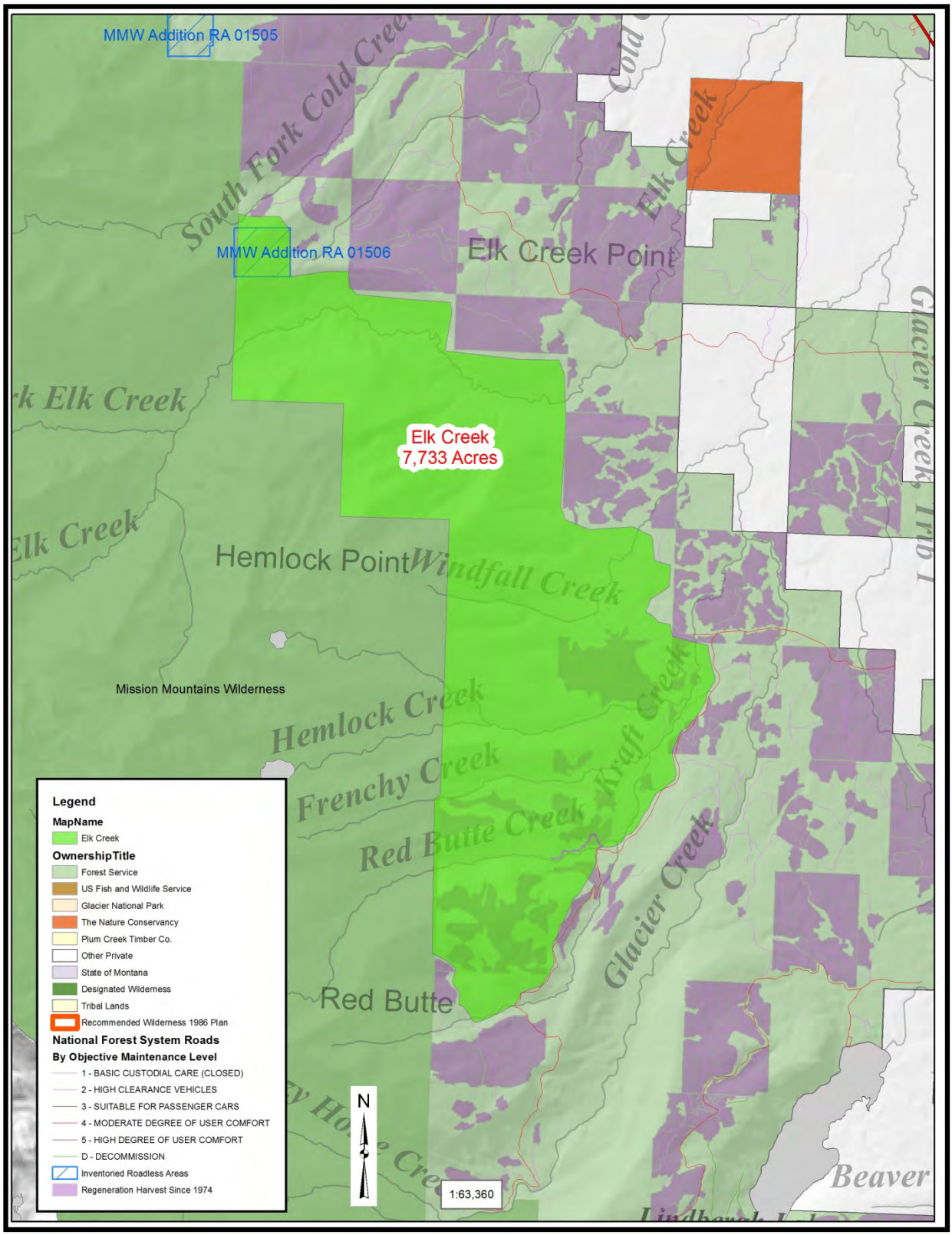


Figure F-9. Elk Creek wilderness inventory area

Essex Area

A total of 23,025 acres was included in the Essex wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-10 shows the Essex wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 88% Douglas-fir, lodgepole pine, subalpine fir, larch which are common type on the Flathead NFs; there is about 11% sparse vegetation, high elevation lands, including avalanche chutes in this area; there are some hardwood types along in areas near Middle Fork Flathead River.

Potential vegetation types: mostly cool moist/dry types, supporting typical mixed conifer forest types. Substantial amount of cold sites, with elevations extending up to 7,200 feet, supporting whitebark pine above about 6,000 feet elevation (and perhaps some mountain hemlock also - Dickey Creek area). Some patches of warm moist types in lower Moccasin Creek have the potential to support grand fir, western hemlock, cedar, and western white pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-65. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	92%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

The Brown-headed cowbird is the only non-native or parasitic wildlife species present. Weeds are mostly limited to roads and areas of concentrated use along Hwy 2, with the exception of a large concentration of known infestations in Essex area. There is a moderate to high probability of weeds in areas adjacent to Essex and other known weed concentrations; low probability of weeds elsewhere.

There are numerous watersheds within this area; most are too steep to support a significant fish population with the exception of tunnel, Dickey and Essex creeks. Bull trout area not present in these watershed but exist immediately downstream in the Middle Fork Flathead River. Westslope cutthroat trout are present throughout the area with pure populations. Brook trout is the primary invader and occurs in Moccasin, Great Bear, Devil and Geifer creeks. A small degree of hybridization from rainbow trout with westslope cutthroat trout can also be found throughout the area.

There have been past harvest units, (1,756 acres) that are concentrated in stream bottoms of central and south half of area, and in the Pinnacle area. Forest composition, structure, and patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~50% of area burned 1910-1929). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-66. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Most harvest occurred from 1960s on gentle slopes. These harvest areas are fully revegetated and not visible. Many of the historic road templates are largely not noticeable, except perhaps in steeper portions of Pinnacle area.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None

Improvement Type	Extent of departures
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-67. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	22,994 acres (100%)
Area and % total available for winter non-motorized opportunity	8,080 acres (35%)

Portions of this inventory area provide for outstanding opportunities for solitude; especially as you move away from the Highway 2 corridor and move upslope. Interspersed private lands are adjacent to the majority of the eastern boundary. The highway 2 corridor (railroad and highway) is adjacent to this area. The western border is adjacent to the Great Bear Wilderness. About *72% of the area is within an inventoried roadless area (IRA) (Bear-Marshall-Scapegoat-Swan IRA #01506).*

There are 2 miles of motorized over-snow routes and 65% of the area allow for motorized over-snow use. Solitude in the winter may be influenced by over snow vehicle use but it would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-68. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	14,240 acres (62%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	7,271 acres (32%)

Describe the types of primitive recreation activities in the area.

Primitive recreation opportunities in the area include hiking, backpacking, horseback riding, fishing, hunting, cross country skiing, and backcountry skiing. The area is increasingly popular with backcountry skiing in the winter due to the terrain and easy access from US HWY 2. There are 19 miles of trails within the area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-69. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	23 miles (29%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is little known existing whitebark pine dominance type. There is several hundred acres of whitebark pine potential vegetation type, and high elevation, sparsely vegetated exposed sites that are favored by whitebark pine.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	Presence of the following rare plants: *Botrychium sp.* (Moonworts), *Solorina spongiosa* (Fringed Chocolate Chip Lichen), *Dicranella grevilleana* (Greville's dicranella moss), *Papaver pygmaeum* (Alpine Glacier Poppy), *Corydalis sempervirens* (Pale Corydalis) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	3,750 acres (16%) of level 3/4
Acres of key conservation areas for wolverine[8]	3,942 acres (17%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	811 acres (4%) of habitat.
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, key for mountain goat, key for grizzly bear, a portion is low for lynx, and a portion is high for lynx: radioed lynx crossed Hwy. 2 from Geifer Creek west to Essex Creek.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-70. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	13,378 acres (58%)

Measures	Outcome
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	1,297 acres (6%)

Describe if there are any caves or unique geologic features in the area.

No known cave resources or unique geologic features in the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-71. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3d

Are there high quality water resources or important watershed features in the area?

There is a community water source that is drawn from Essex Creek in this area. This area supports bull trout in the Middle Fork and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3f

Are there any scientific or education features in the area?

No known significant scientific or educational features in the area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-72. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Interspersed private lands on the eastern boundary which is adjacent to Highway 2. Western and southern boundaries are adjacent to the Great Bear Wilderness.

Measures	Outcome
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	Great Bear Wilderness (MA 21), MA 13a (non-forested, mule deer and elk winter habitat)
Describe the current management of the area.	2 miles closed roads; 4 miles decommissioned or historical roads; 19 miles terra[11] trails (2 miles motorized); 2 miles motorized over-snow routes; 14,942 acres (65%) allow motorized over-snow; 38% MA 2 (unroaded); 1% MA 4 (develop rec sites); 12% MA5/7/8 (high scenic value); 9% MA 12/17 (riparian habitat) ; 3% MA 13 (timberlands, mule and elk winter habitat); 29% MA 15/16 (timberlands); 8% MA 18 (Flathead wild and scenic river)
Acres and % total of wildland urban interface in the area.	18,197 acres (79%)
Type and extent of management restrictions within the area.	6 miles of bull trout critical habitat (2 different streams/rivers). 22,729 acres (99%) of lynx critical habitat 13,463 acres (58%) grizzly security core 16,531 acres (72%) of Bear-Marshall-Scapegoat-Swan inventoried roadless area #01506

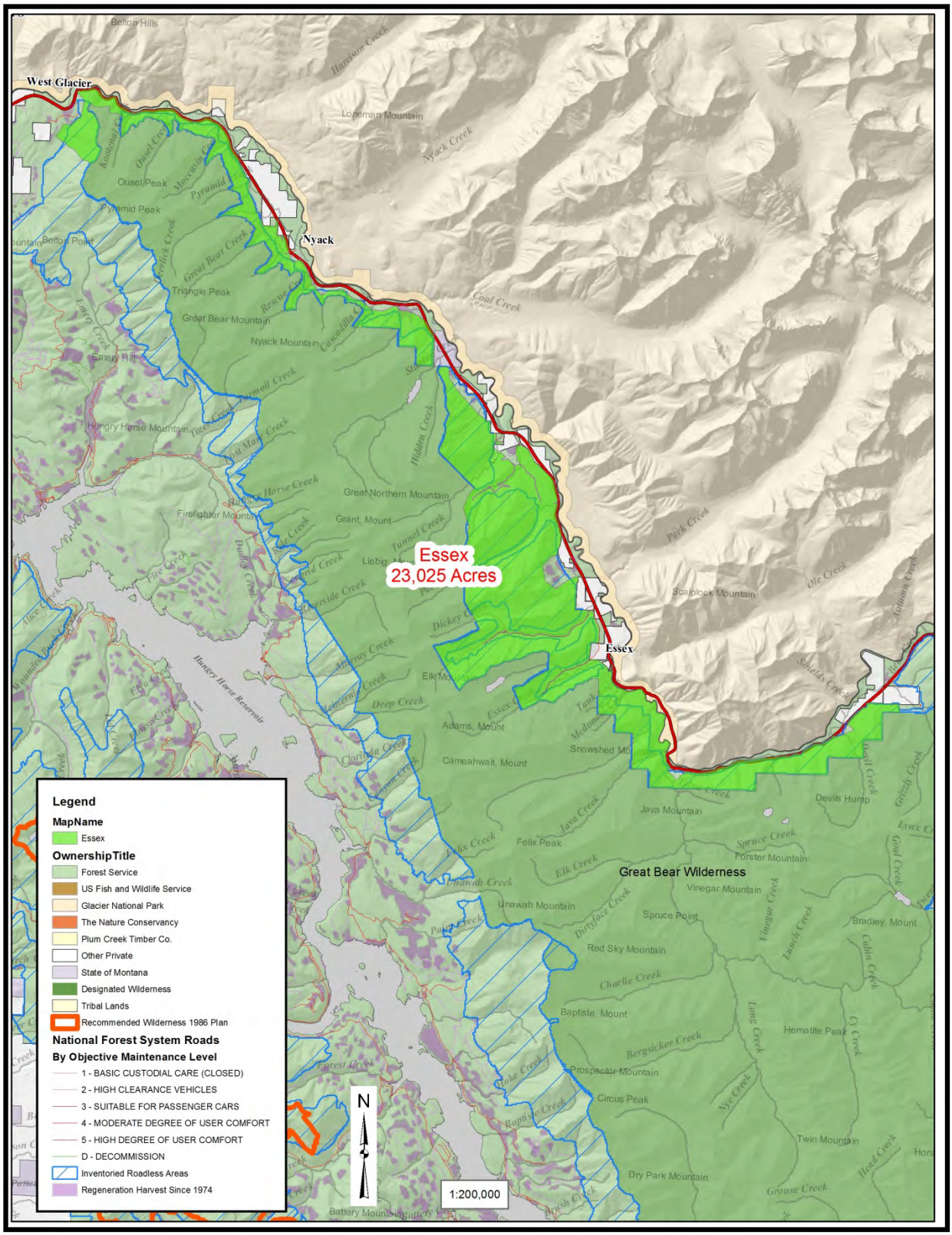


Figure F-10. Essex wilderness inventory area

Fatty Creek Area

A total of 4,963 acres was included in the Fatty Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-11 shows the Fatty Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

There is about 94% subalpine fir, lodgepole pine (larch, ponderosa pine) in the area. About 4% of the area is cedar stands, with many stands likely in mature/old forest, a relatively rare type on the Flathead NF.

Potential vegetation types: ~70% cool moist, supporting typical mixed conifer forests. The elevation extends down to about 4,100 feet in Cedar and Fatty Creeks, and the lower elevations is warm moist cedar potential vegetation type (30% of the area) capable of supporting western red cedar as well as grand fir, western hemlock, and western white pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-73. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	80%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads with a low probability of weed within most of area. There are large area of past harvest in the north part of Fatty Creek drainage area (993 acres), associated roads and numerous skid trails (especially on previous Plum

Creek lands). Forest composition, structure, patterns in harvest areas has been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes; including fire (~60% burned 1910, 1934; no recent fire). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The main watersheds in this area are Fatty Creek and Cedar Creek. These two creeks primary support invasive brook trout and some westslope cutthroat trout in the headwaters. An occasional bull trout is also captured.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-74. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred in the 1955 and 1970, with some harvest in 1978 on legacy lands. Most harvest was on gentle slopes. The harvested areas are fully reforested. Most of the harvested areas and roads/skid trails not visible. The exception is the 1978 harvest (~200 acres, sec 9), where harvest is noticeable to some extent, and numerous skid trails still evident in foreground view.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None

Improvement Type	Extent of departures
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-75. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	4,957 acres (100%)
Area and % total available for winter non-motorized opportunity	2,454 acres (49%)

Portions of this inventory area provide for outstanding opportunity for solitude in this area. The topography of the area consists of steep creek drainages which buffer sound. There is an abundance of vegetation providing screening to sight and sound. About 7% of the area is within an inventoried roadless area (IRA) (Mission Addition #01501). There are portions of the inventory area that are adjacent to the Swan River State Forest and may have sights and sounds of harvesting but this would not be pervasive. The Fatty Creek Road #10381 is buffered out of the inventory area but still may influences solitude within the area but would not be pervasive.

There is about 9 miles of over snow routes and 51% of the area is open to over-snow vehicles in the inventory area which could have some influence on solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-76. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	2,774 acres (56%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	328 acres (7%)

Describe the types of primitive recreation activities in the area.

The types of primitive recreation consist of hiking, backpacking, snowshoeing and exploring portions of the inventory area. Area is close to communities and easily accessible with closest trailhead into the Mission Mountains Wilderness.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-77. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	2 miles (12%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There are no known existing whitebark pine dominance type in the area. There are several hundred acres above 6,000 feet elevation that could potentially support whitebark pine.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	Includes Fatty Creek Fen (0.74 acres)
Minimally represented or rare vegetation types in region[6]	Presence of a rare plant: *Scheuchzeria palustris* (Pod Grass) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	6 acres (<1%) of level 3/4.
Acres of key conservation areas for wolverine[8]	267 acres (5%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	11 acres (<1%) of habitat
Narrative of coarse scale key connectivity for multiple species[10]	High connectivity for wolverines between Mission and Swan Range, key for grizzly bear, NA for lynx.

Question 3b

Is there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-78. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value	2,552 acres (51%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	266 acres (5%)

Describe if there are any caves or unique geologic features in the area.

To our knowledge, there are no caves or unique geologic features present in the inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports brook trout and some westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-79. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-80. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Western boundary is adjacent to the Mission Mountains Wilderness and follows section lines. The northern tier is a whole section and follows section lines. The eastern boundary is adjacent to past harvest units and open roads.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 22 (wilderness), MA 15 (timberlands), MA 2 (unroaded). Adjacent to the Swan State Forest.
Describe the current management of the area.	9 miles of closed roads; <1 mile of terra[11] trails (0 miles motorized); 9 miles motorized over-snow routes; 2,509 acres (51%) allow motorized over-snow. 36% MA 2 (unroaded); 64% MA 15 (timberlands)

Measures	Outcome
Acres and % total of wildland urban interface in the area.	19 ac (<1%)
Type and extent of management restrictions within the area.	No bull trout critical habitat. 4,963 acres (100%) of lynx critical habitat 2,708 acres (55%) of grizzly bear security core. 327 acres (7%) of Mission Addition #01501 inventoried roadless area.

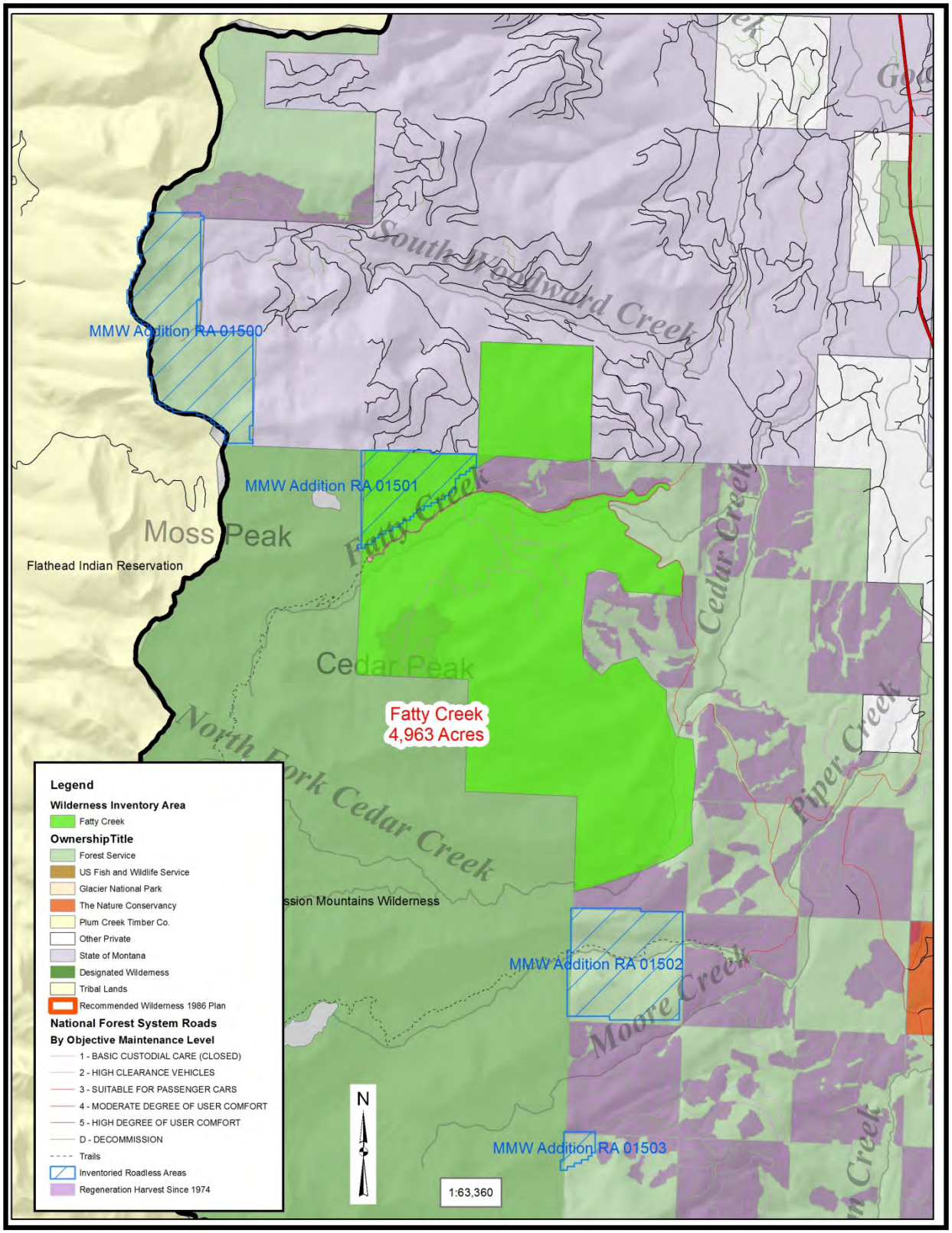


Figure F-11. Fatty Creek wilderness inventory area

Glacier Creek Area

A total of 2,590 acres was included in the Glacier Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-12 shows the Glacier Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 95% western larch, lodgepole pine (Douglas-fir), common types on the Flathead NF. Potential vegetation types: 98% cool types, supporting mixed conifer forests typical of the types.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-81. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	97%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

The Brown-headed cowbird is the only non-native or parasitic wildlife species present. Weeds are limited to roads, within and surrounding area, and in some small concentrations adjacent to roads within the area. There is a low to moderate probability of weeds in other portions of area.

The primary stream in this area is Glacier Creek which support invasive brook trout.

There are past harvest units (90 acres), and associated road building and skid trails. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation

within this inventory area is primarily affected by natural ecological processes, including fire (~87% of area burned in 1919; 5% in 2003). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-82. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Limited harvesting occurred, mostly in 1960, and 1965, along west edge. Now densely stocked with trees. Harvest units and roads/skid trails not visible with the exception of the 1989 clearcut unit (17 acres) in the north part of area and associated roads, which are substantially noticeable.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-83. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	2,573 acres (99%)
Area and % total available for winter non-motorized opportunity	1,885 acres (73%)

Portions of this area provide for outstanding opportunity for solitude. There is an abundance of vegetation providing screening to sight on the slope. Glacier Slough Trail #481 is located within the inventory area and is a moderately used trail. Lindbergh Lake is about 1 to 1.5 miles away and road #561 is close to the northern and western boundaries. Solitude could be influenced due to the proximity of motor boats on Lindbergh Lake and road #561 but would not be pervasive.

There is 1 mile of over-snow routes and about 27% of the area is open for motorized over-snow use which may influence solitude but would not be a pervasive impact.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-84. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	494 acres (19%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	1,783 acres (69%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities include bird watching, nature wildlife viewing, camping, hiking, and snowshoeing.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-85. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	6 miles (74%).
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No existing known whitebark pine and no potential whitebark pine habitat.
Acres and number of water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	41 acres (2%) of level 3/4.
Acres of key conservation areas for wolverine[8]	None
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	Key for grizzly bear, low for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-86. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	1,833 acres (71%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	0 acres

Describe if there are any unique geologic features in the area.

Glacier Slough is a unique botanical feature located within this inventory area. This large wetland area and associated adjacent forests was rated to be of "outstanding significance" by MT Natural Heritage Program. The slough is also considered a proposed special area in the forest plan and al proposed eligible wild and scenic river in the proposed action.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area primarily supports brook trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed, which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-87. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, no known scientific or education features are located within this inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-88. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. A small portion of the southwest boundary is adjacent to the Mission Mountains Wilderness. Northern boundary follows FS road #561. Eastern boundary is adjacent to past harvest units and also follows section lines.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 15c (timberlands, white tailed deer summer range), MA 1 (non-forested), MA 2A (unroaded for dispersed recreation), MA 7 (timberlands with high scenic value), MA 22 (Mission Mountains Wilderness). Past Plum Creek land is adjacent to the eastern boundary and is heavily roaded and harvested.
Describe the current management of the area.	3 miles of closed roads; 1 mile of terra[11] trails (0 miles motorized); 1 mile of motorized over-snow routes; 705 acres (27%) allow motorized over-snow. 67% MA 2 (unroaded for dispersed recreation); 7% MA 7 (timberlands with high scenic value); 7% MA 12 (riparian habitat); 20% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	13 acres (< 1%)
Type and extent of management restrictions within the area.	No bull trout critical habitat. 2,590 acres (100%) of lynx critical habitat 0 acres of grizzly bear security core. 0% in inventoried roadless area

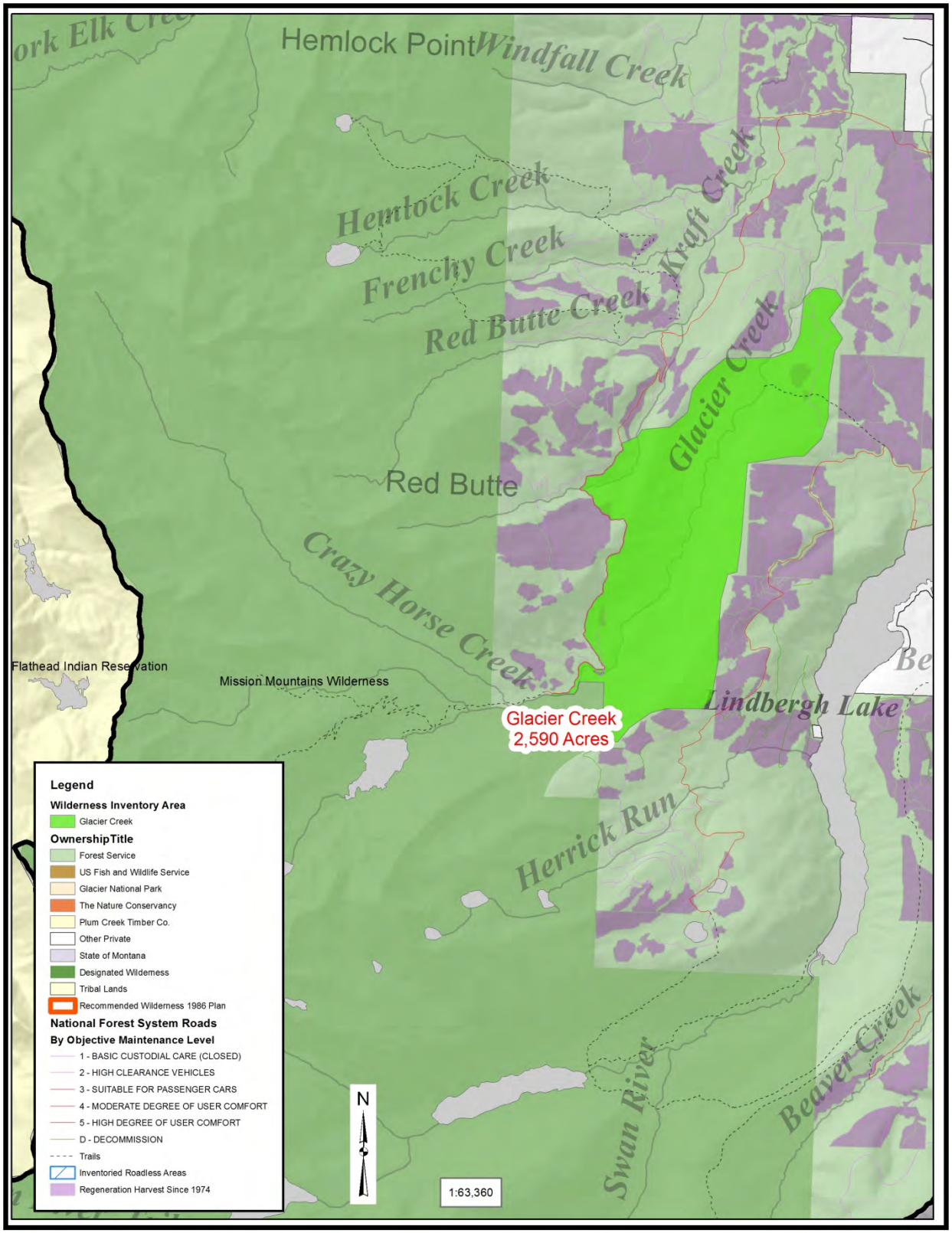


Figure F-12. Glacier Creek wilderness inventory area

Hungry Horse Reservoir East Area

A total of 36,935 acres was included in the Hungry Horse Reservoir East wilderness inventory area. This area is located on the Spotted Bear and Hungry Horse–Glacier View Ranger District. Figure F-13 shows the Hungry Horse Reservoir East wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 78% Douglas-fir, subalpine fir, larch, lodgepole pine; common types on the Flathead NF. About 20% high elevation is sparse vegetation types, supporting whitebark pine in some areas.

Potential vegetation types: cool/cold types dominate, supporting typical mixed conifer forests. There are some smaller pockets of warm dry types (ponderosa pine/Douglas-fir) and warm moist grand fir types in the inventory area. There is no substantial ponderosa pine or western red cedar in the area.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-89. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	90%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	99%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. There has been past harvest units on 3,878 acres as well as associated road building/skid trails in the area along the western edge of the area that include areas of concentrated harvest activity. Forest composition, structure, patterns in harvest areas

have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~60% of area burned 1903-1929). There are substantial areas that were prescribed burned from 1998 to 2014 to create more diverse forest structure, improve habitat and whitebark pine regeneration, and reduce fuel loadings. There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

There are weeds present along most roads, within and adjacent to area, especially large concentration in the Murray/Deep Creek area. There is moderate probability of weeds within the area, particularly near roads.

This area contains numerous watersheds. There are no bull trout populations within this area and westslope cutthroat trout are abundant and populations are pure. There are no aquatic invasive species within this area.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-90. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable.	Most harvest occurred in the 1950s and 60s on gentle slopes. These harvest areas are now densely stocked with trees, shrubs, and not visible. In most cases, the associated historic road templates and skid trails are not evident from mid- or background view, and those on gentle slopes. A few areas (e.g., Emery, Margaret, Tiger, Unawah, Deadhorse creeks) have units on steep slopes, where some road templates are still visible in foreground view.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	Baptiste Lookout houses the USFS Baptiste Radio Repeater
Areas of historic mining where impacts are not substantially noticeable.	Baptiste Mine
Areas of mining activity where impacts are not substantially noticeable.	Baptiste Mine
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None

Improvement Type	Extent of departures
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Baptiste Lookout

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-91. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	36,873 acres (100%)
Area and % total available for winter non-motorized opportunity	22,283 acres (60%)

Portions of the inventory area provide for outstanding opportunities for solitude. The majority of the eastern boundary is adjacent to the Great Bear Wilderness. Topography and vegetation provide screening to sights and sounds. About 75% of the area is within an inventoried roadless area (IRA) (Bear-Marshall-Scapegoat-Swan IRA #1485). As you move downslope towards the Hungry Horse Reservoir, there may be more sights and sounds from the reservoir and the Hungry Horse Road that may be pervasive during peak summer time use. The very northern portion of the area is adjacent to US HWY 2 and adjacent to a private airstrip (Ryan Field). There are 4 miles of over-snow routes and 40% of the area is open to over-snow vehicles which may influence solitude but not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-92. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive classes for summer recreation opportunity spectrum.	30,691 acres (83%)
Acres and % total of primitive and semi-primitive classes for winter recreation opportunity spectrum.	21,822 acres (59%)

Describe the types of primitive recreation activities in the area.

Primitive recreation opportunities in the area include hiking, backpacking, horseback riding, fishing, hunting, and gathering forest products such as huckleberries. Winter recreation opportunities include cross country skiing, snowshoeing and backcountry skiing. There is 15 miles of non-motorized trails for hiking and horseback riding.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-93. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	15 miles (16%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is about 300 acres of mapped existing whitebark pine dominance type in this area. Substantial area >6,000 feet, extending up to 7,400 feet elevation, which is suitable and favorable habitat for whitebark pine. About 1,300 acres mapped whitebark pine potential vegetation type. Genetically superior whitebark pine trees are identified on Desert Mountain and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	One unoccupied pond, 0.8 acres
Minimally represented or rare vegetation types in region[6]	The presence of 2 rare plants: *Botrychium sp.* (Moonworts), *Mimulus ampliatus* (Stalk-leaved Monkeyflower) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	10,398 acres (28%) of level 3/4
Acres of key conservation areas for wolverine[8]	11,749 acres (32%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	1,955 acres (5%) of habitat.
Narrative of coarse scale key connectivity for multiple species[10]	Low-high for wolverine, moderate for grizzly bear, moderate for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-94. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	32,973 acres (89%)

Measures	Outcome
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72 75	5,733 acres (16%)

Describe if there are any caves or unique geologic features in the area.

