



United States Department of Agriculture

# Flathead National Forest Land Management Plan

Flathead, Lake, Lewis and Clark, Lincoln, Missoula, and Powell Counties, Montana



Forest Service

Northern Region

November 2018

*" . . . for the greatest good of the greatest number for the longest time."*—Gifford Pinchot, founding Chief of the Forest Service, 1905

Cover (images described clockwise from upper left):

- South Fork of the Flathead River, Spotted Bear Ranger District
- Forwarder working on the Paint Emery Resource Management Project, Hungry Horse-Glacier View Ranger District
- Two hikers
- Snowmobiler
- View from trail to Pentagon Cabin in the Bob Marshall Wilderness (photo by Peter Borgesen)
- Fireweed
- White-tailed deer (photo by John Littlefield)

# **Flathead National Forest**

## **Land Management Plan**

**Flathead, Lake, Lewis and Clark, Lincoln, Missoula, and Powell Counties,  
Montana**

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## List of Abbreviations

CFR	Code of Federal Regulations
d.b.h.	diameter at breast height
DC	desired condition (forest plan component)
DCA	demographic connectivity area
FW	forestwide (forest plan component)
GA	geographic area
GDL	guideline (forest plan component)
GIS	geographic information system
MA	management area
MFWP	Montana Fish, Wildlife and Parks
NCDE	Northern Continental Divide Ecosystem
NFS	National Forest System
PCA	primary conservation area
PIBO	Pacific Fish Strategy/Inland Native Fish Strategy biological opinion
PVT	broad potential vegetation type
STD	standard (forest plan component)
TMDL	total maximum daily load
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service

## Preface

The word conservation was a term that Gifford Pinchot brought into everyday usage. As first Chief of the Forest Service, and America's leading advocate of environmental conservation for over fifty years, Pinchot defined conservation as the "the foresighted utilization, preservation, and/or renewal of forests, waters, lands, and minerals for the greatest good of the greatest number for the longest time." The purpose of conservation is to make this land the best possible place to live, both for us and our descendants, and to do so in a way as not to impair or degrade those very resources from which our sustenance and quality of life is derived.

## Chapter 1. Introduction

The Flathead National Forest Land Management Plan is referred to as the "forest plan" throughout this document. For ease of discussion throughout this document, the Flathead National Forest will be referred to as "the Forest" when referencing the single administrative unit, the staff that administers the unit, or the National Forest System (NFS) lands within the unit.

The forest plan provides an integrated set of management direction (or plan components) that provide for the social, economic, and ecological sustainability and multiple uses of the Forest's lands and resources. In May 2012, the U.S. Department of Agriculture began using new planning regulations, commonly called the 2012 planning rule, to guide collaborative and science-based revision of forest plans that promote the ecological integrity of national forests while considering social and economic sustainability.

The forest plan provides guidance for project- and activity-level decisionmaking on the Forest for approximately the next 15 years. This guidance includes:

1. forestwide components to provide for integrated social, economic, and ecological sustainability and ecosystem integrity and diversity as well as 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 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. the plan area's distinctive roles and contributions within the broader landscape;
4. identification or recommendation of other designated areas (36 CFR § 219.7 (c)(2)(vii));
5. 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),
6. identification of the maximum quantity of timber that may be removed from the plan area (36 CFR § 219.7 and § 219.11 (d)(6)),
7. identification of geographic area- or management area-specific components (36 CFR § 219.7 (c)(3)(d),
8. identification of watersheds that are a priority for maintenance or restoration (36 CFR § 219.7 (c)(3)(e)(3)(f), and
9. a plan monitoring program (36 CFR § 219.7 (c)(2)(x) and § 219.12).

## Forest Plan Structure

The forest plan is designed to communicate the concepts of strategic guidance and adaptive management for the Forest. The forest plan is organized into several major divisions:

Chapter 1: Introduction

Chapter 2: Forestwide Direction

Chapter 3: Management Area Direction

Chapter 4: Geographic Area Direction

Chapter 5: Monitoring Program

Glossary

Appendix A—Northern Rockies Lynx Management Direction

Appendix B—Maps

Appendix C—Potential Management Approaches and Possible Actions

Appendix D—Potential Vegetation Types

Appendix E—Watershed Condition Framework and Conservation Watershed Network

Appendix F—Scenic Character Descriptions

Appendix G—Factors for Recommended Wilderness Areas

## Implementing the forest plan

The forest plan provides a framework and management direction that guides resource management. The forest plan does not authorize projects, activities or site-specific prohibitions or commit the Forest Service to take action. The plan may constrain the Forest from authorizing or carrying out projects and activities, or the manner in which they may occur. Project or activity decisions will need to be made following appropriate procedures. For example, site-specific analysis in compliance with the National Environmental Policy Act will need to be conducted in order for prohibitions or activities to take place on the ground, in compliance with the broader direction of the forest plan.

The Forest will follow all laws, regulations, and policies that relate to managing NFS land. The forest plan is designed to supplement, not replace, direction from these sources. Other Forest Service direction, including laws, regulations, policies, executive orders, and Forest Service directives (manual and handbook), are not repeated in the forest plan.

When analyzing a proposed project or activity, the Forest planning team should:

- 1) identify the forestwide plan components (desired conditions, objectives, standards, and guidelines) that apply to the proposed project (see chapter 2),
- 2) identify the plan components that apply to the management area(s) potentially affected by the proposed project (see chapter 3), and

- 3) identify the plan components that apply to the geographic area(s) potentially affected by the proposed project (see chapter 4).

## Project and activity consistency with the forest plan

As required by the National Forest Management Act of 1976 and the 2012 planning rule, all projects and activities authorized by the Forest Service after the record of decision for the forest plan must be consistent with the applicable plan components (16 U.S.C. 1604 (i)) as described at 36 CFR § 219.15 (c and d)). 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 occurs 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.

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 (36 CFR § 219.15(c)):

- 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, or
- 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. This amendment may be limited to apply only to the project or activity.

## Plan Elements

Elements of the forest plan are

- forestwide, management area, and geographic area desired conditions, objectives, standards, and guidelines (chapters 2, 3, 4, and appendix A);
- the suitability of lands for specific multiple uses, including those lands suitable for timber production (chapter 3, suitability determinations by management areas);
- an estimate of the long-term sustained yield and projected timber sale quantity (chapter 2, production of natural resources);

- a description of the plan area's distinctive roles and contributions within the broader landscape (chapter 1);
- the identification of priority restoration watersheds (appendix E);
- proposed management actions and strategies that may occur on the plan area over the life of the plan (appendix C);
- areas proposed to be recommended to Congress for inclusion in the National Wilderness Preservation System (chapter 3, management area 1b);
- the rivers identified as eligible for inclusion in the National Wild and Scenic Rivers System (chapter 3, management area 2b); and
- the plan monitoring program (chapter 5), including focal species.

## Plan components

Plan components guide future projects and activities and the plan monitoring program. Plan components are not commitments or final decisions approving projects or activities.

Desired conditions, objectives, standards, guidelines, suitability, and monitoring questions and monitoring indicators have been given alphanumeric identifiers for ease in referencing within the forest plan. The identifiers include

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

Thus, forestwide direction for desired conditions associated with watersheds is identified starting with FW-DC-WTR-01; management area direction for desired conditions in management area 2b is identified starting with MA2b-DC-01, and desired condition for the Hungry Horse geographic area is identified starting with GA-HH-DC-01. The identifiers are included as part of the headings in chapters 2 through 4, with the unique number preceding each plan component.

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

## Management, geographic, and designated areas

Every plan must have management areas or geographic areas or both. The plan may identify designated or recommended designated areas as management areas or geographic areas (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. Geographic area desired conditions describe what the Forest wants to achieve in specific geographic areas that are not necessarily covered by forestwide desired conditions. Although all resources have been considered, the only desired conditions specified for a geographic area 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, inventoried roadless areas, 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 (36 CFR § 219.19). Refer to chapter 3, management area direction, for plan components related to the special designations of wilderness (management area 1a), wild and scenic rivers (management area 2a), special areas (management area 3b), and research natural areas (management area 4a). Plan components for the national trails special designations are in chapter 3, forestwide direction.

## Desired conditions

A desired condition is a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, towards which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress towards their achievement to be determined but must 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, but for other resources they 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 the future conditions that would typically be desired. They help clarify the general suitability of various parts of the Forest for different activities and management practices. These desired conditions help clarify the outcomes that might be expected in land areas with different general suitability descriptions.
- While all resources have been considered for forestwide direction, plan components have been developed at the geographic areas to further refine plan direction spatially within the respective geographic areas. 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 focus on specific circumstances in specific geographic locations. The Forest is divided into six geographic areas (see figure 2 in chapter 4).

## Objectives

An objective is a concise, measurable, and time-specific statement of a desired rate of progress towards 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 management areas or geographic areas. Refer also to appendix C, Potential Management Approaches and Possible Actions, for possible strategies to achieve certain objectives.

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 or decreases, increased or decreased planning efficiencies, and unanticipated resource constraints.

## Standards

A standard is a mandatory constraint on project and activity decisionmaking that is 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 be specific to a management area or geographic area.

## Guidelines

A guideline is a constraint on project and activity decisionmaking 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 a management area or geographic area.

## Suitability of lands

Specific lands within the Forest are identified as suitable for various multiple uses or activities based on the desired conditions applicable to those lands. The plan identifies lands within the Forest as not suitable for uses that are not compatible with desired conditions for those lands. The suitability of lands is not identified for every use or activity, following guidance provided at 36 CFR § 219.7 (e)(1)(v).

The identification of suitability of lands for a particular use in the forest plan indicates that the use may be appropriate but does not make a specific commitment to authorize that use. If certain lands are identified as not suitable for a use, then that use or activity may not be authorized. Prohibiting an existing use or authorizing a new use requires subsequent, site-specific National Environmental Policy Act analysis. Generally, the lands on the Forest are suitable for uses and management activities appropriate for national forests, such as outdoor recreation or timber, unless identified as not suitable. For suitability determinations, refer to chapters 2 and 3.

## Other required plan content

In addition to requiring that a plan have components, the 2012 planning rule also 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 below; the remainder of the required content can be found in chapter 5, Monitoring Program, appendix C, Potential Management Approaches and Possible Actions, and appendix E, Watershed Condition Framework and Conservation Watershed Network.

## Summary of the use of best available scientific information

The 2012 planning rule requires the responsible official to use the best available scientific information 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 forest plan was provided by the assessment of the Flathead National Forest<sup>1</sup> and the best available scientific information

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<sup>1</sup> USDA (2014), *Assessment of the Flathead National Forest, part 1, part 2, and appendices A-E* (Kalispell, MT: USDA Forest Service, Flathead National Forest), retrieved from <https://www.fs.usda.gov/detailfull/flathead/landmanagement/planning/?cid=fseprd565644&width=full>.



and analyses therein. From this foundation, the interdisciplinary team used the best available scientific information to develop the proposed action (May 2015) and the alternatives and the analysis and comparison of alternatives in the draft environmental impact statement (EIS) (May 2016). Refer to the final EIS and the draft record of decision for a full list of references. This information includes material that was readily available from public sources (libraries, research institutions, scientific journals, and on-line literature). It also includes information obtained from other sources, such as via participation and attendance at scientific conferences; scientific knowledge from local experts; findings from ongoing research projects; workshops and collaborations; professional knowledge and experience; and information received during public participation periods. The interdisciplinary team utilized an updated geographic information system (GIS) database that was originally developed for the 1986 forest plan. The interdisciplinary team used the GIS database to evaluate complex spatial effects resulting from implementation of the alternatives such as recreation opportunity spectrum and effects to wildlife habitat by species. The interdisciplinary team used an optimization model to estimate the long-term flow of timber from the plan area. This model is widely used by private and state land managers. The model is widely accepted as an accurate way of modeling timber harvest schedules.

Resource specialists considered what is most accurate, reliable, and relevant in their use of the best available scientific information. The best available scientific information includes the publications listed in the literature cited sections of the Flathead's assessment and draft EIS as well as any additional information that was used and is included in the reference sections of the final EIS and in the planning record prior to the final record of decision.

## **Use of models, maps, and data**

The Forest relied on a variety of databases (e.g., those from state agencies, Rocky Mountain Research Station, its own internal databases), to inform plan components. Geospatial data and related maps or graphics are not legal documents and are not intended to be used as such. The data and maps are dynamic and can change over time.

Ecological and economic models were used to inform the management direction. Models, maps, and numeric estimates may change over time as new information, technology, and/or on-the-ground inventories become available.

## **Monitoring program**

The monitoring program is designed to test assumptions used in developing plan components and to evaluate relevant changes and management effectiveness of the plan components. Typically, monitoring questions seek additional information to increase knowledge and understanding of changing conditions, uncertainties, and risks identified in the best available scientific information as part of an adaptive management framework. The best available scientific information can identify indicators that address associated monitoring questions. The best available scientific information is also important in the further development of the monitoring program as it may help identify protocols and specific methods for the collection and evaluation of monitoring information (from Forest Service Handbook 1909.12 chap. zero code sec. 07.11). See chapter 5 for the monitoring program and additional information about adaptive management.

## **Relationship to other strategic guidance**

The Forest contributes to the accomplishment of national strategic guidance in accordance with its own unique combination of social, economic, and ecologic conditions. This forest plan helps define the Forest's role in advancing the agency's national strategy and reflects the national goals. This forest plan is reflective of the mission of the Forest Service, which is "to sustain the health, diversity, and productivity

of the nation's forests and grasslands to meet the needs of present and future generations." The forest plan also incorporates the direction and goals in other applicable tribal, Federal, State, and county plans and an "all lands" integrated approach that considers the broader landscape that the plan operates within.

## **Retained direction: Northern Rockies Lynx Management Direction**

The Northern Rockies Lynx Management Direction is retained in appendix A. This lynx direction contains goals, objectives, standards, and guidelines. This lynx direction is retained in this forest plan through standard FW-STD-WL-04, with proposed Forest-specific modifications to one guideline and the addition of one exception to a standard (see FW-GDL-REC-03 and FW-STD-TE&V-02).

## **Rights and interests**

The 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 or authorized uses; to change existing uses, for example, a subsequent decision would be needed (see p. 1).

## **Distinctive Roles and Contributions of the Flathead National Forest**

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 the motivation or reasons behind the desired conditions. The following are considered when describing the plan area's distinctive roles and contributions within the broader landscape:

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

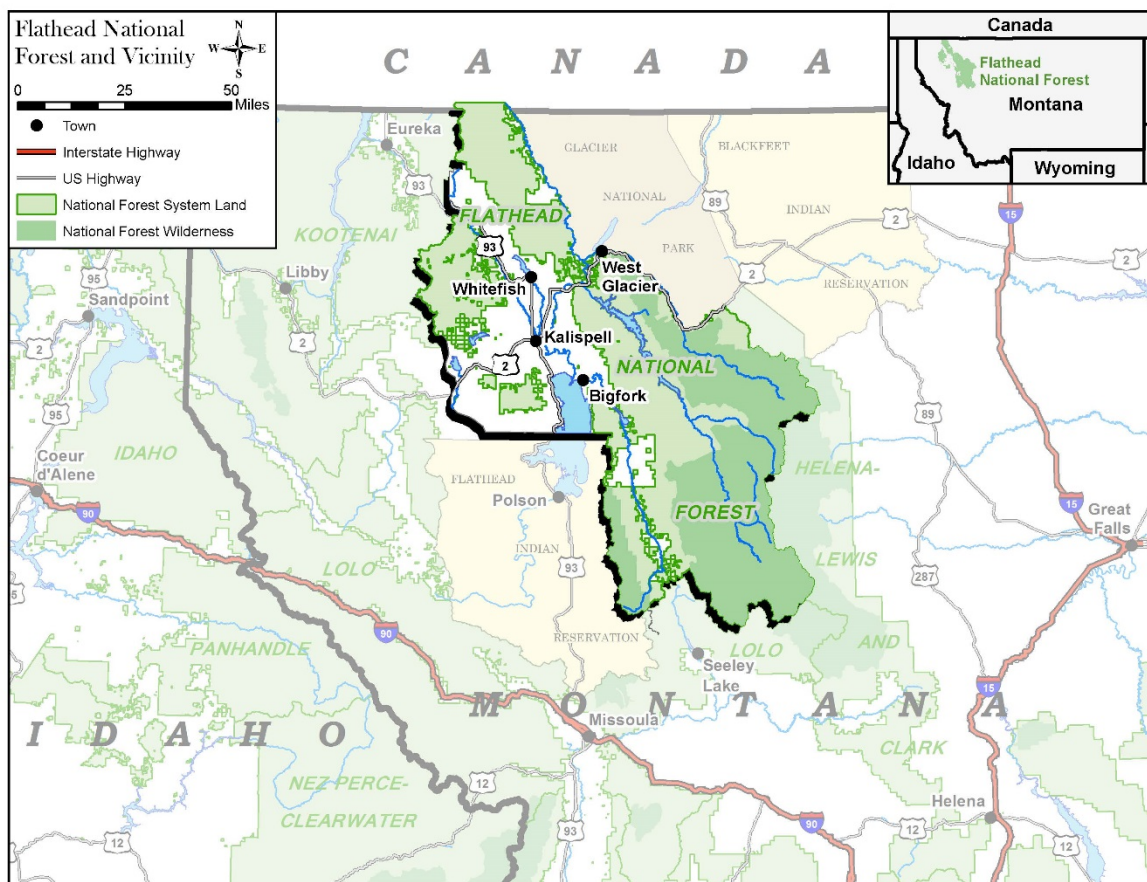
## **Ecological resources**

The Forest has an inherently high diversity of plant and animal life due to its geographic location, geology, ecologically significant wetlands, topography, elevation ranges, climate conditions, and unique patterns of historical disturbance processes, primarily wildfires of variable severities and sizes. The Forest 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 and a remote portion of British Columbia (see figure 1). This location, one 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. Numerous carnivores inhabit the Forest, including the Canada lynx as well as the grizzly bear and wolverine. The Flathead National Forest is part of Canada lynx critical habitat unit 3, which is the Northern Rocky Mountains region defined by the U.S. Fish and Wildlife Service (USFWS). The largest population of grizzly bears and 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.<sup>2</sup>

The Forest is part of the Northern Continental Divide Ecosystem (NCDE) for grizzly bears, one of seven grizzly bear ecosystems in the continental United States. The Flathead River in British Columbia and the North Fork of the Flathead River in Montana, as well as drainages on the east side of the Continental Divide that 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.<sup>3</sup>



**Figure 1. Flathead National Forest and vicinity**

<sup>2</sup> J. L. Weaver (2013), *Safe havens, safe passages for vulnerable fish and wildlife: Critical landscapes in the southern Canadian Rockies, British Columbia and Montana* (Toronto, ON: Wildlife Conservation Society Canada), retrieved from [http://static1.1.sqspcdn.com/static/f/808688/22226554/1363718404393/Weaver2013\\_SCR\\_WCSweb.pdf?token=u4ebRkBPswd5Ov3yQytOnA4tu00%3D](http://static1.1.sqspcdn.com/static/f/808688/22226554/1363718404393/Weaver2013_SCR_WCSweb.pdf?token=u4ebRkBPswd5Ov3yQytOnA4tu00%3D).

<sup>3</sup> R. D. Mace, D. W. Carney, T. Chilton-Radandt, S. A. Courville, M. A. Haroldson, R. B. Harris, . . . E. Wenum (2012), Grizzly bear population vital rates and trend in the Northern Continental Divide Ecosystem, Montana, *The Journal of Wildlife Management*, 76(1), 119-128, doi:10.1002/jwmg.250, retrieved from <http://dx.doi.org/10.1002/jwmg.250>.

The Flathead National Forest is noted for abundant aquatic and wetland resources. Its diverse wetlands (including fens, marshlands, glaciated ponds, woodland vernal pools, wet meadows, and sloughs) and associated riparian areas provide 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. A large portion of the watersheds for the North and Middle Forks and the South Fork (above Hungry Horse Reservoir) is within protected areas, resulting in abundant intact riparian and wetland habitats.

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

Flathead Lake is the largest (by surface area) natural freshwater lake in the western United States outside of Alaska and the 79th largest natural freshwater lake in the world, and it is also one of the cleanest. It covers 191.5 square miles (495.9 square kilometers) and has a mean depth of 165 feet and a maximum depth of 371 feet. Flathead Lake's high water quality results from the rapid flushing of the lake (all the water is replaced approximately every 2.2 years) and from its watershed being mainly national park, designated wilderness, and managed forest lands (> 60 percent); having a relatively low human population (~ 95,000); being dominated by very old, low-nutrient soils; and receiving high amounts of precipitation (mostly as mountain snow).<sup>4</sup>

Hungry Horse Reservoir is the uppermost dam within the Columbia River system. Construction of the dam in 1953 disconnected the South Fork of the Flathead River system from Flathead Lake for migratory fish, but the dam now serves as a protective barrier to non-native fish. The South Fork of the Flathead River system and Hungry Horse Reservoir support one of the largest intact native fish assemblages in the western United States. The South Fork Westslope Cutthroat Trout Conservation Project was completed in 2017 with the treatment of Sunburst Lake; the only non-native fish population in this watershed is arctic grayling in Handkerchief Lake.

The Flathead National Forest also has six research natural areas that are part of a national network of ecological areas managed for research, education, and maintenance of biological and geological diversity. These research natural areas represent a wide range of forest types as well as a diversity of wetlands, lakes, fens, and habitats for numerous rare plant species.

## Social and economic resources

The Forest surrounds Glacier National Park 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 Forest has both developed and dispersed recreation that provide for a broad and diverse range of year-round activities that range from exploring designated wilderness areas to skiing at developed ski resorts. There are two regionally significant ski areas (Whitefish Mountain Resort and Blacktail Mountain Ski Area), motorized and nonmotorized travel and recreation (including mountain biking, hiking,

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<sup>4</sup> Flathead Lake Biological Station (2016), About Flathead Lake, retrieved from <http://flbs.umt.edu/lake/flatheadlake.aspx>.

snowmobiling, and driving for pleasure), hunting, fishing, camping, Nordic skiing, whitewater 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, approximately 15,315-acre area managed 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 Forest has one designated wild and scenic river, the Flathead River, which has three forks—the North Fork, South Fork, and Middle Fork. The Flathead River was designated wild and scenic by Congress in 1976.

Wilderness lands provide hiking, hunting, fishing, boating, and horseback riding at the primitive end of the spectrum. Outfitters 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 that provides fly-in recreation opportunities for people arriving in 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 a situation in which you are alone, usually because you want to be. Some components of solitude are remoteness, naturalness, and removal from human intrusions.

Jobs in the recreation sector bring revenue into the local economy, of which 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 and guides and other recreation-based companies are dependent on the Forest for their livelihood. As the largest land jurisdiction in Flathead County, the Forest 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 and played a dominant role in the local economy. The exploration, settlement, and development of the area for forest and fire management created a network of roads and trails that made recreational access to this mountainous country possible. Although the volume of the timber harvest has declined in recent decades, the industry continues to be important to the local economy and to provide 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 to visitors. Hunting in northwestern Montana (Flathead, Lake, Lincoln, and Sanders Counties) is an important social and economic activity. Although 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 Forest has large quantities of huckleberries (*Vaccinium* spp.). This forest product is a key ecosystem characteristic in northwestern 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.

## Cultural 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, and Native American travel routes and cultural sites, including habitation areas, collecting areas, and places of traditional importance. 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 of this historic harvesting and milling still exists as heritage sites managed by the Forest. Many of the structures, trails, and sites have retained their historic integrity and add to the area's character and sense of place.

Five historic properties—Hornet Lookout, the Flathead National Forest Backcountry Administrative Facilities Historic District, the South Fork Phone Line, the Wurtz Homestead, and the Big Creek Ranger Station Historic District—are listed in the National Register of Historic Places. The Forest has approximately 350 recorded cultural resources, and there are potentially additional sites that have not yet been identified. Of the known sites, approximately 275 are historic-period sites associated with the Flathead National Forest Backcountry Administrative Facilities Historic District (ranger district headquarters, guard stations, and the trails and communications systems that connect them), early 20<sup>th</sup>-century Euro-American farming and mining sites, and historic logging sites. Approximately 31 of these sites, including five artifact and photograph collections, are listed as priority heritage assets and managed appropriately as such. Another 35 sites have been determined as eligible for listing in the National Register of Historic Places; the eligibility status of the remaining known sites is undetermined.

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 d'Oreille 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 Forest along the Forest's southwestern boundary.

Approximately 75 of the known archaeological sites on the Forest are associated with Native American uses of the land. These 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 burial and rock art sites. There is also a significant Native American trail network in the South Fork of the Flathead area that has been determined eligible for listing in the National Register of Historic Places.

## Chapter 2. Forestwide Direction

This chapter contains management 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, guidelines, and suitability. Other Forest Service direction, laws, regulations, policies, executive orders, and Forest Service directives (in the Forest Service Manual and the Forest Service Handbook) are generally not contained in the forest plan components.

This chapter is organized by resource under the following broad categories:

1. Physical and Biological Elements
2. Human Uses, Benefits, and Designations of the Forest
3. Production of Natural Resources
4. Economic and Social Environment

The Forest intends to move towards these forestwide desired conditions over the next 10 to 15 years. Some desired conditions may be very difficult to achieve in this time frame, but it is important to move towards them over time.

## Physical and Biological Elements

### Aquatic Ecosystems

This introduction provides a brief synopsis of aquatic components on the Forest and the themes used for plan component development, including native fish, aquatic habitat, riparian areas, wetlands, and water quality. The conservation watershed network and priority watersheds under the watershed condition framework can be found in appendix E, which goes into more depth regarding strategies to protect and restore native fish and water quality. Appendix C contains a list of possible management approaches or strategies for implementation of plan components.

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

- A decline in migratory bull trout numbers has occurred during the past several decades, primarily due to changes in climate and lake trout competition and predation in Flathead, Whitefish, Swan, Lindbergh, and Holland Lakes. However, bull trout populations remain strong in the Hungry Horse and South Fork geographic areas due to the absence of lake trout.
- 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 climate change. Westslope cutthroat trout populations remain strong in the three forks of the Flathead River, particularly the South Fork, but have declined in the Swan and Stillwater River systems.
- 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, but in many cases these barriers are disrupting the natural migration patterns of native fish.



- The watershed condition framework assessment of the Forest,<sup>5</sup> which was completed in 2011 and updated in 2015, determined that 97 percent of the watersheds on the Forest are in Class 1 condition (functioning appropriately). There are five Class 2 (functioning at risk) watersheds (see figure B-01), which is less than 3 percent of all watersheds on the Forest.
- Montana Department of Environmental Quality determined that sediment continues to impair aquatic life in the following creeks on the Forest: Logan, Sheppard, Coal, Goat, and Jim Creeks. The agency completed sediment total maximum daily loads (TMDLs) for those waterbody segments. Therefore, TMDLs have been developed for all streams on the Forest where required. Four waterbodies that are below the Forest's boundary—Whitefish Lake (2004), Swan Lake (2004), Haskill Creek (2014), and the Stillwater River (2014)—also have sediment TMDLs. During the last several years, the Forest has been working to restore soil, watershed, and aquatic habitat conditions by implementing best management practices, removing roads not needed for management or access by other landowners, improving road conditions (reducing sediment), removing man-made fish migration barriers, and implementing riparian conservation strategies and threatened and endangered species conservation strategies. Much of this work has been accomplished as part of TMDL implementation plans in cooperation with the State of Montana and the Environmental Protection Agency. Big Creek was the very first impaired waterbody in the State to be removed from the list for sediment because of restored function, but it remains listed for habitat alteration. Lastly, sediment TMDL has been completed for Sheppard and Logan creeks in the Salish geographic area.

The Forest is known for its highly diverse wetlands, including marshes, swamps, wet meadows, fens, peatlands, glaciated ponds, wooded vernal pools, and riparian areas. Diverse plant and animal species are associated with these and other unique habitats. Water howellia, a threatened plant, is found in Montana only in the Swan Valley. For additional information about conditions and trends, refer to the Forest assessment.<sup>6</sup>

## Watersheds

This section provides forestwide direction for overall watershed health. The following desired conditions apply at the larger (e.g., watershed) scale (10- or 12-digit hydrologic unit scale), not at particular sites such as stream reaches. The national hydrologic unit is the basis for defining the specific scales at which the watershed desired conditions apply. The three watershed scales most relevant to the implementation of the forest plan are subbasin (8-digit hydrologic unit), watershed (10-digit hydrologic unit), and subwatershed (12-digit hydrologic unit). Individual project assessments often use data collected at finer scales, such as the subwatershed, drainage, valley segment, site, or stream reach scale. Appendix C contains a more detailed description of the scales at which these desired conditions generally apply to forest planning and project planning.

### Desired conditions (FW-DC-WTR)

- 01** NFS lands provide the distribution, diversity, and complexity of watershed- and landscape-scale features, including natural disturbance regimes and the aquatic and riparian ecosystems, to which species, populations, and communities are uniquely adapted. Watersheds and associated aquatic

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<sup>5</sup> USDA (2015), *Watershed condition classification rankings: Flathead National Forest (updated from 2011)* (USDA Forest Service, Flathead National Forest), planning record exhibit # 00333.

<sup>6</sup> USDA (2014), *Assessment of the Flathead National Forest, part 1, part 2, and appendices A-E* (Kalispell, MT: USDA Forest Service, Flathead National Forest), retrieved from <https://www.fs.usda.gov/detailfull/flathead/landmanagement/planning/?cid=fseprd565644&width=full>.



ecosystems retain their inherent resilience and are able to respond and adjust to disturbances without long-term adverse changes to their physical or biological integrity.

- 02** Spatial connectivity exists within or between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, groundwater, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide chemically and physically unobstructed routes to areas critical for fulfilling the requirements of aquatic, riparian-associated, and many upland species of plants and animals.
- 03** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian-associated plant and animal species.
- 04** Instream habitat conditions for managed watersheds move in concert with or towards those in reference watersheds. Aquatic habitats are diverse, with channel characteristics and water quality reflective of the climate, geology, and natural vegetation of the area. Stream habitat features across the Forest, such as large woody material, percent pools, residual pool depth, median particle size, and percent fines, are within the range of conditions of the reference watersheds as defined by agency monitoring. Refer to FW-DC-WTR-07 and FW-DC-RMZ-01.
- 05** Aquatic systems and riparian habitats possess physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their natural range of variation.
- 06** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses, and meets the ecological needs of native aquatic and riparian-associated plant and animal species. The Forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the State of Montana's water quality standards (e.g., TMDLs) or are permanently above natural or background levels.
- 07** The sediment regime within waterbodies is within the natural range of variation. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport. Refer to FW-DC-WTR-04 and FW-DC-RMZ-01.
- 08** In-stream flows are sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained. Streamflow regimes maintain riparian ecosystems and natural channel and floodplain dimensions. Stream channels transport sediment and woody material over time while maintaining reference dimensions (e.g., bankfull width, depth, entrenchment ratio, slope, and sinuosity).
- 09** The timing, variability, and duration of floodplain inundation is within the natural range of variation. Floodplains are accessible to water flow and sediment deposits. Over-bank floods allow floodplain development and the propagation of flood-associated riparian plant and animal species.
- 10** Groundwater-dependent ecosystems, including peatlands, bogs, fens, wetlands, seeps, springs, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and seasonal and annual timing and exhibit water table elevations within the natural range of variation. Surface and groundwater flows are connected, provide late-season stream flows and cold water temperatures, and sustain the function of surface and subsurface aquatic ecosystems.
- 11** 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 characteristics and diversity

of those wetlands. Non-forested areas in and surrounding wetlands are composed of plant and animal communities that support and contribute to wetland ecological and habitat diversity.

- 12 Habitats and native assemblages of aquatic and riparian-associated plants and animals are free of persistent non-native species such as zebra mussels, New Zealand mud snails, quagga mussels, Eurasian milfoil, and brown trout. Non-native species (e.g., non-native bullfrogs, Chytrid fungus, yellow flag iris, or reed canary grass) are not expanding into waterbodies.
- 13 Peatlands, including fens, 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. Peatlands support unique plant and animal species that are characteristic of historical conditions. Trees exist on drier hummocks within and on the edge of peatlands but do not retard development.
- 14 Beavers play an important ecological role benefiting groundwater, surface water, stream aquatic habitat complexity, and adaptation to changing climate conditions.
- 15 Watersheds provide high-quality water for downstream communities dependent upon them.
- 16 Educational and informational programs are provided to enhance understanding of wetlands, stream ecosystems, and watersheds.
- 17 The Forest cooperates with Federal, tribal, State, and local governments to identify and secure instream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

### **Objectives (FW-OBJ-WTR)**

- 01 Complete all essential work identified within the Class 2 priority watersheds as identified under the watershed condition framework (see appendix E).
- 02 Enhance or restore 25 to 50 miles of stream habitat to maintain or restore structure, composition, and function of habitat for fisheries and aquatic species other than fish. Activities include, but are not limited to, barrier removal, large woody debris placement, road decommissioning or stormproofing, riparian planting, and channel reconstruction.
- 03 Reconnect 10 to 20 miles of habitat in streams disconnected by roads or culverts where aquatic and riparian-associated species' migratory needs are limiting distribution of those species.
- 04 Improve watershed conditions on 4,000 to 8,000 acres, with an emphasis on priority watersheds under the watershed condition framework and the conservation watershed network.

### **Standards (FW-STD-WTR)**

- 01 New stream diversions and associated ditches shall have screens placed on them to prevent capture of fish and other aquatic organisms.
- 02 Project-specific best management practices (including both Federal and State of Montana practices) shall be incorporated into project plans as a principle mechanism for controlling non-point pollution sources in order to meet soil and watershed desired conditions and to protect beneficial uses.
- 03 Portable pump set-ups shall include containment provisions for fuel spills, and fuel containers shall have appropriate containment provisions.

## Guidelines (FW-GDL-WTR)

- 01** In order to restore watersheds, sediment-producing activities in watersheds with approved TMDLs should be designed to comply with the Montana Department of Environmental Quality's TMDL implementation plan.
- 02** To maintain stream channel stability and aquatic habitat, large woody debris should not be cut and/or removed from stream channels unless it threatens critical infrastructure or human safety, such as mid-channel bridge piers, or poses long-term risks to bull trout passage.
- 03** When drafting water from streams, pumps should be screened to prevent capture of fish and aquatic organisms. During the spawning season for native fish, pumping sites should be located away from spawning gravels.
- 04** When beaver dams are threatening infrastructure or impairing bull trout spawning, preferred techniques that sustain beavers (e.g., using pipes to reduce water levels, notching dams to restore fish passage) should be used.
- 05** To protect spawning fish, eggs, and embryos, in-stream management activities that may disturb native salmonids or that 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 displayed in table 1.

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

Species	Location	Inoperable activity period
Westslope cutthroat trout	Known spawning streams	May 1 through July 15
Bull trout	Known spawning streams	September 1 through March 15

- 06** Information on preventive measures related to aquatic invasive species should be provided at water-based recreation sites such as boat ramps to help prevent the introduction of non-native species.
- 07** To prevent the introduction of non-native species, equipment that comes in contact with a waterbody should be inspected and cleaned of aquatic invasive species prior to use in a waterbody or when moving between watersheds, including drafting equipment, water tenders, and helicopter buckets.
- 08** When aquatic invasive species (e.g., zebra mussels, quagga mussels, Eurasian milfoil, reed canary grass) are detected, they should be controlled in cooperation with appropriate agencies.
- 09** New management activities shall be consistent with applicable state source water protection requirements and goals. Short-term effects<sup>7</sup> from activities may be acceptable when those activities support long-term benefits<sup>8</sup> to aquatic resources.

## Conservation Watershed Network

The conservation watershed network is a specific subset of watersheds (10- or 12-digit hydrologic unit codes) in which the long-term conservation and preservation of bull trout and pure westslope cutthroat

<sup>7</sup> Effects that occur during, or immediately following, implementation of activity.

<sup>8</sup> Benefits that occur following completion of the activity.

trout is prioritized, specifically in areas with an absence of non-native competition (see figure B-02). The conservation watershed network also provides protection for wildlife.

### **Desired conditions (FW-DC-CWN)**

- 01 The conservation watershed network has high-quality habitat and functionally intact ecosystems that are contributing to and enhancing the conservation and recovery of specific threatened or endangered fish species or aquatic species of conservation concern<sup>9</sup> and providing high water quality and quantity. The watersheds contribute to the conservation and recovery of native fish and other aquatic species and help make habitat conditions more resilient to climate change.

### **Objectives (FW-OBJ-CWN)**

- 01 The conservation watershed network is the highest priority for restoration actions for native fish and other aquatic species. The stormproofing of 15 to 30 percent of the roads in the conservation watershed network is prioritized, as funding allows, to benefit aquatic species (e.g., bull trout). See appendix C for specific strategies for treatment options and for prioritization, such as of roads paralleling streams vs. ridgetop roads.
- 02 Over the life of the plan, stormproofing the transportation system (e.g., upsizing culverts, reducing sediment on roads, realigning stream-constraining road segments, etc.) will be accomplished as opportunities are identified on the following prioritized subwatersheds: Sullivan Creek, Wounded Buck Creek, Trail Creek in the North Fork, Whale Creek (includes Upper Whale, Lower Whale, and Shorty Creeks), Granite Creek, Bear Creek, Goat Creek, and Lion Creek.

### **Guidelines (FW-GDL-CWN)**

- 01 To reduce sedimentation, for subwatersheds included in the conservation watershed network, net increases in stream crossings and road lengths should be avoided in riparian management zones unless the net increase improves ecological function in aquatic ecosystems. The net increase is measured from the beginning to the end of each project.

## **Riparian Management Zones**

Riparian management zones are areas adjacent to perennial and intermittent streams, wetlands, ponds, lakes, and reservoirs, as defined by standard FW-STD-RMZ-01. The functions of riparian management zones within aquatic ecosystems include (1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams, (2) providing root strength for channel stability, (3) shading streams, and (4) protecting water quality.<sup>10</sup> A critical function of riparian management zones is to contribute to wildlife habitat use and connectivity. As the interface between aquatic and terrestrial ecosystems, riparian areas provide unique habitat characteristics.

### **Desired conditions (FW-DC-RMZ)**

- 01 Riparian management zones reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions appropriate to natural disturbance

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<sup>9</sup> Species of conservation concern are identified by the Regional Forester; more information is available at <http://bit.ly/NorthernRegion-SCC>.

<sup>10</sup> R. J. Naiman, T. J. Beechie, L. E. Benda, D. R. Berg, P. A. Bison, L. H. MacDonald, . . . E. A. Steel (1992), Fundamental elements of ecologically healthy watersheds in the Pacific Northwest coastal ecoregion, in R. J. Naiman (Ed.), *Watershed management: Balancing sustainability with environmental change* (pp. 127-188), New York, NY: Springer-Verlag.

regimes and processes affecting the area. In addition to natural processes, vegetation management activities contribute to vegetation conditions that are resilient. The species composition and structural diversity of native plant communities in riparian management zones, including wetlands, provide summer and winter thermal regulation, nutrient filtering and appropriate rates of surface erosion, bank erosion, and channel migration. Refer to FW-DC-WTR-04 and 07.

- 02** Riparian management zones provide key conditions, including slope stability and associated vegetative root strength, wood delivery to streams and streambanks, input of leaf and organic matter to aquatic and terrestrial systems, solar shading, microclimate, and water quality, operating consistently with local disturbance regimes.
- 03** Riparian management zones in forested settings have more diverse vegetation structure relative to areas outside the riparian management zone. This includes a higher density of large downed wood, snags, and decadent live trees and higher amounts of litter and duff to support terrestrial riparian-associated plants and animals that feed, nest, den, or roost near water. Downed wood greater than 9 inches in diameter is available, consisting of intact pieces of a variety of species, sizes, and stages of decay, including cull tree tops and cull logs.
- 04** Riparian management zones have more diverse vegetation composition relative to areas outside the riparian management zone. This includes riparian-associated grasses, forbs, shrubs (e.g., willows); deciduous trees (e.g., cottonwoods, birch, aspen), and conifer trees to support terrestrial animals that feed, nest, den, or roost near water.
- 05** A mosaic vegetation pattern, including forest patches of different shapes, successional stages, and tree densities, occurs within riparian management zones. Early successional forest openings are typically irregularly shaped, with variable tree densities or patches of larger trees along their boundaries that reduce the risk of windthrow and reduce edge effects for wildlife.
- 06** Cover conditions in riparian management zones contribute to habitat connectivity for a variety of wildlife species (e.g., Canada lynx, grizzly bear, marten, and fisher).

## **Objectives (FW-OBJ-RMZ)**

- 01** Improve 300 to 1,000 acres of riparian habitat.

## **Standards (FW-STD-RMZ)**

- 01** The entire width of the riparian management zones shall be delineated as follows.