No know cave resources or unique geologic features within the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

Baptiste Lookout.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout in Hungry Horse Reservoir and pure westslope cutthroat trout throughout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-95. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

Whitebark pine plus trees[1] identified which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-96. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Long and narrow and adjacent on the eastern boundary to the Great Bear Wilderness. Portions of the western boundary are adjacent to previously harvested areas and roads.

Measures	Outcome
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 21 Great Bear Wilderness is adjacent to the inventory area. MA 15 timber lands that have previous harvested areas and roads. To the north are private lands with residential homes and a private airstrip (Ryan Field).
Describe the current management of the area.	8 miles closed roads; 25 miles decommissioned or historical roads; 15 miles terra[11] trails (0 miles motorized); 4 miles motorized over-snow routes; 14,652 acres (40%) allow motorized over-snow. 1% MA 1 (non-forested); 33% MA 2 (unroaded); 7% MA 12/17 (riparian habitat); 24% MA13 (timberlands an mule deer/elk winter habitat; 34% MA 15/16 (timberlands);
Acres and % total of wildland urban interface in the area.	3,537 acres (10%)
Type and extent of management restrictions within the area.	No bull trout critical habitat. 35,991 acres (97%) of lynx critical habitat 29,548 acres (80%) of grizzly bear security core 27,565 acres (75%) of Bear-Marshall-Scapegoat-Swan inventoried roadless area #1485

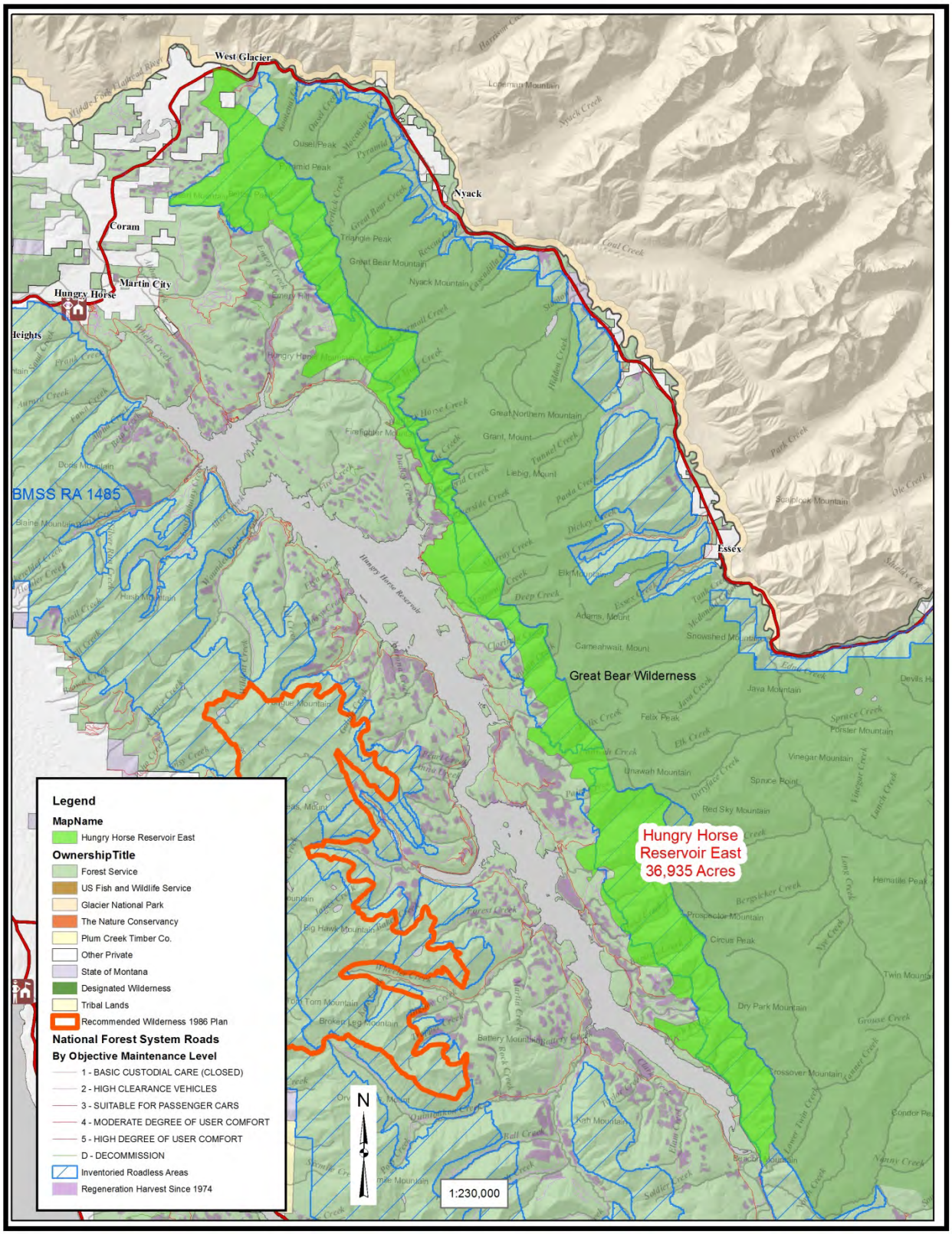


Figure F-13. Hungry Horse Reservoir East wilderness inventory area

Hungry Horse Reservoir West Area

A total of 178,435 acres was included in the Hungry Horse Reservoir West wilderness inventory area. This area is located on the Hungry Horse–Glacier View, Spotted Bear and Swan Lake Ranger Districts. Figure F-14 shows the Hungry Horse Reservoir West wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 85% subalpine fir, Douglas-fir, larch and lodgepole pine; common types on the Flathead NF. About 15% of the area is in high elevation sparse vegetation and avalanche chutes.

Potential vegetation types: cool/cold types dominate, supporting typical mixed conifer forests. There are substantial areas of warm moist grand fir, cedar, western hemlock, and western white pine types; and warm dry Douglas-fir/ponderosa pine types in lower elevations facing into the Flathead Valley (west side of inventory area).

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-97. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	92%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

The Brown-headed cowbird at survey point in southwest portion of area is the only non-native or parasitic wildlife species present. Past harvest units (15,131 acres), are throughout area in lower/mid

elevations with several relatively small areas of concentrated past harvest activity. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~20% of area burned 1910-1929; ~11% recent fire, most in 2003). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

There are weeds present along most roads. There is a low probability of weeds within most remaining area - remote, moist/cold sites with the exception in areas adjacent to Flathead Valley, where weed infestations on private lands exist.

There are numerous watersheds within this area. There are no aquatic invasive species. Bull trout are present in Wounded Buck, Sullivan, Quintonkon, and Bunker creeks. Pure westslope cutthroat trout exist throughout the area.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-98. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Most harvesting occurred in the 1950s and 1960s and mostly on gentle slopes in bottom of drainages. These are fully reforested, and not visibly except for some of the associated road templates and skid trails/jammer roads. These are noticeable in foreground in some areas (e.g., Connor Creek), less evident in mid or background views. The exception is in recently burned areas (Quintonkin and Sullivan creeks), where fire has exposed existing/historic roads templates. The majority of road templates in some areas (especially steeper slopes) are evident on the landscape.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	MT Aeneas electronic site on the edge of Jewel Basin.
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None

Improvement Type	Extent of departures
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Historic Native American travel corridor through Jewel Basin and near Sullivan Creek. Pioneer and Battery Mountain Lookout remains. Existing Trinkus FS guard station structure. Crevice FS Guard Station remains.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-99. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	177,604 acres (100%)
Area and % total available for winter non-motorized opportunity	40,477 acres (23%)

There are portions of this inventory area that provide for outstanding opportunities for solitude; especially as you leave the western boundary as almost the entire western boundary of the area is adjacent to private land. In this area, the sights of human activities and settlements may influence solitude from the area in the west but is not pervasive. About 79% of the area is with an inventoried roadless area (IRA) (Bear-Marshall-Scapegoat-Swan IRA #1485).

The Jewel Basin Hiking Area is in a portion of this inventory area and has been managed as wilderness, therefore providing outstanding opportunities for solitude. Some mainline trails have high use but there are many opportunities off mainline trails for solitude.

In the winter, there is 67 miles of over-snow routes and about 77% of the inventory area is open to over-snow vehicle use. This may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-100. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	136,896 acres (77%)

Measures	Outcome
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	39,953 acres (22%)

Primitive recreation opportunities in the area include hiking, backpacking, horseback riding, hunting, fishing, forest product gathering, cross country skiing, snowshoeing, and backcountry skiing. There are numerous alpine lakes in this area, mostly in the Jewel Basin Hiking Area, that offer recreation opportunities in an alpine lake environment. This area also offers hiking and horseback riding along almost the entire Swan Crest on Trail # 7. There are 223 miles of terra[11] trails (132 miles non-motorized use).

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-101. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	71 miles (14%)
Acres of whitebark pine whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	Though only 300 acres of mapped existing whitebark pine, there are many thousands of acres of area potentially capable of supporting whitebark pine. As well as a substantial amount of high, sparsely vegetated, harsh sites that are favored by whitebark pine. Nearly 20,000 acres of mapped whitebark pine potential veg. type. Genetically superior whitebark pine plus trees[1] are identified in head end of Beta/Doris Creek, and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	*The presence of the following rare plants:* *Callicladium haldanianum* (Callicladium moss), *Epipactis gigantea* (Giant Helleborine), *Collema curtisporum* (Jelly Lichen), *Lobaria hallii* (A Lichen), *Cypripedium parviflorum* (Small Yellow Lady's-slipper), *Aloina brevirostris* (Aloina moss), *Ambloyodon dealbatus* (Ambloyodon moss), *Castilleja cervina* (Deer Indian Paintbrush), *Asplenium trichomanes* (Maidenhair Spleenwort), *Lathyrus bijugatus* (Latah Tule Pea) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.

Measures	Outcome
Species richness % of total acreage[7]	33,678 acres (19%) of level 3/4
Acres of key conservation areas for wolverine[8]	86,229 acres (48%) of very high maternal habitat
Acres of key conservation areas for mountain goat[9]	8,445 acres (5%) of habitat
Narrative of coarse scale key connectivity for multiple species[10]	Portion key for wolverines, high for grizzly bear, Noisy Creek to north end of reservoir high for lynx, southern portion has high radioed lynx use.

Question 3b

Is there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-102. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	134,327 acres (75%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	54,962 acres (31%)

Describe if there are any caves or unique geologic features in the area.

No know cave resources exist within the area. The Jewel Basin Hiking Area exist within this inventory area and has outstanding alpine scenery.

Question 3c

Are there historic or cultural resources of historic value in the area?

There is a historic Native American travel corridor through Jewel Basin and near Sullivan Creek. Pioneer and Battery Mountain lookout remains. There is an existing Trinkus FS guard station structure; Crevice FS Guard Station remains.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-103. Measures for 3e

Measure	Outcome
Acres and % of total of special areas or research natural areas.	Jewel Basin Hiking Area 15,356 acres (9%)

Question 3f

Are there any scientific or education features in the area?

Whitebark pine plus trees[1] identified which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-104. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shaped area. Numerous roads (13) that are not within the area but have a 33 foot buffer on either side of the road that create a cherry stem into the area.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 15 (timberlands), private lands
Describe the current management of the area.	71 miles closed roads; 31 miles decommissioned or historical roads; 223 miles terra[11] trails (91 miles motorized); 67 miles over-snow routes; 137,958 acres (77%) allow motorized over-snow; 1% MA 1 (non-forested lands); 36% MA 2 (unroaded); 7% MA 3 (non-forested); 5% MA 7 (timberlands in high scenic value); 11% MA 11C (grizzly bear); 4% MA12/17 (riparian); 5% MA 13 (timberlands in mule deer and elk winter habitat); 21% MA 15/16 (timberlands); 9% MA 19 (Jewel Basin Hiking Area).
Acres and % total of wildland urban interface in the area.	31,209 acres (17%)
Type and extent of management restrictions within the area.	14 miles of bull trout critical habitat (3 different streams). 174,796 acres (98%) of lynx critical habitat 121,863 acres (68%) of grizzly bear security core 141,624 acres (79%) of Bear-Marshall-Scapegoat-Swan inventoried roadless area #1485

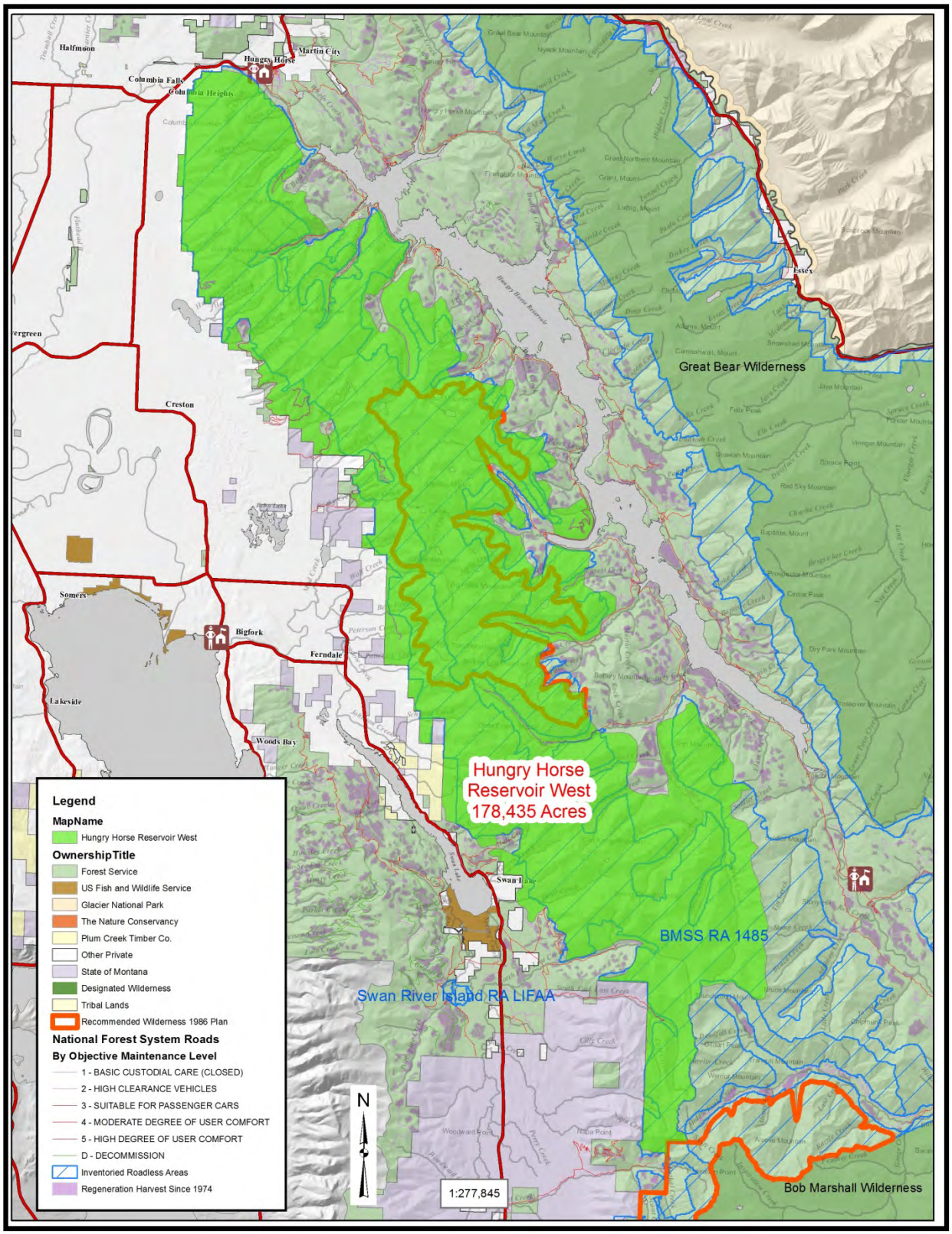


Figure F-14. Hungry Horse Reservoir West wilderness inventory area

Jim Creek Area

A total of 1,509 acres was included in the Jim Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-15 shows the Jim Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 98% subalpine fir, Douglas-fir, western larch, (lodgepole pine), common types on the Flathead NF.

Potential vegetation types: ~60% cool/cold types, supporting mixed conifer forests typical of these types. In the south half there is 38% warm moist primarily cedar vegetation type that likely support forests that contain cedar, and possibly large, old cedar in riparian areas, a relatively rare type on the Flathead NF. The potential also exists for grand fir, western hemlock, and western white pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-105. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	93%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. All roads surrounding the area are known infestations. There is a moderate probability of weeds within area.

Portions of the area have past harvest (112 acres), associated road building and skid trails. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes. There have been no known major fires in the past 120 years. There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary stream in this area is Jim Creek which supports bull trout, westslope cutthroat trout and invasive brook trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-106. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Clearcut/seedtree harvests from 1987 to 2000 are present, all substantially noticeable. Some are small areas/slivers along the boundary of the area, but two units are larger and within the area.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.

Improvement Type	Extent of departures
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-107. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	1,497 acres (99%)
Area and % total available for winter non-motorized opportunity	106 acres (7%)

Portions of this area provide for outstanding opportunities for solitude. The area lends itself to solitude due in the summer to the limited amount of roads in the inventory area; roads that are located within the inventory area are closed yearlong. About 3% is within the Mission Addition inventoried roadless area #01503. The northern section is adjacent to the Mission Mountains Wilderness. There is an abundance of vegetation providing screening to sight.

The northeastern boundary is about ½ mile away from private lands with residential structures. There are 2 miles motorized over-snow routes and about 93% of the area allows motorized over-snow. This could influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-108. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	181 acres (12%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	0 acres (0%)

Describe the types of primitive recreation activities in the area.

Primitive recreation opportunities include hiking, wildlife viewing, backpacking, snowshoeing, backcountry skiing and camping.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-109. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	1 mile (36%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known existing whitebark pine dominance type. Small area (~200 acres) that could potentially support whitebark pine, regions >6,000 feet elevation.
Acres and number of water howellia (listed as threatened species under the ESA) fens and bogs	None
minimally represented or rare vegetation types in region[6]	Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	67 acres (5%) of level 3/4
Acres of key conservation areas for wolverine[8]	308 acres (20%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	High connectivity for wolverines between Mission and Swan Range, key for grizzly bear, NA for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-110. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	1,182 acres (78%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	32 acres (2%)

Describe if there are any unique geologic features in the area.

To our knowledge, no caves are present within the inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. Class 2 watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Jim Creek has been rated as a class 2 watershed due to some impairment.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-111. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-112. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape and narrow. Western boundary is adjacent to the Mission Mountains Wilderness. Southern and northern boundaries follow past harvest units and section lines. Eastern boundary follows section line.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 22 (Mission Mountains Wilderness), MA 15 (timberlands). About ½ mile away from the eastern boundary is private lands with residents.
Describe the current management of the area.	2 miles of closed roads; 2 miles motorized over-snow routes; 1,403 acres (93%) allow motorized over-snow; 9% MA1 (nonforest lands); 2% MA12 (riparian); 89% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	4 acres (<1%)

Measures	Outcome
Type and extent of management restrictions within the area.	1 mile of bull trout critical habitat (1 stream). 1,509 acres (100%) of lynx critical habitat 152 acres (10%) of grizzly security core. 46 acres (3%) of Mission Addition inventoried roadless area #01503

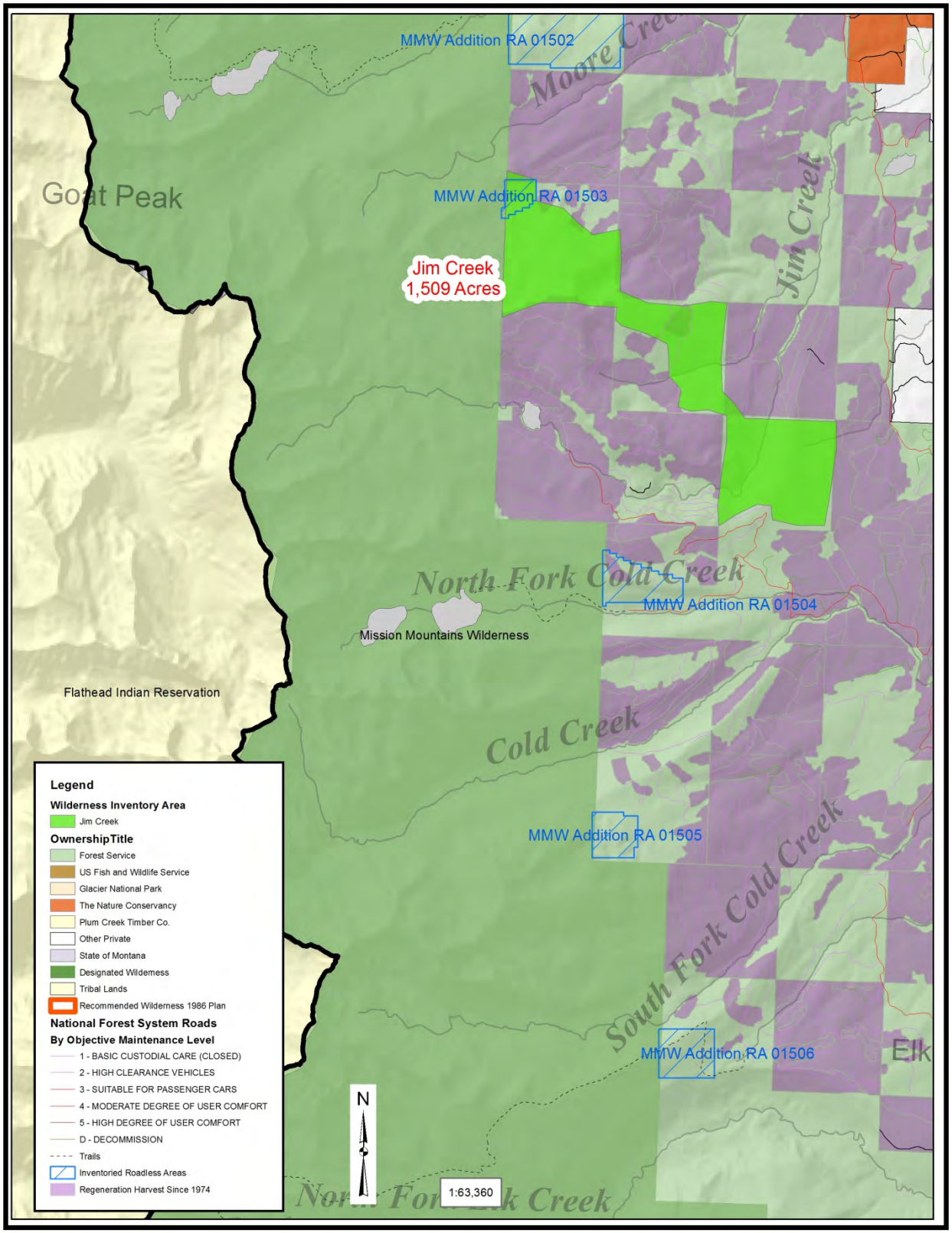


Figure F-15. Jim Creek wilderness inventory area

LeBeau Area

A total of 6,340 acres was included in the LeBeau wilderness inventory area. This area is located on the Tally Lake District. Figure F-16 shows the LeBeau wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 97% Douglas-fir, western larch - common types on the Flathead NF. There is a small amount of dry type (ponderosa pine). Potential vegetation types: 58% warm moist types, capable of supporting cedar but the presence and amount of cedar on these sites is unknown. The potential also exists for grand fir, western hemlock, and western white pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-113: Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	96%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. There is a low amount of past harvest and road building (272 acres). Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire, and there may be some influence on forest conditions due to fire suppression. There are no known major fires in the past 120 years. There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads,

including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g. dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Non-native invasive species limited to roads. There is a low probability of weeds within remaining area - remote, moist/cold sites.

The only stream in the area is Le Beau Creek. The only trout species present is brook trout. There are no other aquatic invasive species.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-114. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable.	Past harvest on very gentle slope, limited roads, fully reforested, not visibly.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	Bonneville powerline just barely comes into the polygon in section 15.
Areas of historic mining where impacts are not substantially noticeable.	Not present
Areas of mining activity where impacts are not substantially noticeable.	Not present
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	Not present
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	Finger Lake Trailhead right on the boundary in section 23
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	Bonneville powerline just barely comes into the polygon in section 15.
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	No past watershed treatments are in this area.
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-115: Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	6,335 acres (100%)
Area and % total available for winter non-motorized opportunity	5,590 acres (88%)

The majority of this inventory area provides outstanding opportunities for solitude. About 98% of the area is within an inventoried roadless area (IRA) (Le Beau IRA). The topography of the Le Beau area is characterized by ridgetops and cliffs formed by glacier scouring. The NE corner of the inventory is adjacent to private lands; the mainline of Burlington RR in less than ¼ mile as well as US highway 93. The combination of topography and vegetation allows for a high degree of screening, and diminishes the noise from Highway 93 on the northern boundary and the Burlington Railroad. In the eastern boundary, the Stillwater State Forest and Upper Stillwater Campground are close to the inventory area which may influence solitude but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-116: Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive classes for summer recreation opportunity spectrum.	5,242 acres (83%)
Acres and % total of primitive and semi-primitive classes for winter recreation opportunity spectrum.	5,668 acres (89%)

Describe the types of primitive recreation activities in the area.

Two non-motorized trails exist in the area and receive moderate use. Finger Lake receives moderate day use in summer and ice fishing use in winter. Fire Lakes and Lagoni Lake receive low use. Most of the area is broken terrain without trails which limits use in the interior of the area. Camping, hiking, fishing and hunting opportunities exist in the area. No winter motorized use on Flathead NF – swimming/cliff jumping at Finger Lake.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-117: Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	2 miles (9%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known or potential whitebark pine sites.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	Includes Toad and Lagoni Lake fens (13 acres)
Minimally represented or rare vegetation types in region[6]	The presence of two rare plants: *Dryopteris cristata* (Crested Shieldfern), *Scheuchzeria palustris* (Pod Grass) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	No acres of level 3/4.
Acres of key conservation areas for wolverine[8]	None
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	Not applicable for wolverine, high for grizzly bear, not applicable for mountain goat, moderate connectivity for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, caves or geologic features?

Table F-118: Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	3,664 acres (58%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	0 acres

Describe if there are any unique geologic features in the area.

This area has obvious evidence of glacial activity with glacial grooves and striations on cliffs and exposed ridge tops in the area. There is a large amount of limestone bedrock in the drainages. Large canyons in the area are often bordered by rock cliffs of sandstone, mudstone and limestone. The highest point in the area is Ketowke Mountain at 5,635 feet on the western boundary.

Question 3c

Are there historic or cultural resources of historic value in the area?

None.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area only supports brook trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-119: Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	Le Beau RNA is 5,709 acres; 401 acres on the Kootenai NF, 5,308 acres on the Flathead NF. 84% of this inventory area on the Flathead NF is composed of the LeBeau Research Natural Area.

Question 3f

Are there any scientific or education features in the area?

Le Beau Research Natural Area provides representation of 3 habitat types targeted for representation: Abies grandis/Clintonia uniflora, Thuja plicata/Clintonia uniflora and Picea/Clintonia uniflora.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-120: Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	The shape and configuration is a solid oblong with small nodes on the eastern border. The eastern border of the area is adjacent to the Stillwater State Forest; the northern eastern border is adjacent to private land and the railroad. Highway 93 is within ½ mile. The Northwestern border and western border is adjacent to the Kootenai National Forest.
Describe if there are any legally established rights or uses within the area.	The establishment of the Research Natural Area establishment requested that the Research Natural Area land be removed from mineral entry.
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	½ boundary adjoins the Kootenai NF
Describe the current management of the area.	2 miles closed roads; 3 miles terra[11] trails (0 miles motorized); 1 mile of motorized over-snow routes; 750 acres (12%) allow motorized over-snow. 5% MA 2 (unroaded lands); 75% MA 3A (research natural areas); 12% MA12/17 (riparian); 7% MA 15 (timberlands).

Measures	Outcome
Acres and % total of wildland urban interface in the area.	2,187 acres (34%)
Type and extent of management restrictions within the area.	Le Beau is not in the NCDE. 24 acres of bull trout critical habitat (part of Upper Stillwater Lake). 5,219 acres (82%) of critical lynx habitat. 6,210 acres (98%) is in the Le Beau inventoried roadless area.

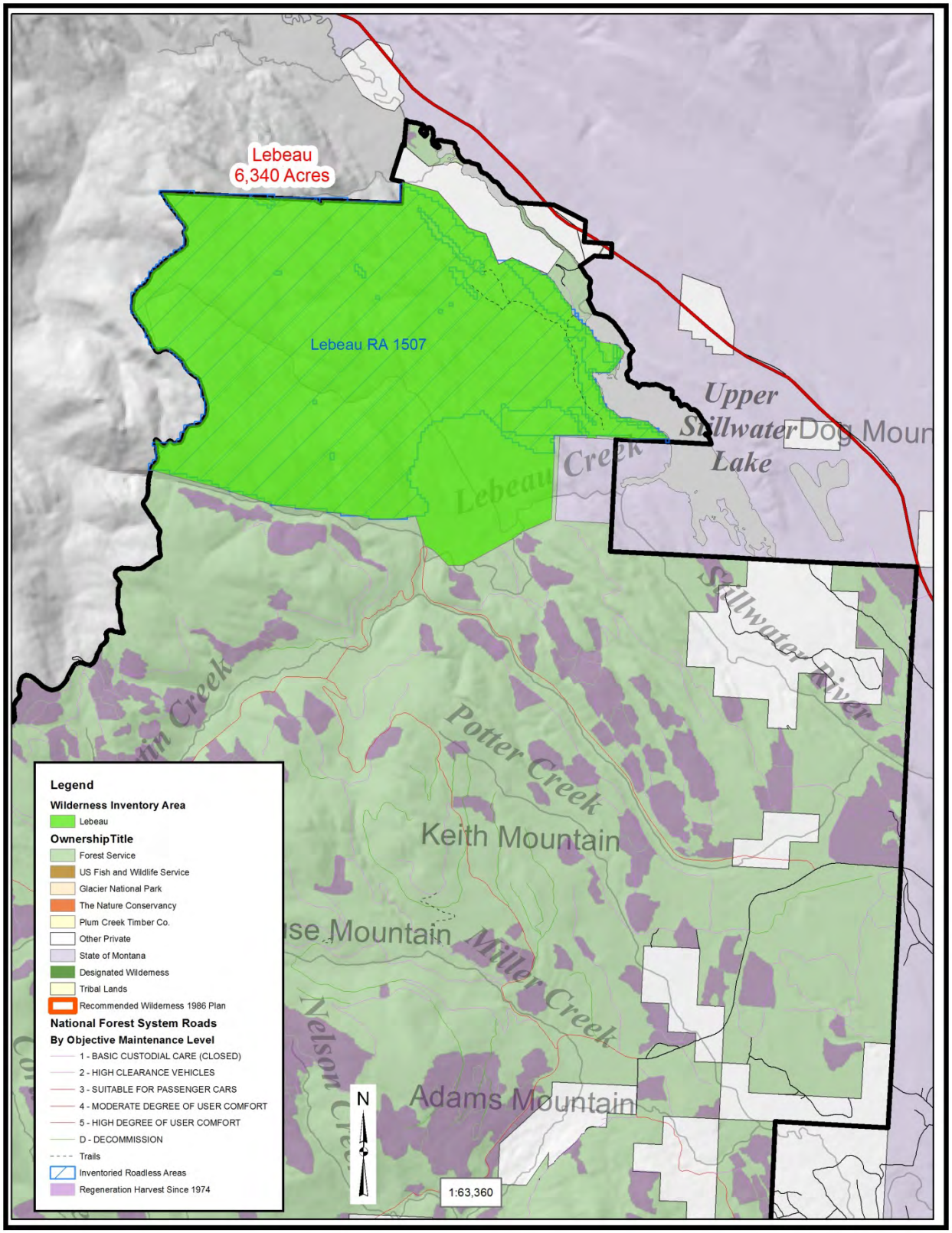


Figure F-16. LeBeau wilderness inventory area

Lindbergh Lake Area

A total of 1,019 acres was included in the Lindbergh Lake wilderness area. This area is located on the Swan Lake Ranger District. Figure F-17 shows the Lindbergh Lake wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 96% Douglas-fir, lodgepole pine, common types on the Flathead NF. Potential vegetation types: cool, moist types, supporting typical mixed conifer forests.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-121. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	94%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds within the area.

There is a low amount of past harvest (62 acres) and road building. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area primarily affected by natural ecological processes, including fire (~66% burned in 1919, no recent fires). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be

lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

The primary watersheds in this area are Lindbergh Lake and Beaver Creek. Lindbergh Lake has recently been invaded by lake trout while Beaver Creek supports brook trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-122. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Small amount of harvest has occurred, mostly in the early 1970s, except for one unit in 2000. Harvest occurred on gentle slopes and ridgetop along southeast boundary of area. The 1970s units are fully reforested and not visible. The 2000 unit is substantially noticeable.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-123. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	1,012 acres (99%)
Area and % total available for winter non-motorized opportunity	749 acres (74%)

Portions of this area provide for very high opportunities for solitude. The area is heavily wooded and steep, buffering some sights and sounds of Lindbergh Lake. The very north boundary is adjacent to private property with numerous residents. Western boundary is adjacent to Lindbergh Lake. There is probability of hearing motor boats and residential noise during the summer.

There is 1 mile of motorized over-snow routes and about 27% of the area allows motorized over-snow which may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-124. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	441 acres (43%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	442 acres (43%)

Describe the types of primitive recreation activities in the area.

Primitive activities include hiking, fishing, camping, hunting and wildlife viewing. Area is heavily wooded and steep sloped. There are 3 miles terra[11] trails.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-125. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	<1 mile (<1%)

Measures	Outcome
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known existing whitebark pine and no potential whitebark pine habitat.
Acres and number of water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	159 acres (16%) of level 3/4
Acres of key conservation areas for wolverine[8]	None
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	Not applicable for wolverines, key for grizzly bear, Not applicable for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-126. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	730 acres (72%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	0 acres

Describe if there are any unique geologic features in the area.

To our knowledge, no caves are present in the inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and westslope cutthroat trout in Lindbergh Lake. The area has been assessed for watershed conditions under the watershed condition framework. Class 2 watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Beaver Creek is a class 2 watershed due to some impairment.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-127. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-128. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. A portion of the western boundary is adjacent to Lindbergh Lake and a portion is adjacent to the Mission Mountains Wilderness. The eastern boundary follows past harvest units.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2 (unroaded lands), MA 15 (timberlands), MA 11C (grizzly bear habitat), MA 22 (Mission Mountains Wilderness)
Describe the current management of the area.	1 mile of closed roads; 3 miles terra[11] trails (0 miles motorized); 1 mile of motorized over-snow routes; 270 acres (27%) allow motorized over-snow. 43% MA 2 (unroaded lands); 1% MA 12 (riparian); 55% MA 15 (timberlands)
Acres and % total of wildland urban interface in the area.	159 acres (16%)
Type and extent of management restrictions within the area.	8 acres of bull trout critical habitat (part of Lindbergh Lake). 1019 acres (100%) of lynx critical habitat 513 acres (50%) of grizzly bear security core. 0% in inventoried roadless area

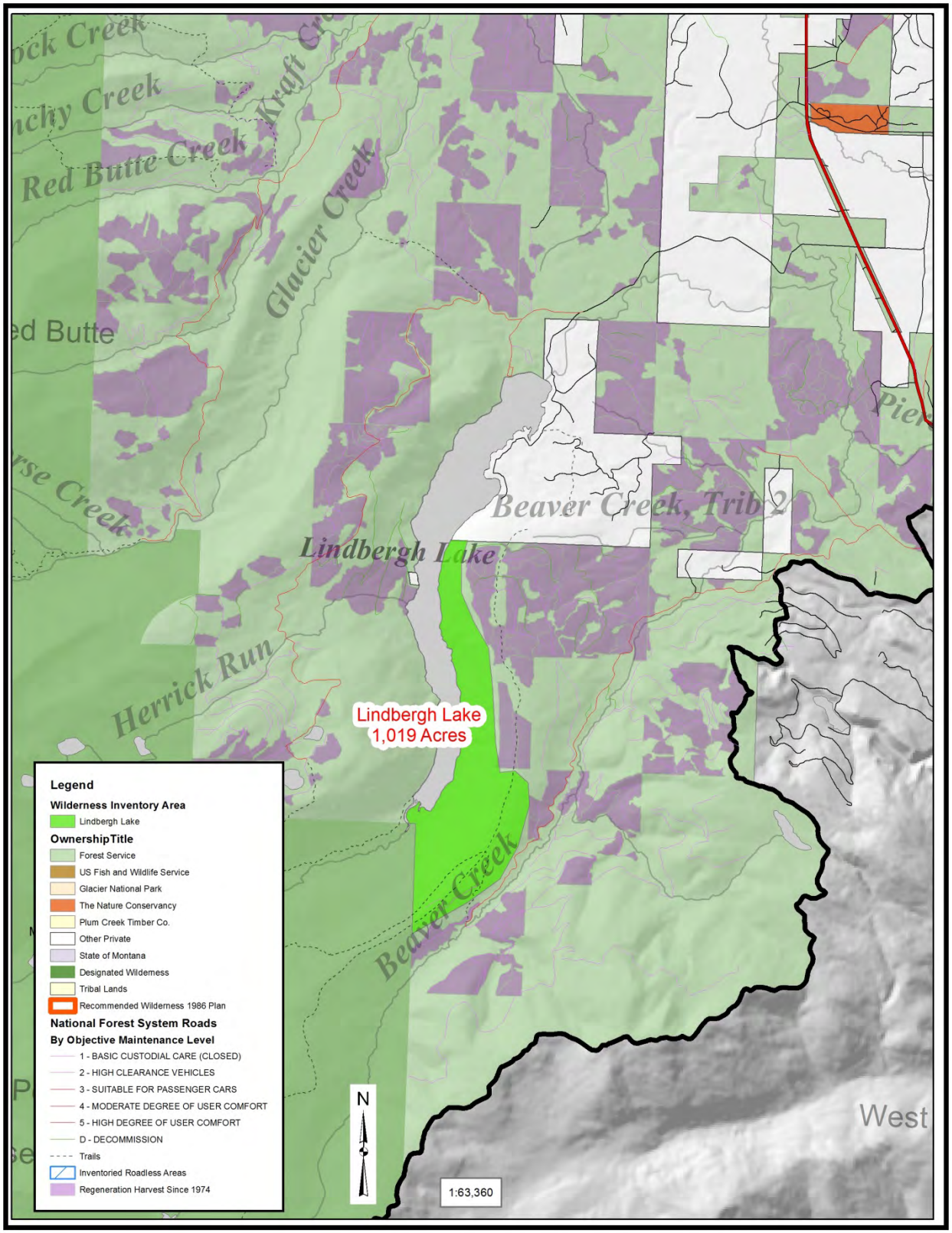


Figure F-17. Lindbergh Lake wilderness inventory area

Meadow Lake Area

A total of 1,033 acres was included in the Meadow Lake wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-18 shows the Meadow Lake wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 99% western larch, Douglas-fir, common types on the Flathead NF. Potential vegetation types: cool moist types, supporting mixed conifer forests typical of this type.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-129. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	82%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	0%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. Past harvest, road building, and skid trails has occurred on 183 acres. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~6% burned 2008). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering. There is a low probability of weeds within the area.

This area primarily contains Lindbergh Lake which has been recently invaded by lake trout. Bull trout and westslope cutthroat trout are present.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-130. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest 1953, on very gentle slopes, densely stocked with trees and fully recovered. Not visibly evident in fore-, mid- or background view.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-131. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	1,033 acres (100%)
Area and % total available for winter non-motorized opportunity	587 acres (57%)

Portions of this inventory area provide for very high opportunities for solitude. The southern boundary is adjacent to the Mission Mountains Wilderness. The eastern boundary is adjacent to Lindbergh Lake. As you get closer to the lake, the sounds of motor boats and residential noise during summer months may influence solitude but would not be pervasive. About 43% of the area is open to over-snow vehicles which may influence solitude during the winter but wouldn't be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-132. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	420 acres (41%)
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	601 acres (58%)

Describe the types of primitive recreation activities in the area.

Primitive activities include hiking, fishing, hunting and wildlife viewing. There is 1 mile of hiking/biking trail.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-133. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	1 mile (79%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is no known existing whitebark pine and no potential whitebark pine habitat.
Acres and number of water howellia fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	<1 acre (<1%) of level 3/4
Acres of key conservation areas for wolverine[8]	None.

Measures	Outcome
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Low for wolverines, key for grizzly bear, NA for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-134. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	733 acres (71%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	None

Describe if there are any unique geologic features in the area.

To our knowledge, no caves or unique geological features present in the inventory area. Views consist of Lindbergh Lake and the Swan Range.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout in Lindbergh Lake. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-135. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-136. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Rectangular in shape, eastern boundary borders Lindbergh Lake. Southern boundary is adjacent to Mission Mountains Wilderness.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2 (unroaded lands), MA 5 (Roaded timberlands with high scenic value), (MA 12 (riparian), MA 15 (timberlands)
Describe the current management of the area.	<1 mile of closed roads; 1 mile of terra[11] trails (0 miles motorized); <1 mile of motorized over-snow routes; 446 acres (43%) allow motorized over-snow. 35% MA 2 (unroaded lands); 37% MA 5 (roaded timberlands of high scenic value); 2% MA 12 (riparian); 26% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	181 acres (18%)
Type and extent of management restrictions within the area.	1 acre of bull trout critical habitat (part of Lindbergh Lake. 1,033 acres (100%) of lynx critical habitat. 667 acres (65%) of grizzly bear core. 0% in inventoried roadless area

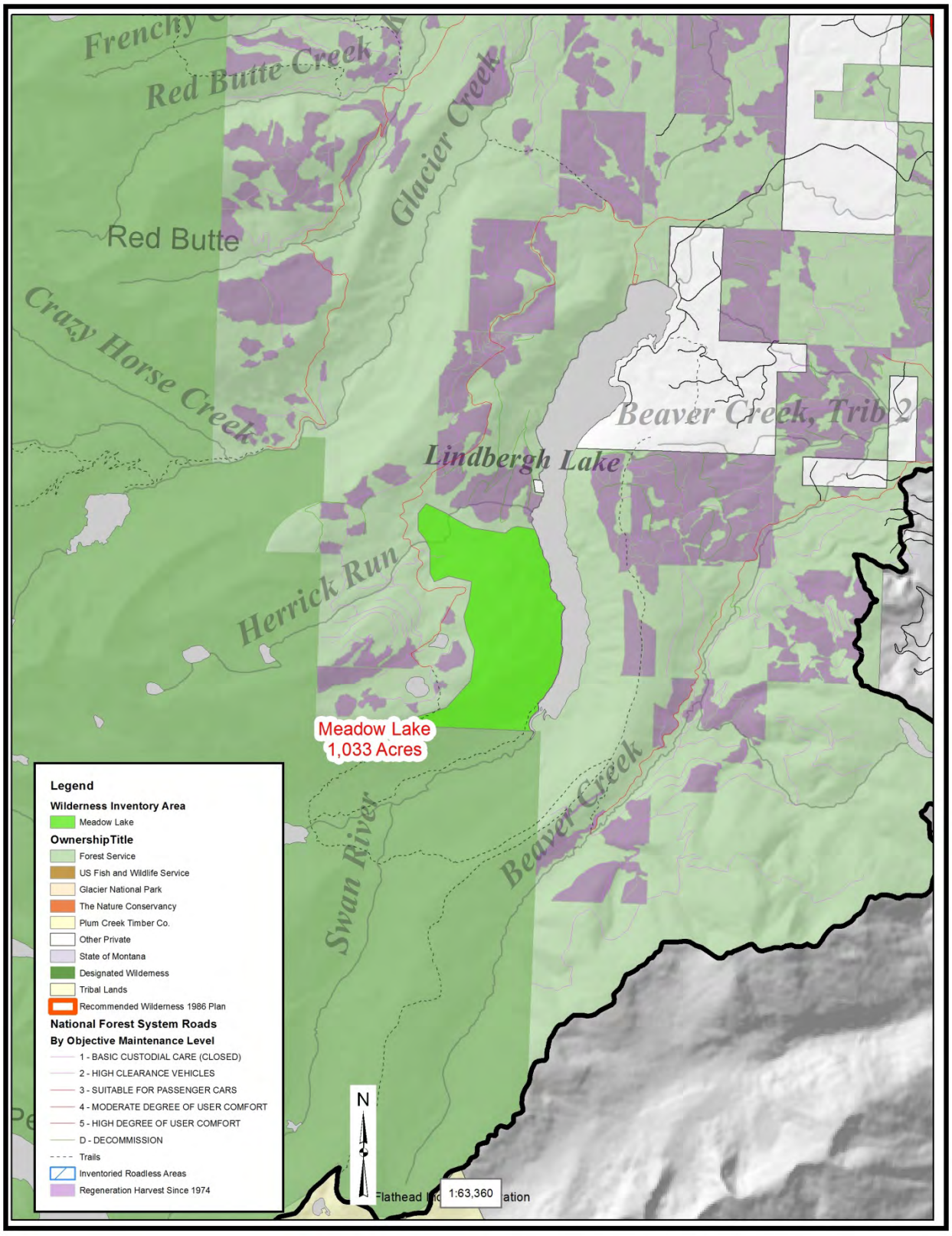


Figure F-18. Meadow Lake wilderness inventory area

North Fork Cold Creek Area

A total of 445 acres was included in the North Fork Cold Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-19 shows the North Fork Cold Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 99% western larch, subalpine fir, Douglas-fir, common types on the Flathead NF. Potential vegetation types: 99% cool moist types the most common type on the Flathead NF, and supports typical diversity of coniferous forest types.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-137. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	47%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	98%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. Past harvest has occurred across half of area (237 acres). Roads and skid trails present from harvesting. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes. There has been no known major fire in the past 120 years. There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be

lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Weeds are limited to roads. There is a moderate probability of weeds in remaining area.

The main stream in this area is North Cold Creek which supports hybridized cutthroat trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-138. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest in the 1960s and 1980s on gentle slopes; densely reforested. Harvested areas not visible.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-139. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	445 acres (100%)
Area and % total available for winter non-motorized opportunity	118 acres (27%)

Portions of this area provide for outstanding opportunity for solitude. The topography consists of very steep slopes down to North Fork of Cold Creek. About 26% of the area is within an inventoried roadless area (IRA) (Mission Addition IRA #01504). Opportunities for solitude in the summer may be influenced by FS Road #9599 (which is buffered out 33 feet on either side creates a cherry stem in the inventory area) but would not be pervasive. The inventory area is open to over-snow vehicles (73%) which may influence opportunities for solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-140. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	2 acres (0%)
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	2 acres (0%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities include hiking, backpacking, wildlife viewing and fishing.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-141. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	1 mile (74%)

Measures	Outcome
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known existing whitebark pine and there is no potential whitebark pine habitat
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	No acres of level 3/4.
Acres of key conservation areas for wolverine[8]	None
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	High connectivity for wolverines between Mission Mountains and Swan Range, key for grizzly bear, NA for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-142. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	320 acres (72%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types17, 54, 55, 72, 75	0 acres

Describe if there are any unique geologic features in the area.

To our knowledge, no caves or unique geologic features are present in the inventory area. There are views to the Swan Valley and Swan Range.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports hybridized westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. Class 2 watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Cold Creek is a class 2 watershed due to some impairment.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-143. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-144. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape, surrounded by NFS lands. The western boundary is adjacent to the Mission Mountains Wilderness. Road 9599 almost completely bisects the inventory area.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 22 (Mission Mountains Wilderness), MA 15 (timberlands)
Describe the current management of the area.	1 mile of closed roads; <1 mile of terra[11] trails (0 miles motorized); 1 mile of motorized over-snow routes; 327 acres (73%) allow motorized over-snow. 100% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	0 acres
Type and extent of management restrictions within the area.	1 mile of bull trout critical habitat (1 stream). 445 acres (100%) of lynx critical habitat 27 acres (6%) of grizzly bear security core. 114 acres (26%) of Mission Addition inventoried roadless area #01504.

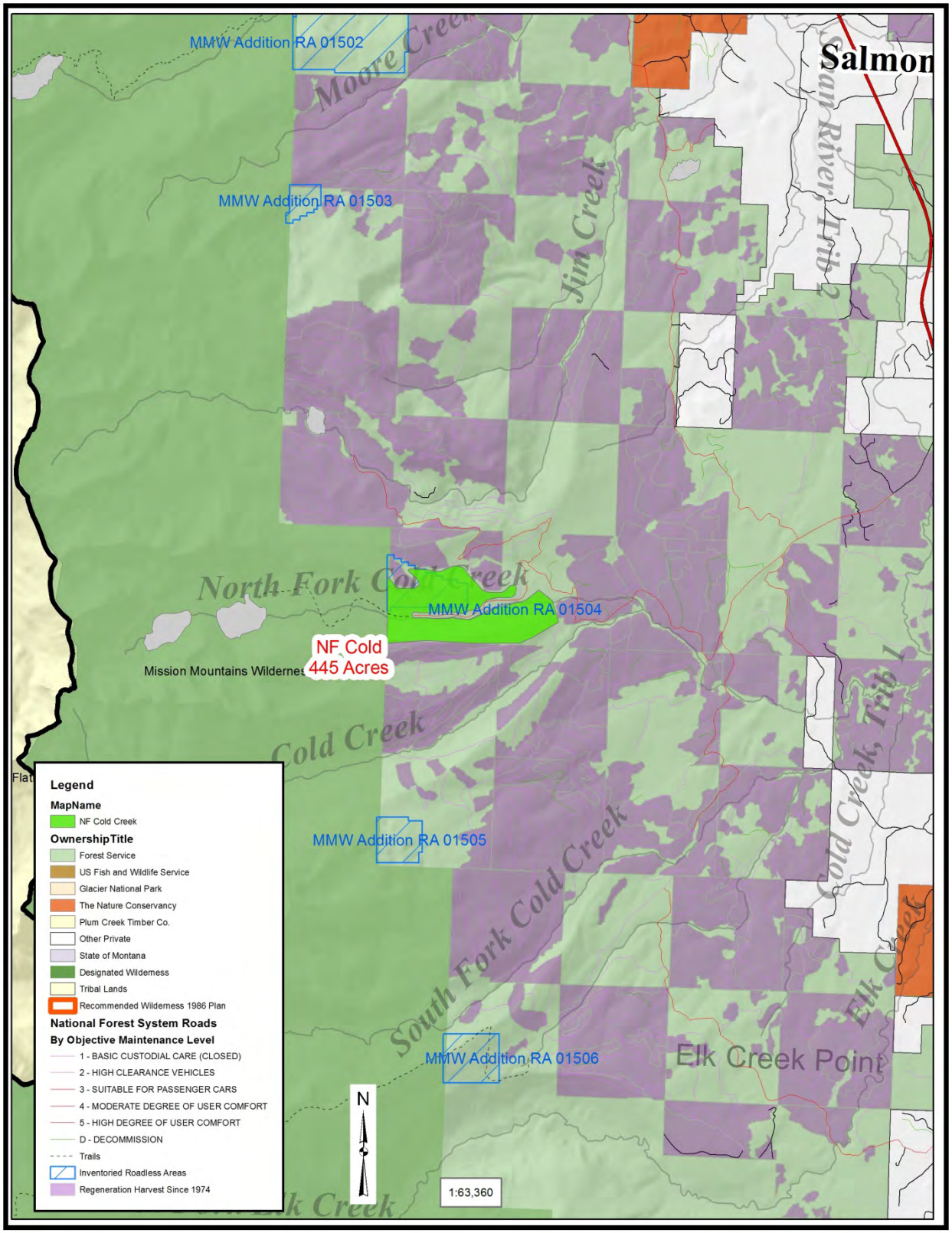


Figure F-19. North Fork Cold Creek wilderness inventory area

Piper Creek Area

A total of 590 acres was included in the Piper Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-20 shows Piper Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation types: 90% larch, lodgepole pine, subalpine fir; common types on the Flathead NF. About 9% (50 acres) is in cedar type, and likely many of these are mature/old stands, a relatively rare type on the Flathead NF.

Potential vegetation types: ~50% cool moist, supporting typical mixed conifer forests. Elevations extend down to 4,400 feet, and large portion of the area (50%) is in warm moist cedar potential veg types, capable of supporting western red cedar. It is unknown how much cedar currently exists on these sites. The potential also exists for grand fir, western hemlock, and western white pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-145. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	100%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	0%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

No non-native or parasitic wildlife species present. No past harvest or road building has occurred in this area. Vegetation reflects the influence of natural processes. There is no known major fire in past 120

years. No known weed infestations within area; infestations on roads surrounding the area. There is a low to moderate probability of weeds within the area from these roads.

The main stream in this area is Piper Creek which supports bull trout, westslope cutthroat trout and invasive brook trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-146. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable.	No past harvest or road building
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-147. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity)	590 acres (100%)
Area and % total available for winter non-motorized opportunity	130 acres (22%)

This area provides for outstanding opportunities for solitude as it is unroaded with one hiking trail (Piper Creek Trail #119) that traverses through the area. It is adjacent to the Mission Mountains Wilderness on the entire west boundary. About 98% of the area is within the in Mission Addition inventoried roadless area (IRA) # 01502.

In the winter, about 78% of the area is open to over-snow vehicle use, which may influence the solitude of the area but not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-148. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	352 acres (60%)
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	126 acres (21%)

Primitive recreation activities are hiking, backpacking, wildlife viewing, and fishing.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-149. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	1 mile (100%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	No known existing whitebark pine, no potential whitebark pine habitat.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	1 acre (<1%) of level 3/4

Measures	Outcome
Acres of key conservation areas for wolverine[8]	None.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	High connectivity for wolverines between Mission and Swan Range, low for grizzly bear, NA for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-150. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	483 acres (82%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 77	62 acres (11%)

Describe if there are any unique geologic features in the area.

To our knowledge, there are no caves or unique geologic features are present in the inventory area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-151. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-152. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	A section (26) adjacent to the Mission Mountains Wilderness on the west boundary. Adjacent on NFS lands on the 3 other boundaries.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2 (unroaded lands), MA 15 (timberlands), MA 22 (Mission Mountains Wilderness)
Describe the current management of the area.	no roads; 1 mile of terra[11] trails (0 miles motorized); 0 miles motorized over-snow routes; 459 acres (78%) allow motorized over-snow; 10% MA1 (non-forested); 22% MA 2 (unroaded lands); 68% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	0 acres
Type and extent of management restrictions within the area.	1 mile of bull trout critical habitat (1 stream). 590 acres (100%) of lynx critical habitat 308 acres (52%) of grizzly bear security core 579 acres (98%) in Mission Addition inventoried roadless area # 01502

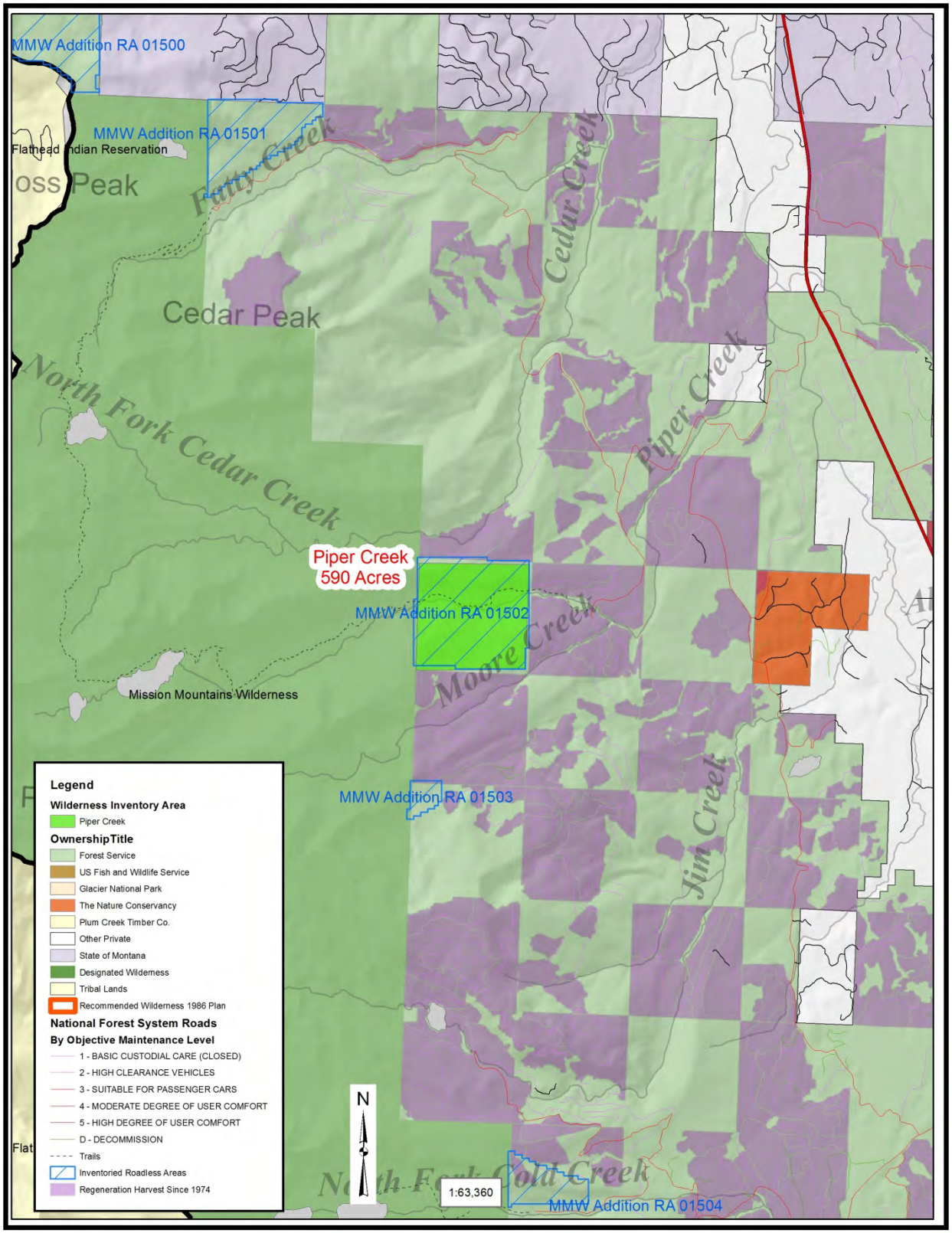


Figure F-20. Piper Creek wilderness inventory area

Puzzle Area

A total of 24,110 acres was included in the Puzzle wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-21 shows the Puzzle wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 95% lodgepole pine, subalpine fir - common types on the Flathead NF. About 5% of the area is in high elevation sparse vegetation types.

Potential vegetation types: cool/cold types dominate, supporting typical mixed conifer forests. There is a large amount of high elevation sites that is suitable for whitebark pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-153. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	93%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are three non-native or parasitic species observed in area: the house sparrow, Brown-headed cowbird, and rock pigeon at northeast survey point. Past harvest units have occurred on 1,698 acres; concentrated in Skyland and Puzzle Creeks, and along edge of area in Challenge and Granite Creeks. The Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~5% burned 191; ~31% recently burned 1998-2011). There is long term human-caused

departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Weeds are limited to roads. There is a low probability of weeds in most of area, with exception of Skyland Creek burn area, which is adjacent to road infestations.

Puzzle, Granite, Challenge and Skyland are the main watersheds in this area. There are no aquatic invasive species in these watersheds. Bull trout and pure westslope cutthroat trout populations exist throughout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-154. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvests occurred mostly in the early 1970s on gentle to moderate slopes. Most of the harvested areas have reforested except in parts of recent burns, specifically in Skyland Creek. Harvest areas are not visible and associated roads templates and skid trails not evident from mid- or background view. The exception may be in parts of recently burned area (lower reaches of Skyland Creek) and on steeper ground, where roads are evident in foreground view (Skyland Creek and Morrison Creek).
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None. There is a proposal to move the Patrol Ridge repeater to the southwest of its current location towards the wilderness boundary. This would be within the area if it happens.
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Small slivers of the Badger-Two Medicine Traditional Cultural District extend into this area. Remains of a historic fire camp from early 1920s or 1930s.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-155. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	24,019 acres (100%)
Area and % total available for winter non-motorized opportunity	15,756 acres (65%)

Portions of this area provide for outstanding opportunity for solitude. About 84% of the area is with the Bear-Marshall-Scapegoat-Swan inventoried roadless area (IRA) #1485. The area is adjacent to the Great Bear Wilderness in the south and the Badger-Two Medicine on the Lewis and Clark to the east. Elevations in the area range from 7,610 feet on Elkcalf Mountain to around 4,800 feet in the valley bottom. The area includes Slippery Bill Mountain, Square Mountain and the Puzzle Hills. Sights and sounds of human activities are only noticeable in the northern reaches of the area. The area is adjacent to US Hwy 2 in the north which may influence solitude but would not be pervasive.

There are 11 miles motorized over-snow routes and 35% of the area allows motorized over-snow which may influence solitude but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-156. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	19,251 acres (80%)
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	14,391 acres (60%)

Primitive recreation activities include hiking, backpacking, horseback riding, hunting, fishing, forest product gathering, cross country skiing and backcountry skiing. There are 22 miles terra[11] trails (4 miles motorized).

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-157. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	12 miles (18%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is no existing whitebark pine dominance type, but several thousand acres of sites potentially suitable for whitebark pine. There is about 5,200 acres mapped whitebark pine potential vegetation type. Genetically superior whitebark pine trees are identified on Puzzle Hills and provide seed for whitebark pine tree improvement and restoration programs. There are 53 acres of whitebark pine plantations in Skyland Creek planted as part of restoration program. There is a test plantation planned for establishment in 2017 in Skyland Creek, as part of tree improvement and whitebark pine restoration program and development of blister rust resistant whitebark pine.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	Presence of 2 rare plants*:* *Draba densifolia* (Dense-leaf Draba), *Polygonum austiniae* (Austin's Knotweed)
Species richness % of total acreage[7]	16,800 acres (70%) of level 3/4
Acres of key conservation areas for wolverine[8]	12,227 acres (51%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	1,783 acres (7%) of habitat.
Narrative of coarse scale key connectivity for multiple species[10]	High ranking for wolverine, high ranking for grizzly, and low for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-158. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	6,342 acres (26%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55 72, 75	5,612 acres (23%)

Describe if there are any unique geologic features in the area.