**Category 1 Fish-bearing streams:** Riparian management zones consist of the stream and the area on both sides 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 the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees,<sup>11</sup> or 300 feet slope distance (600 feet total, which includes both sides of the stream channel), whichever is greatest.

**Category 2 Permanently flowing non-fish-bearing streams:** Riparian management zones consist of the stream and the area on both sides 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 the outer edges of the riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet

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<sup>11</sup> The height of a site-potential tree is the expected average maximum height a tree in the dominant crown class (upper forest canopy layer) would achieve, given the site productivity.

slope distance (300 feet total, which includes both sides of the stream channel), whichever is greatest.

**Category 3** Seasonally flowing or intermittent streams and lands identified as potentially unstable or landslide prone: This category includes features with high variability in size and site-specific characteristics. At a minimum, the riparian management zone 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) 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 (200 feet total, which includes both sides of the stream channel), whichever is greatest; or (4) the extent of unstable and potentially unstable areas (including earthflows).

**Category 4a** Ponds, lakes, reservoirs, and wetlands greater than 0.5 acre and all sizes of howellia ponds and fens/peatlands: Riparian management zones 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 300 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. For management direction related to water howellia, refer to the following plan components: FW-DC-PLANT-01 and 02, FW-GDL-PLANT-01, 02, and 03, FW-DC-NNIP-01, MA3b-Special Area-DC-04, and GA-SV-DC-01 and 02.

**Category 4b** Ponds, lakes, reservoirs, and wetlands less than 0.5 acre (except howellia ponds and fens/peatlands; see category 4a): Riparian management zones 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 100 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.

The riparian management zone is divided into two areas called the inner and outer riparian management zones. Management direction may differ in these two zones.

The *inner* riparian management zones are defined as follows:

- ◆ For category 1 and 2 streams, the width of the inner riparian management zone shall be a minimum of 150 feet on each side of the stream.
- ◆ For category 3 streams where side slopes are greater than 35 percent, the width of the inner riparian management zone shall be a minimum of 100 feet on each side of the stream or to the top of the inner gorge slope break, whichever is greater. Exceptions are allowed if the slope within the 100 foot riparian management zone decreases to 15% or less for a distance of at least 30 feet (forming a bench). The boundary of the inner riparian management zone may then be located at the toe of the bench. However, under no circumstance shall the inner riparian management zone be less than 50 feet on each side of the stream. See appendix C for a diagram illustrating this exception.
- ◆ For category 3 streams where side slopes are less than 35 percent, the inner riparian management zone shall be a minimum of 50 feet on each side of the stream.
- ◆ For category 4a and 4b ponds, lakes, reservoirs, and wetlands, the width of the inner riparian management zone shall be a minimum of 50 feet except for peatlands, fens, and bogs, where the minimum width is 300 feet.

In all categories the width of the inner riparian management zone in the descriptions above can be increased to protect sensitive resources. If an already established road is located within the riparian management zone, a site-specific determination shall be made as to the width of the inner riparian management zone. The portion of the riparian management zone that lies below the road may become the inner riparian management zone, and the portion above the road would become the outer riparian management zone.

**The following standards apply to the entire riparian management zones for all categories:**

- 02** Vegetation management activities within riparian management zones must be consistent with State law (e.g., Montana Streamside Management Zone Law).
- 03** Storage and refueling sites within riparian management zones must be approved by a Forest aquatics specialist or resource advisor and have an approved spill containment plan.
- 04** Herbicides, pesticides, and other chemicals shall not be applied within riparian management zones. Exceptions may be made if chemical use is necessary to maintain, protect, or enhance aquatic and riparian resources or to restore native plant or animal communities.

**The following standard applies to the entire riparian management zone for peatlands, fens, and bogs within category 4a:**

- 05** Ground-disturbing vegetation treatments in the riparian management zones for peatlands, fens, and bogs shall only occur in order to restore or enhance aquatic and riparian-associated resources.

**The following standard applies to the inner riparian management zone for all categories except peatlands, fens, and bogs within category 4a:**

- 06** Vegetation management shall only occur in the *inner* riparian management zone in order to restore or enhance aquatic and riparian-associated resources. Exceptions may occur as long as aquatic and riparian-associated resources are maintained. Exceptions shall be limited to (1) non-mechanical treatments such as prescribed fire, sapling thinning, or hand fuel reduction treatments; (2) mechanical fuel reduction treatments in the wildland-urban interface within 300 feet of private property boundaries; or (3) treatments that address human safety hazards (e.g., hazard trees) adjacent to infrastructure or within administrative or developed recreation sites.

## **Guidelines (FW-GDL-RMZ)**

**The following guidelines apply to entire riparian management zones for all categories:**

- 01** Downed trees (e.g., windthrow) should be left on-site inside of riparian management zones to meet large wood desired conditions, where it is safe and practical to do so.
- 02** Aerial application of chemical retardant, foam, or other fire chemicals and petroleum should not occur in mapped aerial retardant avoidance areas (see glossary) in order to protect terrestrial and aquatic resources associated with riparian management zones.
- 03** Temporary fire facilities (e.g., incident bases, camps, staging areas, helispots, and retardant batch plants) for incident activities should not be located in riparian management zones in order to protect terrestrial and aquatic resources associated with riparian management zones.
- 04** To protect the integrity of aquatic and riparian ecosystems, refueling, equipment maintenance, and storage of fuels or other toxicants should not occur in riparian management zones.

- 05 When conducting wildland fire operations within riparian management zones, minimum impact suppression tactics should be used to protect terrestrial and aquatic resources associated with riparian management zones.
- 06 Sand and gravel mining and extraction at new sites should not occur within riparian management zones to protect terrestrial and aquatic resources associated with riparian management zones. Exceptions may occur for trail work.
- 07 At developed recreation sites and administrative sites, trees within the riparian management zone that are determined to be a hazard should be felled to provide for public safety, in consultation with a Forest aquatics specialist. If felled, downed trees should be left on-site as needed to meet large wood desired conditions, where it is safe and practical to do so.
- 08 If tree harvest activities occur within riparian management zones, live reserve trees should be retained (if present) to protect water quality and contribute to forest live tree structural diversity (and future dead standing and downed wood) for aquatic- and riparian-dependent species. Because site and forest conditions vary considerably, the sizes, species, density, and pattern of reserve trees would be determined at the project level.
- 09 If new openings are created in riparian management zones through even-aged regeneration harvest (see glossary) or fuel reduction activities, each created opening's distance to cover (see glossary) should not exceed 350 feet to provide wildlife habitat structural diversity, connectivity, and cover.
- 10 If harvest activities occur within riparian management zones, all snags greater than or equal to 12 inches d.b.h. should be retained within the harvest area to contribute towards more diverse forest structure and desired habitat conditions by providing higher snag and downed wood densities (once the snags fall) as compared to areas outside riparian management zones. Exceptions to this guideline and development of an alternative snag prescription may be considered where there are issues of human health and safety (i.e., developed recreation sites, sites adjacent to landings) or where a decreased amount of wildland fuels is desired to protect communities and community assets (i.e., within the wildland-urban interface). Due to the high density and variability in snags and landscape conditions created by wildfire, exceptions and alternative prescriptions may also be considered in areas burned by stand-replacing fire based on a site-specific analysis.
- 11 To reduce the risk of sediment input and to protect the integrity of aquatic and riparian ecosystems, new roads (including temporary roads) and new landings should not be constructed in category 1, 2 or 3 riparian management zones, except where it is necessary for a road to cross a stream. Exceptions may be considered where site-specific analysis and implementation of mitigation measures are determined appropriate by a Forest aquatics specialist to protect aquatic and riparian resources.

**The following guidelines apply to the entire riparian management zone for category 1, 2, and 3 streams and for fens/peatlands:**

- 12 Vegetation management activities should be designed to avoid ground disturbance that may deliver sediment and to reduce the risk of alteration of hydrologic processes. Exceptions may be considered where site-specific analysis and implementation of mitigation measures are determined appropriate by a Forest aquatics specialist to protect aquatic and riparian resources.
- 13 If prescribed fire activities occur, ignition should take place outside the riparian management zone and fire should be allowed to naturally spread into the riparian management zones. The intent is to



allow fire to enter and cross the zone at predominantly low to moderate intensity and create vegetation conditions consistent with natural fire regimes.

**The following guidelines apply only to the inner riparian management zone for categories 4a and 4b (except fens/peatlands):**

- 14** To reduce the risk of sediment input and to protect the integrity of aquatic and riparian ecosystems, new landings and new roads (including temporary roads) should not be constructed. Exceptions for temporary roads and landings may be considered only where site-specific analysis and implementation of mitigation measures are determined to be appropriate by a Forest aquatic specialist to protect aquatic and riparian resources.
- 15** If vegetation treatments occur in the inner riparian management zones, they should be designed to avoid ground disturbance that may deliver sediment and to reduce the risk of alteration of hydrologic processes. Exceptions may be considered where site-specific analysis and implementation of mitigation measures are determined appropriate by a Forest aquatic specialist to protect aquatic and riparian resources.

### **Suitability (FW-SUIT-RMZ)**

- 01** Riparian management zones are not suitable for timber production. Timber harvesting for other multiple-use purposes is allowable.

## **Soils and Geology**

The National Forest Management Act states that management activities on NFS lands will not produce substantial and permanent impairment of soil productivity. Productivity is maintained by establishing soil quality standards and guidelines. The emphasis of soil management includes protection of long-term soil quality and ecological function. The objectives of the national direction on NFS lands are (1) to maintain or restore soil quality and (2) to manage resource uses and soil resources to sustain ecological processes and function so that desired ecosystem services are provided in perpetuity.

### **Desired conditions (FW-DC-SOIL)**

- 01** Soil function and long-term productivity is conserved.

### **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 condition and proposed activity must not exceed 15 percent following project implementation and restoration. In areas where more than 15 percent detrimental soil conditions exist from prior activities, the effects from project implementation and restoration must address currently impaired soil functions to improve the long-term soil condition.
- 02** Project-specific best management practices and design features shall be incorporated into land management activities as a principle mechanism for protecting soil resources.
- 03** Soil function shall be restored on temporary roads (and decommissioned road prisms used as temporary roads) when management activities that use these roads are completed. Restoration treatments shall be based on site characteristics and methods that have been demonstrated to measurably improve soil productivity.

- 04 When decommissioning existing roads, soil function shall be restored. Restoration treatments shall be based on site characteristics and methods that have been demonstrated to measurably improve soil productivity.

### **Guidelines (FW-GDL-SOIL)**

- 01 Ground-based equipment for vegetation management should only operate on slopes less than 40 percent to protect soil quality. Exceptions will be considered only with site-specific analysis where soil, slope, and equipment are determined appropriate to maintain soil functions.
- 02 To maintain soil quality and stability, ground-disturbing management activities should not occur on landslide-prone areas.
- 03 Project activities should provide sufficient effective ground cover with a post-implementation target of 85 percent to provide nutrients and reduce soil erosion.
- 04 To maintain organic matter for soil function, vegetation management activities should conserve coarse woody debris at levels described in FW-DC-TE&V-17 and FW-GDL-TE&V-08 in the Vegetation and Terrestrial Ecosystems section. Management activities should either retain forest floor at half the current thickness or no less than 1 centimeter thick on average across activity areas.

### **Caves and karst features (CAVES)**

There are a large number of caves and related geologic features on Forest lands. Caving and rock-climbing are popular recreational activities in some areas. Cave resources are both fragile and non-renewable and special considerations are required to provide resource protection and recreational opportunities. On federal lands the Federal Cave Resources Protection Act of 1988 (102 Stat. 4546; 16 U.S.C. § 4301-4309) provides for the protection and preservation of caves.

#### **Desired conditions (FW-DC-CAVES)**

- 01 The cultural, archaeological, geological, hydrological, paleontological, biological, and aesthetic resources associated with caves and karst features are maintained.
- 02 Cave formations and karst landscapes continue to develop or erode under natural conditions.
- 03 Caves and karst features provide habitat for species, particularly bats, that require specialized niches for raising young, roosting, and overwintering. Disease is not spread by human activities.
- 04 The significant features of caves designated under the Federal Cave Resources Protection Act are protected and maintained.
- 05 Recreational use or scientific studies in caves/karst features protect and maintain cave-dependent species and paleontological and archaeological resources.
- 06 Educational/informational materials are available to cavers on topics such as reducing impacts of human disturbance on species, ecological conditions associated with caves, and measures cavers can use to prevent the spread of diseases such as white-nose syndrome from cave to cave.

#### **Guidelines (FW-GDL-CAVES)**

- 01 To protect cave resources, significant caves, identified as such under the Federal Cave Resources Protection Act, should not be signed, disclosed on maps, mentioned in brochures, or have monument markers.

- 02 To protect cave resources such as airflow to caves, closure devices should provide for airflow exchange.
- 03 In order to prevent loss of bat habitat, if caves being used as roosts or hibernacula by bats are closed, for example, to reduce safety hazards or vandalism, bat-friendly closures should be installed unless alternative entries for bats are known to be available.

## Terrestrial Ecosystems and Vegetation

### Introduction

The Forest has a wide diversity of plant communities across sites that range from warm and moist to dry valley bottoms to cold, steep, non-forested ecosystems, all of which support a rich and diverse assortment of animals. The desired conditions for vegetation describe what is necessary to maintain ecosystem integrity and also contribute to social and economic sustainability, as required by the 2012 planning rule. Analysis of the natural range of variation is the foundation for developing desired conditions, along with integration of additional factors that may be desired such as wildlife habitat needs, existing or anticipated human use patterns, potential future climate conditions, resiliency to future disturbances, and ecosystem services (such as reduction of fire hazard or production of forest products).

Desired conditions reflect the dynamic nature of vegetation conditions over time and space. The collective influence of vegetation changes brought about by climate, ecosystem processes, and management activities achieves the desired conditions. Fluctuations in vegetation conditions over time are expected, with changes occurring both rapidly (such as with fire events) or slowly and gradually (such as with succession). Thus, desired conditions should be viewed and interpreted from both a short-term (i.e., the “life of the plan,” which is 15 years) and a long-term perspective. Vegetation conditions would be considered acceptable if they occur anywhere within (or trend towards) the desired range, though other ecological, social, or economic factors may influence the desired trend or position within the desired range for a particular vegetation characteristic. Standards and guidelines are designed to ensure that certain project activities are conducted in a manner that maintains or moves the Forest towards desired conditions. Monitoring assists in evaluation of vegetation change over time and supports an adaptive management approach to forest management (36 CFR § 219.12). See the detailed monitoring plan in chapter 5.

Lands across the Forest have been grouped into broad potential vegetation types, consistent with the groupings established for the Forest Service in the USDA Forest Service Northern Region.<sup>12</sup> Hereafter in this plan, the broad potential vegetation types are referred to simply as “potential vegetation type” or, in some cases, as simply “type” (as in “warm-moist type”). In tables, the phrase potential vegetation type is abbreviated as “PVT.” Four potential vegetation types for forested lands occur on the Forest: warm-dry type, warm-moist type, cool-moist type, and cold type. Some of the plan components for vegetation apply to these potential vegetation types. Refer to appendix D for additional information, including the individual habitat types that are grouped into each potential vegetation type. Refer to maps in appendix B, both forestwide (figure B-03) and by geographic area (figures B-04 to B-09). The maps display the potential vegetation types for use at a broad-scale level of analysis. Site-specific verification of the

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<sup>12</sup> A. Milburn, B. Bollenbacher, M. Manning, & R. Bush (2015), *Region 1 existing and potential vegetation groupings used for broad-level analysis and monitoring*, Missoula, MT: USDA Forest Service, Northern Region, retrieved from <https://www.fs.usda.gov/detailfull/r1/landmanagement/gis/?cid=stelprdb5331054&width=full>, [http://fsweb.r1.fs.fed.us/forest/inv/r1\\_tools/R1\\_allVeg\\_Groups.pdf](http://fsweb.r1.fs.fed.us/forest/inv/r1_tools/R1_allVeg_Groups.pdf).

potential vegetation type would occur during project-level analysis for purposes of applying forest plan direction.

Additional information helpful in understanding some of the vegetation plan components is provided in appendix C as well as descriptions of potential management approaches and actions that may be used to help achieve desired vegetation conditions. Also, refer to the glossary for definitions and information on the terminology used in these sections.

## **Desired conditions (FW-DC-TE&V)**

### **General vegetation (FW-DC-TE&V)**

- 01** Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provides for the ecological, social, and economic sustainability of NFS lands while also providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE. See also FW-DC-WL-02.
- 02** Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.
- 03** 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. The vegetation mosaic across the plan area varies greatly over time as vegetation is influenced by site conditions and responds to climate changes, ecological processes (such as natural succession, fire, insects, and disease), and human influences (such as vegetation management). Vegetation conditions and patterns contribute to resistant (the capacity to remain relatively unchanged following disturbances) and/or resilient (the capacity to regain normal functioning following disturbances) forest conditions at both the stand and landscape level.
- 04** Desired habitat conditions across the Forest and within each potential vegetation type contribute to long-term persistence and diversity of native plant and animal species. Ecosystem conditions and ecological processes contribute to the survival, reproduction, and dispersal of terrestrial and aquatic animal (vertebrate and invertebrate) species native to the Forest and provide for nesting or denning, habitat security, shelter, and forage (see also the plan components in the wildlife section).
- 05** Vegetation conditions provide sustainable levels of timber harvest and other forest products such as wood fiber, biomass, firewood, posts and poles, medicinal plants, tepee poles, mushrooms, and berries for commercial, tribal, personal, educational, and scientific uses.

### **Baseline carbon stocks (FW-DC-TE&V)**

- 06** Carbon storage and sequestration potential are sustained through maintenance or enhancement of ecosystem biodiversity and function and managing for resilient forests adapted to natural disturbance processes and changing climates.

### **Vegetation composition (FW-DC-TE&V)**

- 07** The Forest has a diversity of native tree species, with most stands composed of more than one tree species. Desired conditions for forest dominance types forestwide are described in table 2. Desired conditions for the forestwide presence (distribution) of individual tree species are described in table 3. Refer also to table 4 for desired conditions for the presence of individual tree species by each potential vegetation type.

**Table 2. Desired conditions forestwide for coniferous forest dominance types<sup>a</sup> (percentage of Forest in the dominance type)**

Forest dominance type	Current condition <sup>b</sup> (%)	Desired range (%)
Ponderosa pine	0.4 (0-1.0)	0.5-5
Douglas-fir	18 (16-21)	15-25
Western larch	5.7 (4.2-7.3)	8-15
Lodgepole pine	15 (12-18)	10-20
Subalpine fir/Engelmann spruce	43 (39-47)	30-45
Grand fir/Western red cedar	1 (0.4-1.6)	0.2-1.5
Whitebark pine	2.4 (1.4-3.4)	0.5-5

a. Dominance type (see glossary) reflects the most common tree species in the stand.

b. Data source: Dominance Mid 40 attribute, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90 percent confidence interval. Reports run in 2016.

**Table 3. Desired conditions forestwide for coniferous tree species presence<sup>a</sup> (percentage of Forest where species is present)**

Conifer species	Current condition <sup>b</sup> (%)	Desired range (%)
Ponderosa pine	0.9 (0.3-1.6)	2-8
Douglas-fir	35 (32-39)	30-55
Western larch	18 (15-21)	22-35
Lodgepole pine	26 (25-30)	20-35
Subalpine fir	61 (57-65)	55-74
Engelmann spruce	44 (41-48)	40-63
Grand fir	2.7 (1.6-4.0)	1-6
Western red cedar	1.3 (0.5-2.2)	0.5-5
Whitebark pine	11 (9-14)	13-20
Western white pine	1.6 (0.8-2.5)	3-10

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

b. Data source: Species presence attribute by R1 Broad Habitat Groups, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Inventory and Analysis (FIA) program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90% confidence interval. Reports were run in 2016.

- 08** Presence of tree species within each potential vegetation type meets or trends towards desired conditions, as described in table 4. The distribution of tree species provide desired habitat conditions for associated wildlife species and contribute to diverse and resilient forest conditions, as described in table 4. See appendix D for a description of potential vegetation types.

**Table 4. Current and desired conditions by potential vegetation type for tree species presence (percentage of Forest within the potential vegetation type where particular species are present)**

PVT	Current condition <sup>a</sup> (%)	Desired range (%)	Desired conditions
Warm-dry coniferous forest	Ponderosa pine: 4.2 (0.5-9.1) Douglas-fir: 76 (67-86) Western larch: 19 (11-28) Lodgepole pine: 28 (18-39)	Ponderosa pine: 15-50 Douglas-fir: 30-60 Western larch: 10-30 Lodgepole pine: 15-35	Ponderosa pine is very common and all sizes are represented. Douglas-fir is common but usually in mixed stands with ponderosa pine, larch, or lodgepole. Western larch is present on the more moist sites within this type, most often in mixed stands with ponderosa pine and Douglas-fir. Grand fir and subalpine fir may be present on some of the moister sites, usually in understory canopy layers.

PVT	Current condition <sup>a</sup> (%)	Desired range (%)	Desired conditions
			In areas determined to be big game winter habitat (determined in cooperation with MFWP), species with full crowns in winter (e.g., Douglas-fir and ponderosa pine) are well represented in all size classes, whereas western larch and to a lesser extent lodgepole pine occur as minor or codominant species.
Warm-moist coniferous forest	<p>Ponderosa pine: not present</p> <p>Douglas-fir: 50 (36-64)</p> <p>Western larch: 52 (37-68)</p> <p>Western white pine: 11.4 (2.9-21)</p> <p>Lodgepole pine: 30 (16-44)</p> <p>Grand fir: 30 (15-45)</p> <p>Western red cedar: 22 (9.6-35)</p> <p>Subalpine fir: 44 (30-59)</p> <p>Engelmann spruce: 58 (44-72)</p>	<p>Ponderosa pine: 5-15</p> <p>Douglas-fir: 40-70</p> <p>Western larch: 45-80</p> <p>Western white pine: 10-25</p> <p>Lodgepole pine: 4-15</p> <p>Grand fir: 10-36</p> <p>Western red cedar: 15-30</p> <p>Subalpine fir: 10-40</p> <p>Engelmann spruce: 20-50</p>	<p>Species composition is very diverse, both across the landscape and within stands. Western larch and Douglas-fir 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, achieving codominance with other shade-intolerant species. Lodgepole pine is less common than other shade-intolerant species, usually present as a codominant or minor species. Ponderosa pine is uncommon but is present in some stands within this PVT. Western red cedar, grand fir, subalpine fir, and Engelmann spruce are commonly present in understory tree layers but are less commonly in overstory tree layers, except in riparian areas and lands immediately adjacent to streams, ponds, or wetlands. Groves of large, old western red cedar are present in portions of the most sheltered sites and wet areas.</p> <p>Areas in this type with presence of ponderosa pine contribute to flammulated owl habitat. Areas in this type with presence of western red cedar, western hemlock, western white pine, and western larch contribute to fisher habitat. In areas determined to be big game winter habitat (determined in cooperation with MFWP), species with full crowns in winter (e.g., Douglas-fir, ponderosa pine, western white pine) are well represented in all size classes, and western larch and to a lesser extent lodgepole pine occur as codominant or minor species.</p>
Cool-moist coniferous forest	<p>Douglas-fir: 35 (31-40)</p> <p>Western larch: 19 (16-23)</p> <p>Lodgepole pine: 29 (25-33)</p> <p>Subalpine fir: 69 (65-73)</p> <p>Engelmann spruce: 54 (50-58)</p> <p>Western white pine: 1.6 (0.7-2.7)</p> <p>Whitebark pine: 6.9 (4.8-9.2)</p>	<p>Douglas-fir: 35-60</p> <p>Western larch: 28-45</p> <p>Lodgepole pine: 15-35</p> <p>Subalpine fir: 69-85</p> <p>Engelmann spruce: 45-73</p> <p>Western white pine: 5-10</p> <p>Whitebark pine: 6-16</p>	<p>Species composition is diverse across the landscape, with stands commonly containing more than one tree species. Some pure or nearly pure stands of subalpine fir and Engelmann spruce, as well as lodgepole pine, occur. Subalpine fir and spruce are commonly present in understory tree layers. Douglas-fir and western larch trees are widespread across the landscape, contributing to species diversity, forest resilience and recovery after fire events.</p> <p>These conditions contribute to habitat for key species such as Canada lynx and provide high-quality habitat for cavity nesting/denning species.</p>

PVT	Current condition <sup>a</sup> (%)	Desired range (%)	Desired conditions
Cold coniferous forest	Lodgepole pine: 22 (14-30) Subalpine fir: 81 (75-88) Engelmann spruce: 40 (32-47) Whitebark pine: 38 (29-46)	Lodgepole pine: 20-35 Subalpine fir: 50-90 Engelmann spruce: 45-85 Whitebark pine: 55-85	Subalpine fir and Engelmann spruce are common in the cold type, particularly in basins and moist slopes. Lodgepole pine is also widely present, contributing to species diversity and recovery of forested conditions after fire. Whitebark pine is common, particularly on more exposed sites and other areas where this species has competitive advantage and is most likely to persist. Douglas-fir and western larch are uncommon but occasionally occur on some of the warmer sites within this PVT. Groves of alpine larch are rare but are present and persistent over time on suitable sites throughout this type.  These conditions contribute to habitat for key species such as Canada lynx and Clark's nutcracker.

a. Data source: Species presence attribute by R1 Broad Habitat Groups, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Forest Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90 percent confidence interval. Reports were run in 2016.

- 09** Non-coniferous vegetation types are present across the Forest and meet the characteristics described in table 5. These communities provide habitat for associated wildlife species.

**Table 5. Current and desired conditions forestwide for non-coniferous plant communities**

Plant Community	Current condition <sup>a</sup> (%)	Desired range (%)	Desired Condition
Hardwood tree communities (primarily black cottonwood, paper birch, quaking aspen)	<u>Dominance type</u> 1.3 (0.4-1.9)  <u>Species Presence</u> Cottonwood: 2.0 (1.0-2.9) Birch: 1.4 (0.7-2.3) Aspen: 0.9 (0.3-1.6)	<u>Dominance type (persistent community)</u> 1-2.5  <u>Species presence</u> 4-6 one or more of these species are present	Persistent <sup>b</sup> cottonwood communities occur across the forest in areas associated with high and/or fluctuating water tables, providing habitat for a wide variety of wildlife species. Very large black cottonwood trees occur along large, low-gradient streams where seasonal flooding sustains a variety of age and size classes and a variety of patch sizes from less than an acre to over 100 acres, depending upon site capability. Persistent aspen or paper birch communities are rare across the Forest but occur in areas such as seeps where soil conditions tend to severely limit coniferous forest development. Hardwood tree communities have a high diversity of in the understory.  Transitional hardwood communities occur most commonly in the early successional stage, such as after a fire or harvest, where hardwood trees comprise 40% or greater of the tree canopy cover. These communities are most abundant on warm-moist types and in riparian areas. Through natural succession, coniferous species become more dominant, but hardwood species (especially aspen and birch) are present within these stands for several decades, providing habitat for a wide variety of wildlife species, including decayed hardwood trees for cavity nesters. Canopy gaps and small openings are periodically created over time within the coniferous forest landscape by disturbances (such as fire or harvest) to provide sites where hardwoods continue to successfully regenerate and/or grow into larger-sized trees. Refer also to desired conditions

Plant Community	Current condition <sup>a</sup> (%)	Desired range (%)	Desired Condition
			related to early successional and recently burned coniferous forest types (FW-DC-TE&V-10, 11, and 25).
Grass/forb/shrub communities	<u>Persistent communities</u> 5 <u>Transitional communities</u> See estimated percent for seedling/sapling size class and burned forest FW-DC-TE&V-10, 11, and 25	<u>Persistent communities</u> 5-7 <u>Transitional communities</u> See desired conditions for seedling/sapling size class and burned forest (FW-DC-TE&V-10, 11, and 25)	Grass/forb/shrub plant communities are dispersed widely across the Forest, including persistent types, providing habitat for a variety of wildlife species. The common types of grass/forb/shrub communities are (1) persistent <sup>b</sup> communities on mid- to high-elevation moist to wet sites; may be wet meadows or shrub dominated. Maintained by avalanches, a high water table, or harsh site conditions that slow or preclude establishment of trees. (2) persistent communities on mid- to low-elevation relatively dry sites; may be grass dominated but may also have abundant forbs and shrubs. Maintained by site and soil conditions that slow or preclude establishment of trees. (3) Transitional communities occurring within all forested potential vegetation types during the early successional stages after disturbances such as fire or harvest. This is the most common non-coniferous plant community type. It persists for one or more decades and is eventually replaced through natural succession by coniferous forest types.

- a. Data source: Dominance Mid 40 and species presence attribute, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90% confidence interval. Reports were run in 2016.
- 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.

## Vegetation structure—Forest and tree size classes (FW-DC-TE&V)

- 10** A diversity of forest size classes occurs across the Forest. Desired conditions forestwide for forest size class proportions are described in table 6. Forest size class amount and distribution fluctuate over time and space as forests develop through natural succession and/or change in response to disturbances and may be limited by site productivity, species composition, and forest density.

**Table 6. Current and desired conditions forestwide for coniferous forest size classes<sup>a</sup> (percentage of NFS land on the Flathead National Forest)**

Forest size class	Current condition <sup>b</sup> (%)	Desired range (%)
Seedling and sapling (< 5 inches d.b.h.)	14 (12-17)	7-38
Small tree (5-9.9 inches d.b.h.)	33 (30-36)	18-38
Medium tree (10-14.9 inches d.b.h.)	23 (21-26)	8-25
Large tree (15-19.9 inches d.b.h.)	10 (8.5-12)	20-43
Very large tree (≥ 20 inches d.b.h.)	5.8 (4.5-7.3)	6-20

- a. Defined as the *predominant* diameter class of live trees (see "forest size class" in glossary). A stand within a particular forest size class may contain trees of multiple diameters. For example, some very large trees (≥ 20 inches d.b.h.) may be present within stands classified as small, medium, or large forest size class.
- b. Data source: Forest size classes attribute, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90% confidence interval. Reports were run in 2016.



- 11** A diversity of forest size classes occurs within each potential vegetation type. The desired range forestwide is described in table 7. Forest size classes fluctuate over time and space as forests develop through natural succession and change in response to disturbances. These desired 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 potential vegetation type.

**Table 7. Current and desired conditions by potential vegetation type for forest size class (percentage of Forest within the type in the forest size class)**

PVT	Forest size class <sup>a</sup>	Current condition <sup>b</sup> (%)	Desired range (%)
Warm-dry coniferous forest	Seedling/sapling	14 (7-21)	5-35
	Small	31 (22-41)	10-45
	Medium	21 (14-29)	8-30
	Large	13 (6.9-19)	15-35
	Very large	5.7 (2.1-10)	6-20
Warm-moist coniferous forest	Seedling/sapling	5.7 (0-13)	3-40
	Small	45 (32-59)	20-55
	Medium	35 (23-48)	5-30
	Large	9.1 (2.6-17)	10-40
	Very large	2.3 (0-6.3)	8-44
Cool-moist coniferous forest	Seedling/sapling	14 (11-17)	5-35
	Small	33 (29-37)	20-39
	Medium	24 (21-27)	5-20
	Large	11 (9-13)	25-48
	Very large	7.6 (5.6-9.7)	8-25
Cold coniferous forest	Seedling/sapling	19 (14-25)	10-35
	Small	38 (31-45)	10-32
	Medium	21 (15-27)	5-20
	Large	7.5 (3.9-12)	15-65
	Very large	2.2 (0.4-4.3)	2-5

a. Defined as the *predominant* diameter class of live tree component based upon trees per acre or basal area, depending upon tree size class. Seedling/sapling < 5 inches d.b.h.; small 5-9.9 inches d.b.h.; medium 10-14.9 inches d.b.h.; large 15-19.9 inches d.b.h.; very large ≥ 20 inches d.b.h.

b. Data source: Forest Size Classes by R1 Broad Habitat Groups, R1 Summary Data Base, Hybrid 2011, from data produced by the Forest Service's Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90% confidence interval. Reports were run in 2016.

- 12** Very large live trees (greater than 20 inches d.b.h.) are present not only in the very large forest size class (see FW-DC-TE&V-10 and 11) but are also distributed throughout other forest size classes across the matrix of Forest lands, including areas where timber harvest activities occur. Forest vegetation conditions support maintaining or increasing the density and distribution of very large live trees across the landscape. Desired species are listed in table 8. Very large live trees contribute to forest structural diversity, to long-term forest resilience, and to recovery after disturbances (such as fire). Very large trees contribute to future snag habitat in the late successional and old-growth forest, providing for long-term recruitment of large rotten trees, broken-top trees, and snags that are important habitat for species such as pileated woodpeckers, flammulated owls, lynx, fisher, and others. Very large trees contribute to scenic quality and to the economic value of forest products in areas suitable for timber production.

**Table 8. Desired species of very large live trees ( $\geq 20$  inches d.b.h.) by area.**

Area	Desired conifer species in the very large tree size classes
Warm-dry PVT	Ponderosa pine, western larch on suitable sites
Warm-moist PVT	Western larch, western white pine, Douglas-fir, ponderosa pine, western red cedar, western hemlock
Cool-moist PVT	Western larch, Douglas-fir, western white pine on suitable sites
Cold PVT	Engelmann spruce, whitebark pine
Riparian management zones	Black cottonwood and the species listed for the PVT associated with the riparian area

### Vegetation structure—Forest density (FW-DC-TE&V)

- 13** Forest densities range from very low to very high and occur in a diverse pattern across the landscape. Moderate and high tree densities (i.e., greater than or equal to 40 percent canopy cover) occur on 50 to 75 percent of the forested area and most commonly located in the cool-moist and warm-moist potential vegetation types. Forests at lower densities (i.e., less than 40 percent canopy cover) occur on up to 50 percent of the forested area and are most commonly located in the warm-dry potential vegetation type; on the drier and colder sites within the cool-moist and cold potential vegetation types; and in the wildland-urban interface. Forests at lowest densities also occur in seedling/sapling forest size classes.

Forest densities contribute to ecological, social, and economic desired conditions at the stand and landscape scales, including:

- Wildlife habitat, e.g., providing cover and foraging conditions for many species including Canada lynx and flammulated owl, and facilitating tree growth for development of very large trees and future old-growth forest.
- Forest resilience, e.g., reducing competition, improving tree vigor and growth, and reducing forest fuels in areas of the wildland-urban interface.
- Timber productivity on lands suitable for timber production, e.g., maintaining adequate tree growth rates and stocking levels

### Vegetation structure—Old-growth forest (FW-DC-TE&V)

- 14** Forest conditions support the maintenance of existing amounts of old-growth forest and foster an increasing trend in the amount, patch size, and connectivity of old-growth forest into the future, especially in the warm-dry and warm-moist potential vegetation types. Old-growth forest provides conditions that create habitat for old-growth-associated wildlife species. Old-growth forest is distributed widely across the Forest. Forestwide and within individual watersheds, the distribution, patch size, and amount of old-growth forest varies over time, depending upon forest development stage and the influence of climate and natural disturbances. Desired ecological conditions for old-growth forest are displayed in table 9. Refer to glossary for definition of old-growth forest.

**Table 9. Current<sup>a</sup> and desired conditions for old-growth forests forestwide and by potential vegetation type**

Potential vegetation type	Desired composition, structure, and other ecological conditions of old-growth forests
General forestwide conditions	<p>Current estimate: 9.5% old-growth forest (7.75-11.48).</p> <p>Old-growth forest is resistant and/or resilient to disturbances or other impacts that might result in loss of old-growth forest characteristics such as stand-replacing fire, epidemic levels of insects or disease, and severe drought. Natural succession continues to add to the amount and distribution of old-growth forest and habitat across the Flathead. Natural disturbances such as fire continue to return old-growth forest to early successional conditions across portions of the Forest. However, they provide high-quality snag habitat, and some areas have surviving large or very large trees that provide seed for re-establishment of desirable species and contribute to increased forest structural diversity and wildlife habitat values.</p> <p>Large patches of old-growth forest are available and connected to provide for the needs of old-growth-associated wildlife species. Old-growth forest contains associated components that contribute to high-quality conditions for these species such as very large snags, very large live trees (including those with heart rot or broken tops), large-diameter downed woody material, and a diversity of tree size classes and canopy layers.</p>
Warm-dry	<p>Current estimate: 9.5% old-growth forest (4.76-15.00)</p> <p>Ponderosa pine is the most common species in the large and very large live tree classes, with western larch present on moister sites. These two species are the dominant snags and defective live trees, with some trees attaining a large enough size to survive repeated fires. Large and very large Douglas-fir is also present. Forest canopy is relatively open, with low to moderate forest densities. Forest 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.</p>
Warm-moist	<p>Current estimate: 3.8% old-growth forest (0-9.21)</p> <p>Western larch is the most common species in the large and very large live tree size classes, followed by Douglas-fir. These two species are the dominant snags and defective live trees, with some trees attaining a large enough size to survive repeated fires. Large and very large western white pine is common on many sites. Western red cedar is often present in the mid- and understory canopy layers. Groves of very large, old western red cedar exist in the more sheltered areas within this potential vegetation type. Though less common, very large ponderosa pine is also present within some old-growth forest. Tree density is typically moderate to high, with multiple tree sizes and canopy layers often occurring in a small-patch mosaic pattern. In some areas, particularly where ponderosa pine is present, more open canopy conditions (e.g., less than 40 percent canopy cover) may be associated with old-growth forest and habitat. In these areas, fire resistant species dominate (e.g., in the Swan Valley geographic area).</p>
Cool-moist	<p>Current estimate: 10.9% old-growth forest (8.43-13.46)</p> <p>Western larch and Douglas-fir are the most common species in the large, old tree class. These two species are the dominant snags and defective live trees, with some trees attaining a large enough size to survive repeated fires. 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.</p>
Cold	<p>Current estimate: 8.7% old-growth forest (4.55-13.43)</p> <p>Engelmann spruce is the most common species in the large, old tree class. Older and larger subalpine fir and lodgepole pine are also present. Over time, whitebark pine becomes more common in some portions of this type and eventually attains a size and age that both provides seed for regeneration after fire and has the potential to survive repeated low- to moderate-severity fires. Tree density varies depending upon soil development and climatic conditions.</p>

a. Data source: Old-growth attribute in the R1 Summary Data Base, summarized by R1 Broad Habitat Groups. Data produced by the Forest Service's Inventory and Analysis program. Estimated mean across all the Forest's NFS land, displaying lower and upper bounds at 90% confidence interval. Reports were run in 2016.

## Vegetation structure—Snags and downed wood (FW-DC-TE&V)

- 15** Desired conditions for snag densities across the Forest are displayed in table 10. At the landscape scale, snag presence, distribution, density, size, and species are highly variable both spatially and over time. Individual stands or sites may have no snags in these size categories or a much higher number of snags per acre, depending upon the unique conditions and disturbance history. The highest densities of snags are generally found in the areas with lower direct human influence, such as wilderness or unroaded areas, in riparian management zones, and in areas that have burned in the recent past or have had recent insect and disease infestations. The lowest densities of snags are found in areas where concern for fire hazard is elevated (such as in portions of the wildland-urban interface); in fuel breaks; in areas with concern for human safety (such as developed recreation sites); and in areas within 200 feet of open roads accessible to firewood cutting (especially those close to human communities). Snags suitable for nesting and denning, particularly in very large sizes (i.e., greater than 20 inches d.b.h.), 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 and pollinator species associated with snags (such as flammulated owls and fisher).

**Table 10. Desired minimum in average snags per acre of conifer species, as measured across all forested acres of the Forest, by forest dominance type, potential vegetation type, and snag diameter**

Forest dominance types	Potential vegetation type	Desired minimum in average number of snags per acre greater than or equal to 10 inches d.b.h.	Desired minimum in average number of snags per acre greater than or equal to 15 inches d.b.h.	Desired minimum in average number of snags per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	5.0	2.9	0.7
All except lodgepole pine	Warm-moist	13.0	5.9	1.8
All except lodgepole pine	Cool-moist	15.0	4.0	1.2
All except lodgepole pine	Cold	10.0	3.0	0.9
Lodgepole pine	All	6.0	1.0	0.1

- 16** Snags contribute to cavity habitat distribution in managed areas of the Forest in the short and long term. Snags or decaying and broken-topped live trees greater than 20 inches d.b.h. are present, predominantly ponderosa pine or western larch (which have the greater longevity and value as snags), providing habitat for primary cavity nesters (a variety of woodpecker species), secondary cavity-nesters (such as flammulated owls), and mammals (such as marten and fisher). 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.
- 17** Downed wood, especially the larger material (9 inches or larger in diameter), is present across the matrix of forested lands, contributing to forest structural diversity, soil ecological function, and habitat for wildlife species associated with downed wood for feeding, denning, resting, and cover such as pollinators, Canada lynx, grizzly bears, pileated woodpeckers, marten, and fisher. The desired condition for downed wood is displayed in table 11, which is expressed as a forestwide minimum average amount across all forested acres within each potential vegetation type. Downed wood is highly variable in amount, sizes, species, and stages of decay, both across the landscape and over time. Specific stands or sites may have much lower or higher amounts of downed wood

per acre, depending upon the unique conditions, site-specific management objectives, and disturbance history. Lowest amounts of downed wood (e.g., less than 10 tons per acre) are found in areas where concern for fire hazard is elevated, such as in portions of the wildland-urban interface and in areas within 200 feet of open roads accessible to firewood cutting. Highest amounts are generally found in areas that have experienced fire or insect and disease infestations more than 10 years previously and in riparian management zones.