There are no known caves or unique geologic resources in the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

Small slivers of the Badger-Two Medicine Traditional Cultural District extend into this area. The remains of a historic fire camp from early 1920s or 1930s.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-159. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

There are whitebark pine plus trees[1] identified, whitebark pine plantations, and planned establishment of test plantation, which are features in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-160. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shaped. Southern boundary is adjacent to the Great Bear Wilderness. A portion of the northwest boundary is adjacent to highway 2. The western boundary is adjacent to the Badger-Two Medicine on the Lewis and Clark.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2a (unroaded), MA 12/17 (riparian), MA 15 (Timberlands), MA 21 (Great Bear Wilderness)

Measures	Outcome
Describe the current management of the area.	<1 mile of seasonally open road (RD# 9604 has objective maintenance level 1); 11 miles closed roads; 22 miles terra[11] trails (4 miles motorized); 11 miles motorized over-snow routes; 8,346 acres (35%) allow motorized over-snow. 65% MA 2; 1% MA 7 (timberlands in areas high scenic value; 10% MA 12 (riparian habitat); 24% MA 15/16 (timberlands).
Acres and % total of wildland urban interface in the area.	1,430 acres (6%)
Type and extent of management restrictions within the area.	24,110 acres (100%) of lynx critical habitat 18,052 acres (75%) of grizzly bear security core 20,172 acres (84%) of Bear-Marshall-Scapegoat-Swan inventoried roadless area #1485

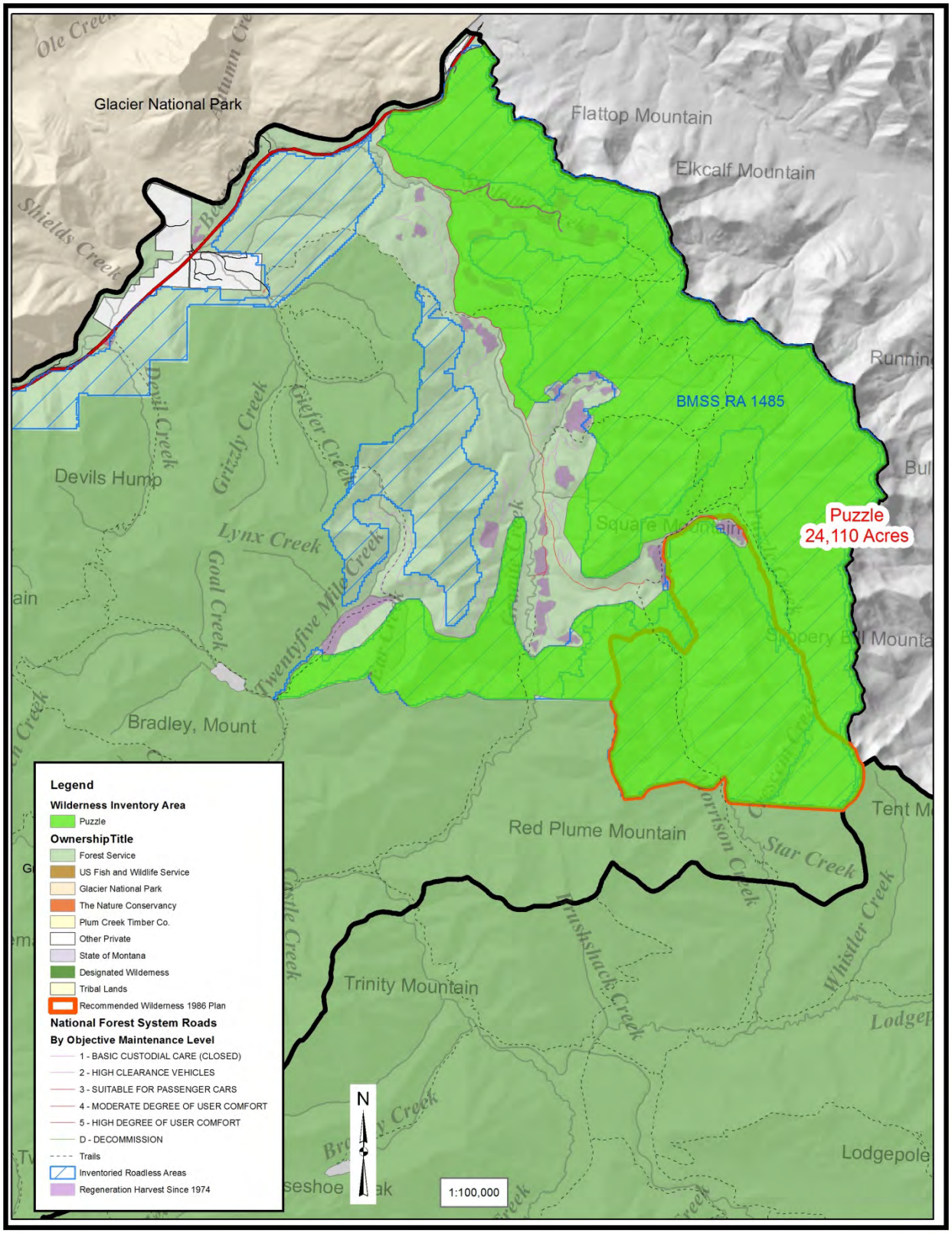


Figure F-21. Puzzle wilderness inventory area

Sky West Area

A total of 6,266 acres was included in the Sky West wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-22 shows the Sky West wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 90% subalpine fir, lodgepole pine; common types on the Flathead NF. About 9% of the inventory area is high elevation sparse vegetation types.

Potential vegetation types: cool/cold types dominate, supporting mixed coniferous forest typical of the sites. High elevation cold types, up to 7,200 feet elevation, could support whitebark pine.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-161. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	90%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. There are several past harvest units, totaling 624 acres, as well as associated roads in the area. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~55% burned 1910-1921; ~25% recently burned 1998-2007). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units,

there may be lingering impacts from equipment use (e.g. dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Weeds in the area are limited to roads. There is a low probability of weeds in area.

Twenty-five Mile Creek is the main watershed within this area and supports westslope cutthroat trout. Bull trout are not present in the Twenty-five Mile Creek due to a barrier near the Middle Fork. There are no aquatic invasive species within this area.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-162. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvests occurred in the early 1970s on gentle to moderate slopes. The harvested areas are now fully reforested in most areas, and not visible. The exception is in steeper parts of area (e.g., Twenty-five Mile Creek) and where recently burned (lower reaches of Skyland Creek), and where major historic road templates and skid trails are visible in the foreground views.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	Patrol Ridge Repeater site is in the far SW part of the area.
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.

Improvement Type	Extent of departures
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-163. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity.	6,235 acres (100%)
Area and % total available for winter non-motorized opportunity	977 acres (16%)

Portions of this area provide outstanding opportunity for solitude; especially as you move away from US Highway 2. About 75% of the area is within inventoried roadless area (IRA) (Bear-Marshall-Scapegoat-Swan IRA # 1485). The majority of the western boundary is adjacent to the Great Bear Wilderness. The northern boundary and the northwest boundary in Geifer Creek are adjacent to US Hwy 2 and private land. The area burned in the Challenge and Skyland Fires.

There are 8 miles motorized over-snow routes and about 84% of the area allows motorized over-snow which may influence solitude but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-164. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive classes for summer recreation opportunity spectrum.	4,788 acres (76%)
Acres and % total of primitive and semi-primitive classes for winter recreation opportunity spectrum.	670 acres (11%)

Primitive recreation opportunities include hiking, backpacking, horseback riding, hunting, fishing, gathering forest product, cross country skiing, snowshoeing, and backcountry skiing. There are 5 miles hiking and biking trails.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-165. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	3 miles (19%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	Minimal acres existing whitebark pine dominance type, though whitebark pine is present. About 1,600 acres mapped whitebark pine potential vegetation type. Genetically superior whitebark pine plus trees trees[1] are identified, and provide seed for whitebark pine tree improvement and restoration programs.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	5,411 acres (86%) of level 3/4
Acres of key conservation areas for wolverine[8]	2,670 acres (43%) of very high maternal habitat
Acres of key conservation areas for mountain goat[9]	10 acres (<1%) of habitat
Narrative of coarse scale key connectivity for multiple species[10]	High ranking for wolverine, high ranking for grizzly, low for lynx travel, very high radioed lynx use.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-166. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	3,864 acres (62%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	2,190 acres (35%)

Describe if there are any unique geologic features in the area.

There are no known cave resources in the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

None.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-167. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

There are whitebark pine plus trees[1] identified which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-168. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Borders the Great Bear Wilderness on the western border. The eastern border is adjacent to NFS lands. The northern boundary is along US Highway 2.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2a (unroaded lands), MA 12 (riparian area),MA 15a/ MA 16a (timberlands on sensitive soils)
Describe the current management of the area.	5 miles closed roads; 5 miles terra[11] trails (0 miles motorized); 8 miles motorized over-snow routes; 5,290 acres (84%) allow motorized over-snow. 62% MA 2 (unroaded lands); 4% MA5/7 (timberlands with high scenic value; 10% MA 12(riparian); 6% MA13 (timberlands in mule deer and elk winter habitat); 18% MA 15 (timberlands).
Acres and % total of wildland urban interface in the area.	1,976 acres (32%)
Type and extent of management restrictions within the area.	3 miles of bull trout critical habitat (1 stream). 6,267 acres (100%) of lynx critical habitat 4,041 acres (64%) grizzly bear security core 4,671 acres (75%) Bear-Marshall-Scapegoat-Swan inventoried roadless area # 1485

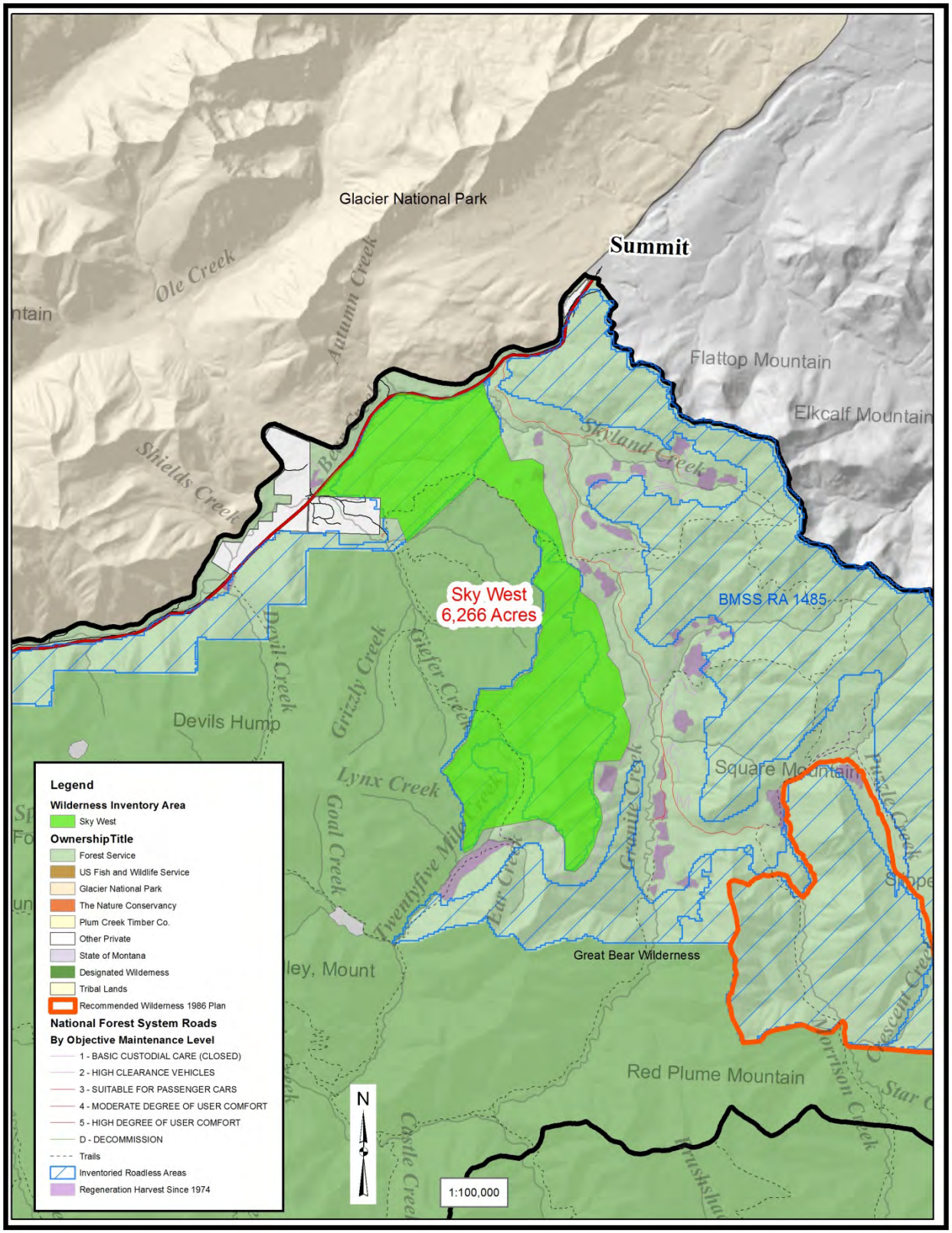


Figure F-22. Sky West wilderness inventory area

Swan Face South Area

A total of 52,958 acres was included in the Swan Face South wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-23 shows the Swan Face South wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: ~70% subalpine fir, lodgepole pine, Douglas-fir, western larch; common types on the Flathead NF. There is about 30% of the area in high elevation sparse vegetation and avalanche chutes.

Potential vegetation types: ~78% cool types, supporting typical mixed conifer forest types. About 12% warm moist (grand fir, cedar, western hemlock, and western white pine) and warm dry (ponderosa pine) and whitebark pine types are in the inventory area. These types could potentially support the more rare forest types for the Flathead NF, specifically cedar, ponderosa pine, whitebark pine and alpine larch. The current presence of these species on these sites is unknown.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-169. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	97%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. There are past harvest areas (1,432 acres), that are limited to Barber, Buck, Owl Creek. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes; including fire (10% burned 2006-2011, no known fires during 1898-2005). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Weeds are limited to roads. There is some adjacent heavy weed infestations in the Condon and Simpson Creeks area, hence a moderate probability of weeds within area nearest these infestations. There is a low probability of weeds in the majority of the area.

This inventory area contains numerous watersheds. The most important bull trout watersheds are Lion Creek, Squeezer Creek, and Holland Lake. Holland Lake has recently been invaded by lake trout, and brook trout are present throughout the area. Most of the streams in this area also support westslope cutthroat trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-170. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvested in 1965-78, on mostly gentle slopes. Densely stocked with trees. Major road templates and skid trails likely evident in foreground view, especially in 1970s harvested areas and units with steeper slopes.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Existing historic Holland Lake Guard Station. Non-documented American Indian travel corridor over Holland Creek Area.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-171. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	52,919 acres (100%)
Area and % total available for winter non-motorized opportunity	46,272 acres (87%)

Portions of this area provide for outstanding opportunity for solitude. About 86% of the area is within an inventoried roadless area (IRA) (Bear-Marshall-Scapegoat-Swan IRA #1485). Topography consists of mostly steep ridges and a continuous chain of high and often treeless, rugged mountains as the eastern boundary. Among the highest is Holland Peak at 9,356 feet. Below the high peaks is the canyon zone where the streams of the face plunge down narrow bottoms between steep side slopes until they reach the valley floor. Rocks and cliffs prevail in much of the canyon zone. A majority of the topography in the inventory area provides screening of sight and sound.

A portion of the northern section is bordered by Swan River State Forest to the west. The southern portion has private land located within ½ mile of west boundary. The private section adjacent to the west boundary may influence solitude but would not be pervasive.

There are several high use trails in the area (Napa Point, Smith Creek, and Holland Lake Trails) that are access points to the Bob Marshall Wilderness; the Holland Lake Trail is the most used trail into the Bob Marshall Wilderness.

There are 15 miles motorized over-snow routes and 13% of the area allows motorized over-snow which may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-172. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	48,266 acres (91%)

Measures	Outcome
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	44,453 acres (84%)

Dispersed recreation activities in this inventory area include hiking, horseback riding, fishing, and big-game hunting, camping, backpacking, and viewing wildlife. Napa Point, Smith Creek, and Holland Lake Trails are major access points to the Bob Marshall Wilderness. Several outfitters operate in this area from Bond/Trinkus Lake south to Holland Lake. There are 34 miles of hiking trails in the area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; any biodiversity hotspots; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-173. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	16 miles (9%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is about 200 acres of existing whitebark pine dominance type and likely many hundreds more acres where whitebark pine is present on the site. A large portion of area is higher elevation (>6,000 feet, and up to about 8,700 feet elevation) and capable of supporting whitebark pine. Harsh, exposed aspects favored by whitebark pine are plentiful. About 9,800 acres of mapped whitebark pine potential vegetation type. There is 67 acre whitebark pine plantation established in Condon Mountain area, 2013-2014, as part of whitebark pine restoration program.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	Contains part of one known pond <1 acre of a <1acre pond).
Minimally represented or rare vegetation types in region[6]	The presence of the following rare plants*:* *Parmeliella triptophylla* (Lead Lichen), *Grindelia howellii* (Howell's Gumweed), *Cardamine rupicola* (Cliff Toothwort), *Brigantiaea praetermissa* (A Lichen), *Howellia aquatilis* (Water Howellia), *Cypripedium parviflorum* (Small Yellow Lady's Slipper), *Cardamine rupicola* (Cliff Toothwort), *Synthyris canbyi* (Mission Mountains kittentails) Minimally represented species: May support the presence of grand fir, cedar, western hemlock, and western white pine.
Species richness % of total acreage[7]	26,444 acres (50%) of level 3/4.
Acres of key conservation areas for wolverine[8]	36,096 acres (68%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	12,404 acres (23%) of habitat.

Measures	Outcome
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, high for grizzly bear, low for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-174. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	35,437 acres (67%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	20,238 acres (38%)

Describe if there are any caves or unique geologic features in the area.

To our knowledge, there are no caves in the inventory area. Several falls are found in Bond, Lion, Condon, Rumble and Holland Creeks. In the Lion Creek Canyon there is a mature cedar grove. Lion Creek passes through the grove in a series of cascades and falls. Holland Falls is a popular hiking destination at the Holland Lake Area.

Question 3c

Are there historic or cultural resources of historic value in the area?

There is an existing historic Holland Lake Guard Station. Non-documented American Indian travel corridor over Holland Creek Area.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-175. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no education features in the inventory area. There is a whitebark pine plantation established which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-176. Measures for 4

Measures for 4a	Outcome
Describe the shape and configuration of the area.	Long, irregular shape that borders the Bob Marshall Wilderness on the entire east boundary. Western boundary is mostly adjacent to NFS lands and to the north, borders the Swan River State Forest. There is a buffer 33 feet (each side) from the centerline of the Barber Creek Road #905.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 9 (timberlands /whitetailed deer habitat), MA 13 (timberlands/mule deer and elk winter habitat), MA 15 (timberlands),
Describe the current management of the area.	14 miles of closed roads; <1 mile of historical roads; 34 miles terra[11] trails (0 miles motorized); 15 miles motorized over-snow routes; 6,686 acres (13%) allows motorized over-snow. 1% MA 1 (non-forested) ; 80% MA 2 (unroaded); 12% MA 9/13 (timberlands white tailed deer winter habitat); 6% MA15/16 (timberlands)
Acres and % total of wildland urban interface in the area.	6,159 acres (12%)
Type and extent of management restrictions within the area.	3 miles of bull trout critical habitat (3 different streams); <1 acre of bull trout critical habitat (part of Holland Lake, sliver effect from mapping). 52,708 acres (100%) of lynx critical habitat 43,302 acres (82%) of grizzly bear security core. 45,319 acres (86%) of Bear-Marshall-Scapegoat-Swan inventoried roadless area #1485

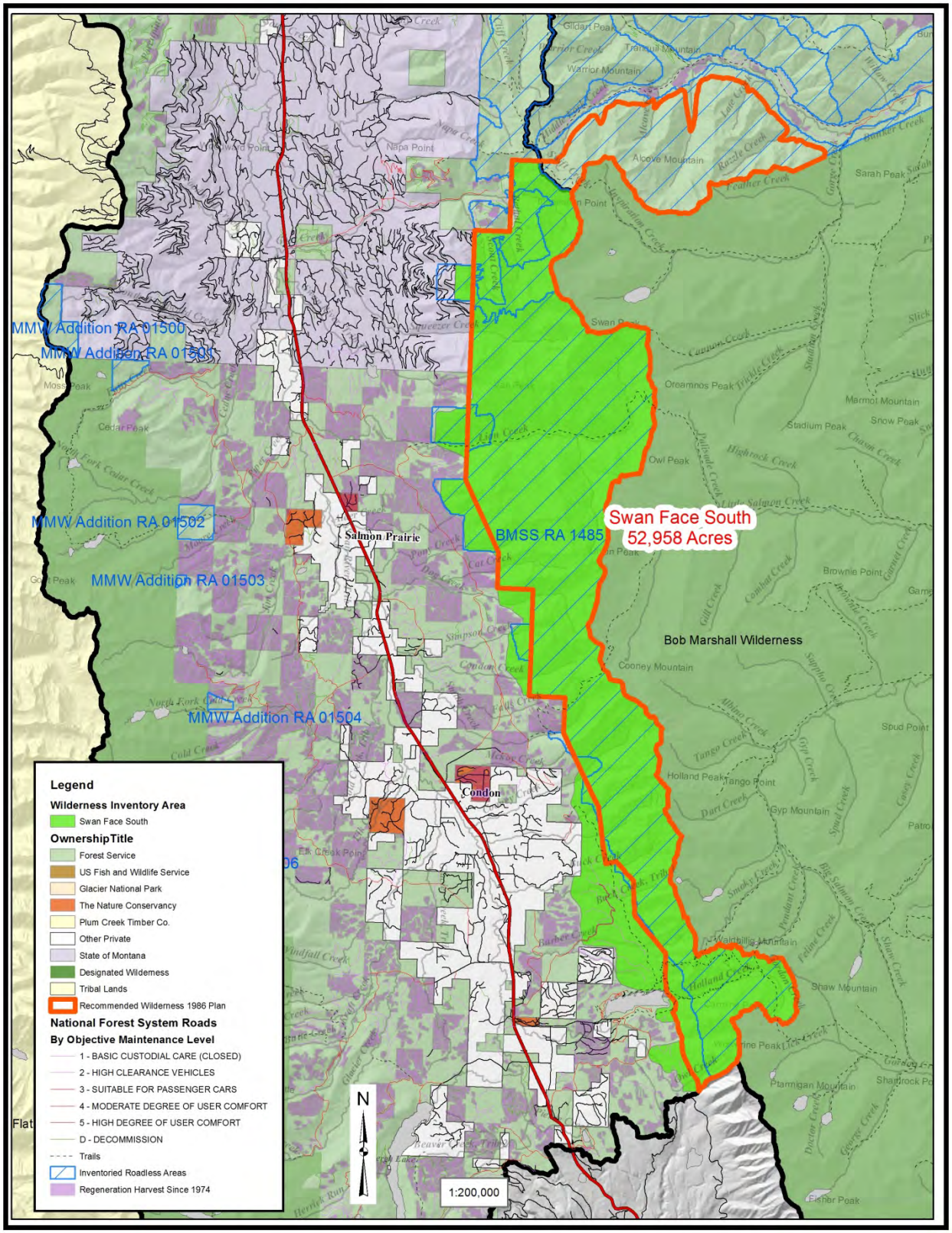


Figure F-23. Swan Face South wilderness inventory area

Tuchuck Area

A total of 32,662 acres was included in the Tuchuck wilderness inventory area. This area is located on the Hungry Horse–Glacier View Ranger District. Figure F-24 shows the Tuchuck wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: 85% Douglas-fir, lodgepole pine, larch, subalpine fir; common types on the Flathead NF. There is about 700 acres whitebark pine dominance type, including some of the most healthy whitebark pine communities on the Flathead NF that have low levels of blister-rust infection. Alpine larch communities present.

Potential vegetation types: cool/cold moist type prevalent, supporting typical mixed conifer forest types. There is a substantial area of higher elevation suitable for whitebark pine (and alpine larch) which are more rare types.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-177. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	98%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

The Brown-headed cowbird is a non-native or parasitic wildlife species present in the area. Weeds are limited to roads. There is a low probability of weeds within remaining area.

The main watersheds in this are Trail and Colts Creeks. Trail Creek has bull trout and pure westslope cutthroat trout while Colts Creek supports pure westslope cutthroat trout. There are no aquatic invasive species in this area.

There have been past harvest on 568 acres mostly adjacent to a road that bisects the area. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (>80% of area burned 1910 – 1929). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-178. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable. These are the non-timber harvest treatments.	Discussed in 1b.
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvest occurred in the time period 1956-67 with some additional harvest in 1983 (clearcuts adjacent to Frozen Lake road and within inventory area). With exception of these recent harvests, units are not visible. The 1983 harvest areas are substantially noticeable from fore-ground, and likely from some mid-ground viewpoints. The main road that bisects area may be visible from some mid/background viewpoints.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Two lookouts: Thoma and Tuchuck. Thoma Lookout has been restored and is currently an active fire lookout. Tuchuck is not a standing structure. Graves Creek/Trail Creek Native American travel corridor. Pictographs close to southern boundary.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-179. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity (excludes roads with potential for receiving administrative use, open roads to be decommissioned, and motorized trails)	32,657 acres (100%)
Area and % total available for winter non-motorized opportunity	32,230 acres (99%)

This area provides outstanding opportunity for solitude. About 93% of this area is within inventoried roadless areas (IRAs) (Mount Hefty IRA #1481and Tuchuck IRA #1483). The area is adjacent to the US/Canada Border on the north, Kootenai NF to the west, NFS lands to the south and private lands to the east. To the north on the Canadian side of the border some primitive roads and past timber management is visible. The sights and sounds of human habitation are limited in this area and may have some influence on solitude but would not be pervasive.

There is a 33 foot buffer around the Frozen Lake Road # 114A on either side which creates a cherry stem into the inventory area that may influence solitude but it would not be pervasive.

There is 6 miles of over-snow routes and about 1% of the area allows motorized-over-snow which may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-180. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	27,395 acres (84%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	25,325 acres (78%)

Primitive recreation opportunities include hiking, backpacking, horseback riding, hunting, forest product gathering, wildlife watching, cross country skiing, snowshoeing, and backcountry skiing. Hiking to the summit of Mt Hefty and Tuchuck Mountain are popular activities. There are 34 miles hiking/biking trails in the area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-181. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	4 miles (4%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is about 700 acres of existing whitebark pine dominance type, with many thousands more acres where whitebark pine likely present. There is about 8,000 acres of mapped whitebark pine potential vegetation type. Genetically superior whitebark pine trees are identified on Thoma Ridge and provide seed for whitebark pine tree improvement and restoration programs. Some of the least blister rust infected whitebark pine stands on the Flathead NF occur in this inventory area.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	There is the presence of 1rare plant: *Botrychium Sp.* (Moonworts)
Species richness % of total acreage[7]	13,928 acres (43%) of level 3/4
Acres of key conservation areas for wolverine[8]	15,482 acres (47%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, NA for mountain goat, very high for grizzly bear U.S. to Canada and east-west from Glacier Park to Whitefish Range, high for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-182. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high scenic public value.	9,641 acres (30%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	7,305 acres (22%)

Describe if there are any unique geologic features in the area.

There are known cave resources in the area. The area provides outstanding views to the Livingston Mountain Range in Glacier National Park.

Question 3c

Are there historic or cultural resources of historic value in the area?

Two lookouts: Thoma and Tuchuck. Thoma has been restored and is a rental lookout, Tuchuck has not (not a standing structure). Graves Creek/Trail Creek Native American travel corridor at southern border. Pictographs close to southern boundary.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-183. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	2,050 acres (6%) is the Tuchuck Research Natural Area

Question 3f

The Tuchuck Research Natural area is within this inventory area. The objective of the RNA is to maintain representative examples of montane and subalpine vegetation type for research and educational purposes. The RNA serves as an area to collect baseline data for determining long-term ecological changes and as a monitoring area to determine effects of management actions applied to similar ecosystems

Whitebark pine plus trees[1] have been identified in this area which is a feature in the continuing whitebark pine restoration and research programs.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-184. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Generally rectangle shape that has the US/Canadian boundary for the northern border. Irregular shape on the western border that follows the Kootenai NF/Flathead NF boundary (which is also the Lincoln County/Flathead County border). Eastern border follows NFS and private land boundary. Southern boundary skirts past harvest areas that are considered substantially noticeable. Frozen Lake Road to the North.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2a (unroaded), MA 15 (timberlands), Kootenai NF
Describe the current management of the area.	7 miles closed roads; 3 miles historical roads; 34 miles terra[11] trails (0 miles motorized); 6 miles over-snow routes; 425 acres (1%) allow motorized-over-snow. 1% MA 7 (timberlands with high scenic value); 99% MA11 (grizzly bear)
Acres and % total of wildland urban interface in the area.	4,775 acres (14%)
Type and extent of management restrictions within the area.	No bull trout critical habitat. 32,651 acres (100%) of lynx critical habitat 29,077 acres (89%) of grizzly bear security core. 12,894 acres (39%) of Mount Hefty inventoried roadless area (IRA) #1481 17,568 acres (54%) of Tuchuck IRA #1483 Total of 30,462 acres (93%) in IRAs

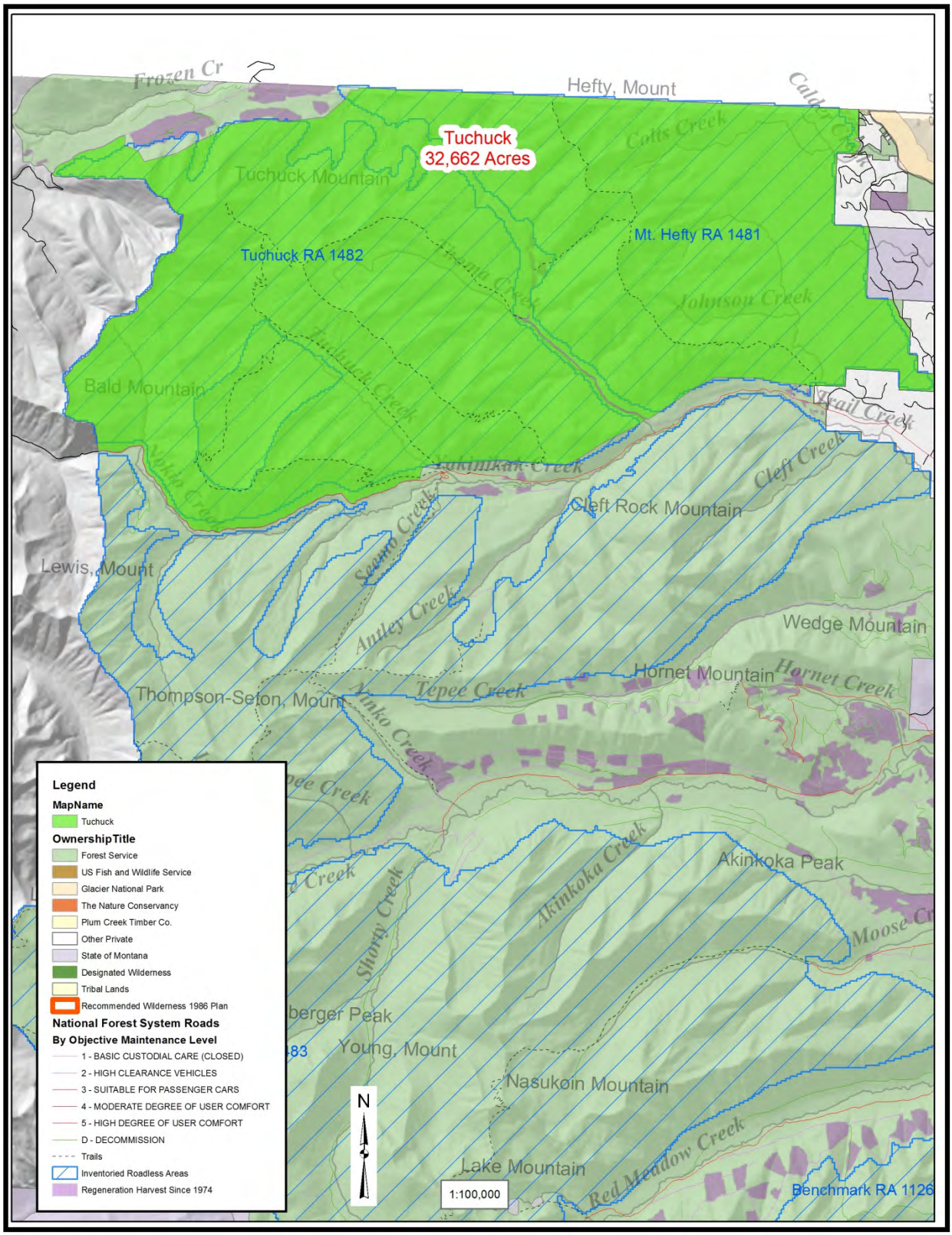


Figure F-24. Tuchuck wilderness inventory area

Whale Area

A total of 69,584 acres was included in the Whale wilderness inventory area. This area is located on the Tally Lake and Hungry Horse–Glacier View Ranger Districts. Figure F-25 shows the Whale wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation dominance types: >85% subalpine fir (Douglas-fir, larch); common types on the Flathead NF. About 3% of the area is in whitebark pine dominance type, with some alpine larch communities present.

Potential vegetation types: cool/cold moist types predominate, supporting typical mixed conifer forest types. There is a substantial amount of cold, higher elevation lands capable of supporting whitebark pine/alpine larch.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-185. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	87%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	99%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	100%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There are no non-native or parasitic wildlife species present. Weeds are limited to roads. There is a low probability of weeds in remaining area.

The main watersheds in this area are Red Meadow, Moose, Teepee and Whale Creeks. Red Meadow and Whale Creeks support both bull trout and westslope cutthroat trout, while Teepee and Moose Creeks only support westslope cutthroat trout. There is a small amount of hybridization between westslope cutthroat trout and rainbow trout within the area. No other aquatic invasive species exist within the area.

Numerous past harvesting and roads building has occurred in parts of area (9,343 acres), concentrated along streams that dissect the area and the upper stream basins. Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within this inventory area is primarily affected by natural ecological processes, including fire (~30% of area burned 1919-1929; 20% burned in 1988). There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-186. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Most harvesting occurred in the 1950s on gentle to moderate slopes. The harvest areas are now densely stocked with trees, shrubs, and not visible. The exception may be associated road templates and numerous skid trails/jammer road templates in some areas, which may be evident in foreground view, especially in recent burn area. Heavy revegetation in most areas restricts visibility in the mid and background views.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	Some dispersed camping sites.
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None

Improvement Type	Extent of departures
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	Old historic cabin remains, remains of 2 lookouts (Akinkoka, Pioneer Mountain); Graves Creek/Trail Creek American Indian travel corridor.

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-187. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	69,575 acres (100%)
Area and % total available for winter non-motorized opportunity	65,691 acres (94%)

This area provides outstanding opportunity for solitude. Vegetation and slopes provide screening throughout the inventory area. About 75% of this area is within the Thompson-Seton inventoried roadless area (IRA) #1483.

There are 3 roads (Shorty Creek, Moose Creek and Inuya Pass) that are outside the inventory area with 33 foot buffers on either side of the road which create cherry stems into the inventory area which may influence solitude but would not be pervasive.

There is about 3 miles of over-snow routes and about 6% of the area allows for motorized over-snow which may influence solitude in the winter but it would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-188. Measures for 2b

Measures	Outcome
Acres and % total of primitive and semi-primitive non-motorized classes for summer recreation opportunity spectrum.	61,840 acres (89%)
Acres and % total of primitive and semi-primitive non-motorized classes for winter recreation opportunity spectrum.	59,846 acres (86%)

Primitive recreation opportunities include hiking, backpacking, horseback riding, hunting, fishing, forest product gathering, cross country skiing, snowshoeing and backcountry skiing. Other popular activities include hiking to the peaks of Nasukoin Mtn, Mt Thompson-Seton, and Mt Locke. The area has numerous alpine lakes in the south east part of the area including Chain and Link Lakes. The Chain and Link Lakes

were considered for designation as a recreation area in the 1960's. There is about 58 miles of hiking/biking trails within the area.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-189. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	34 miles (19%)
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	A large amount (2,000 acres) of existing whitebark pine dominance type, with many thousand more acres of sites potentially capable of supporting whitebark pine and alpine larch. There is about 23,000 acres mapped whitebark pine potential vegetation type.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None
Minimally represented or rare vegetation types in region[6]	The presence of 3 rare plants: *Botrychium Sp.* (Moonworts), *Polystichum kruckebergii* (Kruckebergs's Swordfern. *Verrucaria kootenaica* (Speck Lichen)
Species richness % of total acreage[7]	41,357 acres (59%) of level 3/4
Acres of key conservation areas for wolverine[8]	43,909 acres (63%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, very high for grizzly bear from U.S. to Canada and east-west from Glacier Park to Whitefish Range, high for lynx and very high radioed lynx use.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-190. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	34,429 acres (49%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	21,068 acres (30%)

Describe if there are caves or unique geologic features in the area.

There are known cave resources in the area.

Question 3c

Are there historic or cultural resources of historic value in the area?

An old historic cabin remains, remains of 2 lookouts (Akinkoka, Pioneer Mountain), Graves Creek/Trail Creek American Indian travel corridor.

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-191. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	0 acres

Question 3f

Are there any scientific or education features in the area?

None.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-192. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape, western border is the boundary with the Kootenai NF and Flathead NF. Northeast corner is adjacent to private lands. Southern boundary is near the Red Meadow Road. There are 3 areas where roads are buffered 33 feet on either side - Shorty Creek, Inuya Pass, and Moose Creek.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	MA 2a (unroaded), MA 3 (non-forested), MA 12 (riparian), MA 15 (timberland),

Measures	Outcome
Describe the current management of the area.	12 miles closed roads; 32 miles decommissioned or historical roads; 58 miles terra[11] trails (0 miles motorized); 3 miles over-snow routes; 3,888 acres (6%) allow motorized over-snow. 10% MA 2 (unroaded); 1% MA 3 (non-forested); 81% MA 11 (grizzly bear); 2% MA12/17 (riparian); 6% MA 15 (timberlands).
Acres and % total of wildland urban interface in the area.	5,030 acres (7%)
Type and extent of management restrictions within the area.	13 miles of bull trout critical habitat (6 different streams). 69,571 acres (100%) of critical lynx habitat. 62,671 acres (90%) grizzly bear security core. 52,126 acres (75%) includes the Thompson-Seton inventoried roadless area #1483

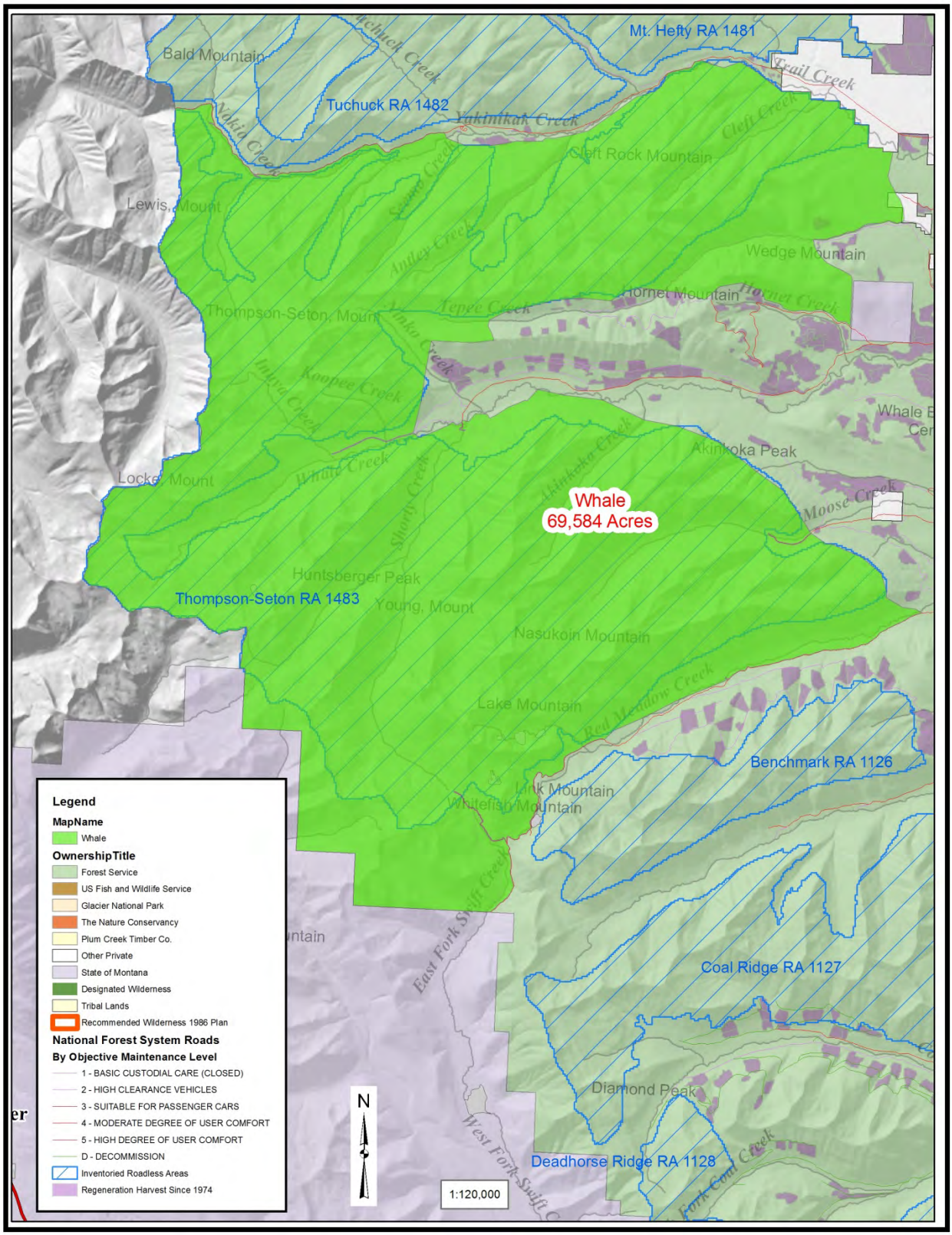


Figure F-25. Whale wilderness inventory area

Woodward Creek Area

A total of 2,198 acres was included in the Woodward Creek wilderness inventory area. This area is located on the Swan Lake Ranger District. Figure F-26 shows the Woodward Creek wilderness inventory area.

Criteria 1: Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a

What is the composition of plant and animal communities within the area?

Existing vegetation types: 96% subalpine fir, lodgepole pine; common types on the Flathead NF. Potential vegetation types: cool/cold types, supporting mixed conifer forests typical of these sites. Most of the area is >6,000 feet elevation which is whitebark pine habitat.

There are about 300 animal species within the Flathead NF. Appendix A of the proposed action lists species known to occur on the Forest and their association with particular biophysical settings, communities, and habitat components. Measure 3a provides information on the diversity of animal communities in each individual wilderness inventory area.

Question 1b

What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?

Table F-193. Measures for 1b

Measures	Outcome
Percent of area that is not affected by timber harvest (inverse of the percent of area of timber harvest[2]).	87%
Percent total of the area without invasive weeds (inverse of the percent of total area that has invasive weeds).	0%
Percent of area that is not affected by maintenance level 1 roads[3] template (inverse of the percent of area of maintenance level 1 roads).	99%
Percent of area that is not affected by decommissioned roads template (inverse of the percent of area of decommissioned roads).	100%
Percent of area that is not affected by known historic roads template (inverse of the percent of area of known historic roads).	100%

Describe the extent of invasive fish and animals. Describe the degree of human impacts to natural ecosystem characteristics and processes, such as forest structure, forest patterns and soil components.

There is no non-native or parasitic wildlife species present. There is some past harvest and road building in upper South Woodward Creek (291 acres). Forest composition, structure, patterns in harvest areas have been influenced by past human actions. The current vegetation within the inventory area is primarily affected by natural ecological processes. None of the area has burned within past 120 years. There is long term human-caused departure from natural soil physical and chemical characteristics on templates of harvest roads, including jammer roads. Within harvest units, there may be lingering impacts from

equipment use (e.g., dozer skid and pile), but those impacts are typically scattered/disconnected spots and actively recovering.

No known weed infestations; low probability of weeds within this area.

The main stream in this area is South Woodward Creek which supports bull trout, westslope cutthroat trout and invasive brook trout.

Question 1c

What is the extent to which improvements (improvement criteria 71.22 from FSH 1909.12 chapter 70) included in the inventory represent a departure from naturalness?

Table F-194. Measures for 1c

Improvement Type	Extent of departures
Airstrips	Not present
Heliports	Not present
Vegetation treatments that are not substantially noticeable.	Captured in measure 1a
Timber harvest areas where logging and prior road construction are not substantially noticeable. Reference detailed maps in record.	Harvests occurred in 1976 (clearcut and shelterwood) that appear to be substantially noticeable.
Permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters, provided their impact, as well as their maintenance and access needs, is minimal.	None
Areas of historic mining where impacts are not substantially noticeable.	None
Areas of mining activity where impacts are not substantially noticeable.	None
Range improvement areas, involving minor structural improvements (for example fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth) that are not substantially noticeable.	None
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps.	None
Ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Exclude power lines with cleared right-of-ways, pipelines, and other permanently installed linear right-of-way structure.	None
Watershed treatment areas (contouring, diking, channeling) that are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions.	None
Lands adjacent to development or activities that impact opportunities for solitude.	See response to question 2a.
Structures, dwellings and other relics of past occupation when they are considered part of the historical and cultural landscape of the area.	None

Criteria 2: Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation[4].

Question 2a

What is available for outstanding opportunity for solitude?

Table F-195. Measures for 2a

Measures	Outcome
Area and % total of area available for summer non-motorized opportunity	2,198 acres (100%)
Area and % total available for winter non-motorized opportunity	6 acres (0%)

There is very high opportunity for solitude in this area. About 37% of the area is within the Mission Addition inventoried roadless area (IRA) #01500. Topography is rolling with vegetation to screen sight and sound. The inventory area is adjacent to the Mission Mountains Wilderness (south boundary) and the Flathead Indian Reservation (west boundary) and adjacent to State land (east boundary).

There is about 2 miles of motorized over-snow routes and 99% of the inventory area is open to over snow use which may influence solitude in the winter but would not be pervasive.

Question 2b

What is available in the area for opportunity for primitive and unconfined recreation?

Table F-196. Measures for 2b

Measures	Outcome
Acres and % total of primitive and non-primitive classes for summer recreation opportunity spectrum.	2,060 acres (94%)
Acres and % total of primitive and non-primitive classes for winter recreation opportunity spectrum.	0 acres (0%)

Describe the types of primitive recreation activities in the area.

Primitive recreation activities include wildlife observation, hiking, backpacking, fishing, and hunting.

Criteria 3: Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historic value.

Question 3a

Does the area contain rare plant or animal communities; rare ecosystem for wildlife habitat; rare ecosystem for aquatics; rare ecosystem for terrestrial; coarse scale key connectivity for multiple species, or minimally represented /rare vegetation types[5]?

Table F-197. Measures for 3a

Measures	Outcome
Miles of streams that have bull trout and/or westslope cutthroat trout	None

Measures	Outcome
Acres of whitebark pine vegetation type. This is a species in decline, identified by USFWS as candidate for listing under the Endangered Species Act (ESA), and locally, regionally and nationally rare.	There is no known existing whitebark pine though there appears to be abundance of potential whitebark pine habitat. Elevation extends to 7,200 feet, with open, exposed aspects preferred by whitebark pine.
Acres and number water howellia (listed as threatened species under the ESA) fens and bogs	None.
Minimally represented or rare vegetation types in region[6]	None.
Species richness % of total acreage[7]	574 acres (27%) of level 3/4.
Acres of key conservation areas for wolverine[8]	617 acres (28%) of very high maternal habitat.
Acres of key conservation areas for mountain goat[9]	None.
Narrative of coarse scale key connectivity for multiple species[10]	Key for wolverines, high for grizzly bear, NA for lynx.

Question 3b

Are there any outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features?

Table F-198. Measures for 3b

Measures	Outcome
Acres and % total of scenic class 1 and 2, which have high public value.	1,827 acres (83%)
Outstanding landscapes in acres/% total (extremely steep breakland, cliffs). Land types 17, 54, 55, 72, 75	614 acres (28%)

Describe if there are any unique geologic features in the area.

To our knowledge, no caves are present in the inventory area. This area is on the slopes of the Mission Mountains and provides mountain views to the east and the Swan Valley. The ridgetop provides view to Flathead Lake.

Question 3c

Are there historic or cultural resources of historic value in the area?

None

Question 3d

Are there high quality water resources or important watershed features in the area?

This area supports bull trout and pure westslope cutthroat trout. The area has been assessed for watershed conditions under the watershed condition framework. This area is entirely within a class 1 watershed which exhibits high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Question 3e

Are there any special areas and/or research natural areas in the areas?

Table F-199. Measures for 3e

Measures	Outcome
Acres and % of total of special areas or research natural areas.	None

Question 3f

Are there any scientific or education features in the area?

To our knowledge, there are no known scientific or education features in the inventory area.

Criteria 4: Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

Question 4a

How can the area be managed to preserve its wilderness character?

Table F-200. Measures for 4a

Measures	Outcome
Describe the shape and configuration of the area.	Irregular shape. Western and northern boundary is adjacent to the Flathead Indian Reservation. The eastern boundary is adjacent to the Swan River State Forest. The southern boundary is adjacent to the Mission Mountains Wilderness.
Describe if there are any legally established rights or uses within the area.	None
Are there specific Federal or state laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics?	None
Describe the management of adjacent lands.	Flathead Indian Reservation lands, State forest lands, Mission Mountains Wilderness (MA 22).
Describe the current management of the area.	2 miles of closed roads; 1 mile of decommissioned or historical roads; 0 miles terra[11] trails; 2 miles motorized over-snow routes; 2,181 acres (99%) allow motorized over-snow. 27% MA1 (non-forested); 73% MA15 (timberlands)
Acres and % total of wildland urban interface in the area.	0 acres
Type and extent of management restrictions within the area.	No bull trout critical habitat. 2,073 acres (94%) of lynx critical habitat 1,509 acres (69%) of grizzly bear core. 820 acres (37%) of Mission Addition inventoried roadless area #01500.

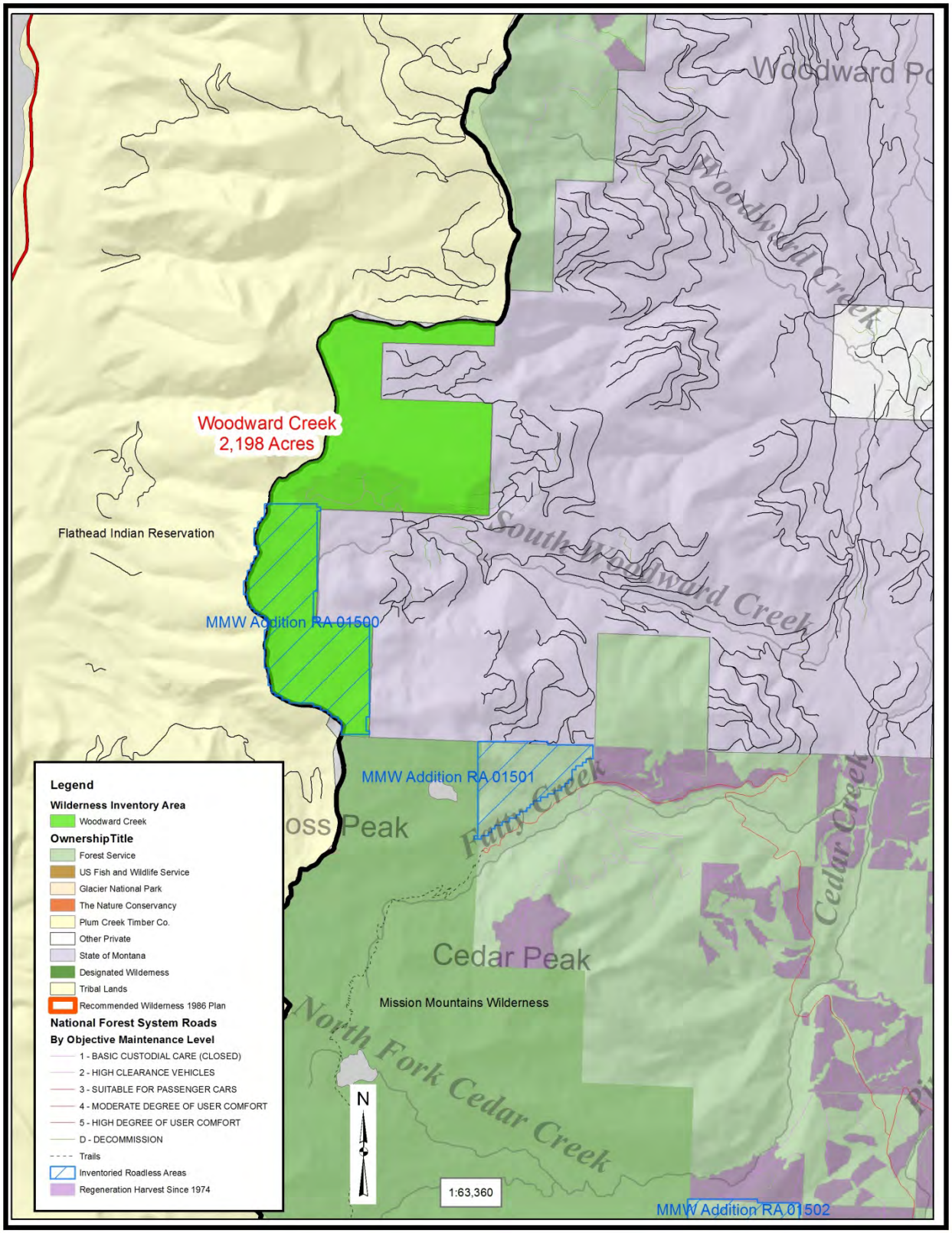


Figure F-26. Woodward wilderness inventory area

Appendix G: Wild and Scenic River Eligibility Study Process

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Background

The Wild and Scenic Rivers Act

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Wild and Scenic Rivers Act protects the special character of these rivers, while also recognizing the potential for their appropriate use and development.

Selected rivers in the United States are preserved for possessing outstandingly remarkable values, which include scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Designated rivers, or rivers segments, are preserved in their free-flowing condition and are not dammed or otherwise impeded. Designation as a wild and scenic river does not confer the same level of protection as a wilderness area designation. However, wild and scenic designation protects the free-flowing nature of rivers in non-Federal areas, something the Wilderness Act and other Federal designations cannot do.

The process of determining whether a river should be recommended for inclusion into the National Wild and Scenic River System has three steps: an eligibility determination with assigned potential classification, a suitability determination, and recommendation to Congress. Any river deemed eligible may be studied for its suitability for inclusion in the National System at any time. Rivers may be studied for suitability as a part of land management plan development, revision, or amendment; in conjunction with a project decision, or in a separate study. A suitability study is done after an eligibility study is completed. A suitability study provides the basis for determining which eligible rivers or river segments should be recommended to Congress as potential additions to the National System. Suitability studies are analyzed and completed in an environmental impact statement; they may or may not be completed with revision of a land management plan.[1]

When the Forest Service determines a river is eligible for inclusion in the National System, they must ensure the river has interim protection measures (Forest Service Handbook (FSH) 1909.12, chapter 80). These protection measures apply until a decision is made on the future use of the river and adjacent lands through an Act of Congress, or until a determination is made that the river is not suitable.

Eligible wild and scenic rivers (or river segments) are assigned one or more potential classifications: wild, scenic, or recreational. These classifications are based on the developmental character of the river on the date of designation and dictate what level of interim protection measures to apply. Wild rivers are the most remote and undeveloped while recreational rivers often have many access points, roads, railroads, and bridges. A river's classification is not necessarily related to the value that made it worthy of designation. That is, for a river to have a scenic classification, scenery does not have to be an outstandingly remarkable value.

[1] For this plan revision, a suitability study is not being completed.

Overview of Our Eligibility Study Process

The 2004 Study

In 2004, the Flathead National Forest (NF) conducted a systematic wild and scenic river eligibility inventory as part of preparing the 2006 Proposed Land Management Plan. Much of the guidance used to determine the eligibility of wild and scenic rivers was taken from a technical report of the Interagency Wild and Scenic River Coordinating Council entitled "The Wild and Scenic River Study Process" (Interagency Wild and Scenic Rivers Coordinating Council December 1999).[2]

During that inventory, the Flathead NF boundary was used for the region of comparison (the geographic area of consideration for each outstandingly remarkable value that will serve as the basis for meaningful comparative analysis). Botany and special interest/natural areas were also included as outstandingly remarkable values, although these were not required to be evaluated. The 2004 study determined 10 streams on the Flathead NF were eligible for inclusion into the National Wild and Scenic Rivers System. However, because of litigation on the 2005 Planning Rule, the 2006 proposed plan was invalidated.

The 2014 Study

In 2012 a new planning rule was issued, and the Flathead NF restarted the land management plan revision process. The 2012 Planning Rule requires that, when revising or developing a land management plan, planning teams must complete a wild and scenic river eligibility study.

> Identify the eligibility of rivers for inclusion in the National Wild and Scenic Rivers System, unless a systematic inventory has been previously completed and documented, and there are no changed circumstances that warrant additional review. (36 Code of Federal Regulations (CFR) sec. 219.7(c)(2)(vi))

In a meeting with Montanans for Healthy Rivers, they felt that the region of comparison used in 2004 was too small in scope and requested a larger region of comparison be used when evaluating outstandingly remarkable values. After careful study, it was determined there were two distinct regions of comparison: one covering western Montana (from the Continental Divide west to the Idaho-Montana border), and the other covering the Northern Rocky Mountain province from Bailey's ecoregions.[3] Montanans for Healthy Rivers completed a statewide review to identify eligible rivers in Montana, which included 46 rivers they submitted as eligible on the Flathead NF. Their statewide review was determined to be a changed circumstance, which the 2012 Planning Rule lists as a condition for reevaluating eligibility.

Of the 46 streams Montanans for Healthy Rivers submitted as being eligible on the Flathead NF, 10 were already determined to be eligible in the 2004 eligibility process (see page 10 for information on the 2004 eligibility process). Therefore for this plan revision effort, using the process described on page 3, 36 remaining streams were reviewed and assessed for eligibility.

While conducting the 2014 eligibility study, the Forest Service Manual and Handbooks (directives) were being developed for guidance on implementing the 2012 Planning Rule. In February of 2013, draft directives were released for public comment. The Flathead NF staff

[2] This report is available online at: http://www.rivers.gov/documents/study-process.pdf.
[3] See http://www.fs.fed.us/rm/ecoregions/descriptions/

continued to use guidance from the 1999 Wild and Scenic River Study Process document, as well as the 2013 draft directives.

On January 30, 2015, the final directives for land management planning were released. The directives provide exceptions for processes started before the directives were finalized:

> If a plan amendment or a revision has been initiated prior to issuance of the amended directive, the Responsible Official should use the amended directive in any new step or phase of the planning process, but is not required to revise past steps or phases within the process.... (Forest Service Manual (FSM) 1920.3)

Although some wording in the 2015 directives differs slightly from the direction that was used from the 1999 study process document and 2013 draft directives, the overall direction has remained the same.

Interim Protection Measures

The 2012 Planning Rule requires interim management of Forest Service-identified eligible rivers or segments, to protect their values prior to a congressional decision on whether to designate them as part of the National System:

> (b) The plan must provide plan components, including standards and guidelines, to provide for:
>
> (v) Protection of designated wild and scenic rivers as well as management of rivers found eligible or determined suitable for the National Wild and Scenic River system to protect the values that provide the basis for their suitability for inclusion in the system. (36 CFR 219.10)

Interim protection measures are found in Forest Service Handbook (FSH) 1909.12, chapter 80, section 84.3 ("Interim Protection Measures for Eligible or Suitable Rivers"). Responsible officials must apply these measures to protect river values on National Forest System lands when planning and implementing projects and activities, or where the Forest Service holds an interest on non-Federal lands, such as scenic or access easements.

The proposed land management plan includes interim protection measures under management area 2b, which is "eligible rivers."

The 2014 Eligibility Process

Criteria for Eligibility

To be eligible for inclusion, a river segment must be free-flowing and, in combination with its adjacent land area, possess one or more outstandingly remarkable values. Free flowing means the river segment must be flowing in a natural condition without impoundment, diversion, straightening, rip rapping, or other modification of the waterway.[4]

[4] Draft 2013 FSH 1909.12, chapter 80, sections 82.12 and 82.14.

Outstandingly Remarkable Values

To be identified as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant when compared with similar values from other rivers at a regional or national scale. As noted on page 1, outstandingly remarkable values include scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. River values should meet at least one of the following criteria:

1. Be located in the river or on its immediate shorelands (within 1/4 mile on either side of the river).
2. Contribute substantially to the functioning of the river ecosystem, and/or
3. Owe their location or existence to the presence of the river.

Note that in the 2004 process botany and research natural areas/special interest areas were reviewed for their consideration as outstandingly remarkable values. These were not required, and after reviewing the 2004 process, it was determined to not add these values to the 2014 eligibility process.[5]

To determine eligibility, each resource specialist used specific criteria and measures to evaluate each river (stream[6]) or segment for outstandingly remarkable values. Based on this evaluation, documentation was completed for each stream on why or why not it was not eligible. Table G-1 displays how values were ranked. For each stream, values were ranked based on the qualitative ranking scale shown in the table, and then they were compared to other streams in the region of comparison. A ranking of 4 translated to an outstandingly remarkable value, which then made that stream (or stream segment) eligible.

Table G-1. Quantitative ranking of values

Score	Value in Region	Significance in Region
0	nonexistent	not significant
1	less than most	not significant
2	typical	locally significant
3	one of a few	regionally significant
4	most significant	nationally or regionally significant

Documentation of the Process

Each resource evaluated has separate documentation that includes information such as data sources, rationale for each ranking, and a determination of outstandingly remarkable values. This information can be found in the project file. This process paper provides an overview of the criteria used and measured, the region of comparison, and a summary of the outstandingly remarkable value rankings by resource area. Table G-2 displays the overall ranking of each outstandingly remarkable value for each stream evaluated in the 2014 process. Table G-3 displays

[5] For botany, there was only one river that had an outstandingly remarkable value consisting of a sensitive plant species. For research natural/special interest areas, no river had such an area associated with it and a determination was made that the presence of a research natural area/special interest area should not be a determination of eligibility since they are already protected areas.

[6] Although the guidance speaks to “rivers” all of the waterways consist of creeks and streams.

the rivers determined to be eligible for wild and scenic river status on the Flathead NF during the 2014 process.

Criteria and Measures of Outstandingly Remarkable Values

Recreation

Criteria

Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. River-related opportunities include, but are not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. The river may provide settings for national or regional usage or competitive events.

Measures

1. Use level relative to the area of comparison: *high, medium, low*
2. Visitation: *global, national, regional or locally*
3. Unique river recreation: *describe (e.g., blue ribbon designation, renowned rapids)*
4. National or regional competitive events or use: *yes or no*
5. River-related recreation opportunities: *describe*

Region of Comparison

Western Montana (from the Continental Divide west to the Idaho-Montana border).

Wildlife

Criteria

Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat, or a combination of these conditions.

Populations

The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique, and/or populations of Federal or State-listed or candidate threatened, endangered, or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.

Habitat

The river, or area within the river corridor, provides exceptionally high quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for Federal or State-listed or candidate threatened, endangered, or sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitat is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.

Measures

Population Criterion Measures

1. Nationally or regionally important species
2. Threatened or endangered species
3. Species of conservation concern
4. Terrestrial species richness[7]
5. Species in decline in region of comparison
6. Sensitive species
7. Diversity of species
8. Unique species
9. Species of public interest

Habitat Criterion Measures

1. Security, based on road and trail densities
2. Unique habitat features such as fens or wetlands
3. Connectivity and crucial habitat

Region of Comparison

Northern Rocky Mountain Province from Bailey's Ecoregions.

Fish

Criteria

Fish values may be judged on the relative merits of fish populations or habitat, or a combination of these conditions.

Populations

The river, is nationally or regionally an important producer of resident and/or anadromous fish species. Diversity of fish species or the presence of wild stock and/or Federal or State-listed or candidate threatened, endangered or species of conservation concern are of particular significance.

Habitat

The river provides uniquely diverse or high quality habitat for fish species indigenous to the region of comparison. Exemplary habitat for wild stocks and/or Federal or State-listed or candidate threatened, endangered, or species of conservation concern is of particular significance.

Measures

Population Criterion Measures

1. Presence of bull trout, federally listed as threatened.
2. Presence of westlope cutthroat trout, a species of conservation concern.

[7] As defined by Montana Fish, Wildlife and Parks Crucial Areas Planning System (CAPS)

Habitat Criterion Measures

1. Watershed condition framework
2. Connectivity and crucial habitat
3. Habitat conditions

Region of Comparison

Northern Rocky Mountain province from Bailey's ecoregions.

Geology

Criterion

The river, or the area within the river corridor, contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a "textbook" example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).

Measures

1. The river or river corridor contains an example of a geologic feature, process or phenomenon that is rare, unique or unusual.
2. Geological features are in an unusually active stage of development, or represent a textbook example.
3. Geologic features represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).

Region of Comparison

Western Montana (from the Continental Divide west to the Idaho-Montana border).

History/Prehistory

Criteria

The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.

History

Sites or features associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. A historic site or feature, in most cases, is 50 years old or older.

Prehistory

Sites may have unique or rare characteristics or exceptional human interest value; represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare sacred purposes

Measures

1. There are sites or features associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region.
2. There are sites that may have unique or rare characteristics or exceptional human interest value.
3. There are sites or features that represent an area where a culture or cultural period was first identified and described.
4. There are sites or features that may have been used concurrently by two or more cultural groups.
5. There are sites or features that may have been used by cultural groups for rare sacred purposes.

Region of Comparison

Western Montana (from the Continental Divide west to the Idaho-Montana border).

Scenery

Criteria

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.

Measures

1. There is very high scenic class within the ½ mile river corridor:
    a. There are significant seasonal variations in vegetation.
    b. There is a combination of diverse landscape features such as landform, vegetation, water, and color that makes notable or exemplary visual features and/or attractions.
2. There is very high scenic integrity within ½ mile of river corridor.
    a. Consider the length of time negative intrusions are viewed.
    b. Consider the scale of cultural modifications.
3. There are views of outstanding geological features such as rock outcroppings that show a unique or rare combination of scenic features (erosional, volcanic, glacial, or other geologic structures).