**Table 11. Desired minimum for average total tons per acre downed wood, as measured across all forested acres within each potential vegetation type on the Forest**

Potential vegetation type	Desired minimum in total tons per acre as a forestwide average
Warm-dry	14
Warm-moist	22
Cool-moist	25
Cold	15

### Landscape pattern (FW-DC-TE&V)

- 18** Early successional (seedling/sapling size class) forest patches form a landscape pattern consistent with the natural range of variation. Early successional forest patches have distinctive conditions (tree size, forest structure, understory vegetation) that contrast sharply with adjacent forests and create functional openings until sufficient regrowth of trees occurs. These conditions influence the activity and patterns of ecosystem processes (e.g., fire, insects, and disease) across the landscape and contribute to resilience at multiple scales. Table 12 displays the natural range of variation for average patch size of early successional forest, forestwide and by potential vegetation type.

**Table 12. Natural range of variation<sup>a</sup> (acres) for early successional forest patches (seedling/sapling size class), forestwide by potential vegetation type (PVT)**

Scale/PVT	Natural range of variation Average patch size	Natural range of variation Weighted average patch size <sup>b</sup>
Forestwide	171-442	37,700
Warm-dry	84-134	15,900
Warm-moist	74-128	4,100
Cool-moist	133-247	16,900
Cold	70-102	960

a. Data Source: Estimated natural range of variation in seedling/sapling forests patches created by disturbances (stand-replacement fire), using the SIMPPLLE model. Natural range of variation values are global averages (average of the averages). All land ownerships are included in the natural range of vegetation analysis.

b. Weighted by size of patch; thus, larger patches have greater influence on the average value.

- 19** Forest patterns contribute to connectivity of habitat for wildlife (e.g., Canada lynx, marten), movement within and between home ranges, and dispersal between populations. Desired conditions related to forest patterns across the landscape and within potential vegetation types are described below.

**Forestwide:** The forestwide pattern of forest patches trends towards the spatial and temporal arrangement that would occur under the natural fire regimes within this ecosystem (refer also to FW-TE&V-DC-25). Forest patches across the landscape vary widely in size, shape, and conditions (such as tree density, tree sizes, and number of canopy layers). The patch sizes and shapes of early successional seedling/sapling forest openings (less than 5 inches d.b.h.) are highly variable. They

are dispersed widely and interspersed among patches of small, medium, and large forest size classes. The majority of seedling/sapling patches are less than 300 acres in size, but very large patches (those greater than 30,000 acres) may exist on the Forest, although less commonly (e.g., they may exist for one 20-year period over a 100-year time span). The largest seedling/sapling patch sizes occur predominantly within wilderness and large unroaded areas. The forestwide pattern of patches of small, medium, and large forest size classes (greater than or equal to 5 inches d.b.h.) also trends towards larger interconnected patches, as would occur under the natural range of variation.

**Warm-dry type:** Forest patterns in this type trend towards the spatial and temporal arrangement that might occur in a mixed-severity fire regime, where low- to moderate-severity burn conditions are most common. High-severity fires may have occurred periodically but are infrequent, generally smaller in size than on cool-moist types. Large-diameter trees capable of surviving fire occur across most of the area (e.g., ponderosa pine, Douglas-fir, and western larch). Forest patches of different sizes, shapes, and forest conditions form a complex and diverse pattern, resulting from both active vegetation management such as timber harvest and prescribed fire and natural processes such as succession. Across the landscape, early successional patches are interspersed with similarly sized patches dominated by medium- and larger-sized trees, often with relatively open midstory canopies. Small 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. The larger early successional seedling/sapling-dominated patches (e.g., several hundred acres in size) generally occur in wilderness and large unroaded areas. Smaller clumps or patches (5 to 180 acres in size) of seedling/sapling-dominated forest are more common, particularly outside the unroaded areas. Within these patches, larger overstory trees are often 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.

Forests in the warm-dry type provide habitat for a variety of wildlife species over long time frames as climate, forest, and landscape conditions change. Disturbances create conditions suitable for the regeneration and maturation of ponderosa pine trees, promoting seed-producing trees that provide forage for wildlife species such as Clark's nutcrackers. Flammulated owls have a mosaic of patches of snags for nesting; dense patches of small Douglas-fir, ponderosa pine, and western larch for roosting; and openings for feeding. The mosaic pattern of forest conditions also consists of patches of large, full-crowned overstory trees that reduce snow depths, interspersed with patches of dense young trees and shrubs in the understory that provide food and shelter from the wind, which provides winter habitat for white-tailed deer and other big game species during harsh winters. Processes (e.g., fire, insect infestation and disease, vegetation management) that create diverse patches and patch sizes also create forest groundcover consisting of a variety of grasses, forb, and shrub species that provide wildlife forage and nesting sites. Wildlife species are able to move between patches of foraging and denning or nesting habitat.

**Warm-moist type:** Forest patterns in this type trend towards the variation that might occur in a mixed-severity fire regime, where low- and moderate-severity burned conditions are common. High-severity fires may have occurred periodically but are infrequent. Large-diameter trees capable of surviving fire (e.g., western larch, ponderosa pine, Douglas-fir, and western white pine) occur across most of the area. Forests form a complex, diverse pattern of conditions across the landscape and result primarily from active vegetation management (including timber harvests and limited use of fire) and from natural forest succession. Early successional seedling/sapling forests (< 5 inches d.b.h.) are interspersed across the landscape, with similarly sized forest patches dominated by small, medium, and larger tree sizes. Early successional seedling/sapling-dominated patches may be

large (250 acres or more) but more often occur as smaller patches (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.

Forests in the warm-moist type provide habitat for a variety of wildlife species over long time frames as climate, forest, and landscape conditions change. From a wildlife standpoint, there are two sets of desired conditions for this potential vegetation type: one for forests where ponderosa pine, Douglas-fir, and western larch are the predominant species and one where western red cedar, western white pine, and western larch are the predominant species. For forests where ponderosa pine, Douglas-fir, and western larch are the predominant species (e.g., in the Swan Valley), desired conditions are as described above for the warm-dry potential vegetation type. For forests where western red cedar, western white pine, and western larch are the predominant species, desired conditions for the forest pattern are as follows.

Over time, forest stands will trend towards multiple canopy layers, with shade-tolerant species (e.g., grand fir, western red cedar) occupying the understory layers and larger-sized, usually fire-tolerant species (e.g., western white pine, western larch, Douglas-fir, western red cedar) dominating the overstory layers. Interconnected, complex patches of very large old cedar, hemlock, or western larch with heart rot provide denning and resting habitat for species such as fisher in a landscape mosaic of mature and young forest. The species, density, and size of overstory tree species vary widely, depending on factors such as site capability, stand history, and successional development. The mosaic pattern of forest conditions trends towards larger, interconnected patches of dense, mature trees that reduce snow depths, interspersed with patches of young trees and a complex structure that provides foraging habitat and shelter.

Processes (e.g., fire, wind, insects, and disease) that create diverse patches and patch sizes also create forest groundcover consisting of windblown lichens and a variety of grasses, forb, and shrub species. Other than in areas of recent natural disturbance (such as stand-replacing wildfire or epidemic insect infestation), patches of shrubs and coniferous trees in the small to very large size classes (> 5 inches average d.b.h.) trend towards larger, more interconnected patches, allowing animals such as lynx, fisher, and marten to move within and between home ranges. The width and distribution of patches are highly variable due to environmental conditions that change over time (e.g., disturbance, forest succession), so their location changes over time. Areas providing cover are interspersed with more open areas providing spring, summer, and fall forage for species such as grizzly bears, elk, and mule deer.

In Canada lynx habitat and critical habitat (see map B-14), a mosaic of successional stages promotes the conservation of the Canada lynx and its critical habitat at the lynx analysis unit scale as well as at larger scales. Except in portions of the wildland-urban interface, young forests with high horizontal cover of abundant tall shrubs/dense saplings are interspersed with older forests, which provides food and cover for snowshoe hares (the primary prey of Canada lynx).

**Cool-moist type:** Forest patterns generally reflect the natural variation that might occur where moderate- and high-severity fire are prevalent, although very large high-severity fires occur infrequently. Natural disturbance processes (such as insects, disease, fires, avalanches) as well as vegetation management create patches of different tree sizes, species, and stand structures within the larger patch matrix. A mosaic pattern composed of relatively large patches of different forest size classes tends to occur across the landscape. Early successional openings (< 5 inches d.b.h.) across this landscape range from less than one hundred to several thousand acres in size. Even-aged, single canopy forest patches of shade-intolerant species (e.g., lodgepole pine, western larch, and Douglas-fir) are common, particularly in the early (seedling/sapling) and mid-successional

stages of forest development. Over time, large patches of even-aged forest trend towards more diversity in size and structure as dense understory canopy layers of shade-tolerant trees (subalpine fir and spruce) develop and smaller disturbances occur that alter forest structures. Larger-sized, usually fire-tolerant species (e.g., western larch and Douglas-fir) occur in a discontinuous pattern across the landscape, sometimes in large patches and sometimes as scattered individual trees in younger stands, having survived one or more fire events.

Forests in the cool-moist potential vegetation type provide habitat for a variety of wildlife species over long time frames as climate, forest, and landscape conditions change. Processes (e.g., fire, wind, insects, and disease) that create diverse patches and patch sizes also create forest groundcover consisting of a wide variety of plant species that produce berries for grizzly bears as well as willow, alder, or yew that provide cover and forage for species such as snowshoe hares and moose. The more gently sloped moist basin areas are more densely stocked (e.g., 40 to 60 percent canopy cover), providing cover interspersed with more open areas providing spring, summer, and fall forage for species such as elk, moose, and mule deer.

Other than in areas of recent natural disturbance (such as stand-replacing wildfire or epidemic insect infestation), patches of shrubs and coniferous trees in the small to very large size classes (> 5 inches average d.b.h.) trend towards larger, more interconnected patches, allowing animals such as lynx, fisher, and marten to move within and between home ranges. The width and distribution of patches are highly variable due to environmental conditions that change over time (e.g., disturbance, forest succession), so their locations change over time.

In Canada lynx habitat and critical habitat (see figure A-1), a mosaic of successional stages promotes the conservation of the Canada lynx at the lynx analysis unit scale as well as at larger scales. Except in portions of the wildland-urban interface and in areas recently affected by large stand-replacing wildfire, the connectivity of mature forest as well as the patch shape and adjacency of mature to young regenerating forest provides habitat capable of contributing to lynx reproductive success. Patches of dense, young seedling/sapling forest and mature multistory forest have branches touching the snow surface. Young forests with extremely high densities (greater than 14,000 stems per acre) occur following fires but are interspersed in a mosaic with young forests of much lower densities that are developing a multistoried stand structure. Large, stand-replacing wildfires may make large areas of lynx habitat temporarily unsuitable, but over time forest conditions within post-fire landscapes promote development of snowshoe hare and lynx habitat to support long-term persistence of lynx populations.

**Cold type:** Forest patterns across the area generally reflect the variation that might occur in a mixed-severity fire regime where low-, moderate-, and high-severity fires would occur. A very diverse mosaic pattern of vegetation conditions occurs, reflecting both the influence of natural 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 avalanche chutes or high-elevation rocklands. Forest characteristics within patches are variable, usually composed of multiple canopy layers, tree ages, and size classes. The size of early successional seedling/sapling forest patches, originating mainly from fire, ranges from small (e.g., 20 acres) to large (e.g., several thousand acres).

Forests in the cold type provide habitat for a variety of wildlife species over long time frames as climate, forest, and landscape conditions change. Processes (e.g., fire, wind, insects, and disease) that create diverse patches and patch sizes also create openings in moister or more protected sites that support grass, forb, and shrub species that provide forage for a variety of wildlife. Harsh



climate and fires create conditions suitable for regeneration and maturation of whitebark pine trees, particularly on dry and exposed ridges and slopes, resulting in seed-producing trees that 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 percent canopy cover), providing cover interspersed with more open areas that offer spring, summer, and fall forage for species such as grizzly bears, elk, and mule deer and allowing animals to move within and between home ranges.

In Canada lynx habitat and critical habitat (see figure A-1), a mosaic of successional stages promotes the conservation of the Canada lynx at the lynx analysis unit scale as well as at larger scales. Other than in areas where harsh conditions limit tree growth or in areas of recent stand-replacing wildfire, the connectivity of mature forest, as well as the patch shape and adjacency of mature to young regenerating forest, provides habitat capable of contributing to lynx reproductive success. The width and distribution of patches are highly variable due to environmental conditions that change over time (due to disturbance, forest succession, etc.), so their locations change over time. Patches of dense, young, seedling/sapling forests and mature multistory forest have branches touching the snow surface. Young forests with extremely high densities (greater than 14,000 stems per acre) occur following fires but are interspersed in a mosaic with young forest of much lower densities that are developing a multistoried stand structure. Large, stand-replacing wildfires may make large areas of lynx habitat temporarily unsuitable, but over time forest conditions within post-fire landscapes promote development of snowshoe hare and lynx habitat to support long-term persistence of lynx populations.

### Ecosystem processes—Fire, insects, and disease (FW-DC-TE&V)

- 20** Native insect infestations and disease activity occur periodically within the range of natural variability, influencing forest successional processes and providing structural features such as snags and downed wood that contribute to fish and wildlife habitat.
- 21** Relatively low levels of insect and/or disease activity and associated tree mortality occur in areas where fire hazard or human safety is of concern (e.g., wildland-urban interface, developed recreation sites). Salvage within forests with fire mortality, insect infestations, or disease may occur in certain circumstances, as described in other sections of this forest plan (see the Forest Vegetation Products: Timber section and suitability determinations under each management area).
- 22** Forest stands and landscapes have the necessary conditions (e.g., structure, composition, pattern) to be resilient and resistant to non-native insects and diseases.
- 23** Planned and unplanned (natural) ignitions are managed forestwide to promote fire as an ecological process, recognizing and upholding the natural role of fire in effecting change by creating, restoring, and maintaining the desired structure, composition, and pattern of vegetation and the resilience of the ecosystem over time. See also Fire and Fuels Management, FW-DC-FIRE-03 and 04.
- 24** Desired ecological conditions in large, unroaded landscapes (such as wilderness, recommended wilderness, and portions of the backcountry management areas) are primarily achieved as a result of natural ecological processes and disturbances such as fire (both planned and unplanned ignitions) and insect or disease activity. 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.

- 25** Planned and unplanned ignitions occur periodically and create recently burned forest conditions (a fire event within the preceding 10 years) that trend towards desired conditions for plant and wildlife species associated with burned forest (such as the black-backed woodpecker and northern hawk owl). Recently burned forests are consistent with the natural range of variation at the landscape scale. Salvage within burned forests to meet desired conditions may occur in certain circumstances, as described in other sections of this forest plan (see Forest Vegetation Products: Timber section and suitability determinations under each management area). Desired characteristics for recently burned forests are described in table 13.

**Table 13. Estimated natural range of variation and desired conditions forestwide for recently burned forest conditions (forests that have had a fire event within the preceding 10 years)**

<b>Severity</b>	<b>Natural range of variation <sup>a</sup></b>	<b>Desired condition</b>
Moderate- (greater than 40% mortality of trees in small to large size classes) to high-severity recently burned forest (greater than 70% mortality of trees)	1-18% of NFS lands	<p>Recently burned forest conditions in areas that burn with moderate to high severity are distributed across the Forest and vary widely in amount, pattern, and frequency over time and space. Very few acres of burned forest may exist in cool and/or moist climatic periods; greater acreages exist in warm and/or dry climatic periods. Recently burned forest conditions are most consistent with the natural range of variation in wilderness areas and larger unroaded areas, which will have the majority of acres burned, the greatest number of dead trees, and the largest patch sizes. Burned patches may be over 20,000 acres in size in these areas, though events that create these larger patches occur infrequently. Outside the wilderness and large unroaded areas, burned forests will occur over fewer acres overall and patch sizes are smaller (e.g., less than 1,000 acres), especially in the warm-moist and warm-dry types.</p> <p>Recently burned forest conditions are characterized by an abundance of native grasses, forbs, and shrubs that provide forage for wildlife (such as big game species, small mammals, and birds) along with low to very high densities of fire-killed trees. In areas burned with moderate severity, individuals or small patches of live overstory trees survive the fire. Within a few years, coniferous tree seedlings (and aspen and birch on some sites) are widespread and eventually dominate most burned sites. Periodically, fire-killed conifers in a range of sizes from 9 to over 20 inches d.b.h. are present at the forestwide scale for nesting and feeding by black-backed woodpeckers and other wildlife species associated with forest patches that burn with moderate to high severity.</p>
Low-severity recently burned forest (less than 30% mortality of trees in medium and larger size classes)	0-2% of NFS lands	<p>Recently burned forest conditions in areas that burn with low severity are uncommon across the Forest, with most occurring on the warm-dry potential vegetation type and with small amounts on the warm-moist, cool-moist, and cold types. Patch sizes and patterns of forests burned at low severity are highly variable and are dictated mainly by the pattern of forest conditions (tree species, densities, amount of downed fuels) and site variations (potential vegetation type, topography) across the landscape. Low-severity burned forest conditions most commonly occur as smaller patches within the larger moderate- to high-severity burned forest conditions. Larger patches of low-severity burn conditions may occur on harsher sites on the cold potential vegetation type and in warm-dry types with ponderosa pine present.</p> <p>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, Douglas-fir, western larch, and whitebark pine). Mortality is mostly in small tree sizes (e.g., less than 9 inches d.b.h.) and in species sensitive to fire, such as lodgepole pine and subalpine</p>

Severity	Natural range of variation <sup>a</sup>	Desired condition
		fir. Low-severity burned sites support an abundance of native grasses, forbs, and shrubs that provide forage for wildlife (such as big game species, small mammals, and birds). Live tree densities are low to moderate. Fire-scorched conifers over 20 inches d.b.h. are present for cavity nesting or denning species. Smaller snags are abundant in some areas, depending on pre-fire conditions.

a. Source: Estimated natural range of variation in amount of fire per decade, using the SIMPPLLE model. The amount of fire is based on decadal variation (i.e., amount over a 10-year period).

## Objectives (FW-OBJ-TE&V)

- 01** Vegetation management treatments (e.g., timber harvest, planned ignitions, thinning, planting) occur on 62,000 to 174,000 acres of the Forest to maintain or move towards achieving desired conditions for coniferous forest types and associated wildlife species, and for other resources.
- 02** Vegetation management treatments (e.g., timber harvest, planned ignitions, thinning, planting) occur on 16,000 to 21,000 acres of the Forest to contribute to restoration of blister rust-resistant western white pine and achieve desired conditions for this species' presence across the landscape.
- 03** Vegetation management treatments (e.g., timber harvest, planned ignitions, thinning, planting) occur on 500 to 5,000 acres of the Forest to contribute to restoration of diverse native hardwoods and associated wildlife species.
- 04** Vegetation management treatments (e.g., planned ignitions, slashing, control of non-native, invasive plants) occur on 1,500 to 5,000 acres of the Forest to promote persistence of grass/forb/shrub plant communities, focusing on key habitats for big game species and pollinators, to improve conditions for native plant establishment and growth and reduce non-native plants.

## Standards (FW-STD-TE&V)

- 01** In old-growth forest, vegetation management activities must not modify the characteristics of the stand to the extent that stand density (basal area) and trees per acre above a specific size and age class are reduced to below the minimum criteria in Green et al.<sup>13</sup> Vegetation management within old-growth forest (see glossary) shall be limited to actions that
  - maintain or promote old-growth forest characteristics and ecosystem processes;
  - increase resistance and resilience of old-growth forest to disturbances or stressors that may have negative impacts on old-growth characteristics (such as severe drought, high-severity fire, epidemic bark beetle infestations);
  - reduce fuel hazards in the wildland-urban interface; or
  - address human safety.
- 02** Standard VEG S6 (as modified by the Forest, indicated in bold type below), see appendix A. The standard states:

<sup>13</sup> P. Green, J. Joy, D. Sirucek, W. Hann, A. Zack, & B. Naumann (2011), *Old-growth forest types of the Northern Region (1992, with errata through 2011)*, Missoula, MT: USDA Forest Service, Northern Region, planning record exhibit # 00504.