Region of Comparison

Western Montana (from the Continental Divide west to the Idaho-Montana border).

Table G-2. Ranking of outstandingly remarkable values for streams evaluated in the 2014 process

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Prehistory/ History	Scenery	Geology
Basin Cr. (SBRD)	2	3	2	1	3	2
Bunker Cr. (SBRD	3	2	2	1	2	2
Clack Cr. (SBRD)	2	3	1	1	**4 eligible**	**4 eligible**
Dean Cr. (SBRD)	2	2	1	1	3	2
Dolly Varden Cr. (SBRD)	2	3	2	3	2	2
Gordon Cr. (SBRD)	2	3	2	3	2	2
Gorge Cr. (SBRD)	3	3	2	1	3	3
Lake Cr. (SBRD)	3	3	1	1	3	2
Unnamed Fk Lake Cr. (SBRD)	3	3	2	1	3	3
Morrison Cr. (SBRD)	3	2	2	3	2	2
Schafer Cr. (SBRD)	2	3	2	**4 eligible**	3	2
Strawberry Cr. (SBRD)	2	**4 eligible**	2	1	2	2
Sullivan Cr. (SBRD)	3	2	2	1	2	2
Lower Twin Cr. (SBRD)	3	2	2	1	3	2
Twin Cr. (SBRD)	3	2	2	1	2	3
Quintonkon Cr. (SBRD)	3	2	1	3	2	2
Young's Cr. (SBRD)	3	**4 eligible**	**4 eligible**	**4 eligible**	**4 eligible**	3
Granite Cr. (HHRD)	3	3	2	3	2	2
Graves Cr. (HHRD)	2	2	3	**4 eligible**	3	3
Big Cr. (GVRD)	3	2	2	3	2	2
Coal Cr. (GVRD)	3	2	1	1	2	2
SF Coal Cr. (GVRD)	3	2	1	1	2	2
Cyclone Cr. (GVRD)	3	2	1	1	2	2
Hallowat Cr. (GVRD)	3	2	1	1	2	2
Langford Cr. (GVRD)	2	2	1	1	1	1
Mathias Cr. (GVRD)	3	2	1	1	2	2
Moose Cr. (GVRD)	3	2	2	1	2	2
Red Meadow Ck (GVRD)	3	2	2	3	2	2
Shorty Cr. (GVRD)	3	2	1	1	2	2
Whale Cr. (GVRD)	**4 eligible**	2	2	1	2	2
Elk Cr. (SLRD)	3	**4 eligible**	2	1	2	2
Glacier Cr. (SLRD)	**4 eligible**	2	2	1	**4 eligible**	**4 eligible**
Goat Cr. (SLRD)	3	2	2	1	2	2
Lion Cr. (SLRD)	**4 eligible**	2	2	1	3	3
NF Lost Cr. (SLRD)	3	2	2	1	2	2
SF Lost Cr. (SLRD)	3	2	2	1	2	2
Upper Swan Cr. (SLRD)	3	2	2	1	2	2
Lower Swan Cr. (SLRD)	**4 eligible**	2	3	1	2	2
Squeezer Cr. (SLRD)	2	2	1	1	2	2

1. SBRD = Spotted Bear Ranger District; HHRD = Hungry Horse Ranger District; GVRD = Glacier View Ranger District; SLRD = Swan Lake Ranger District; refer to table g-1 for ranking definitions

Table G-3. Rivers determined to be eligible for wild and scenic river status on the Flathead National Forest during 2014 process

Name	Length	Outstandingly Remarkable Value	Potential Classification
Clack Creek	8 miles	Scenery, geology	Wild
Elk Creek	10 miles	Fish	Scenic
Glacier Creek	6 miles	Wildlife, scenery, geology	Wild and scenic
Graves Creek	10 miles	Prehistory	Wild and scenic
Lion Creek	11 miles	Wildlife	Scenic
Swan River	11 miles	Wildlife	Recreational
Schafer Creek	11 miles	Prehistory	Wild
Strawberry Creek	14 miles	Fish	Wild
Whale Creek	21 miles	Wildlife	Scenic and recreational
Youngs Creek	23 miles	Fish, recreation, prehistory, scenery	Wild

The 2004 Eligibility Process

Overview

The primary guidance used for the 2004 process was the 1999 study process guide described on page 2. To identify potential streams for eligibility, all the named streams were reviewed that show up on a 1:100,000-scale map for their outstandingly remarkable values. District and/or supervisor's office specialists determined the ratings for the named streams to determine if there was an outstanding remarkable value. Each stream was rated from 0 to 4 based on whether they had outstanding remarkable values.

Criteria for Eligibility

The criteria used for stream eligibility in the2004 eligibility study was the same as stated on page 3: the stream or segment must be free-flowing and in combination with its adjacent land area, possess one or more outstandingly remarkable values.

Outstandingly Remarkable Values

To be identified as outstandingly remarkable, a river-related value considered should be rare and exemplary when compared to other rivers in the region of comparison. The region of comparison for the 2004 eligibility process was the Flathead NF. The value should:

1. Be located in the river or on its immediate shorelands (within 1/4 mile on either side of the river).
2. Contribute substantially to the functioning of the river ecosystem, and/or
3. Owe their location or existence to the presence of the river.

To determine eligibility, each resource specialist used specific criteria to evaluate each stream or segment for outstandingly remarkable values. Each stream was ranked for outstandingly remarkable values based on the following qualitative ranking scale, and then it was compared to other streams in the region of comparison. Table G-4 displays how values were ranked. A value

ranking of 4 translated to an outstandingly remarkable value, which then made that stream (or segment) eligible.

Table G-4. Ranking of outstandingly remarkable values used to determine eligibility during the 2004 study process

Value	Description
0	Value nonexistent
1	Less significant than most in region
2	Typical, one of many equally significant in region
3	One of only a few this significant in region
4	The most significant in region

Although the criteria were mostly the same with both eligibility processes, the 2004 process did not develop measures to address the criteria as we did in the 2014 eligibility process.

Recreation

Criteria

- Are recreational opportunities unique or rare within the region?
- Are recreational opportunities popular enough or have the potential to be popular enough to attract visitors from throughout the region of comparison?
- Are visitors willing to travel long distances to use the river resources for recreational purposes?
- Are interpretive and/or educational opportunities exceptional and unique within the region of comparison?

Wildlife

Criteria

- Does the river or river corridor contain nationally or regionally important populations of indigenous wildlife species?
- Does the river or river corridor provide exceptionally high quality habitat for wildlife of national or regional significance?
- Does the river or river corridor provide unique habitat or a critical link in habitat conditions for Federal or State-listed (or candidate) threatened, endangered or sensitive species? Of particular significance is the presence of wild stocks and/or Federal or State-listed (or candidate) threatened, endangered or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of "outstandingly remarkable."

Fish

Criteria

Populations:

- Are threatened, endangered, or sensitive species represented?

- Is it an important stronghold for native fish assemblages (diversity)?
- Are there genetically pure strains of native populations?
- Is there a Native American dependence on this fishery?
- Is there a lack of exotic species or non-native species in this river?
- Are there other important wildlife species dependent upon this fishery?

Habitat

- Is there a relationship between this river and the health and vigor of the fishery that would warrant protection of the river?
- Are there natural barriers to fish migration that restrict the distribution of the population?
- Is there high restoration or recovery potential for the habitat?
- Is this an intact system and does the habitat support native or wild stock assemblages?
- Does the habitat represent a pristine river system?

Geology

Criterion

- Does the river, or area within the river corridor, contain one or more example of a geologic feature, process or phenomenon unique or rare within the region of comparison?

Prehistory and History

Criteria

History

- Does the river or river corridor contain a sites or features associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region?

Prehistory

- Does the river or river corridor contain sites where there is evidence of occupation or use by Native Americans?
- Do sites have unique or rare characteristics or exceptional human-interest values?
- Are sites nationally or regionally importance for interpreting prehistory, rare and represent a culture or cultural period was first identified and described, used concurrently by two or more cultural groups, and/or used by cultural groups for sacred purposes?
- Does the river or area within the river corridor contain a site or feature associated with a significant event, an important person, or a cultural activity of the past that was unique and rare in the region?

Scenery

Criteria

- Do the landforms, vegetation type or seasonal variations, watercolor or related factors result in notable or exemplary visual features or attractions?

Botany

- Are there any occurrences of federally threatened or endangered plant species?
- Are there any occurrences of plant species designated as sensitive by the Forest Service?
- Are there any occurrences of other rare plants that are tracked by the state Natural Heritage Programs?
- Are there any plant communities or habitats that are unique, rare, or significant, or that are tracked by the state Natural Heritage Programs?
- Are the native plant communities in good ecological conditions (e.g., relatively free of invasive plant species)?

Natural Areas

- Are there any designated research natural areas along the river?
- Are there any special interest areas along the river?
- Are there any other specially designated areas in the corridor?

Results

Out of 467 streams we reviewed on the Flathead NF, 10 streams resulted in a ranking of 4, which indicate an outstandingly remarkable value that makes the stream eligible for wild and scenic river consideration (table g-5). The complete ranking is found in table g-6.

Table G-5. Outstandingly remarkable value rankings for the eligible streams from the 2004 process

Stream Name	Wildlife	Fish	Recreation	Prehistory/ History	Scenery	Geology	Botany
Aeneas	2	2	1	**4**/1	2	1	2
Big Salmon	3	**4**	**4**	**4**/3	3	3	0
Danaher	**4**	**4**	**4**	**4/4**	**4**	2	**4**
Gateway	2	3	3	1/**4**	**4**	**4**	3
LeBeau	2	2	3	2/**4**	**4**	**4**	2
Little Salmon	3	**4**	2	**4**/1	**4**	3	0
Logan	3	3	**4**	1/2	**4**	3	2
Spotted Bear	**4**	3	**4**	3/2	3	3	3
White River	3	**4**	1	**4/4**	3	**4**	3
Yakinikak	2	3	1	**4**/3	2	0	0
Trail	3	**4**	2	**4**/2	2	**4**	0
Nokio	2	2	1	**4**/2	2	1	0

Table G-6. Outstandingly remarkable value rankings of all streams for the 2004 process

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Abbot (HHRD)	1	0	0	0	0	0	0	0	**3**
Addition (SBRD)	2	1	0	0	0	1	0	3	0
Aeneas (HHRD)	2	2	1	**4-eligible**	1	2	1	2	0
Akinkoka (GVRD)	2	1	1	0	0	2	0	0	0
Albino (SBRD)	2	0	1	0	0	2	0	0	0
Alcove (SBRD)	2	0	0	0	0	0	0	0	0
Alder Creek (SLRD)	2	1	0	0	0	1	1	0	0
Alder Creek (TLRD)	2	2	1	1	1	2	2	2	0
Alloy (SBRD)	2	0	2	0	0	2	1	0	0
Anchor Creek (TLRD)	2	2	1	0	1	2	1	2	0
Antley (GVRD)	2	2	2	0	0	2	0	0	0
Argosy (SBRD)	2	1	1	0	0	2	2	0	0
Aurora (HHRD)	2	0	1	0	0	1	0	0	0
Ayres (SBRD)	2	1	1	0	0	1	0	3	0
Babcock (SBRD)	2	2	1	3	0	1	0	0	0
Bales Creek (SLRD)	1	0	0	0	0	1	1	0	0
Ball (SBRD)	2	2	1	0	0	1	0	0	0
Baptiste (SBRD)	2	0	0	0	0	0	0	0	0
Bar (SBRD)	2	0	1	0	0	1	0	0	0
Barber Creek (SLRD)	2	1	1	0	0	1	1	2	0
Bartlett (SBRD)	2	1	2	0	0	2	0	0	0
Basin (SBRD)	2	2	1	0	0	1	1	0	0
Basin (SBRD)	2	3	1	0	0	2	1	0	0
Battery (HHRD)	2	1	0	0	0	0	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Bear (HHRD)	2	2	1	3	0	1	0	0	0
Bear (SBRD)	2	0	0	0	0	0	0	0	0
Bear Creek (SLRD)	2	1	1	0	0	1	1	1	0
Bear Creek (TLRD)	2	2	0	0	1	1	2	2	0
Beaver Creek (SLRD)	3	1	2	0	0	2	1	2	2
Ben (HHRD)	2	0	0	0	0	1	0	0	0
Bent (SBRD)	2	1	0	0	0	1	0	0	0
Bergsicker (HHRD)	2	0	1	0	0	1	0	0	0
Bethal Creek (SLRD)	3	2	1	0	0	2	1	0	0
Big (GVRD)	3	3	1	0	0	2	0	3	0
Big Bill (SBRD)	2	1	0	2	0	1	0	0	0
Big Salmon (SBRD)	3	**4 Eligible**	**4 Eligible**	**4 Eligible**	3	3	**4 Eligible**	0	0
Biglow (HHRD)	2	1	1	0	0	1	0	0	0
Bill Creek (TLRD)	2	2	2	1	2	2	2	2	0
Birch Creek (SLRD)	2	2	1	0	0	1	1	2	0
Black Bear (SBRD)	2	1	1	0	0	1	1	0	0
Bond Creek (SLRD)	2	2	2	3	2	2	2	2	0
Boulder (SBRD)	2	0	0	0	0	0	0	0	0
Bowen Creek (TLRD)	2	2	0	0	0	1	2	2	0
Bowl (SBRD)	2	3	2	0	0	2	1	3	0
Bradley (SBRD)	2	2	1	0	0	1	0	0	0
Branch (SBRD)	2	2	1	0	0	1	0	0	0
Brown Creek (SLRD)	2	0	1	0	0	1	1	0	0
Brownie (SBRD)	2	0	1	0	0	1	0	0	0
Brownstone (SBRD)	2	0	1	0	0	1	0	0	0
Bruce (SBRD)	2	1	2	0	0	2	1	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Brush (SBRD)	2	0	0	0	0	2	0	0	0
Buck Creek (SLRD)	2	2	1	0	0	1	1	2	0
Bug Creek (SLRD)	1	1	1	0	0	1	1	0	0
Bunker (SBRD)	3	2	2	3	0	3	1	0	0
Burnt (SBRD)	2	1	1	0	0	1	0	0	0
Butcher (SBRD)	2	0	1	0	0	1	0	3	0
Cabin (SBRD)	2	1	1	0	0	1	0	0	0
Calbick (SBRD)	2	2	1	0	0	1	0	0	0
Calf (SBRD)	2	0	2	0	0	2	1	0	0
Camp (SBRD)	2	1	2	0	0	2	1	0	0
Cannon (SBRD)	2	1	2	0	0	2	1	0	0
Canyon (GVRD)	2	2	2	0	0	2	0	0	0
Canyon (HHRD)	2	1	1	0	0	1	0	0	0
Capitol (SBRD)	2	0	0	0	0	0	0	0	0
Cardinal (SBRD)	2	1	1	0	0	1	0	0	0
Casey (SBRD)	2	0	0	0	0	0	0	0	0
Cat Creek (SLRD)	3	2	2	0	0	2	2	0	0
Cataract (SBRD)	2	1	1	0	0	1	1	2	0
Catchem (SBRD)	2	0	1	0	0	1	0	0	0
Cayuse (SBRD)	2	0	0	0	0	0	0	0	0
Cedar (SBRD)	2	0	0	0	0	0	0	0	0
Cedar Creek (SLRD)	3	2	1	0	0	2	1	0	0
Challenge (HHRD)	2	2	1	0	2	1	0	0	0
Charlie (HHRD)	2	1	2	0	0	1	0	0	0
Charlotte (SBRD)	2	0	0	0	0	0	0	0	0
Chasm (SBRD)	2	0	1	0	0	1	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Christopher (SBRD)	2	0	0	0	0	0	0	0	0
Cilly Creek (SLRD)	2	1	2	0	0	2	1	0	0
Clack (SBRD)	2	3	2	2	0	3	1	0	0
Clark (SBRD)	2	2	0	0	0	0	0	0	0
Clayton (HHRD)	2	2	2	0	0	1	0	0	0
Cliff (SBRD)	2	0	0	0	0	1	1	0	0
Cliff Creek (SLRD)	2	0	2	0	0	2	2	0	0
Clorinda (HHRD)	2	1	0	0	0	1	0	0	0
Cluster (SBRD)	2	0	0	0	0	0	0	3	0
Coal (GVRD)	2	3	2	0	0	2	2	3	0
Cold Creek (SLRD)	3	3	2	0	0	2	2	0	2
Colts (GVRD)	2	1	0	0	0	1	0	0	0
Combat (SBRD)	2	0	0	0	0	0	0	0	0
Condon Creek (SLRD)	3	2	1	0	3	2	1	3	3
Conner (SBRD)	2	2	1	0	0	1	0	0	0
Cooney Creek (SLRD)	2	2	1	0	0	2	1	0	0
Corduroy Creek (TLRD)	2	2	1	0	0	1	2	2	0
Cottonwood Creek (TLRD)	2	2	1	0	1	1	2	2	0
Cox (SBRD)	2	2	2	0	0	2	1	0	0
Crazy Horse Creek (SLRD)	3	0	2	0	0	2	2	0	2
Crescent (HHRD)	2	1	0	0	0	2	0	0	0
Crystal (HHRD)	2	1	0	0	0	2	0	0	0
Cy (HHRD)	2	2	2	0	0	2	0	0	0
Cyclone (GVRD)	2	2	1	0	0	1	0	0	0
Cyclone Creek (TLRD)	2	2	0	0	0	1	2	2	0
Daggett Creek (TLRD)	2	2	0	0	0	1	2	2	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Damnation (SBRD)	2	0	0	0	0	0	0	0	0
Danaher (SBRD)	**4 Eligible**	**4 Eligible**	**4 Eligible**	**4 Eligible**	**4 Eligible**	**4 Eligible**	2	**4 Eligible**	3
Dart (SBRD)	2	0	0	0	0	0	0	0	0
Dead Horse (GVRD)	2	2	1	0	0	2	1	0	0
Deadfall (SBRD)	2	0	0	0	0	0	0	0	0
Deadhorse (SBRD)	2	0	0	0	0	0	0	0	0
Dean (SBRD)	2	1	2	0	0	2	0	0	0
Deep (GVRD)	2	0	1	0	0	1	0	0	0
Deep (HHRD)	2	2	0	0	0	1	0	0	0
Deer (SBRD)	2	0	0	0	0	0	0	0	0
Deer Creek (SLRD)	2	1	1	0	0	1	1	0	0
Deerlick (HHRD)	2	1	1	0	0	2	0	0	0
Delaware (SBRD)	2	0	0	0	0	0	0	0	0
Devils Corkscrew (HHRD)	2	0	2	0	0	1	0	0	0
Devine (SBRD)	2	0	0	0	0	0	0	0	0
Dickey (HHRD)	2	1	2	0	0	2	0	3	0
Dirtyface (HHRD)	2	1	2	0	0	2	0	0	0
Doctor (SBRD)	2	3	1	0	0	1	0	0	0
Dodge (HHRD)	2	2	2	0	0	2	0	0	0
Dog Creek (SLRD)	3	2	1	0	0	1	1	0	0
Dog Creek (TLRD)	2	2	1	0	0	1	2	2	0
Dolly Varden (SBRD)	2	3	2	2	0	3	3	0	0
Donaldson Creek (SLRD)	1	1	0	0	0	0	1	0	0
Doris (HHRD)	2	2	2	0	0	2	0	0	0
Drumming (SBRD)	2	0	0	0	0	0	0	0	0
Dudley (HHRD)	2	2	1	0	0	1	0	3	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Dunsire Creek (TLRD)	2	2	1	0	0	1	2	2	0
Dupuy (GVRD)	2	0	1	0	0	1	0	0	0
East Fork (SBRD)	2	0	1	0	0	1	0	3	0
East Fork Swift Creek (TLRD)	2	2	1	0	0	0	2	2	0
East Sanko Creek (TLRD)	2	2	0	0	0	1	2	2	0
Elelehum (GVRD)	2	0	2	0	0	2	2	0	0
Elk (HHRD)	2	2	2	0	0	2	0	0	0
Elk (SBRD)	2	0	0	0	0	0	0	0	0
Elk Creek (SLRD)	3	3	2	0	0	2	2	2	2
Emery (HHRD)	2	2	2	3	0	2	0	0	0
Essex (HHRD)	2	2	2	0	0	2	0	0	0
Evers Creek (TLRD)	2	2	1	0	1	1	2	2	0
Falls Creek (SLRD)	3	2	1	0	0	1	1	0	0
Fatty Creek (SLRD)	3	0	2	0	0	2	1	0	2
Fawn (HHRD)	1	0	1	0	0	2	0	0	0
Feather (SBRD)	2	0	0	0	0	0	0	0	0
Feline (SBRD)	2	0	1	0	0	1	0	0	0
Felix (HHRD)	2	2	1	0	0	1	0	0	0
Fiction (SBRD)	2	0	1	0	0	1	1	0	0
Fire (HHRD)	2	2	1	0	0	1	0	0	0
Fish Creek (TLRD)	2	2	1	0	1	1	2	2	0
Fitzsimmons Creek (TLRD)	2	2	1	0	1	1	2	2	0
Flat (SBRD)	2	0	0	0	0	0	0	0	0
Foolhen (SBRD)	2	1	2	0	0	2	1	0	0
Forest (HHRD)	2	2	2	0	0	2	0	0	0
Freeland Creek (SLRD)	1	1	0	0	0	0	1	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Frenchy Creek (SLRD)	3	0	1	0	0	2	2	0	2
Furious (SBRD)	2	0	0	0	0	0	0	0	0
Gabe (SBRD)	2	0	0	0	0	0	0	0	0
Garnet (SBRD)	2	0	0	0	0	0	0	0	0
Gateway (SBRD)	2	3	3	0	**4 Eligible**	**4 Eligible**	2	3	0
George (SBRD)	2	1	1	0	0	1	0	0	0
Gergen Creek (TLRD)	2	2	2	0	1	1	2	2	0
Giefer (HHRD)	2	2	2	0	0	2	0	0	0
Gildart Creek (SLRD)	1	0	1	0	0	1	1	3	3
Gill (SBRD)	2	0	0	0	0	0	0	0	0
Glacier Creek (SLRD)	3	2	2	0	0	3	3	2	2
Goat Creek (SLRD)	3	3	2	0	0	2	2	2	0
Good Creek (TLRD)	2	2	2	0	2	1	2	2	0
Gordon (SBRD)	2	3	2	3	0	2	1	2	0
Gorge (SBRD)	2	2	3	0	0	3	3	0	0
Granite (HHRD)	3	3	2	0	0	2	1	0	0
Graves (HHRD)	2	2	2	3	0	3	2	2	0
Gregg Creek (TLRD)	2	2	1	0	0	1	2	3	0
Griffin Creek (TLRD)	2	2	2	1	2	2	2	2	0
Groom Creek (SLRD)	2	3	1	0	0	1	1	0	0
Grouse (SBRD)	2	0	2	0	0	2	1	0	0
Gyp (SBRD)	2	0	0	0	0	0	0	0	0
Hahn (SBRD)	2	1	2	3	3	2	0	0	0
Hall Creek (SLRD)	2	2	2	0	0	2	2	2	0
Hallowat (GVRD)	2	3	2	0	0	1	0	0	0
Hand Creek (TLRD)	2	2	2	0	1	2	2	2	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Harris (HHRD)	2	2	1	0	0	2	0	0	0
Harrison (SBRD)	2	0	0	0	0	0	0	0	0
Haskill Creek (TLRD)	2	2	2	0	2	2	2	2	0
Hay (GVRD)	2	2	2	0	0	2	1	0	0
Head (SBRD)	2	1	2	0	0	2	1	0	0
Helen (SBRD)	2	1	2	0	0	2	1	0	0
Helio (SBRD)	2	0	0	0	0	0	0	0	0
Hell Roaring Creek (TLRD)	2	2	2	0	2	2	2	2	0
Hemlock Creek (SLRD)	3	2	2	0	0	2	1	0	2
Hemlock Creek (TLRD)	2	2	1	0	0	1	2	2	0
Herrick Run (SLRD)	3	2	1	0	0	2	2	0	2
Herrig Creek (TLRD)	2	2	2	0	1	1	2	2	0
Highrock (SBRD)	2	0	0	0	0	0	0	0	0
Hilburn Creek (SLRD)	1	1	0	0	0	0	1	0	0
Hodag (SBRD)	2	1	0	0	0	0	0	0	0
Hoke (HHRD)	2	0	1	0	0	2	0	0	0
Holbrook (SBRD)	2	1	2	3	3	2	0	0	0
Holland Creek (SLRD)	2	3	3	3	2	2	2	0	0
Hoop (SBRD)	2	0	0	0	0	0	0	0	0
Hungry (SBRD)		1	2	0	0	2	1	0	0
Hungry Horse (HHRD)	2	2	1	0	0	1	0	3	0
Ingalls Creek (TLRD)	2	2	2	0	2	2	2	2	0
Inspiration (SBRD)	2	0	2	0	0	2	1	0	0
Jeff (SBRD)	2	0	0	0	0	0	0	0	0
Jenny (SBRD)	2	0	1	0	0	1	0	0	0
Jim Creek (SLRD)	3	3	2	0	0	2	2	2	2

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Johnson Creek (SLRD)	2	0	1	0	0	2	2	0	0
Johnson Creek (TLRD)	2	2	1	0	1	1	2	3	0
Jones (HHRD)	2	1	2	0	0	2	0	2	0
Juliet (SBRD)	2	1	2	0	0	3	1	2	0
Jumbo (SBRD)	2	0	0	0	0	0	0	0	0
Jungle (SBRD)	2	0	0	0	0	0	2	0	0
Kate (HHRD)	2	0	1	0	0	1	0	0	0
Ketchikan (GVRD)	2	2	1	0	0	2	0	0	0
Kid (SBRD)	2	0	0	0	0	0	0	0	0
Kimmerly (GVRD)	2	0	2	0	0	2	1	3	0
King Creek (TLRD)	2	2	1	0	0	1	2	2	0
Kletomus (GVRD)	2	2	1	0	0	2	0	0	0
Knieff (HHRD)	2	1	1	0	0	1	0	0	0
Kraft Creek (SLRD)	3	2	2	0	0	2	1	0	2
Lamoose (SBRD)	2	0	0	0	0	0	0	0	0
Langford (GVRD)	2	2	1	0	0	1	0	2	0
Larch (SBRD)	2	0	0	0	0	0	0	0	0
Late (SBRD)	2	0	0	0	0	0	0	0	0
Le Beau Creek (TLRD)	2	2	3	2	**4 Eligible**	**4 Eligible**	**4 Eligible**	2	**4 Eligible**
Lewis (SBRD)	2	0	0	0	0	0	0	0	0
Lick (SBRD)	2	1	0	0	0	0	0	0	0
Lid (HHRD)	2	1	1	0	0	1	0	0	0
Lime (SBRD)	2	0	0	0	0	0	0	0	0
Lime (SBRD)	2	0	1	0	0	1	0	0	0
Lime Creek (SLRD)	1	0	1	0	0	1	1	0	0
Limestone (SBRD)	2	1	0	0	0	0	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Link Lake (GVRD)	2	2	2	0	0	2	1	3	0
Lion Creek (SLRD)	3	3	2	3	0	2	2	0	0
Listle Creek (TLRD)	2	2	2	0	1	2	2	2	0
Little (SBRD)	2	0	0	0	0	0	0	0	0
Little Bitterroot River (SLRD)	2	1	1	0	0	3	3	0	2
Little Calf (SBRD)	2	0	0	0	0	0	0	0	0
Little Salmon (SBRD)	3	**4 Eligible**	2	**4 Eligible**	0	**4 Eligible**	3	0	0
Lodgepole (SBRD)	2	3	1	0	0	1	0	0	0
Logan (HHRD)	2	2	2	0	0	2	0	0	0
Logan Creek (TLRD)	3	3	**4 Eligible**	1	2	**4 Eligible**	3	2	1
Long (HHRD)	2	2	2	0	0	2	0	0	0
Lookout (GVRD)	2	1	0	0	0	1	0	0	0
Lost Creek (SLRD)	2	3	2	0	0	2	2	3	0
Lost Creek (TLRD)	2	2	2	0	1	2	2	2	0
Lost Jack (SBRD)	2	1	1	0	0	1	1	0	0
Lost Johnny (HHRD)	2	2	2	0	0	2	0	0	0
Lost Mare (HHRD)	2	2	1	0	0	1	0	0	0
Lower Twin (SBRD)	2	2	2	3	0	2	1	0	0
Margaret (HHRD)	2	2	1	0	0	1	0	0	0
Marion (HHRD)	2	1	2	0	0	2	0	0	0
Marshall (SBRD)	2	1	1	0	0	3	1	0	0
Martin Creek (TLRD)	2	2	2	1	2	3	2	2	0
Mathias (GVRD)	2	2	0	0	0	2	0	0	0
McGinnis (GVRD)	2	1	2	0	0	1	0	0	0
McInerie (HHRD)	2	2	1	0	0	1	0	0	0
McKay Creek (SLRD)	2	0	1	0	0	1	1	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Meadow (SBRD)	2	0	0	0	0	0	0	0	0
Meadow Creek (SLRD)	2	1	1	0	0	1	1	0	0
Meadow Creek (TLRD)	2	2	2	0	1	2	2	2	0
Mid (SBRD)	2	1	1	0	0	1	1	0	0
Middle Fork (SBRD)	2	2	1	0	0	1	1	0	0
Middle Fork Dayton Creek (SLRD)	2	1	1	0	0	1	2	0	0
Middle Fork Porcupine Creek (SLRD)	1	0	1	0	0	1	1	0	0
Milk (SBRD)	2	0	0	0	0	0	0	0	0
Miller Creek (TLRD)	2	2	2	0	2	2	2	2	0
Miner (SBRD)	2	2	2	0	0	2	1	0	0
Moccasin (HHRD)	2	1	2	0	0	2	0	0	0
Molly (SBRD)	2	0	2	0	0	2	2	0	0
Moore Creek (SLRD)	3	0	1	0	0	2	1	0	2
Moose (GVRD)	2	2	2	0	0	2	1	3	0
Moran (GVRD)	2	2	1	0	0	2	0	3	0
Morrison (HHRD)	2	3	2	0	0	2	0	0	0
Morrison (SBRD)	2	3	2	0	0	2	0	0	0
Murray (HHRD)	2	2	1	0	0	2	0	0	0
Nanny (SBRD)	2	0	0	0	0	0	0	0	0
Nicola (GVRD)	2	2	1	0	0	2	0	0	0
Ninko (GVRD)	2	2	2	0	3	2	1	0	0
Noisy Creek (SLRD)	2	0	2	3	3	2	1	0	0
Nokio (GVRD)	2	2	1	**4 Eligible**	2	2	1	0	0
North (SBRD)	2	0	0	0	0	0	0	0	0
North Fork Cedar Creek (SLRD)	3	0	2	0	0	2	2	0	2

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
North Fork Cold Creek (SLRD)	3	2	2	0	0	2	2	0	2
North Fork Elk Creek (SLRD)	3	2	2	0	0	2	2	0	2
North Fork Evers Creek (TLRD)	2	2	2	0	1	2	2	2	0
North Fork Fitzsimmons Creek (TLRD)	2	2	1	0	0	1	2	2	0
North Fork Helen (SBRD)	2	0	0	0	0	0	0	0	0
North Fork Hemlock Creek (SLRD)	3	0	2	0	0	2	2	0	2
North Fork Lost Creek (SLRD)	2	3	2	3	3	2	2	0	0
North Fork Porcupine Creek (SLRD)	2	0	1	0	0	1	1	3	3
Oettiker Creek (TLRD)	2	2	2	0	1	2	2	2	0
Otila (HHRD)	2	0	1	0	0	2	0	0	0
Otis (SBRD)	2	1	0	0	0	0	0	0	0
Otter (SBRD)	2	0	1	0	0	1	0	0	0
Owl Creek (SLRD)	3	2	2	0	0	2	1	0	0
Pagoda (SBRD)	2	0	0	0	0	0	0	0	0
Paint (HHRD)	2	0	1	0	0	1	0	0	0
Palisade (SBRD)	2	1	1	0	0	1	0	0	0
Paola (HHRD)	2	1	1	0	0	2	0	0	0
Patrick Creek (SLRD)	1	1	1	0	0	1	1	0	0
Patterson Creek (SLRD)	2	0	2	0	0	2	2	0	0
Pedro (SBRD)	2	0	2	0	0	2	1	0	0
Peggy (SBRD)	2	0	0	0	0	1	1	0	0
Pendant (SBRD)	2	2	1	0	3	1	0	2	0
Pentagon (SBRD)	2	1	2	2	0	2	1	0	0
Peters (SBRD)	2	0	0	0	0	0	0	0	0
Peterson Creek (SLRD)	2	0	2	0	0	2	2	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Phil (SBRD)	2	1	0	0	0	0	0	0	0
Picture (SBRD)	2	0	0	0	0	1	1	0	0
Pierce Creek (SLRD)	3	1	1	0	0	1	2	2	0
Pine (SBRD)	2	1	0	0	0	0	0	0	0
Piper Creek (SLRD)	3	3	2	0	0	2	2	3	2
Plume Creek (TLRD)	2	2	2	0	1	2	2	2	0
Pony Creek (SLRD)	3	2	2	0	0	2	2	2	0
Porcupine Creek (SLRD)	2	1	2	0	0	1	1	3	3
Porter Creek (SLRD)	2	1	0	0	0	1	1	0	0
Potter Creek (TLRD)	2	2	2	0	1	2	2	2	0
Puma (SBRD)	2	0	0	0	0	0	0	0	0
Puzzle (HHRD)	2	2	1	0	0	2	0	0	0
Quintonkon (SBRD)	2	2	3	3	0	2	2	0	0
Rampart (SBRD)	2	0	1	0	0	1	1	0	0
Rand Creek (TLRD)	2	2	2	0	1	2	2	2	0
Rapid (SBRD)	2	2	2	2	0	2	1	0	0
Razzle (SBRD)	2	0	0	0	0	0	0	0	0
Red Butte Creek (SLRD)	3	2	2	0	0	2	1	0	2
Red Meadow (GVRD)	3	3	2	0	0	2	0	3	0
Reef (SBRD)	2	0	0	0	0	0	0	0	0
Reid Creek (TLRD)	2	2	2	0	1	2	2	2	0
Remington (HHRD)	2	1	0	0	0	1	0	0	0
Riverside (HHRD)	2	2	1	0	0	2	0	0	0
Roaring (SBRD)	2	1	1	0	0	1	1	0	0
Robertson Creek (TLRD)	2	2	2	0	1	2	2	2	0
Rocky Creek (SLRD)	2	0	2	0	0	2	1	2	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Rooney (SBRD)	2	0	2	0	0	2	1	0	0
Ross (SBRD)	2	0	1	0	0	1	0	0	0
Rumble Creek (SLRD)	2	2	2	0	0	2	2	0	0
Russky Creek (TLRD)	2	2	1	0	1	1	1	2	0
Ryle (HHRD)	2	2	1	0	0	1	0	0	0
Sandstone (SBRD)	2	0	1	0	0	1	0	0	0
Sanko Creek (TLRD)	2	2	1	0	1	1	2	3	0
Sappho (SBRD)	2	0	0	0	0	0	0	0	0
Sarah (SBRD)	2	0	0	0	0	0	0	0	0
Scalp (SBRD)	2	0	1	0	0	1	0	0	0
Scarface (SBRD)	2	0	0	0	0	0	0	0	0
Schafer (SBRD)	2	2	2	0	0	2	1	0	0
Schmidt Creek (SLRD)	2	1	1	0	0	1	2	0	0
Scout Creek (SLRD)	3	0	1	0	0	2	1	0	0
Seagrid (HHRD)	2	1	1	0	0	1	0	0	0
Sergeant (SBRD)	2	2	1	0	0	1	1	0	0
Shaw (SBRD)	2	1	1	0	0	1	0	0	0
Sheep (HHRD)	2	2	2	0	0	2	0	0	0
Sheppard Creek (TLRD)	2	2	2	1	2	2	2	2	0
Shorty (GVRD)	2	2	1	0	0	2	0	0	0
Silvertip (SBRD)	2	2	2	0	0	2	3	2	0
Simpson Creek (SLRD)	3	2	1	1	3	2	2	2	0
Sinclair Creek (TLRD)	2	2	1	0	1	1	2	2	0
Sixmile Creek (SLRD)	2	3	2	0	0	2	2	0	0
Skookoleel (GVRD)	2	2	1	0	0	2	0	0	0
Skyland (HHRD)	2	2	1	0	0	2	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Slick (SBRD)	2	1	0	0	0	1	1	0	0
Slide (SBRD)	2	2	0	0	0	0	0	0	0
Slim (SBRD)	2	0	0	0	0	0	0	0	0
Smith Creek (SLRD)	3	2	2	0	0	2	2	2	0
Smith Creek (TLRD)	2	2	1	0	0	1	2	2	0
Smoke Creek (TLRD)	2	2	1	0	1	1	2	2	0
Smokey (SBRD)	2	2	3	0	0	2	1	2	0
Soldier (SBRD)	2	1	1	3	0	1	0	0	0
Soup Creek (SLRD)	3	2	2	0	0	3	2	2	0
South (SBRD)	2	1	0	0	0	0	0	0	0
South Fork (SBRD)	2	0	0	0	0	0	0	0	0
South Fork Abbot (HHRD)	2	0	1	0	0	1	0	0	0
South Fork Barber Creek (SLRD)	2	1	1	0	0	1	1	0	0
South Fork Canyon (GVRD)	2	2	0	0	0	1	0	0	0
South Fork Cedar Creek (SLRD)	3	2	1	0	0	2	1	0	2
South Fork Coal (GVRD)	2	2	1	0	0	2	0	0	0
South Fork Cold Creek (SLRD)	3	2	2	0	0	2	2	0	2
South Fork Elk Creek (SLRD)	3	2	2	0	0	2	2	0	2
South Fork FH River (HHRD)	2	2	2	0	0	2	1	0	0
South Fork Lion Creek (SLRD)	2	2	2	0	0	2	2	0	0
South Fork Logan (HHRD)	2	2	1	0	0	1	0	0	0
South Fork Lost Creek (SLRD)	2	3	2	3	3	2	2	0	0
South Fork Red Meadow (GVRD)	2	2	0	0	0	2	0	0	0
South Fork Rumble Creek (SLRD)	2	2	2	0	0	2	2	0	0
South Fork Shorty (GVRD)	2	2	1	0	0	2	0	3	0
South Fork W R (SBRD)	2	2	1	0	0	2	1	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Spotted Bear River (SBRD)	**4 Eligible**	3	**4 Eligible**	3	2	3	3	3	0
Spring (SBRD)	2	0	0	0	0	0	0	0	0
Spring Creek (SLRD)	2	1	1	0	0	2	2	2	0
Spruce (GVRD)	2	0	0	0	0	1	0	0	0
Spruce (SBRD)	2	0	1	0	0	1	0	0	0
Spud (SBRD)	2	0	0	0	0	0	0	0	0
Squaw Meadows Creek (TLRD)	2	2	2	0	1	2	2	2	0
Squeezer Creek (SLRD)	2	3	2	0	0	2	2	2	0
Stadium (SBRD)	2	2	1	0	0	1	1	0	0
Stadler (SBRD)	2	1	2	0	0	2	1	0	0
Stanton (HHRD)	2	2	2	0	0	2	0	3	0
Star Creek (TLRD)	2	2	1	0	1	1	2	2	0
Stillwater River (TLRD)	2	2	3	1	2	3	2	2	0
Stoner Creek (SLRD)	2	1	1	0	0	2	2	0	0
Stopher Creek (SLRD)	1	1	1	0	0	1	1	0	0
Strawberry (SBRD)	2	3	3	0	0	3	2	0	0
String (SBRD)	2	0	0	0	0	0	0	0	0
Sugarloaf (SBRD)	2	0	0	0	0	0	0	0	0
Sullivan (SBRD)	3	2	2	3	3	2	2	0	0
Sunburst (SBRD)	2	0	3	0	0	3	3	0	0
Swan River (SLRD)	3	2	3	3	3	2	2	3	3
Swaney Creek (TLRD)	2	2	2	0	1	2	2	2	0
Swanson Creek (TLRD)	2	2	2	0	1	2	2	2	0
Swede Creek (TLRD)	2	2	1	0	1	1	2	2	0
Swift (SBRD)	2	0	0	0	0	0	0	0	0
Tango (SBRD)	2	0	0	0	0	1	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Tanner (SBRD)	2	0	1	0	0	1	0	0	0
Taylor (SBRD)	2	0	0	0	0	0	0	0	0
Taylor Creek (TLRD)	2	2	2	0	1	2	2	2	0
Tent (HHRD)	2	2	1	0	0	1	0	0	0
Tepee (GVRD)	2	1	2	0	0	2	0	3	0
Thoma (GVRD)	2	2	2	0	0	2	0	0	0
Three Sisters (SBRD)	2	1	1	0	0	1	0	0	0
Tiger (HHRD)	2	2	1	0	0	1	0	0	0
Tin (SBRD)	2	1	0	3	0	0	0	0	0
Tobie Creek (TLRD)	2	2	2	0	1	2	2	2	0
Trail (GVRD)	3	**4 Eligible**	2	**4 Eligible**	2	2	**4 Eligible**	0	0
Trail (SBRD)	2	1	1	2	0	1	0	0	0
Trail (SBRD)	2	1	1	0	0	1	0	0	0
Trail Creek (TLRD)	2	2	2	3	1	2	3	2	0
Trapper (HHRD)	2	1	1	0	0	2	0	0	0
Trickle (SBRD)	2	1	2	0	0	2	1	0	0
Trixie Creek (TLRD)	2	2	2	0	1	2	2	2	0
Truman Creek (SLRD)	2	1	2	0	0	2	2	0	0
Trumbull (GVRD)	2	0	1	0	0	1	0	0	0
Tuchuck (GVRD)	2	2	2	0	0	2	0	2	3
Tunnel (HHRD)	3	3	2	0	0	2	0	0	0
Turmoil (HHRD)	2	0	1	0	0	2	0	0	0
Twentyfive Mile (HHRD)	2	2	2	0	0	2	0	0	0
Una (SBRD)	2	0	1	0	0	1	0	3	0
Unawah (HHRD)	2	1	1	0	0	2	0	0	0
Upper Twin (SBRD)	2	2	2	3	0	2	1	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Waldbillig (SBRD)	2	0	0	0	0	0	0	0	0
Wall (SBRD)	2	1	1	0	0	3	3	0	0
Warrior (SBRD)	2	0	0	0	0	0	0	0	0
Werner (GVRD)	2	1	1	0	0	2	0	0	0
Werner Creek (TLRD)	2	2	2	0	1	2	2	2	0
West Fork (SBRD)	2	0	0	0	0	0	0	0	0
West Fork Dayton Creek (SLRD)	2	2	1	0	0	1	2	0	0
West Fork Wall (SBRD)	2	0	1	0	0	1	1	0	0
Whale (GVRD)	3	3	2	0	0	2	0	0	0
Wheeler (HHRD)	2	3	2	0	0	2	0	0	0
Whistler (SBRD)	2	1	1	0	0	1	0	0	0
Whitcomb (SBRD)	2	1	1	0	0	3	1	0	0
White (SBRD)	2	0	1	0	0	1	0	0	0
White River (SBRD)	3	**4 Eligible**	0	**4 Eligible**	**4 Eligible**	3	**4 Eligible**	3	0
Whitetail Creek (SLRD)	3	1	1	0	0	1	2	2	0
Wigwam (SBRD)	2	0	0	0	0	0	0	0	0
Wild Bill Creek (SLRD)	2	1	2	0	0	2	2	0	0
Wildcat (HHRD)	2	2	2	0	0	2	0	0	0
Wildrose (SBRD)	2	0	1	0	0	1	0	0	0
Willow (SBRD)	2	0	0	0	0	0	0	0	0
Windfall Creek (SLRD)	3	1	1	0	0	1	2	3	0
Winter (SBRD)	2	1	1	0	0	1	0	0	0
Wolf Creek (SLRD)	2	2	2	0	0	2	2	0	0
Woodfir (SBRD)	2	1	0	0	0	0	0	0	0
Woodward Creek (SLRD)	2	3	2	0	0	2	2	2	0
Wounded Buck (HHRD)	3	3	2	0	0	2	0	0	0

Stream Name (Ranger District[1])	Wildlife	Fish	Recreation	Pre-history	History	Scenery	Geology	Botany	Natural Areas
Wyman Creek (SLRD)	2	1	2	0	0	2	2	0	0
Yakinikak (GVRD)	2	3	1	**4 Eligible**	3	2	0	0	0
Yew Creek (SLRD)	2	0	1	0	0	2	2	0	0
Youngs (SBRD)	2	3	2	3	0	2	1	0	0

1. SBRD = Spotted Bear Ranger District; HHRD = Hungry Horse Ranger District; GVRD = Glacier View Ranger District; SLRD = Swan Lake Ranger District; TLRD = Tally Lake Ranger District; refer to Table G-4 for ranking definitions

Summary of Eligible Wild and Scenic Rivers

Table G-7 displays each of the eligible wild and scenic rivers on the Flathead NF by their segment, potential classification, outstandingly remarkable value and length. This table combines the eligible rivers from the 2004 and the 2014 processes.

Table G-7. Eligible wild and scenic rivers

River	Segment	Potential Classification	Outstanding Remarkable Values	Length (miles)
Aeneas	Headwaters to Hungry Horse Reservoir	Scenic	History, prehistory, recreation, scenery	5
Big Salmon	Lena Lake to South Fork of Flathead River, includes Big Salmon Lake.	Wild	Recreation, geology, fish, prehistory	19
Clack Creek	Headwaters to Middle Fork of Flathead River	Wild	Geology, scenery	8
Danaher	Headwater to Youngs Creek.	Wild	Scenery, recreation, fish, wildlife, history, prehistory, botany, natural areas	23
Elk	Headwaters to forest boundary	Scenic	Fish	10
Gateway	Headwater to Strawberry Ck	Wild	Scenery, geology, history	5
Glacier	Headwaters to outlet of Glacier Slough	Wild: within MMW Scenic: wilderness boundary to outlet of Glacier Slough	Geology, wildlife, scenery	6
Graves	Headwaters to Hungry Horse Reservoir	Wild: within Jewel Basin Scenic: from boundary of Jewel Basin to Hungry Horse Reservoir	Prehistory	10
LeBeau	Headwater to LeBeau RNA boundary	Wild	Scenic, geological, natural area	4
Lion	Source to Lion Creek TH	Scenic	Wildlife	11
Little Salmon	Headwater to South Fork of Flathead River	Wild	Scenery, fish, prehistory	19
Logan	From Rd 539 to Tally Lake	Recreation	Scenic, recreational	4
Spotted Bear	Headwater to South Fork of Flathead River	Wild: headwaters to end of Blue Lake Recreation: Blue Lake to SF of Flathead	Recreation, wildlife, geology	35
Schafer	Headwaters to Middle Fork of Flathead River	Wild	Prehistory, history	11
Strawberry	Headwaters to Middle Fork of Flathead River	Wild	Fish	14

River	Segment	Potential Classification	Outstanding Remarkable Values	Length (miles)
Lower Swan River	Swan River State Forest to Swan Lake	Recreation	Wildlife	11
Whale	Headwaters to FS boundary	Scenic: Headwaters to confluence to Shorty Creek Recreation: Shorty Creek to FS boundary	Wildlife	21
White River	White River	Wild	Geology, fish, history, prehistory, scenery	24
Nokio	From confluence of unnamed stream just south of Road 114, to confluence of Yakinikak Creek.	Scenic	Fish, prehistory, geology	3
Yakinikak	From confluence with Nokio Creek to confluence of Thoma and Trail Creeks.			8
Trail	Confluence of Thoma and Yakinikak Creeks to FS boundary in sec 29.			2
Youngs	Headwaters to South Fork of the Flathead	Wild	Fish, recreation, prehistory, history, scenery	23

Appendix H: Monitoring Program

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Overview

Monitoring provides the feedback for the forest planning cycle by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices. Monitoring information should enable the Forest to determine if a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management. Direction for the monitoring and evaluation of forest plans is found under the 2012 planning rule at 36 CFR 219.12 and in the directives at 1909.12 Chapter 30.

The plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following:

- The status of select watershed conditions.
- The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
- The status of focal species to assess the ecological conditions required under § 219.9.
- The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
- The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
- Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
- Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
- The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land.

The plan monitoring program addresses the most critical components for informed management of the Forest's resources within the financial and technical capability of the agency. Every monitoring question links to one or more desired conditions, objectives, standards, or guidelines. However, not every plan component has a corresponding monitoring question.

This monitoring program is not intended to depict all monitoring, inventorying, and data gathering activities undertaken on the Forest; nor is it intended to limit monitoring to just the questions and indicators listed in tables H-1 through H-4. Consideration and coordination with broad-scale monitoring strategies, multi-party monitoring collaboration, and cooperation with state agencies where practicable will increase efficiencies and help track changing conditions beyond the Forest boundaries to improve the effectiveness of the plan monitoring program. In addition, project and activity monitoring may be used to gather information for the plan monitoring program if it will provide relevant information to inform adaptive management.

The monitoring program sets out the plan monitoring questions and associated indicators. It is comprised of a monitoring guide (*to be developed*) and a biennial monitoring evaluation report. The monitoring guide will provide detailed information on the monitoring questions, indicators, frequency and reliability, priority, data sources and storage, and cost.

An interdisciplinary team will develop a biennial monitoring evaluation report which will summarize the results of completed monitoring, evaluate the data, consider relevant information from broad-scale or

other monitoring efforts, and make recommendations to the responsible official. The monitoring evaluation report will indicate whether or not a change to the Forest Plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report is used to inform adaptive management of the Plan area. The monitoring evaluation report will be made available to the public.

Some kinds of monitoring indicators will require longer time frames for thorough evaluation of results, but a biennial review of what information has been collected will ensure timely evaluation to inform planning. The biennial monitoring evaluation does not need to evaluate all questions or indicators on a biennial basis but must focus on new data and results that provide new information regarding management effectiveness, progress towards meeting desired conditions or objectives, changing conditions, or validation (or invalidation) of assumptions.

Tables H-1 through H-4 are organized to display the plan components that drive the monitoring question(s) and the indicator(s) for answering the monitoring question. Monitoring questions are used to evaluate whether management is maintaining or moving toward or away from desired conditions. Indicators are the specific resource measures used in answering the monitoring questions. In general, the forest plan components listed is the primary direction being addressed by the monitoring question.

The monitoring indicators listed in this appendix will be evaluated. The associated evaluation process then determines if the observed changes are consistent with the Forest Plan as well as the effectiveness of implementation. Evaluation reports will be produced biennially (as per 2012 Rule, 36 CFR 219.12(d)). Not all questions or indicators will be reported in the biennial Monitoring Evaluation Report because some will be reported over longer time scales.

Physical and Biological Ecosystems

The forest plan components for wildlife may not be the primary direction that is addressed by the monitoring question, because wildlife habitats are integrated with aquatic ecosystems, terrestrial vegetation, processes such as fire, and human developments such as roads or recreation sites. As a result, other monitoring questions and indicators may provide information that is relevant to wildlife monitoring. For example, vegetation composition and structure are key components of wildlife habitat and are, therefore, important components of wildlife habitat monitoring.

At a national forest scale, potential vegetation is a useful organizing concept to delineate habitat influenced by elevation, microclimates, or productivity, which may be related to wildlife occurrence. The Flathead National Forest (NF) has identified desired conditions for four potential vegetation groups (called biophysical settings); warm dry, warm moist, cool moist to moderately dry, and cold. The key ecosystem characteristics listed in this appendix are intended to be used for forest plan monitoring at a forest-wide or biophysical setting scale. Although many existing vegetation characteristics are associated with wildlife habitats, the following key ecosystem characteristics have been identified based on national technical guides:

- Vegetation composition – coniferous forest dominance type acres, deciduous forest type acres, key tree species presence by size class, burned forest acres and distribution by severity class
- Vegetation structure – average opening patch size by biophysical setting, range of opening patch sizes by biophysical setting, acres meeting Green et al. definitions of old growth, acres with large live tree presence. (Also see snags and defective trees, down wood)
- Vegetation successional or seral stages – tree size classes within RHCAs and other lands
- Snags and defective live trees – acres by snag size class

- Down wood – coarse woody debris tons/acre
- Herbaceous vegetation and shrubs – acres of transitional forest resulting from fire and timber harvest as well as more persistent herbaceous/shrub communities

Specific vegetation indicators that would be monitored for key ecosystem characteristics on the Flathead NF are identified and described in the vegetation or fire sections of table h-1. Monitoring of other ecosystem characteristics may be applied at the mid-scale or project level. For example, spatial mapping of forest size classes or canopy cover classes may be done, using VMAP or other vegetation data bases, to assess distribution of habitat conditions for specific wildlife species. Key ecosystem characteristics can also be combined in different ways to assess habitat for specific species of interest, using habitat models that are based upon the best available scientific information. Species-specific habitat models would be used at the project scale to assess potential effects of forest plan implementation. For example, project-level monitoring can assess availability of multistoried hare habitat within a lynx analysis unit or assess spatial distribution of old growth patch size and connectivity within a sub-watershed.

In addition to vegetation attributes, other characteristics of the human environment are important to wildlife and would be included in monitoring efforts. Key characteristics include human settlements, agricultural lands, roads, developed recreation sites, and invasive species. Trends in human settlements and agricultural lands within the perimeter of the Flathead NF may be monitored using LANDFIRE data sets, obtained from the Montana National Heritage Program (MTNHP) as they are updated. Roads and developed recreation sites would be monitored on National Forest System (NFS) lands as listed in the Recreation and Infrastructure sections of table h-2.

Key ecosystem characteristic related to climate change and wildlife are measured at very large scales, not the forest scale, but are important to some wildlife species on the Flathead NF. For example, one key ecosystem characteristic is “persistent spring snow” which is useful for monitoring habitat for species such as the wolverine. Changes in the distribution of persistent spring snow on the Flathead NF would be monitored if and when the existing data is updated. Another key ecosystem characteristic is related to drought, measured by drought severity indices and trends, which would be monitored over time as the data is updated. Links between particular wildlife species and phenology may also be important--for example, coat mis-match between snowshoe hares and their environment—and is currently being researched.

The presence and distribution of threatened and endangered species, species of conservation concern, and species of public interest are not included as indicators in the Flathead NF proposed plan monitoring program, but would be assessed in cooperation with MTFWP, non-government organizations (NGOs), MTNHP, and other federal agencies (e.g., Integrated Bird Monitoring in Bird Conservation Regions, NCDE grizzly bear monitoring). The bull trout is a Threatened species and is a proposed focal species because it is an indicator of ecological integrity of an aquatic ecosystem integral to the Flathead NF. Due to its status as a proposed focal species, redd counts would be included as an indicator to be monitored in cooperation with Montana Fish, Wildlife and Parks (MTFWP), and other agencies.

Table H-1. Physical and biological ecosystem plan monitoring questions and indicators

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
Terrestrial Ecosystems and Vegetation (TE&V)		
FW-DC-TE&V-02: Across the landscape, diverse vegetation conditions occur, in a complex pattern of species, tree sizes, tree ages, forest densities, patch sizes, canopy layers, and other forest structural characteristics such as downed wood and snags. Desired conditions for these components (as provided throughout this forest plan) create landscape patterns and forest conditions that are resilient, having the capacity to maintain or regain normal functioning and development following future disturbances (such as fire) or in the face of future climate changes. Forest patterns result in greater variation in post-disturbance forest conditions (such as in burn severity and numbers of live trees remaining after fire or insect epidemics), and more rapid and effective recovery and re-establishment of trees and other vegetation after disturbances. The vegetation mosaic across the plan area is dynamic, varying greatly over time as vegetation is influenced by site conditions and responds to climate changes and ecological processes such as natural succession, fire, insects and disease, floods and droughts. (Also as pertains to FW-DC-TE&V-01-23, FW-OBJ-TE&V-01-04, FW-STD-TE&V-01-06, FW-GDL-TE&V-01-14.)	**MON-TE&V-01:** To what extent are management activities and natural disturbance processes meeting or trending toward desired conditions for vegetation composition, structure, and pattern, increasing resistance and resiliency to disturbance factors including climate change? This includes vegetation dominance types, species presence, forest size class, old growth, presence of large live overstory trees, down wood, snags, recently burned forest, and insect and disease infested forest.	**IND TE&V-01:** **a.** Acres in each biophysical setting affected by vegetation management activities (e.g timber harvest, prescribed fire, pre-commercial thin, fuels treatment, post-fire salvage, planting) that meet FW-OBJ-VEG-01. Data source: Forest Service Activity Tracking System (FACTS) data base. **b.** Acres in each biophysical setting affected by natural disturbance processes (i.e. wildfire, detectable insect and disease infestations). Data source: Fire and FACTS data bases, aerial insect/disease surveys. **c.** Acres of mtn. pine beetle and root disease hazard and levels of hazard. Data source: FIA. **d.** Acres by vegetation dominance type and species presence. Data source: Forest Inventory and Analysis (FIA) program. **e.** Acres by forest size class. Data source: FIA. **f.** Acres of old growth (as defined in glossary). Data source: FIA. **g.** Acres with presence of large, live trees. Data source: FIA. **h.** Snags per acre and average total tons per acre of downed woody material per acre. Data source: FIA.
FW-GDL-POLL-01: An integrated pest management approach should be used when evaluating proposed methods to control pests (such as insects or invasive weeds), considering potential effects to native pollinators and mitigation measures if necessary. (Also as pertains to FW-DC-ECOS GR-01, MA-1a-DC-04,MA-3 Special Areas-DC-01, FW-DC-TE&V-06, FW-OBJ-TE&V-03).	**MON-TE&V-02:** Have management activities met Plan objectives and trended towards desired conditions for invasive terrestrial plant species?	**IND-TE&V-02:** **a.** Acres of non-native invasive plants treated. **b.** Number of sites of new non-native invasive plant species and number of acres treated
FW-DC-PLANT-01: Habitat conditions support the recovery of plant species listed as threatened, endangered, proposed or candidate species under	**MON-TE&V-03:** **a.** To what extent is forest management contributing to the conservation of water	**IND-TE&V-03:** **a.** Occurrences of water howellia and condition of habitats. Data source: periodic monitoring

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
the ESA. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are retained or restored. **FW-OBJ-PLANT-01:** Treat 8,100 to 19,200 acres for the purpose of sustaining or restoring whitebark pine in the ecosystem and contribute to achieving desired conditions for presence of this species across the landscape.	howellia and moving toward habitat objectives? **b.** To what extent is forest management contributing to the desired conditions and objectives for maintaining and restoring whitebark pine?	surveys. **b.** Acres treated for the purpose of sustaining or restoring whitebark pine.
FW-DC-SCC PLANT-01: Vegetation conditions and ecological processes that currently or potentially support plant species of conservation concern are maintained or restored. **FW-OBJ-SCC PLANT-01:** Treat 16,000 to 21,000 acres of forest to maintain or restore rust-resistant western white pine across the landscape and contribute to desired conditions for species presence across the landscape.	**MON-TE&V-04:** To what extent is forest management contributing to the desired conditions to maintain/restore western white pine?	**IND-TE&V-04:** Acres treated for the purpose of sustaining or restoring western white pine.
Fire		
FW-DC-FIRE-02: In areas where wildfires on NFS lands currently pose a threat to communities and community assets (e.g., power lines, communication towers, developed recreation sites), wildland fuel is reduced so the expected fire behavior is reduced. **FW-OBJ-FIRE-01:** Move toward or maintain the desired conditions for fuel management by treatment (such as mechanical or prescribed fire) of forest vegetation on approximately 50,000 to 75,000 acres, utilizing all available management opportunities. Some of these acres will be WUI exemptions to standards FW-STD-TE&V 03-06.	**MON-FIRE-01:** To what extent are management activities moving hazardous fuels towards desired conditions?	**IND-FIRE-01:** Acres of hazardous fuel treatments within the WUI, and in areas outside of the WUI (source FACTS database).
FW-DC-FIRE-03: The full range of fire management activities, including wildland fires (prescribed fire and wildfire), are recognized and used by forest administrators as an integral part of achieving ecosystem sustainability, including interrelated ecological, economic and social components such as improved ecosystem resilience and wildlife habitat, protection of property and other values at risk, public safety, and creation opportunities. (Also pertains to FW-DC-TE&V 03, 11, 12, 14, 15, 16.)	**MON-FIRE-02:** To what extent is unplanned fire used to trend vegetation towards desired conditions?	**IND-FIRE-02**: **a.** Number of unplanned natural fire ignitions managed for the maintenance and/or restoration of fire-adapted ecosystems, and the number of unplanned natural ignition managed with the primary goal of suppression (source is Firestat). **b.** Forestwide acres burned by wildfire by severity class (low, medium, high) as determined by all available post-fire information including BARC surveys. **c.** Forestwide acres burned by prescribed fire to meet restoration objectives (e.g. whitebark

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
		pine, grass/forb/shrub, etc)
Aquatic Ecosystems and Species		
FW-DC-WTR-01: Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances without long-term, adverse changes to their physical or biological integrity. Watersheds are in fully functioning conditions as defined by the Watershed Condition Framework. **FW-DC-WTR-04:** Stream channels transport sediment and woody material over time while maintaining reference dimensions (e.g., bankfull width, depth, entrenchment ratio, slope and sinuosity). Watershed conditions support a natural frequency and magnitude of base flows and flood flows. (Also pertains to FW-GDL-RHCA-01 02, 03, 11; FW-DC-WTR-02 11; FW-GDL-WTR-03; FW-DC-AQH-01,02; FW-DC-AQS-01-05.)	**MON-WTR-01:** Are water quality, riparian and aquatic habitats protected and moving towards desired conditions? Are we moving class 2 watersheds under the watershed condition framework to class 1?	**IND-WTR-01:** **a.** Number of best management practices (BMP) evaluations conducted, the percent of BMPS that were implemented correctly, and the percent that were effective. **b.** PIBO monitoring: positive trend in PIBO metrics such as bank angle, wood frequency, percent fines, residual pool depth, percent pools, and median substrate size (D50). **c.** Acres (or miles) of restoration activities accomplished by 6th code watershed and acres (or miles) accomplished in 303d/TMDL watersheds **d.** Number of watersheds trended towards an improved condition of class 2. **e.** Results of McNeil core samples of percent fines.
FW-GDL-WTR-04: New stream diversions and associated ditches should have screens placed on them to prevent loss of fish and other aquatic organisms. **FW-GDL-IFS-05:** To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges and other stream crossings) should: **a.** Accommodate at least a 100-year recurrence interval discharge, including associated bedload and debris, and **b.** Prevent diversion of stream flow out of the channels in the event the crossing is plugged or has a flow greater than the crossing was designed. **FW-GDL-IFS-08:** New, replacement, and reconstructed stream crossing sites should be designed to provide and maintain fish passage where native fish, or other desired aquatic organisms, are present except where it is desirable to maintain or create barriers to prevent spread of	**MON-WTR-02:** To what extent is forest management contributing to the conservation of native fish and moving toward habitat objectives for bull trout habitat or critical habitat?	**IND-WTR-02:** **a.** Number of fish passage barriers removed or created. **b.** PIBO monitoring, positive trend in PIBO metrics such as, bank angle, wood frequency, percent fines, residual pool depth, percent pools, and median substrate size (D50).