Vegetation management projects that reduce snowshoe hare habitat in mature multistory forests may occur only

1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special-use permit improvements, including infrastructure within permitted ski area boundaries; or
2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or
3. For incidental removal during salvage harvest (e.g., removal due to location of skid trails); or
4. **For noncommercial felling of trees larger than sapling size within 200 feet of whitebark pine trees (in stands that contain trees identified for cone/scion/pollen collection) to make whitebark pine more likely to survive wildfires, more resistant to mountain pine beetle attack, and more likely to persist in future environments.**

*Exceptions 2, 3, and 4 shall only be utilized in lynx analysis units where standard VEG S1 is 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-aged or even-aged management systems could be used to create openings in coniferous forests in the stem exclusion structural stage where there is little understory so that new forage can grow).

**Where and to what this applies:** Lynx habitat within lynx analysis units and to all vegetation management projects except for fuel treatment projects within the wildland-urban interface as defined by Healthy Forest Restoration Act, subject to the following limitation:

Fuel treatment projects within the wildland-urban interface that do not meet standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (an administrative unit is a national forest).

For fuel treatment projects within the wildland-urban interface, see guideline VEG G10 in appendix A.

**Exceptions to standard:** This standard does not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, or roads. This standard does not apply to linkage areas (standard VEG S6).

- 03 Within timber harvest areas, snags and/or live snag replacement trees shall be retained at minimum levels that vary depending upon the geographic area and whether the harvest is within a riparian management zone. Refer to snag retention standards located under each geographic area in chapter 4 of the plan. Refer to FW-GDL-RMZ-10 for additional snag management direction for harvest areas within riparian management zones.

## Guidelines (FW-GDL-TE&V)

- 01 Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring time period; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the spring time period in order to meet resource objectives (especially if needed

to prevent resource damage), in which case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).

- 02** Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.
- 03** Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).
- 04** Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve grizzly bear-human conflict situations.
- 05** To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.
- 06** To increase the patch size of old-growth forest in the future, if managing vegetation within 300 feet of existing old-growth forest, treatment prescriptions that would promote the development of old-growth forest in the future should be considered. At a minimum, the following structural and composition components associated with old-growth forest should be retained if present within at least 300 feet of the old-growth forest patch:
  - larger live trees (e.g., greater than 17 inches d.b.h.) of species and condition that will persist over time (such as western larch, ponderosa pine, Douglas-fir) and not cause unacceptable impacts to future stand conditions (e.g., dwarf mistletoe infection or potential dysgenic seed source);
  - large downed wood (greater than 9 inches diameter); and/or
  - snags and decayed, decadent trees greater than 15 inches d.b.h.

Exceptions to this guideline may occur to protect human health and safety and within portions of the wildland-urban interface where decreased fuels are determined necessary to protect values at risk.

- 07** To maintain connectivity and avoid adverse impacts to old-growth forest, new road construction or reconstruction should not be located within old-growth forest. Exceptions may occur, such as when there are no feasible alternative road locations.
- 08** To contribute to maintenance of soil function and provide desired habitat and forest structural diversity for wildlife within timber harvest units, a minimum of approximately eight tons per acre of downed woody material greater than 3 inches in diameter should be retained within the unit. Retained material should consist of the longest and largest pieces present and, where possible, of intact pieces of a variety of species, sizes, and stages of decay, including cull tree tops and cull logs. The maximum amount of total downed woody material should generally not exceed 30 tons per

acre. Exceptions to this guideline may occur, such as where there is insufficient material prior to harvest, to protect human health and safety, within developed recreation sites, or where decreased fuels are desired to influence expected fire behavior and protect identified assets (e.g., within the wildland-urban interface).

- 09** When implementing even-aged regeneration harvest prescriptions (e.g., a clearcut, seedtree, shelterwood cut, including final removal cut), a minimum of three live reserve trees per acre of suitable western larch or ponderosa pine trees greater than 17 inches d.b.h. should be retained where present within each regeneration harvest unit or as averaged across a combination of regeneration harvest units. The intent is to contribute to the maintenance and/or development of very large trees, particularly of the species that have the potential to survive fire and contribute to diverse forest structure. Suitable trees include those that would not cause unacceptable impacts to regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source). Alternative species, size, and condition of trees should be considered for retention where suitable western larch or ponderosa pine trees greater than 17 inches d.b.h. are not present.
- 10** In vegetation treatment units within 1/2 mile of rivers or waterbodies larger than 40 acres suitable for bald eagle nesting, live ponderosa pine, western larch, or black cottonwood trees greater than or equal to 20 inches d.b.h. should be retained to provide bald eagle nesting and roosting habitat (the number and location of trees to be retained will vary on a site-specific basis).

## Native Plant and Wildlife Species Diversity

### 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. Coarse-filter plan components are discussed in the Terrestrial Ecosystem and Vegetation, Riparian Management Zones, and Aquatic Ecosystems sections.

Coarse-filter plan components for aquatic, riparian, and terrestrial ecosystems provide for the needs of most plant and wildlife species. Fine-filter plan components are designed to provide for additional specific habitat needs for native plant and animal species when those needs are not met through the coarse-filter plan components. Subsections below display plan components for species that are currently listed by the USFWS as a threatened, endangered, proposed, or candidate species; species that are currently listed as species of conservation concern (see glossary) by the Forest Service regional forester; as well as other wildlife species that may be sensitive to particular types of human disturbance or may need additional habitat protection at particular sites at a particular time of year. The status of a species may change over the life of the plan. Plan components would continue to be implemented unless it is determined that a site-specific or plan amendment is needed.

The following sections provide additional plan components that focus on diversity and habitat needs for a variety of native plant and animal species. Refer to appendix C for potential management approaches and possible actions that may be used to contribute towards achieving plan direction. Refer to appendix D for more details on potential vegetation types. Refer to the glossary for definitions and information on the terminology used in these sections.

## Plant species diversity (PLANT DIV)

### Desired conditions (FW-DC-PLANT DIV)

- 01 Ecological conditions provide for plant species diversity, including plant species of conservation concern<sup>14</sup>, and ecological processes that sustain native plant communities are maintained or restored.

### Guidelines (FW-GDL-PLANT DIV)

- 01 Temporary fire facilities (e.g., incident bases, camps, staging areas, helispots, retardant batch plants) for incident activities should not be located in areas of known plant species of conservation concern populations to avoid adverse impacts to these plants.
- 02 To avoid adverse impacts to plant species of conservation concern, heavy, ground-based equipment should not be used in areas with known plant species of conservation concern populations.

## Threatened, endangered, proposed, or candidate plant species (PLANT)

### Desired conditions (FW-DC-PLANT)

- 01 Habitat conditions support the recovery or long-term persistence of plant species listed as threatened or endangered under the Endangered Species Act, which currently include Spalding's catchfly (*Silene spaldingii*) and water howellia (*Howellia aquatilis*).
- 02 Vegetation conditions and ecological processes within a 300-foot riparian management zone surrounding ponds that provide *Howellia aquatilis* habitat (occupied and unoccupied) create a favorable physical environment that protects against hydrological changes that may adversely impact the species. The structural and floristic diversity of the vegetation in the riparian management zone is maintained.
- 03 Habitat conditions support the long-term persistence of whitebark pine (*Pinus albicaulis*), which is currently a candidate species under the Endangered Species Act. Ecological conditions and processes that sustain the habitats currently or potentially occupied by this species are retained or restored.
- 04 Whitebark pine trees or stands identified for collection of scion, pollen, or seed; areas identified as important for cone production; and whitebark pine plantations are protected from potential loss due to fire, insect, disease, or other threats to support the recovery or long-term persistence of this species.

### Objectives (FW-OBJ-PLANT)

- 01 Treat 8,000 to 19,000 acres for the purpose of sustaining or restoring whitebark pine in the ecosystem and contributing to achieving desired conditions for the presence of this species across the landscape.

### Guidelines (FW-GDL-PLANT)

- 01 Ground-disturbing vegetation treatments within 300 feet of ponds providing habitat for *Howellia aquatilis* should occur only if the vegetative, physical, and/or hydrological features required for

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<sup>14</sup> Species of conservation concern are identified by the Regional Forester; more information is available at <http://bit.ly/NorthernRegion-SCC>.

long-term habitat conservation are maintained or improved. Treatments should develop vegetation conditions consistent with natural ecological processes and should sustain soil quality and functioning to support the long-term persistence of *Howellia aquatilis*.

- 02** Road maintenance on roads within 300 feet of ponds providing habitat for *Howellia aquatilis* should maintain or improve hydrological integrity to protect habitat conditions for *Howellia aquatilis*.
- 03** To protect habitat conditions for *Howellia aquatilis*, water drafting (for invasive plant control or fire management activities) should not occur in occupied or unoccupied but suitable water howellia ponds.

## Wildlife habitat diversity (WL DIV)

### Desired conditions (FW-DC-WL DIV)

- 01** Ecological conditions provide for wildlife diversity (including species of conservation concern<sup>15</sup>) and wildlife habitat connectivity (including seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long-distance range shifts of species). For desired conditions for select wildlife species, see table 14.

**Table 14. Desired conditions for wildlife habitat diversity**

Associated Species	Key ecosystem and/or ecosystem characteristic	Desired condition description
Bald eagle, great blue heron	40-acre or larger waterbodies or 4th order or larger streams	Bald eagles and great blue herons are not harassed or displaced from nesting due to human activities. Very large diameter trees (> 20 inches d.b.h., especially black cottonwoods) are available within 0.5 mile of rivers and 40-acre or larger waterbodies in order to provide nesting and roosting habitat. Fish are available to provide food.
Common loon	Lakes greater than 13 acres	Loons are not harassed or displaced from nesting due to human activities. Lakes and ponds with potential for nesting have shoreline or island sites with overhead cover. Small fish are available to provide food.
Boreal toad	Lakes, ponds, and wetlands	The ecological conditions of known boreal toad breeding lakes, ponds, and wetlands support boreal toad breeding, feeding, and metamorphosis. Known breeding sites are free of invasive species.
Northern bog lemming	Peatlands (including fens)	Areas in and within 300 feet of peatlands have low groundcover and downed woody material that contribute to northern bog lemming habitat and connectivity between clusters of individual sites.
Pika, hoary marmot	Boulder fields/talus	Accumulations of boulders and talus have adjacent areas of native forbs and grasses to provide habitat for pikas and hoary marmots.
Mountain goat	High-elevation cliffs (6,100 to 9,200 feet) on the Forest	Mountain goats are not harassed or displaced from known winter concentration areas or kidding areas due to human activities.

<sup>15</sup> Species of conservation concern are identified by the Regional Forester; more information is available at <http://bit.ly/NorthernRegion-SCC>.



Associated Species	Key ecosystem and/or ecosystem characteristic	Desired condition description
Black-backed woodpecker and other birds	Forests burned with a mix of low, moderate, and high severity	Burned trees providing nesting and feeding habitat for black-backed woodpeckers and other birds are present in burned areas, primarily within wilderness, recommended wilderness, and inventoried roadless areas. In other management areas burned by moderate- to high-severity fire, there are clusters of recently burned trees, including some greater than or equal to 10 inches d.b.h. Burned forest areas have some trees that die gradually, providing habitat for up to a decade following wildfire.
Black swift	Waterfalls	Waterfalls with known nest sites for black swifts have water flow throughout the nesting season to provide nest site shading, or if this is not present, shading in front of potential nest sites provided by vegetation. Human disturbance levels do not disrupt nesting.
Clark's nutcracker	Whitebark pine forests in the cold potential vegetation type and Ponderosa pine forests in the warm-dry and warm moist potential vegetation types	Summer habitat: forests in the cold vegetation type contain live, seed-producing whitebark pine trees to provide food and nest sites for Clark's nutcrackers during the breeding season. Winter habitat: forests in the warm-dry and warm-moist types contain live, seed-producing ponderosa pine trees to provide food in winter.
Fisher	Forests in the warm-moist potential vegetation type including western larch, white pine, cedar, or hemlock and excluding mixed ponderosa pine/Douglas-fir forest and forests in riparian management zones	These forests provide the following habitat conditions for fisher: <ul style="list-style-type: none"> <li>• old-growth forest (see glossary) with presence of very large snags, down logs, and live trees with heart rot for denning and resting,</li> <li>• old-growth forest (see glossary) arranged in connected, complex shapes with few isolated patches (especially in riparian management zones) to allow fishers to travel and to avoid predation,</li> <li>• a mosaic of diverse forest conditions (early to late stages of succession) providing habitat for species preyed upon by fisher, at a scale that provides a potential home range for fisher,</li> <li>• large mean patch size of old-growth forest at a scale that provides a potential home range for fisher.</li> </ul>
Flammulated owl	Mixed ponderosa pine/Douglas-fir dominance types in the warm-dry and warm moist potential vegetation types	These forests provide the following habitat conditions for flammulated owls: <ul style="list-style-type: none"> <li>• old-growth forest (see glossary) and mature forest with presence of large and very large snags to provide for nesting,</li> <li>• a mosaic of forest conditions that includes (1) areas with an open mid-story, (2) areas with dense Douglas-fir and ponderosa pine seedlings/saplings in the understory to provide roosting habitat, and (3) small openings to provide foraging habitat; at a scale that provides a cluster of potential home ranges for flammulated owls.</li> </ul>

Associated Species	Key ecosystem and/or ecosystem characteristic	Desired condition description
Harlequin duck	Fast-moving, low-gradient (1-7%) streams and riparian management zones	<p>These streams used by harlequin ducks provide the following habitat conditions:</p> <ul style="list-style-type: none"> <li>• high water quality and stream flows that support abundant aquatic invertebrates for feeding,</li> <li>• instream loafing sites (e.g., large rocks, gravel bars, concentrations of downed woody material),</li> <li>• dense shoreline cover (including live and dead trees, shrubs, and down logs) in nesting stream reaches to provide protection from terrestrial predators and protection from human disturbance,</li> <li>• natural stream barriers between known nesting stream reaches and downstream reaches to reduce competition for food and provide protection from instream predators, and</li> <li>• human disturbance levels do not disrupt nesting and brood rearing.</li> </ul>
Townsend's big-eared bats and other bats	Caves, old mines, old buildings, and bridges and riparian management zones	<p>These habitats provide the following conditions:</p> <ul style="list-style-type: none"> <li>• sites used as maternity roosts or hibernacula are accessible to bats,</li> <li>• sites used as maternity roosts or hibernacula are free of diseases that bats are susceptible to, and</li> <li>• human disturbance at sites used for maternity roosts or hibernacula does not preclude roosting or hibernation.</li> </ul> <p>Riparian management zones provide the following habitat conditions:</p> <ul style="list-style-type: none"> <li>• diverse structure (e.g., including shrubs and trees) to support nocturnal flying insects for food, and</li> <li>• snags and decaying trees to provide for roosting</li> </ul>

- 02** Educational materials such as floating signs and shoreline signs provide information on how to avoid human disturbance to loons in nesting/nursery areas.

### Objectives (FW-OBJ-WL DIV)

- 01** Install structures such as floating signs and nest platforms to promote successful common loon reproduction on three to ten occupied lakes annually, as needed.
- 02** Maintain or improve 100-1,000 acres of wildlife habitat.

### Guidelines (FW-GDL-WL DIV)

- 01** Vegetation management activities should maintain, where present, an overstory canopy of full-crowned trees to provide snow intercept cover in key winter big game habitats, determined in cooperation with Montana Fish, Wildlife and Parks (MFWP). Since the amount of canopy needed varies on a site-specific basis according to factors such as tree species, aspect, or elevation, and changes over time, specific areas and prescriptions for management activities should be identified at the project level.
- 02** To reduce the risk of disturbance to nesting bald eagles in active nesting territories (as identified in the MFWP bald eagle nesting territory database), visual buffers within 0.25 mile surrounding active and alternate bald eagle nest sites should not be removed but may be enhanced.

- 03** If old buildings or bridges known to be used as bat roosts are removed, measures should be taken to mitigate the loss of bat habitat.
- 04** New projects or activity authorizations involving helicopter use should not occur within 1,650 yards of known mountain goat winter concentration or kidding areas (identified in cooperation with MFWP) from December 1 to July 15, unless they include strategies or design features to mitigate disturbance to mountain goats. Exceptions to this guideline may occur for public health and safety, emergency activities, or other approved administrative activities, such as site maintenance.
- 05** To reduce the risk of disturbance, new projects or new special-use authorizations for activities that are known to disrupt the select species listed in table 15 should not occur in key habitats during key time periods (see table 15) unless they include strategies designed to mitigate new disturbance. Exceptions to this guideline may occur for public health and safety or emergency activities.

**Table 15. Key habitats and key time periods for select species**

Species	Key Habitat	Key Time Period
Elk and Deer	Known winter concentration areas identified in cooperation with MFWP	December 1 to April 15 <sup>1</sup>
Gray Wolf	Within 0.25 mile of known, active den/rendezvous sites identified in cooperation with MFWP	April 1 to July 1
Bald Eagle	Within 0.25 mile of very large trees used as active nest sites identified in cooperation with MFWP (see also FW-GDL-WL DIV-02)	February 1 to August 15
Common Loon	Within 150 yards of active common loon nesting/nursery sites	April 1 to August 1
Peregrine Falcon	Within 0.5 mile of cliffs used as active nest sites identified in cooperation with MFWP	February 1 to August 15
Great Blue Heron	Within 0.2 mile of very large cottonwood trees used as active nesting rookeries identified in cooperation with MFWP	March 15 to August 1
Northern Goshawk	Within > 40-acre forest stands used as active nest sites identified in cooperation with MFWP	March 1 to August 15
Black Swift	Within 500 feet of active black swift nest sites	April 15 to August 15
Harlequin Duck	Active nesting stream reaches	April 15 to August 15

1. This does not apply in areas identified as suitable for motorized over-snow vehicle use (see figure B-11) during the designated open season.

- 06** If site-specific analysis determines that cover for one or more wildlife species is lacking in a project area, vegetation management activities should be designed and/or scheduled to retain cover between areas of forest where cover is lacking (e.g., recent large stand-replacement fire areas until succession creates new cover), if present. The intent is to avoid severing connectivity of cover.

## **Threatened, endangered, proposed, or candidate wildlife species (WL)**

### **Desired conditions (FW-DC-WL)**

- 01** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area; see figure B-10), bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE.

- 02** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), grizzly bear habitat on NFS lands contributes to sustaining recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.
- 03** The risk of grizzly bear-human conflicts is reduced by information, education, and design features or criteria for management activities.
- 04** If new threatened or endangered species are listed or their critical habitat is designated, key ecosystem characteristics and ecological conditions on NFS lands contribute to population recovery.
- 05** Within Canada lynx critical habitat mapped by the USFWS, boreal forest landscapes support a mosaic of differing forest successional stages, providing the physical or biological features essential to the conservation and recovery of the Canada lynx population.

### Standards (FW-STD-WL)

- 01** Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as the primary conservation area, zone 1 (including the Salish demographic connectivity area) (see figure B-10 or subsequent USFWS updates, if applicable).
- 02** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area; see figure B-10), food/wildlife attractant storage special order(s) shall apply to all NFS lands.
- 03** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by “project (in grizzly bear habitat in the NCDE)” during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and shall be incorporated into the 10-year running average required by standard FW-STD-IFS-03.
- 04** The Northern Rockies Lynx Management Direction in appendix A, as modified by the Flathead National Forest’s forest plan record of decision, shall be applied.

### Guidelines (FW-GDL-WL)

- 01** Within the NCDE primary conservation area, zone 1 (including the Salish demographic connectivity area), contractors, permittees, lessees, operators, and their employees should be informed of procedures for safely working and recreating in grizzly bear country and of food/wildlife attractant storage special order(s) prior to turn-out of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.
- 02** Within the NCDE primary conservation area, zone 1 (including the Salish demographic connectivity area), if a contractor, permittee, lessee, operator, or their employee elects to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.
- 03** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), clover should not be used in seed mixes on NFS lands. Native seed mixes or

those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

- 04 New projects or activity authorizations involving low-altitude helicopter flights or landings in areas of modeled wolverine maternal denning habitat (identified in cooperation with USFWS and the USFS Rocky Mountain Research Station) should not occur from February 15 to May 15 unless they include strategies or design features to mitigate disturbance to wolverines. Exceptions to this guideline may occur for public health and safety, emergency activities, or other approved administrative activities, such as site maintenance.

## Pollinator species (POLL)

### Desired conditions (FW-DC-POLL)

- 01 Ecological processes create vegetation conditions and patterns across the Forest that are consistent with the natural range of variation. These processes support plant communities composed of a diverse mix of native grass, forb, shrub, and tree species, providing foraging habitat for native pollinator species such as butterflies, bees, and hummingbirds.

## Non-Native Invasive Plants/Noxious Weeds

### Introduction

A species is considered to be invasive if it meets two criteria: (1) it is non-native to the ecosystem under consideration and (2) its introduction causes, or is likely to cause, economic or environmental harm or harm to human health, per Executive Order 13112.<sup>16</sup> A noxious weed is defined by Montana Code Annotated 7-22-2101 as “any exotic plant species established or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities.” Invasive plants are capable of successfully expanding their populations into new ecosystems beyond their natural range and can create lasting impacts to native plant communities.

The following desired conditions for non-native invasive plants and noxious weeds are complementary to other sections that address desired conditions for resilient forest and plant communities. Invasive plant management activities on the Forest are currently guided by the integrated pest management approach outlined in the environmental assessment and decision notice for noxious and invasive weed control.<sup>17</sup> Refer to appendix C for additional information on approaches that may be used to manage weeds and contribute to achieving desired conditions.

### Desired conditions (FW-DC-NNIP)

- 01 Native plant species and plant communities dominate the landscape, whereas invasive plant species are at low abundance or non-existent, especially in areas identified as high priority, including wilderness areas, native grassland plant communities, riparian areas (particularly those associated

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<sup>16</sup> USDA (1999), *Executive Order 13112 invasive species*, planning record exhibit # 00377.

<sup>17</sup> USDA (2001b), *Decision notice, noxious and invasive weed control environmental assessment* (Kalispell, MT: USDA Forest Service, Region 1, Flathead National Forest), planning record exhibit # 00367.

with water howellia ponds), research natural areas (management area 4a), around known populations of plant species of conservation concern<sup>18</sup>, and in special areas (management area 3b).

- 02** No new non-native invasive plant species become established in terrestrial or aquatic plant communities on the Forest.
- 03** Terrestrial communities at risk of negative impacts from non-native invasive plants are able to retain or regain function, process, and structure after disturbance.
- 04** Invasive plant species are controlled with integrated pest management approaches in a strategic and adaptive manner. These approaches include an effective prevention and education program, combined with mechanical, biological, cultural, and chemical methods of weed control. Technological advances in weed treatments are capitalized on if they are shown to be equivalent to or more effective than existing treatments.

### **Objective (FW-OBJ-NNIP)**

- 01** Treat 12,000 to 16,000 acres to contain or reduce non-native invasive plant density, infestation area, and/or occurrence. Greatest attention will be given to treating potential invaders or new invaders most likely to negatively impact native plant communities and ecosystem integrity, especially in areas identified as high priority (see FW-DC-NNIP-01).

### **Guidelines (FW-GDL-NNIP)**

- 01** To reduce the probability of establishment of new non-native invasive plant populations, areas where soils are disturbed by management activities conducted or authorized by the USFS should be reseeded as soon as practical, during the appropriate time of year, using certified weed-free seed mixes.

## **Fire and Fuels Management**

### **Introduction**

Fire is a primary ecological process that has shaped and maintained forest and non-forest ecosystems that in turn sustain the native plant communities and animal species. Fire on the landscape occurs due to natural and planned ignitions. Wildland fires occur annually on the Forest, with natural ignitions occurring with summer thunderstorms typically from mid-July through mid-September. Wildland fires also occur due to human causes, most frequently campfires that are not adequately extinguished. 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).

Fire managers strive to manage the natural role of fire while protecting values from adverse impacts of fire. This can be accomplished by implementing a coordinated risk management approach to promote 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 should focus on creating conditions in which fire can occur without devastating consequences.<sup>19</sup> Treatments focus on restoring and

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<sup>18</sup> Species of conservation concern are identified by the Regional Forester; more information is available at <http://bit.ly/NorthernRegion-SCC>.

<sup>19</sup> E. D. Reinhardt, R. E. Keane, R. E., D. E. Calkin, & J. D. Cohen (2008), Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States, *Forest Ecology and*

maintaining natural fire regimes and reducing the negative impacts of wildfires to watershed health, wildlife habitat, and community values at risk. Refer also to the Terrestrial Ecosystems and Vegetation section for plan components related to vegetation treatments; these also apply to fuel reduction treatments.

### **Desired conditions (FW-DC-FIRE)**

- 01** Fire management activities minimize the risk of loss of life and 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 pose a threat to communities and community assets (e.g., power lines, communication towers, developed recreation sites, recreation residences, adjacent private land, and structures), 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, and public safety.
- 04** Wildland fires burn with a range of intensity, severity, and frequency that allows ecosystems to function in a healthy and sustainable manner and meets desired conditions for other resources, including wilderness. Wildland fire is accepted as a necessary process integral to the sustainability of the Forest's fire-adapted ecosystems.
- 05** Fire management activities are designed to prevent spread of wildland fires to neighboring property where their objectives are inconsistent with wildland fire.
- 06** The Forest offers public information on wildfire risk to community leaders, service providers, business owners, homeowners, youth, and permittees related to the need to adapt their communities, properties, and structures to wildfire and recognize that wildland fire is an ecological process. The maintenance of defensible space, construction of fire-resistant buildings, and reduction of potential fire intensity around community assets to allow direct suppression tactics are examples of adapting to wildfire.
- 07** Fuelbreaks strategically located across the Forest are designed to result in less intense fire behavior and to facilitate safe wildland fire operations. Lower tree densities and fuel loadings occur within fuelbreaks and in some portions of the wildland-urban interface, compared to forest conditions that would normally develop through natural succession. These fuels conditions are maintained over the long term through active management.

### **Objectives (FW-OBJ-FIRE)**

- 01** Move towards 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 that contribute to reducing fire impacts to private property and NFS infrastructure, with an emphasis on the wildland-urban interface.

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*Management*, 256(12), 1997-2006, doi:10.1016/j.foreco.2008.09.016, retrieved from <https://www.sierraforestlegacy.org/Resources/Community/CommunityProtection/FireScience/FireScience-Reinhardt-et-al2008.pdf>

## Guidelines (FW-GDL-FIRE)

- 01** When designing fuels reduction projects, the Forest should work with partners and adjacent landowners as needed to identify areas and resources of value to improve effectiveness of fuel treatments.
- 02** Fire management activities should be designed to use wildfires forestwide to meet multiple resource management objectives where and when conditions permit, keeping risk within acceptable limits. Meeting resource objectives generally means progress towards or maintaining desired conditions.
- 03** Newly constructed fire lines should be located away from public access points to prevent their use as motorized travel routes.
- 04** If conducting vegetation management activities in the wildland-urban interface, hazard trees should be removed within two tree lengths of structures, private property, administrative sites, and fuel breaks to increase suppression effectiveness and provide for human safety.
- 05** To reduce the negative impacts of wildfires or improve fire control opportunities, treatments should be designed to remove or rearrange the material necessary to achieve at least one of the following outcomes: reduce flame length, rate of spread, or torching and crowning indices.
- 06** To protect private property and other values at risk, fire management strategies should be designed to suppress wildland fires that threaten neighboring property and resources when time, assets, and prevailing conditions allow for action without undue risk to responders.

## Air Quality

### Introduction

The Clean Air Act of 1970 and subsequent amendments give federal land managers the responsibility to protect air quality-related values in Class I and Class II areas and to protect human health and basic resource values in all areas. The Bob Marshall and Mission Mountains Wilderness are classified as Class I areas, which means that very little deterioration of air quality is allowed. Columbia Falls, Kalispell, and Whitefish, are the closest non-attainment areas, but virtually all land management activities on the Forest occur outside the non-attainment boundaries. The Flathead Indian Reservation and Glacier National Park are also Class I areas. Smoke (from wildfires and prescribed fires) and road dust have the greatest potential to affect air quality. The Forest designated the Great Bear Wilderness as Class II.

### Desired conditions (FW-DC-AQ)

- 01** The Forest meets applicable Federal, State, and tribal air quality standards. Prescribed burning is planned to meet these standards, including in areas classified as class I areas (i.e., the Bob Marshall and Mission Mountains Wilderness) and class II areas (i.e., Great Bear Wilderness).
- 02** Air quality-related values of high-quality visual conditions and healthy breathable air are maintained within Class I and Class II areas.
- 03** Visibility, human health, quality of life, economic opportunities, high-quality recreation, and wilderness values are maintained by good air quality. Ambient air quality and visibility across the Forest are within Federal and State standards.



# Human Uses, Benefits, and Designations of the Forest

## Sustainable Recreation

### Introduction

Developed and dispersed recreation encompasses a broad and diverse range of activities. On the Forest, there is a variety of recreation opportunities, including motorized and nonmotorized travel, horseback riding, 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 population growth and development. With the increasing numbers of recreationists, the Forest faces the task of managing the land in a way that offers a wide spectrum of opportunities while minimizing conflict between different uses and effects on the environment.

Suitability for motorized and nonmotorized recreation has been determined by management areas (see chapter 3). However, there may be routes and areas that are closed to public motorized use within management areas that are described as suitable for motorized use. Lands suitable for motorized over-snow vehicle recreation are displayed in figure B-11, and figure B-12 shows late-season routes and play areas. Suitability by management area was used as a factor, along with routes and terrain, in determining the recreation opportunity spectrum setting. Travel management decisions are separate, project-level decisions that determine the specific areas and routes for motorized recreation consistent with areas identified in the forest plan as suitable for motorized recreation use, along with the suite of forestwide desired conditions, standards, guidelines, and objectives. Just because an area is suitable for motorized use does not mean motorized use is allowable everywhere in that setting. Motorized use (by wheeled and/or over-snow vehicles) is restricted to designated trails, roads, and areas as shown on the motor vehicle use maps of the Flathead National Forest.

### Summer recreation settings (SREC)

#### Introduction

The Forest's summer recreation opportunity spectrum settings range from primitive and unroaded backcountry areas that offer opportunities for solitude 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 settings provide a range of opportunities, as described by the recreation opportunity spectrum. The desired distribution of recreation opportunity spectrum settings is displayed in figure B-13 and summarized in table 16.

**Table 16. Percentage of desired summer recreation opportunity spectrum settings on NFS lands**

<b>Summer recreation opportunity spectrum setting</b>	<b>Percent</b>
Primitive	53%
Semiprimitive nonmotorized	16%
Semiprimitive motorized	2%
Roaded natural	29%
Rural	<1%
Urban	0%

- 02** Summer primitive recreation opportunity spectrum settings encompass large, wild, remote, and predominantly unmodified landscapes. These settings often coincide with designated and recommended wilderness and inventoried roadless areas. Additional primitive recreation opportunity spectrum settings are scattered across the Forest and are surrounded by semiprimitive nonmotorized settings. Primitive recreation opportunity spectrum settings contain no motorized recreation, and visitors have a low probability of seeing other people. Summer primitive settings provide opportunities for 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, is constructed of rustic, native materials.
- 03** Summer semiprimitive nonmotorized recreation opportunity spectrum settings provide opportunities for exploration, challenge, and self-reliance. Rustic structures such as signs and footbridges 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 semiprimitive nonmotorized experience of visitors.
- 04** Summer semiprimitive nonmotorized settings do not contain wheeled motorized recreation travel, but mechanized travel may be present.
- 05** Summer semiprimitive motorized recreation opportunity spectrum settings provide motorized recreation opportunities in backcountry settings. Routes are designed for off-highway vehicles 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 (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 off-highway vehicle traffic but are built from native or natural-appearing materials that blend with the surrounding landscape and maintain the semiprimitive character of the setting. There may also be narrow corridors that function as portals for visitors to park their off-highway vehicles and explore adjacent semiprimitive nonmotorized and primitive settings on foot or bicycle.
- 06** The summer roaded natural recreation opportunity spectrum is managed as natural in appearance 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 passenger car 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 complement the surrounding natural setting

- 07** Summer rural recreation opportunity spectrum 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 settings (WREC)

### Introduction

Recreation opportunity spectrum settings change as snow blankets the Forest's landscapes. Some settings become less accessible and more remote, but others change from nonmotorized to accommodating over-snow vehicles. Although the full range of settings, from primitive to rural, is still present, their location, distribution, and percentages change significantly during the winter months. Primitive and semiprimitive nonmotorized backcountry settings offer opportunities for solitude for those accessing the Forest on skis, snowshoes, or snowboards. Semiprimitive motorized settings cover large expanses of the Forest, offering over-snow-vehicle users the chance to explore many areas of the Forest that are nonmotorized in the summer months. Roaded natural and rural settings continue to serve as convenient connections to surrounding communities and provide easy access to visitors. Facilities are operated to provide user comfort. Groomed motorized and nonmotorized 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 skiing in or an over-snow-vehicle trip to access them.

### Desired conditions (FW-DC-WREC)

- 01** Winter recreation settings provide a range of opportunities as described by the recreation opportunity spectrum. The desired distribution of recreation opportunity spectrum settings is displayed in figures B-14 and summarized in table 17.

**Table 17. Percentage of desired winter recreation opportunity spectrum classes on NFS lands**

Winter recreation opportunity spectrum classification	Percentage
Primitive	53%
Semiprimitive nonmotorized	11%
Semiprimitive motorized	32%
Roaded natural	4%
Rural	< 1%
Urban	0%

- 02** Winter primitive recreation opportunity spectrum settings are large, remote, wild, and predominantly unmodified. Winter primitive recreation opportunity spectrum settings provide opportunities for 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 humans.
- 03** Winter semiprimitive nonmotorized recreation opportunity spectrum settings provide backcountry skiing, snowboarding, and snowshoeing opportunities. Trails are ungroomed and often not marked. Rustic facilities such as historic cabins and yurts may exist but are rare.

- 04** Winter semiprimitive motorized recreation opportunity spectrum settings provide backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked. There are vast areas to travel cross-country in designated areas, offering visitors an opportunity for exploration and challenge. Occasionally, historic rental cabins are available for overnight use and warming huts are available for short breaks.
- 05** Winter roaded natural recreation opportunity spectrum settings support higher concentrations of use, and levels of 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, semiprimitive nonmotorized, semiprimitive motorized). Guided motorized over-snow vehicle use, dog sledding, skiing, and snowshoeing may also be present.
- 06** Winter rural recreation opportunity spectrum settings include 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. User comfort facilities such as toilets, restaurants, heated shelter facilities, and information and education are commonly present. Parking areas are large and plowed. Entry points and routes are signed and direct over-snow vehicles to adjacent roaded natural and semiprimitive motorized settings. Nonmotorized trails are also typically groomed for Nordic skiing. Rural winter settings provide access for communities and families to celebrate holidays, participate in racing events, and enjoy recreational skiing.

## **Sustainable recreation—General (REC)**

### **Desired conditions (FW-DC-REC)**

- 01** Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites (NCDE definition) provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.
- 02** Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites (NCDE definition) on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.
- 03** The development scale of recreation facilities is consistent with the desired recreation opportunity spectrum settings and with river management and trail management plans.
- 04** Recreation facilities, including toilets, cabins, developed campgrounds, and visitor centers, are maintained to standard to protect Forest resources, provide safe access, and provide visitor experiences commensurate with the recreation opportunity spectrum setting. Visitors are very satisfied with the facilities and services on the Forest.
- 05** Recreation facilities and programs incorporate universal design concepts and meet current Federal accessibility guidelines.
- 06** Bear-human conflicts are minimized through proper food and garbage storage; food and garbage is unavailable to bears. Trailheads and Web-based information that reaches visitors prior to their arrival on the Forest provide education and information on recreating in bear country—especially activities that may cause sudden encounters with bears.
- 07** Livery services on the Forest are provided based on identified public need and protection of resource conditions and are compatible with other resources.

- 08** 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.
- 09** Opportunities for sustainable recreation are available for a wide variety of users and are offered across the four seasons of use.
- 10** Trailheads are strategically located to provide safe, convenient staging to adjacent backcountry settings throughout the year.
- 11** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of life in the area.
- 12** There are sustainable dispersed recreation opportunities across the Forest. Dispersed recreation opportunities are compatible with the desired recreation opportunity spectrum setting and are managed to reduce the risk of user conflicts and environmental impacts.
- 13** Sustainable recreation opportunities are responsive to changing conditions due to system stressors such as climate change and changing use patterns and demands.
- 14** There are sustainable developed recreation opportunities across the Forest. Developed recreation opportunities are compatible with the desired recreation opportunity spectrum setting, and facilities are clean and safe, provide for user comfort, and are managed to reduce the risk of user conflicts and environmental impacts.
- 15** Existing developed sites are sustainable, maintained, and updated to accommodate current and anticipated recreation needs. New developed recreation sites are constructed to accommodate anticipated recreation demand, where compatible with other resources.
- 16** New and existing special-use permits serve the 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 and are compatible with the recreation opportunity spectrum setting(s) in which they are permitted.
- 17** Outfitters and guides on the Forest provide high-quality public service, ensure public health and safety, protect natural resources, avoid degradation of the social setting, and minimize conflict with other users.
- 18** The Forest provides recreational cabin rentals that are clean, safe, and compatible with other resources.
- 19** Developed trailheads and river access sites provide appropriate access, parking, and sanitation management for the type of recreational use and respond to changing use patterns and demands.
- 20** Groomed motorized over-snow vehicle routes are provided that are consistent with the desired winter recreation opportunity spectrum settings, where compatible with other resources.
- 21** Groomed nonmotorized winter trail systems accommodate existing and anticipated demand and are consistent with the desired winter recreation opportunity spectrum setting and suitability determinations, where compatible with other resources.
- 22** The amount and distribution of motorized over-snow vehicle use does not have demonstrated adverse effects to maternal denning of wolverines or female grizzly bears with cubs during the den emergence time period.

- 23 The Forest provides sufficient law enforcement presence to educate and assist the public and administer Forest rules and regulations.
- 24 Forest vegetation conditions at developed recreation sites contribute to achieving the desired scenic integrity objectives, provide for healthy and resilient vegetation, and provide for screening between camping sites.
- 25 Commercial outfitted river operations provide guided fishing and boating experiences.
- 26 Access to the Forest's recreation settings and opportunities facilitates participation by diverse populations, and helps foster a sense of place and stewardship advocacy.

### Objectives (FW-OBJ-REC)

- 01 Rehabilitate eight to ten dispersed recreation sites on the Forest with erosion or sanitation issues or other adverse effects on natural resources.
- 02 Provide bear-resistant food storage devices at developed campgrounds.
- 03 Improve seven to twelve developed campgrounds. See GA-OBJ for specific numbers by geographic area.
- 04 Add two to six recreational cabin rentals to the National Reservation System.
- 05 Within five years, expand communications about recreation and educational opportunities through social media, Websites, print- and web-based materials, webinars, and video technology.

### Standards (FW-STD-REC)

- 01 Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline:
  - the agency obtains better information or updated information in its database(s);
  - the agency acquires land that contains developed recreation sites;
  - the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws;
  - the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts);
  - the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pull-out to allow trailers to turn around safely); or
  - the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary).
  - The agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a

developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. Note: If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit.

Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day-use only (e.g., outfitter camps, roadside trail crossings or interpretive pull-outs; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).

- 02** Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.
- 03** New motorized routes or areas available to the public shall not be designated in primitive or semiprimitive nonmotorized desired recreation opportunity spectrum settings (winter and summer).
- 04** Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include measures to limit the risk of grizzly bear-human conflicts (e.g., a requirement to store garbage in a bear-resistant manner).
- 05** Within grizzly bear denning habitat modeled by MFWP in the NCDE primary conservation area, there shall be no net increase in percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).

### Guidelines (FW-GDL-REC)

- 01** Within the NCDE primary conservation area, if the number or capacity of day use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. The measure(s) should be in place prior to completion of the project or be included as one of the project design criteria. Measures can include but are not limited to additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; project design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols.
- 02** To protect resources, new solid and sanitary waste facilities should be located outside of the inner riparian management zone.
- 03** To provide ecological conditions to support Canada lynx on NFS lands at a forestwide scale, there should be no net increase in miles of designated routes for motorized over-snow vehicle use, groomed routes, or areas where motorized over-snow vehicle use is identified as suitable. The “no net increase” is in comparison to the suitability displayed in figure B-11.

This guideline does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by guideline HU G12 (see appendix A).