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
undesirable species.		
FW-DC-RHCA-01: RHCAs provide healthy, functioning aquatic, riparian, upland, and wetland ecosystems that support native and desired non-native plant, vertebrate, and invertebrate communities, distributed across the landscape. **FW-DC-RHCA-02:** RHCAs contribute to stream channel integrity, channel processes, and sediment regimes that function characteristically for a given landscape and climatic setting. **FW-DC-RHCA-03:** RHCAs provide for wetland ecosystems. Streams and lakes are free of chemical contaminants and do not contain excess nutrients. Sediment levels are within reference conditions, supporting salmonid spawning and rearing, and cold water biota requirements.	**MON-WTR-03:** Have riparian and wetland areas been maintained or improved to provide for healthy streams and aquatic environments?	**IND-WTR-03:** **a.** Treatment type and acres within RHCAs. **b.** Number of entries and road crossing inside of RHCAs.
Terrestrial Wildlife Species—Threatened and Endangered (Grizzly Bear and Canada Lynx)		
FW-DC-WL-02: Within the NCDE PCA and Zone 1 (including the DCAs), grizzly bear habitat on NFS lands contributes to sustaining a recovered grizzly bear population in the NCDE. **FW-DC-WL-06:** Diverse conditions for the warm moist, cool moist to moderately dry, and cold biophysical settings contribute to habitat quality and connectivity for Canada lynx populations and grizzly bear populations at a landscape scale over the long-term, providing habitat resilience to climate change.	**MON-WL-01:** To what extent is forest management contributing to the conservation of the NCDE grizzly bear and moving toward desired habitat objectives conditions? (also pertains to **MON-VEG-01**)	**IND-WL-01:** **a.** Number of wildlife crossing structures in the North Fork, Middle Fork, or Swan Valley GAs. **b.** Acres open to over-snow vehicle use that is modeled high-quality lynx, grizzly bear denning, or wolverine maternal denning habitat. The following monitoring indicators from the vegetation, fire, aquatics, and RHCA sections also pertain to the grizzly bear: **IND-VEG-01 a, b, and e.** **IND-FIRE-02** **IND-WTR-03a** **IND-IFS-02 d and e**
FW-STD-IFS-02: In each bear management subunit within the NCDE PCA, there shall be no net decrease in the baseline level (see glossary) for secure core and no net increase in baseline levels for OMRD or TMRD on NFS lands during the non-denning season (see glossary), with the listed exceptions:	**MON-WL-02:** Within the NCDE PCA, to what extent does habitat security contribute to sustaining a recovered grizzly bear population in the NCDE?	**IND-WL-02:** Within the NCDE PCA, changes in the level of secure core, OMRD (> 1 mi/mi^2) and TMRD (> 2 mi/mi^2) within each bear management subunit, will be monitored and compared to the baseline. The information is to be reported biennially.
FW-STD-REC-01: Within the NCDE PCA, the number of developed recreation sites that are open	**MON-WL-03:** Within the NCDE PCA, to what extent do the number, capacity, and	**IND-WL-03:** Within the NCDE PCA, the number and overnight capacity of developed recreation sites on

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
during the non-denning season shall be limited to one increase to the baseline (see glossary) per decade per bear management unit (BMU) or one increase in overnight capacity per decade per BMU, with the following exceptions: • a change in the number or overnight capacity of developed recreation sites is necessary to comply with Federal laws (e.g., Federal Rehabilitation Act); • a change in the number or overnight capacity of developed recreation sites is necessary to address grizzly bear–human conflicts, resource damage, or human safety concerns; • a change in the number or overnight capacity of developed recreation sites is made that has been evaluated through the USFWS Section 7 consultation process and was shown to be acceptable while grizzly bears were listed as Threatened under the ESA; • the Forest Service adds a developed recreation site or increases the overnight capacity of a developed recreation site, but reduces the overnight capacity by an equal amount at another recreation site(s) in the same BMU, so that there is no net increase in overnight capacity in the BMU; • the Forest Service increases the overnight capacity of a developed recreation site, but consolidates and/or eliminates dispersed camping of equal capacity within the same BMU; • the Forest Service exchanges, buys or sells lands with developed recreation sites.	improvements of developed recreation sites minimize the risk of grizzly bear-human conflicts on National Forest System lands?	NFS lands within each BMU will be monitored. Developed recreation sites (e.g., ski areas, campgrounds, sites with cabins, huts, lodges, visitor centers, and trailheads) will be tracked and compared with the baseline. Administrative site (see glossary) numbers will also be monitored. The information is to be reported biennially.
FW-STD-ECOS GR-05: Within the NCDE PCA, 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 un-allotted lands.	**MON-WL-04:** Within the NCDE PCA, to what extent do the number and capacity of, and improvements on cattle grazing allotments minimize the risk of grizzly bear-human conflicts on National Forest System lands.	**IND-WL-04:** Within the NCDE PCA, the numbers of commercial livestock grazing allotments within the PCA will be monitored and compared to the baseline. The information is to be reported biennially.
FW-STD-ECOS E&M-02: Within the NCDE PCA and Zone 1 (including the DCAs), mining activities (as authorized under the Mining Law of 1872) and	**MON-WL-05:** To what extent do leasable or locatable mineral activities avoid, minimize and/or mitigate environmental impacts to grizzly	**IND-WL-05:**.Within the NCDE PCA and Zone 1 (including the DCAs), where it is determined there is potential for substantial effects to the grizzly bear

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands shall either avoid, minimize and/or mitigate environmental impacts to grizzly bears or their habitat, subject to existing rights. Stipulations or measures already included in existing leases, permits, or Plans of Operations on NFS lands shall not be changed, nor will additional stipulations or measures be added, without the lease, permit, or Plan of Operation holder's agreement.	bears or their habitat?	population or its habitat resulting from leasable or locatable mineral activities, a monitoring plan will be developed for the life of the mineral activity. The monitoring plan will outline how changes in habitat and/or disturbance to bears will be monitored and mitigations (e.g., monitoring of mining reclamation measures) will be identified and funded.
FW-GDL-TE&V-01: Within the NCDE PCA, logging operations should be restricted in time and space if needed to reduce the potential for substantial grizzly bear disturbance/displacement (e.g., restricting logging activities to the denning season or prohibiting logging activities during the spring in key spring grizzly bear habitat), as determined by site-specific analysis. Note: Other forest 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 objectives (especially if needed to prevent resource damage), but should otherwise be restricted in time or space, if needed to reduce the potential for substantial grizzly bear disturbance/displacement.	**MON-WL-06:** Within the NCDE PCA, to what extent are projects restricted in time and space to reduce the potential for grizzly bear disturbance/displacement?	**IND-WL-06:** Within the NCDE PCA, the 10-year running average for projects (see "project (in grizzly bear habitat in the NCDE)" in the glossary) will be monitored and documented for each project. If the 10 year running average exceeds levels allowed by FW-STD-IFS-03, the rationale will be documented in writing and submitted to the NCDE Coordinating Committee (see glossary).
GA-SM-STD-01: Within the Flathead National Forest portion of NCDE Zone 1 (including the Salish DCA)(see appendix C, figure X), there shall be no net increase in the density of roads open yearlong to public use above the baseline for each geographic unit1 (see table 38 and appendix C, figure X) on National Forest System lands, with exceptions listed in the GA-SM-STD-01.	**MON-WL-07:** To what extent is road management in NCDE Zone 1 consistent with levels known to have been compatible with a stable to increasing grizzly bear population?	**IND-WL-07:** The maximum density of roads open to yearlong public motorized use by geographic unit in the Salish GA. Refer to table 38.
FW-DC-WL-03: Mapped Canada lynx habitat and critical habitat (figure C-2) are managed in a manner	**MON-WL-08:** To what extent is forest management contributing to the conservation of	**IND-WL-08:** **a.** Forestwide acres of mapped Canada lynx

[1] The term "geographic unit" is a unique term used to express the area that was used for calculating unrestricted road density in the Salish GA. The term originates from the 1986 Flathead Forest Plan.

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
that contributes to sustaining recovery of the Rocky Mountain Canada lynx population. **FW-DC-WL-06:** Diverse conditions for the warm moist, cool moist to moderately dry, and cold biophysical settings contribute to habitat quality and connectivity for Canada lynx populations and grizzly bear populations at a landscape scale over the long-term, providing habitat resilience to climate change. **FW-STD-TE&V-05:** In mapped lynx habitat, precommercial thinning projects that reduce winter snowshoe hare habitat may only occur if the project meets one of the listed exceptions or WUI exemption. **FW-STD-TE&V-06** In mapped lynx habitat, vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late successional forests may occur only [formerly VEG S6] if the project meets one of the listed exceptions or WUI exemption.	the Canada lynx and moving toward desired habitat conditions for mapped lynx habitat or critical habitat?	habitat treated through vegetation management activities, total. **b.** Forestwide acres of mapped Canada lynx habitat treated through vegetation management activities with WUI exemptions to vegetation standards. **c.** Forestwide acres of mapped Canada lynx habitat treated through vegetation management activities with exceptions to vegetation standards. **d.** Forestwide acres of mapped Canada lynx habitat regenerated by wildfire or by use of prescribed fire outside of harvest units. The following monitoring indicators from the vegetation, fire, aquatics, and RHCA sections will be used to address habitat monitoring questions for Canada lynx: **IND-VEG-01 a, b, and d** **IND-FIRE-02 a** **IND-WTR-03 a** **IND-WL-01**
FW-GDL-REC-04: To maintain or improve high quality winter lynx habitat at a landscape scale, there should be no net increase in miles of designated over-the-snow routes or acres of designated play areas in mapped lynx habitat at a forestwide scale. Locations of designated routes or areas may be shifted across the forest in order to consolidate use, improve enforcement of closed routes or areas, or to open an area of lower quality lynx habitat in exchange for closing an equivalent acreage area of equal or higher quality lynx habitat.	**MON-WL-09:** To what extent is management of over-snow motorized use contributing to the conservation of the Canada lynx and moving toward desired habitat objectives conditions for mapped lynx habitat or critical habitat?	See **IND-WL-01 b**
Wildlife Species of Conservation Concern		
FW-OBJ-SCC-WL-01: Maintain or improve nesting habitat on all lakes suitable for nesting to promote successful reproduction of the common loon (e.g. signs, nesting structures), as needed. **FW-DC-SCC WL-01:** Habitat conditions and ecological processes that support wildlife SCC are maintained or restored to contribute to populations	**MON-SCC-01:** Are habitat conditions for SCC consistent with the objectives and moving towards desired conditions?	**IND-SCC-01:** Common loon: number of lakes with successful reproduction, forest-wide. **IND-SCC-02:** Veery: acres with presence of deciduous tree species, by size class, forest-wide. The following monitoring items from the vegetation, fire, aquatics, and RHCA sections also pertain to wildlife SCC species:

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
that persist over the long term, with sufficient distribution to be resilient and adaptable to stressors and likely future environments (see appendix A for a full list of potential SCC)(see table 13 for desired conditions of special habitat features not addressed elsewhere under Aquatic or Terrestrial Ecosystems) (also as pertains to FW-DC-WTR-01;FW-DC-AQS-07; FW-DC-WTR-01,02,10; FW-DC-WET-02-04; FW-DC-RHCA-01,03,05,06; FW-STD-RHCA-01; FW-GDL-RHCA-01, 08-10;) FW-DC-TE&V-02,04,05,09-21, 23;FW-OBJ-TE&V-01-02; FW-STD-TE&V-01;FW-GDL-TE&V-04-13;FW-DC-FIRE-03, 04;FW-OBJ-FIRE-01;FW-STD-FIRE-01; FW-DC-ECOS TIMB-02; Ma2a-DC-01;). **FW-DC-TE&V-16:** Fires of variable size occur periodically across the Flathead NF, creating recently burned forest conditions (fire event within the preceding 10-15 years) in amounts, distributions and patch sizes that function to provide habitat for associated wildlife species, particularly for the black-backed woodpecker (refer to appendix A for a full list of associated wildlife species). Both planned and unplanned ignitions will be used to achieve desired conditions. Desired characteristics of recently burned forest are described in table 7. **FW-DC-TE&V-17:** Non-coniferous vegetation types are present across the Flathead NF in amounts consistent with the NRV, and meet associated characteristics described in table 8. Refer to appendix A for a description of the vegetation types and wildlife species associated with these plant communities.		**IND-VEG-01: a, b, e, f, g, h** **IND-TE&V-03: b** **IND-FIRE-02: a, c** **IND-WTR-03a** **IND-WL-01b** **IND-TIMB-02**
Wildlife Species of Public Interest		
FW-DC-SOPI-WL-01 Key ecosystem characteristics support wildlife SOPI and are resilient and adaptable to stressors and likely future environments. Special habitat features such as caves, boulder fields, persistent snow fields, and waterfalls provide habitat for associated species (see appendix A for a full list of SOPI species and associated habitats). (Also as pertains to FW-DC-TE&V-02,04,05,09-21,	**MON-SOPI-01:** Are habitat conditions for SOPI moving towards desired conditions?	**IND-SOPI-WL-01:** Bald eagle: number of territories with successful reproduction, forest-wide. **MON-SOPI-WL-02:** White-tailed deer: changes in % of successional stages in mapped white-tailed deer winter habitat. The following monitoring items from the vegetation, fire, aquatics, and RHCA sections will be used to address habitat monitoring questions for wildlife

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
23;FW-OBJ-TE&V-01-02; FW-STD-TE&V-01;FW-GDL-TE&V-04-13;FW-DC-FIRE-03, 04; FW-OBJ-FIRE-01;FW-STD-FIRE-01; FW-DC-WTR-0; GA-SV-DC-07, 08; GA-SV-GDL-03; GA-NF-DC-14; GA-NF-GDL-01; GA-SF-DC-05;GA-SF-GDL-01; GA-HH-DC-11,12; GA-HH-GDL-01; GA-SM-DC-16; GA-SM-GDL-02; FW-DC-ECOS TIMB-02; MA6b-DC-02; MA6b-DC-03). **FW-DC-TE&V17:** Non-coniferous vegetation types are present across the Flathead NF in amounts consistent with the NRV, and meet associated characteristics described in table 8. Refer to appendix A for a description of the vegetation types and wildlife species associated with these plant communities. **FW-DC-ECOS WL-01:** Habitat management supports SOPI for hunting (e.g., elk, deer, moose, mountain goat, bear, wolf) and trapping (e.g., marten, wolf) at levels meeting Montana Fish Wildlife and Parks species management objectives and provides for Salish-Kootenai Tribal treaty rights. **FW-DC-ECOS WL-02:** Habitat management supports SOPI for viewing (e.g., citizen science activities such as amphibian and raptor surveys as well as individual observations of species such as the pika). **FW-DC-ECOS WL-03** Diverse opportunities exist for hunting, trapping, wildlife viewing, and fishing on Forest lands. Examples include assisted outfitted/guided and unassisted, motorized and non-motorized opportunities. **FW-DC-ECOS WL-04** Levels and types of hunter or trapper access are balanced with desired conditions for wildlife populations and habitat security.		SOPI species: **IND-VEG-01: a, b, e, f, g, h** **IND-TE&V-02** **IND-FIRE-02: a, b, c** **IND-WTR-03a** **IND-WL-01** **IND-WL-02** **IND-WL-07** **IND-TIMB-02** **IND-IFS-02** **IND-IFS-03**
Wildlife—General		
FW-OBJ-SCC-WL-02: Maintain or improve 100-1000 acres of habitat for bats and other cavity nesting/roosting/denning species (see Appendix A) in areas where snags are lacking (e.g. placement of nesting structures, creating snags). **FW-OBJ-AQH-01** Enhance or restore 50 to 100	**MON-WL-01:** Have management objectives for terrestrial and aquatic habitats been met to achieve desired conditions?	**IND-WL-01:** Forestwide acres and miles of terrestrial and aquatic habitat restored or enhanced as reported in the WFRP database.

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
miles of habitat to maintain or restore structure, composition, and function of habitat for fisheries and other aquatic species (see Appendix A). **FW-OBJ-RHCA-01**: Enhance or restore 15 to 50 miles of habitat to maintain or restore structure, composition, and function of habitat for wildlife species associated with riparian habitats (see Appendix A).		
Focal Species		
FW-DC-AQS-04: Bull trout – Recovery and delisting of bull trout is the long-term desired condition. Bull trout population trends toward recovery through cooperation and coordination with USFWS, tribes, state agencies, other federal agencies, and interested groups. Recovery is supported through accomplishment of the Bull Trout Conservation Strategy and the Bull Trout Recovery Plan. On NFS lands spawning, rearing, and migratory habitat is widely available and inhabited. Bull trout have access to historic habitat and appropriate life history strategies (e.g., resident, fluvial, and adfluvial) are supported.	**MON-FOCAL-01:** What is the trend of bull trout populations?	**IND-FOCAL-01-** Number of bull trout redds.

Human Uses and Designations of the Forest

The plan monitoring program must contain one or more monitoring questions and associated indicators addressing the status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

Table H-2. Human uses and designations of the forest plan monitoring questions and indicators

Selected Plan Component(s)	Monitoring Question	Potential Indicator
Infrastructure (Roads and Trails)		
FW-DC-IFS-11: Road restrictions are maintained to be effective.	**MON-IFS-01:** Are road restrictions effective?	**IND-IFS-01:** Number of road closure devices determined to be ineffective at restricting motorized use.
FW-DC-IFS-04: The transportation system serves land management and public needs and purposes. It is interconnected with federal, state, and local public roads and trails to provide access to lands, infrastructure, and inholdings where appropriate. Although roads maintained for passenger cars meet public road safety standards, roads maintained for high clearance vehicles may have hazards and require operator judgment and skill to negotiate. Road management objectives (RMOs) and trail management objectives (TMOs) are identified and kept current for all roads. Roads and trails are maintained in accordance with RMOs/TMOs. Roads and trails are connected to state, county, local public, and other federal roads and trails. The transportation system provides reasonable access for program management, and to facilities, private in-holdings, and infrastructure (e.g., buildings, recreation facilities, municipal water systems, reservoirs, electronic and communication sites, and utility lines).	**MON-IFS-02:** Have management activities trended towards desired conditions for a transportation system that provides recreation opportunities, safe and efficient public and agency access, and are environmentally compatible?	**IND-IFS-02:** **a.** Miles of road open year-long **b.** Miles of road open seasonally **c.** Miles of roads maintained by maintenance level **d.** Miles of roads decommissioned **e.** Miles of roads put into intermittent storage
FS-DC-IFS-06: The Forests' trail system provides a variety of motorized and non-motorized recreational opportunities during summer and winter that is distributed across the Forest. Trails access destinations, provide for loop opportunities that also connect to a larger trail system, provide linkage from local communities to the Forest, and are compatible with other resources.	**MON-IFS-03:** Does the existing trail system provide for motorized and non-motorized recreation opportunity during both the summer and winter? Are we providing sufficient amount of motorized and non-motorized loop trail experiences on the forest? Is the forests' trail system connecting local communities to the Forest?	**IND-IFS-03:** **a.** Acres open to over-snow vehicle use **b.** Miles of groomed over-snow vehicle trails **c.** Miles of trails maintained for allowed use (e.g., hiker, equestrian, mountain biking, OHV, motorcycle) forestwide. **d.** Number and miles of motorized and non-motorized loop trail. **e.** Miles of trails connecting communities to the Forest.

Selected Plan Component(s)	Monitoring Question	Potential Indicator
Recreation		
FW-DC-REC-03: Recreation facilities including toilets, cabins, trailheads, river portals, airstrips, developed campgrounds and visitor centers are maintained to standard to protect forest resources and provide visitor experiences commensurate with the ROS setting. **FW-DC-REC-04:** Recreation facilities and programs incorporate universal design concepts and meet the current Forest Service accessibility guidelines. **FW-DC-REC-11:** There is a sustainable level of developed and dispersed recreation opportunities where environmental impacts are minimal. Dispersed and developed recreation opportunities are compatible with the desired ROS setting and are managed to minimize user conflicts. Developed recreation sites are clean, safe and provide for user comfort.	**MON-REC-01:** What is the status of visitor use, and visitor satisfaction?	**IND-REC-01:** Using the National Visitor Use Monitoring data, show trends for: • for visitation estimates, • visitor activities; • % overall satisfaction,
FW-OBJ-REC 01: Rehabilitate 5 to 7 dispersed recreation sites on the Forest with erosion or sanitation issues. **FW-OBJ-REC-03:** Improve 7 to 12 campgrounds. **FW-OBJ-REC-04:** Add 2–4 recreational cabin rental(s) on to the National Reservation System. **GA-NF-OBJ-02**: Complete 1 to 3 trails that provide for mountain bike opportunities in the Whitefish Range vicinity. **GA-SV-OBJ-01:** Construct a mountain bike trail in the Crane Mountain area. **GA-SV-OBJ-03:** Construct a second public access to Swan Lake. **GA-SM-OBJ-01:** Reconstruct three campgrounds at Ashley Lake within the next 10 years. **GA-SM-OBJ-02:** Construct a non-motorized trail that connects NFS lands in the Blacktail vicinity to the Foy's to Blacktail Trail System. **GA-SM-OBJ-03:** Construct and designate motorized trail connectors that provide high elevation loop opportunities. **GA-SM-OBJ-04:** Construct a non-motorized trail that connects the Whitefish Trails (WhitefishLegacy.org) to	**MON-REC-02:** What is the progress towards meeting recreation objectives in the plan?	**IND-REC-02:** **a.** Number of dispersed recreation sites on the forest that have been rehabilitated to correct erosion or sanitation issues. **b.** Number of campgrounds that have been improved. **c.** Number of recreation cabin rentals added to the National reservation system since ROD. **d.** Number of bike trails constructed in the Whitefish Range vicinity. **e.** Construction of a bike trails in the Crane Mountain area. **f.** Construction of a second public access on Swan Lake. **g.** Reconstruction of three campgrounds at Ashley Lake. **h.** Construction of a non-motorized trial that connects NFS lands in the Blacktail vicinity to the Foy's to Blacktail Trail system. **i.** Construction and designation of a motorized trail connectors that provide high elevation loop opportunities. **j.** Construction of a non-motorized trail that connects the Whitefish Trails

Selected Plan Component(s)	Monitoring Question	Potential Indicator
NFS lands.		(WhitefishLegacy.org) to NFS lands.
FW-DC-SREC 1 to 7, FW-DC-WREC 1 to 6, **FW-DC-REC-02**: The development scale of recreation facilities is consistent with the desired ROS settings and with recreation corridor, river management, or trail management plans. **FW-DC-REC-03:** Recreation facilities including toilets, cabins, trailheads, river portals, airstrips, developed campgrounds and visitor centers are maintained to standard to protect forest resources and provide visitor experiences commensurate with the ROS setting.	**MON-REC-03:** Are the current recreation settings and opportunities in the plan area meeting or moving towards desired recreation settings and opportunities identified in the plan?	**IND-REC-03:** Describe amount of existing compared to desired ROS setting by season (winter and summer) across the forest.
Scenery		
FW-DC-SCN-02: The Forest's scenery provides a range of scenic quality as described by the scenic integrity objectives. The desired distribution of scenic integrity objectives (SIOs) is displayed in figure C-14 and summarized in table 19.	**MON-SCN-01:** Are the current conditions in the plan area meeting or moving towards desired SIOs identified in the plan?	**IND-SCN-01:** Describe the amount of existing SIOs compared to desired SIOs.
Designated Wild and Scenic River		
Ma2a-DC-01: The free-flowing condition, water quality, and outstandingly remarkable values that made river segments eligible for designation, or for which they were designated, are protected and perpetuated.	**MON-WSR-01:** Are the free-flowing conditions, water quality and outstandingly remarkable values for which the Flathead River WSR was designated for maintained and protected?	**IND-WSR-01:** **a.** Number of monitoring items per the Limits of acceptable change (LAC) direction in the WSR Recreation Direction that are in compliance. **b.** Number of monitoring items per the LAC direction in the WSR Recreation Direction that are not in compliance.
Designated Wilderness Area		
FW-MA1a-DC-01: Wilderness areas provide the qualities of wilderness character as defined by the Wilderness Act and the wilderness areas' enabling legislation. The five wilderness characters are: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation and other natural features such as geology, ecology, cultural, educational, scenic, historic and research.	**MON-WILD-01:** Do management activities in designated wilderness areas protect and maintain wilderness characteristics?	**IND-WILD-01:** **a.** Wilderness character monitoring and the national wilderness stewardship monitoring results. **b.** LAC monitoring results for the Bob Marshall Wilderness Complex. **c.** Authorized motorized and mechanized entry as reported through INFRA
FW-MA1a-DC-03: Natural ecological processes and disturbance (e.g., wildfire, insects, and disease) are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide	**MON-WILD-02:** Are natural process and disturbance the primary forces affecting the composition, structure, and pattern of	**IND-WILD-02:** Number, kind, and extent of vegetation treatments (including prescribed fire) that has occurred in wilderness area**.**

Selected Plan Component(s)	Monitoring Question	Potential Indicator
opportunities for visitors to experience natural ecological processes and disturbances with limited amount of human influence.	vegetation?	
Recommended Wilderness Area		
MA-1b-DC-01: Recommended wilderness areas preserve opportunities for inclusion in the National Wilderness Preservation System. Maintain the ecological and social characteristics that provide the basis for each area's suitability for wilderness recommendation. **MA-1b-DC-02:** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, fire, insects, and disease function with limited amount of human influence. Impacts from visitation do not detract from the natural setting.	**MON-RWILD-01:** Do management activities in recommended wilderness maintain and protect the ecological and social characteristics that provide the basis for wilderness recommendation? Are natural processes allowed to function with limited human influence? Are impacts from visitation detracting from the natural setting?	**IND-RWILD-01:** **a.** Number, kind, and extent of vegetation treatment (including prescribed fire) that has occurred in recommended wilderness area**.** Additional indicators TBD. (Also see IND-TE&V-04)
Cultural and Historic Resources		
FW-OBJ-C&HR-01: Annually complete an inventory of 50 to 100 acres containing, or predicted to contain, highly valuable, threatened, or vulnerable cultural resources (non-project acres). **FW-OBJ-C&HR-02:** Evaluate and nominate four to eight significant cultural resources to the NRHP or develop five historic contexts, overviews, thematic studies, or cultural resources property preservation plans to help guide management and use of National Register eligible or listed properties, districts, traditional cultural properties, and cultural landscapes. **FW-OBJ-C&HR-03:** Annually complete one public outreach or interpretive project that enhances public understanding and awareness of cultural resources and/or history of the plan area.	**MON-C&HR-01:** To what extent cultural and historic resource objectives being met with trending towards desired conditions to identify, evaluate, and nominate cultural resources for listing on the National Register of Historic Places?	**IND-C&HR-01:** **a.** Number of submitted cultural resource nominations to the State Historic Preservation Officer or number of the completed historic contexts, overviews, thematic studies, or cultural resources property preservation plans for significant cultural resources identified through the inventory that are not National Register-eligible. **b.** Number of completed public outreaches or interpretive projects.
FW-DC-C&HR-02: Traditional cultural properties, cultural landscapes, sacred sites, and other culturally significant areas identified by tribes and local communities provide tangible links to historically rooted beliefs, customs, and practices. These resources are protected through consultation with American Indian tribes, traditional cultural practitioners, consulting parties, and project design.	**MON-C&HR-02:** To what extent is the Forest meeting Forest Plan desired conditions to assuring treaty rights are preserved and trending toward desired conditions for consultation with each Tribe?	**IND-C&HR-02:** **a.** Completion of a cooperatively established tribal consultation protocol. **b.** Number of completed consultations under the consultation protocol.

Selected Plan Component(s)	Monitoring Question	Potential Indicator
FW-OBJ-TRIB-01: Management of traditional cultural areas, through the development of two to five management plans, in consultation with the tribes. **FW-OBJ-TRIB-02:** Ongoing government-to-government and staff consultation for each federally recognized Tribe with historical or treaty interests in Flathead NFS lands, through a cooperatively established tribal consultation protocol.		

Productivity of the Land

Productivity is defined as the capacity of National Forest System lands and their ecosystems to provide various renewable resources in certain amounts in perpetuity (36 CFR 219.19). In this context, productivity is an ecological term, not an economic term.

Table H-3. Productivity of the land: plan monitoring questions and indicators

Selected Plan Component(s)	Monitoring Question	Potential Indicator
FW-DC-SOIL-01: The five soil ecological functions (soil biology, soil hydrology, nutrient cycling, stability and support; and filtering and buffering) are sustained so that long-term soil productivity is not impaired. **FW-GDL-SOIL-02**: Restore soil function on temporary roads utilized for removal of commercial forest products (e.g., timber harvest, biomass removal) when commercial activities are complete. Appropriate restoration activities will be determined through onsite assessment and may include activities such as re-contouring the entire road template to natural ground contour, scarification, utilizing native materials as soil inoculum, and placement of woody debris. FW-STD-ECOS TIMB-01: Timber shall not be harvested on lands where soil, slope or other watershed conditions may be irreversibly damaged, as identified in project specific findings.	**MON-SOIL-01:** To what extent have vegetation management activities prevented irreversible damage to soil conditions?	**IND-SOIL-01-01:** Number of harvest units surveyed and percent that meet the soil quality standard, post-harvest.
FW-STD-ECOS TIMB-02: Timber harvest activities shall only be used when there is reasonable assurance of restocking within 5 years after final regeneration harvest.	**MON-TBR- 03:** To what extent are regeneration units restocked to trend towards vegetation desired conditions?	**MON-TBR- 03-01:** On lands suitable for timber production, percent of acres with regeneration harvest that are adequately restocked within 5 years of harvest.

Economic, Cultural, and Social Environment

The purpose for monitoring social, cultural, and economic indicators (FSH 1909.12) is to:

- Inform managers and the public of changes in social, cultural, and economic conditions that are influenced by the plan.
- Monitor contributions of the management of the plan area toward meeting social, cultural, and economic attributes of desired conditions.
- Provide feedback for adaptive management toward expected and potential contributions to social and economic sustainability.

Table H-4. Economic, cultural, and social environment plan monitoring questions and indicators

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
Ecosystem Services—Forest Products		
FW-DC-ECOS TIMB-01: Production of timber contributes to ecological sustainability, and associated desired conditions and contributes jobs and income to the local economy. A sustainable mix of timber products (including both sawtimber and non-sawtimber) is offered under a variety of harvest and contract methods in response to market demand. **FW-DC-ECOS TIMB-03**: Lands identified as suitable for timber production have a regularly scheduled timber harvest program that provides jobs and income while achieving ecosystem health and sustainability. **FW-OBJ-ECOS TIMB-01**: Annually, offer timber for sale average PTSQ of 28.3 MMBF. **FW-OBJ-ECOS TIMB-02**: Annually, offer commercial timber and other products for sale at an average annual PWSQ of 6.2 to 7.0 MMCF (30.3 to 34.3 MMBF).	**MON-ECOS TIMB-01:** To what extent is the Forest meeting Forest Plan objectives and trending towards desired conditions to provide a mix of timber products in response to market demands?	**IND-ECOS TIMB -01:** Million board feet (MMBF)/ million cubic feet (MMCF) offered and sold annually
FW-DC-ECOS TIMB-02: In areas suitable for timber production, dead or dying trees (due to fire, insects, disease) are salvaged to recover as much of the economic value of the wood as possible while achieving desired conditions for burned wildlife habitat, snags, and downed woody retention(refer to FW-DC-TE & V-16, and 19 through 21).	**MON-ECOS TIMB-02:** To what extent is the Forest meeting Forest Plan desired conditions to recover the economic value of dead/dying trees on suitable lands?	**IND-ECOS TIMB-02:** Million board feet (MMBF)/ million cubic feet (MMCF) of salvage sales offered and sold annually
Social and Economic		

Selected Plan Component(s)	Monitoring Question(s)	Potential Indicator(s)
FW-DC-S&E-02: Sustainable and predictable levels of goods and services (such as wilderness hunting and fishing opportunities, timber, downhill skiing, and huckleberries) are provided for local communities that contribute to the local economy through the generation of jobs and income while creating products for use, both nationally and locally.	**MON-S&E-01:** To what extent is forest management providing sustainable and predictable levels of goods and services for local communities? **MON-S&E-02:** To what extent is forest management contributing towards desired conditions for a stable and functioning local economy?	**IND-S&E-01:** Levels of production of multiple uses including timber products, grazing and recreational visits, wilderness hunting and fishing opportunities, and downhill skiing. **IND-S&E-02:** Number of jobs and thousands of dollars in labor income from FNF management.
FW-DC-S&E-03: Ample opportunities, including employment, to connect people, including youth, with nature exist across the Forest. **FW-DC-ECOS R&E-01:** Interpretation and education opportunities enrich the visitor's experience and understanding for the natural and cultural history of the Forest. **FW-DC-ECOS R&E-02:** Conservation Education (CE) Interpretive and Visitor Information programs provide opportunities for visitors, youth, and communities to appreciate and understand the Forest's natural and cultural resources and learn how to conserve those resources for future generations. **FW-DC-ECOS R&E-03:** Education, interpretive and information programs and activities connect people to the forest environment and foster a sense of place and stewardship. **FW-DC-ECOS R&E-04:** Focused education activities engage youth in hands-on outdoor experiences and support educators in teaching science and natural resource topics.	**MON-S&E-03:** To what extent do opportunities to connect people, including youth, with nature exist across the Forest.	**IND-S&E-03:** Number and type of education and youth programs **IND-S&E-04:** Number of youth participating in various forest education and youth programs, including employment.
Rule requirement (219.12(k)(3))	**MON-S&C-03**: Is the cost of implementing the Forest Plan consistent with that predicted in the FEIS?	**IND-SOC-02-01:** Forest annual budget, supplemented with partnerships and other outside funding.