- 04** To limit the risk of cumulative impacts to female wolverines with dependent young, there should be no net increase in percentage of modeled wolverine maternal denning habitat where motorized

over-snow vehicle use is identified as suitable on NFS lands at a forestwide scale. Specific locations of routes or areas suitable for motorized over-snow vehicle use are specified in figure B-11.

- 05 To reduce the risk of conflicts between wildlife and event participants as well as with other recreationists, authorizations for recreation events, group use, 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 wildlife-human conflicts.
- 06 To protect fishery resources and riparian-associated plant and animal species, new developed recreation sites should not be located within the inner riparian management zone except when they are related to health and safety or water, such as boat ramps and fish platforms. Structures should be developed with a Forest aquatics specialist so that fisheries and riparian-associated plant and animal species are protected.

## Hunting, Trapping, Fishing, and Wildlife Viewing

### Desired conditions (FW-DC-REC WL)

- 01 Habitat diversity supports species of interest for hunting (e.g., elk, deer, moose, mountain goat, bear, wolf), trapping (e.g., marten, wolf), and subsistence.
- 02 Habitat diversity supports species of interest for viewing (e.g., citizen science activities such as amphibian and raptor surveys, species identified as being of highest inventory need by MFWP).
- 03 Diverse opportunities exist for hunting, trapping, wildlife viewing, and fishing on Forest lands. Examples include assisted outfitted/guided and unassisted motorized and nonmotorized opportunities.
- 04 Levels and types of access for hunting, trapping, and fishing contribute to social and economic sustainability.

## Scenery

### Introduction

The Forest's scenery contributes to the identity and sense of place of local communities by serving as the backdrop and backyard for 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 (see appendix F). Mountain silhouettes, meandering rivers, and vast expanses of natural-appearing forests enhance the quality of life for residents 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 is displayed in figure B-15.



- 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.

### **Guidelines (FW-GDL-SCN)**

- 01** To ensure consistency with the desired scenic character of the Forest and with the historical and cultural influences of the broader area, the construction or reconstruction of Forest Service facilities (recreation, fire, administrative, and other) and permitted facilities should be consistent with the Built Environment Image Guide.<sup>20</sup>
- 02** To be consistent with the Forest’s scenic integrity objectives, deviations that are visible in some areas of the Forest should generally be subordinate to the surrounding landscape and should diminish over time.
- 03** To maintain the Forest’s scenic character (see appendix F), vegetation management activities should be designed to reflect natural disturbance regimes and processes to meet or exceed the scenic integrity objective.
- 04** To maintain the Forest’s scenic character (see appendix F), infrastructure such as communication towers or recreation facilities should be designed to meet or exceed the scenic integrity objective.

## **Infrastructure**

### **Introduction**

The Forest’s infrastructure (i.e., roads, trails, airstrips, and facilities) includes approximately 1,430 miles of open roads, approximately 2,260 miles of system trails, and four airstrips constructed to support Forest management activities such as fire suppression, timber harvesting, and recreation.

### **Desired conditions (FW-DC-IFS)**

- 01** Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands and also provides open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.
- 02** Motor vehicle use designations are complete and motorized vehicle use maps are available.
- 03** Community involvement and user awareness programs (educational and informational) reduce the risk of user conflicts on roads and trails and enhance the recreational experience.
- 04** Loop opportunities are a part of both the road and trail systems.
- 05** Public access is provided to NFS lands; a cooperative road system provides access to NFS and interspersed private and state lands.

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<sup>20</sup> USDA (2001), *The built environment image guide for the national forests and grasslands*, Washington, DC: USDA Forest Service, retrieved from [https://www.fs.fed.us/recreation/programs/beig/01\\_frontmatter.pdf](https://www.fs.fed.us/recreation/programs/beig/01_frontmatter.pdf).

- 06 A sustainable transportation system serves land management and public needs and purposes. It is interconnected with Federal, State, tribal, county, city, and private public roads and trails to provide access to lands, infrastructure, and inholdings where appropriate.
- 07 Road management objectives and trail management objectives are identified and current for roads and trails. Roads and trails are maintained in accordance with road and trail management objectives. The application of best management practices and other design features minimizes sediment input to waterbodies.
- 08 The Forest's trail system provides a variety of high-quality motorized and nonmotorized recreational opportunities during summer and winter. Forest system trails access destinations, provide for loop opportunities that connect to larger trail systems, provide linkages from local communities to the Forest, and are compatible with other resources.
- 09 Forest system trails are sustainably designed and managed to provide a variety of high-quality motorized and nonmotorized summer and winter public access that connects people to nature. Trails are maintained in accordance with trail management objectives direction
- 10 Trails are in the appropriate trail class for existing use levels and use types.
- 11 A sustainable trail system meets current and anticipated demands while protecting natural and cultural resources.
- 12 Road closure devices are maintained so that they are effective.
- 13 Existing airstrips on NFS lands (Condon, Meadow Creek, Spotted Bear, Schafer Meadows) are maintained to provide for quality recreational opportunities and administrative needs.

### **Objectives (FW-OBJ-IFS)**

- 01 Decommission or place into intermittent stored service 30 to 60 miles of roads.<sup>21</sup> Priorities are roads causing resource damage in priority watersheds and/or roads located within desired nonmotorized recreation opportunity spectrum settings and/or roads within bull trout watersheds.
- 02 Complete 100 to 300 miles of reconstruction or road improvement projects within desired roaded recreation opportunity spectrum settings.
- 03 Annually, maintain up to 1,000 miles of operational maintenance level 2 through 5 roads (see glossary).
- 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 primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary), as long as it does not exceed either six trips

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<sup>21</sup> USDA (2014), Travel analysis report for Flathead National Forest (Kalispell, MT: USDA Forest Service, Flathead National Forest), planning record exhibit # 00413.

(three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see glossary).

The exception to this standard is:

- emergency situations as defined by 36 CFR § 218.21.

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary).

- 02** In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline open motorized route density or total motorized route density on National Forest System lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline:

- administrative use (see glossary);
- temporary use of a motorized route for a project (see “project in grizzly bear habitat in the NCDE” definition in the glossary and FW-STD-IFS-03);
- mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines;
- updated/improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);
- a road closure location is moved a short distance (e.g., to the nearest intersection or turnout) to a better location to allow turn-arounds providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands;
- a change in a motorized route is necessary to comply with Federal laws (e.g., Federal Rehabilitation Act);
- a change in a motorized route is necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- a change is made by an adjacent landowner that decreases secure core or increases motorized route densities on a particular national forest;
- emergency situations as defined by 36 CFR § 218.21; and
- temporary roads (see glossary).

- 03** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary).

The 10-year running average for open motorized route density, total motorized route density, and secure core numbers shall not exceed the following limits per bear management subunit:

- 5 percent temporary increase in open motorized route density in each subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each subunit (i.e., total motorized route density baseline plus 3 percent);
- 2 percent temporary decrease in secure core in each subunit (i.e., secure core baseline minus 2 percent).

Exceptions to this standard include

- emergency situations as defined by 36 CFR § 218.21 and
- actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases, etc.).

Refer to appendix C for an example of how to calculate and apply the running average and temporary increase/decrease.

- 04** Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).
- 05** During dust abatement applications on roads, chemicals shall not be applied directly to watercourses, waterbodies (e.g., ponds, lakes), or wetlands.
- 06** For new road construction and reconstruction of existing road segments within or adjacent to riparian management zones, side-casting of fill material shall not occur.
- 07** To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges, and other stream crossings) shall accommodate at least the 100-year flow, including associated bedload and debris.

## **Guidelines (FW-GDL-IFS)**

- 01** In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential of grizzly bears being disturbed or displaced. Exceptions may be made where necessary to accommodate, for example,
  - actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
  - prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
  - emergency situations as defined by 36 CFR § 218.21.

If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

- 02** Within the NCDE primary conservation area, levels of secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within one year after completion of the project in order to reduce the duration of grizzly bear displacement or disturbance due to project-related activities. Exceptions may be made where necessary to accommodate, for example,

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR § 218.21.

If an extension to the one-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

- 03** Roads, skid trails, temporary roads, and trails should have water drainage systems that possess minimal hydrological connectivity to waterbodies (except at designated stream crossings) to maintain the hydrologic integrity of watersheds and protect them from the delivery of water, sediment, and pollutants.
- 04** To reduce the risk to aquatic resources when decommissioning roads, making roads impassable, or storing roads, roads should be left in a hydrologically stable condition. For example, drainage off roads should be routed away from resources and landslide prone areas and towards stable areas of the forest floor to provide filtering and infiltration.
- 05** Prior to placing physical barriers such as berms on travel routes (e.g., roads, skid trails, temporary roads, or trails), the Forest should ensure that road drainage features are in place to protect aquatic and other resources.
- 06** To maintain and/or improve watershed ecosystem integrity and reduce road-related mass wasting and sediment delivery to watercourses, new and relocated roads, trails (including skid trails and temporary roads), and other linear features<sup>22</sup> should not be located on lands with high mass wasting potential.
- 07** To maintain free-flowing streams, new, replacement, and reconstructed stream crossing sites (culverts, bridges, and other stream crossings) should be designed to prevent diversion of stream flow out of the channel in the event the crossing is plugged or has a flow greater than the crossing was designed for.
- 08** When constructing or reconstructing trail and road fords, measures to harden the streambed, banks, and approaches for new trail and road fords should be included in the project design in order to maintain channel stability and reduce sediment delivery to watercourses.

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<sup>22</sup> Linear features include powerline rights-of-way and utility corridors.

- 09 To protect water quality, maintenance activities such as road blading and snowplowing on existing roads should not side-cast into or adjacent to waterbodies. When plowing snow, breaks should be designed in the snow berms to direct water off the road.
- 10 When constructing or reconstructing roads, drainage should be routed away from potentially unstable channels, fills, and hillslopes to reduce sediment delivery into streams.
- 11 To provide safe and functioning airstrips, management and maintenance of airstrips should follow Federal Aviation Administration recommendations.
- 12 Within areas specifically identified as being important for wildlife connectivity across highways (see table 18), the Forest should cooperate with highway managers and other landowners to design approaches and crossings that contribute to wildlife and public safety.

**Table 18. Key highway crossing areas for wildlife**

Area	Route	Mile Marker
east of Essex <sup>1</sup>	U.S. 2	181-184
east of Essex <sup>1</sup>	U.S. 2	189-190
east of Columbia Falls <sup>1</sup>	U.S. 2	141-143
north of Columbia Falls <sup>1</sup>	Rt. 486	7-9
between Whitefish and Eureka <sup>1</sup>	U.S. 93	148
between Whitefish and Eureka <sup>1</sup>	U.S. 93	157-160
Swan Valley <sup>2, 3, 4</sup>	U.S. 83	31-36
Swan Valley <sup>2, 3, 4</sup>	U.S. 83	45-58

1. Based on R. Ament, P. McGowen, M. McClure, A. Rutherford, C. Ellis, & J. Grebenc (2014), *Highway mitigation for wildlife in northwest Montana*, Bozeman, MT: Sonoran Institute, Northern Rockies Office, retrieved from <http://largelandscapes.org/media/publications/Highway-Mitigation-Wildlife-NW-Montana.pdf>.

2. Based on M. P. Huijser, K. E. Gunson, & C. Abrams (2006), *Animal-vehicle collisions and habitat connectivity along Montana Highway 83 in the Seeley-Swan Valley, Montana: A reconnaissance*, Western Transportation Institute, retrieved from <http://www.mdt.mt.gov/research/projects/env/seeley.shtml>.

3. Based on P. L. Sandstrom (1996), *Identification of potential linkage zones for grizzly bears in the Swan-Clearwater valley using GIS* (MS thesis), University of Montana, Missoula, retrieved from <http://scholarworks.umt.edu/etd/>.

4. Based on J. L. Weaver (2014), *Conservation legacy on a flagship forest: Wildlife and wildlands on the Flathead National Forest, Montana*, Bozeman, MT: Wildlife Conservation Society, retrieved from [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjI5LmQ19nKAhUK6mMKHeRNC38QFggcMAA&url=http%3A%2F%2Fwww.wcsnorthamerica.org%2FAdmin-Plus%2FDocstore%2FCommand%2FCore\\_Download%2FEntryId%2F28194.aspx&usq=AFQjCNFbCN6XJst6iW\\_LSda\\_zKBLU1O8g&bvm=bv.113034660.d.cGc](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjI5LmQ19nKAhUK6mMKHeRNC38QFggcMAA&url=http%3A%2F%2Fwww.wcsnorthamerica.org%2FAdmin-Plus%2FDocstore%2FCommand%2FCore_Download%2FEntryId%2F28194.aspx&usq=AFQjCNFbCN6XJst6iW_LSda_zKBLU1O8g&bvm=bv.113034660.d.cGc).

- 13 To maintain and protect natural hydrologic flow paths, the transportation infrastructure should not alter stream courses. For example, streams should have crossing structures and not be routed down ditches.
- 14 To provide and maintain native aquatic organisms in fish-bearing streams, construction, reconstruction, or replacement of stream crossings should provide and maintain passage for all life stages of native aquatic organisms unless barriers are created or maintained to prevent spread or invasion of non-native species in alignment with fish and wildlife management agencies.
- 15 When designing, constructing, or reconstructing system trails, information on how to avoid and respond to bear-human encounters should be posted at trailheads. In addition, site-specific trail design should include one or more methods to limit the risk of bear-human conflicts such as, but not limited to,

- locating trails outside of riparian management zones or avalanche chutes unless it is necessary to cross or to access an existing developed recreation site, and
  - designing and/or maintaining trails to increase sight distance and/or to address speed of travel consistent with site-specific conditions for the managed use of the trail.
- 16** To protect fisheries resources and riparian-associated resource conditions and to maintain quality and quantity of water flows to, within, or between groundwater-dependent ecosystems, groundwater use developments (e.g., drinking water wells, wastewater facilities) should not:
- be developed in riparian management zones (unless no alternatives exist);
  - 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
  - discharge pollutants directly to groundwater.

## Lands and Special Uses

### Introduction

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 lands. 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, public, and other governmental entities for a wide variety of activities, such as roads, utility corridors, communications sites, and other private, public, or commercial uses, that cannot be reasonably accommodated on private lands.

### Desired conditions (FW-DC-LSU)

- 01** Land ownership adjustments, through purchase, donation, exchange, or other authority, improve national forest management by consolidating ownership, reducing wildlife-human conflicts, providing for wildlife habitat connectivity, improving public access to public lands, and retaining or acquiring key lands for wildlife and fish and within wild and scenic river corridors.
- 02** Existing road and trail easements that allow access to and/or across NFS land are maintained and additional easements are acquired as necessary.
- 03** Utility corridors and designated communications sites (see table 19) use existing facilities, sites, and corridors unless new sites can provide better social, economic, and ecological benefits.

**Table 19. Designated communications sites and designated purpose**

Designated communications site name	Designated purpose
Big Mountain	Broadcast and non-broadcast
Blacktail Mountain	Broadcast and non-broadcast
Cyclone Peak	Government entities only; non-broadcast
Desert Mountain	Broadcast and non-broadcast
Middle Fork Corridor	Non-broadcast
Mount Aeneas	Broadcast

- 04 Utility corridors and designated communications sites (see table 19) are sized to fit the intended use and obsolete or unused facilities are not present on the landscape.
- 05 National Forest System 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. Opportunities are explored for purchasing additional easements to maintain and protect wild and scenic river values and fish or wildlife habitat.
- 07 Occupancy trespass on NFS lands does not exist.
- 08 Special-use authorizations meet Forest management and public needs and are consistent with the desired recreation opportunity spectrum.

### Guidelines (FW-GDL-LSU)

- 01 Special use authorizations in the primary conservation area should have permit requirements to help reduce or limit the risk of grizzly bear-human conflicts.
- 02 To maintain or improve habitat conditions for fish, water, and other riparian associated species and resources, authorizations for new special-use permits should include requirements for best management practices and at the conclusion of the permit should restore in-stream and riparian conditions if necessary.
- 03 To protect riparian and aquatic habitat, new support facilities should be located outside of riparian management zones. Support facilities include any facilities or improvements (e.g., workshops, housing, switchyards, staging areas, transmission lines) not directly integral to the production of hydroelectric power or necessary for the implementation of prescribed protection, mitigation, or enhancement measures. At time of permit reissuance, the removal of such support facilities, where practical, should be considered.

## National Scenic Trails

### Background

Congressionally designated national trails are a network of scenic, and historic 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 single-track linear features that pass through a great variety of physical features, ranging from natural-appearing settings to locations where developments are noticeable. The Forest has two national scenic trails: the Continental Divide National Scenic Trail, which has approximately 18 miles on the Forest (all within designated wilderness), and the Pacific Northwest National Scenic Trail, which has approximately 28 miles on the Forest. Management of the Continental Divide National Scenic Trail is outlined in *The 2009 Continental Divide National Scenic Trail Comprehensive Plan*.<sup>23</sup> Refer to figures B-16 and B-17 for maps of these trails. The corridor width is 1 mile for both trails.

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<sup>23</sup> USDA (2009), *The 2009 Continental Divide National Scenic Trail comprehensive plan*, USDA Forest Service, retrieved from [https://www.fs.fed.us/cdt/main/cdnst\\_comprehensive\\_plan\\_final\\_092809.pdf](https://www.fs.fed.us/cdt/main/cdnst_comprehensive_plan_final_092809.pdf).



**Desired conditions (FW-DC-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 to the trail and travel on the trail are preserved and the resources along the trail are interpreted in a manner that does not impair the feature(s) for which the individual trail was established.
- 02** The Pacific Northwest National Scenic Trail segment on the Forest provides a nonmotorized long-distance trail.
- 03** The Pacific Northwest National Scenic Trail and the Continental Divide Scenic Trail provide outstanding scenery as well as conservation of the nationally significant scenic, historic, natural, and cultural qualities of the areas it passes through. Users have opportunities for inspiration, challenge, and solitude as well as kinship with other trail users and interactions with people past and present who have shaped these places along the trail.
- 04** The Continental Divide National Scenic Trail provides high-quality scenic, primitive hiking, and horseback-riding opportunities.

**Standards (FW-STD-NST)**

- 01** No surface occupancy for oil and gas leasing activities and no common variety mineral extraction shall occur within the national scenic trail corridor. Refer to figure B-16 for a map of the Pacific Northwest National Scenic Trail corridor.

**Guidelines (FW-GDL-NST)**

- 01** To maintain the outstanding features of the Continental Divide National Scenic Trail and the Pacific Northwest National Scenic Trail and be compatible with the surrounding environment, trail-related facilities and facilities within the corridor should blend in with the surrounding environment. Where the trail leads to an outstanding destination feature, the qualities of that feature should be preserved.
- 02** To maintain and protect the scenic qualities of the Continental Divide National Scenic Trail and the Pacific Northwest National Scenic Trail, management activities should be consistent with the scenic integrity objective of high to very high.

# Production of Natural Resources

## Forest Vegetation Products: Timber

### 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 a statute or executive order), technical factors (non-forested lands, geology or soil conditions, etc.), and compatibility with desired conditions and objectives stated in the plan (forestwide or management area plan components). Table 20 displays the timber production suitability classification for the forest plan. Refer to appendix C for additional information on timber suitability.

**Table 20. Timber production suitability classification**

Land Classification Category	Acres
A. Total NFS lands in the plan area	2,392,800
B. Lands not suited for timber production due to legal or technical reasons	1,655,400
C. Lands that may be suited for timber production (A – B)	737,400
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	465,200
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C – D)	272,200
F. Total lands not suited for timber production (B + E)	1,927,600

*Note.* Acres are from GIS dataset and analyses, rounded to the nearest 100 acres. The official acres for NFS lands can be found in the land area report (USDA (2015), Land areas of the National Forest System (LAR), USDA Forest Service, Lands and Realty Management, retrieved from <https://www.fs.fed.us/land/staff/lar-index.shtml>).

Timber harvest is allowed on some lands not suitable for timber production for such purposes as salvage, fuels management, insect and disease mitigation, protection or enhancement of biodiversity or wildlife habitat, research or administrative studies, or recreation and management of scenic resources. Suitability for timber harvest is determined by management area, geographic area, and forestwide by resource (i.e., riparian management zones). There are approximately 429,300 acres not suitable for timber production where timber harvest is allowed.

Per the National Forest Management Act and planning rule regulations, the quantity of timber that may be sold must be less than or equal to the sustained yield limit. The sustained yield limit is the amount of timber meeting applicable utilization standards “which can be removed from [a] forest annually in perpetuity on a sustained-yield basis” (National Forest Management Act, 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. The calculation of the sustained yield limit is not limited by land management plan desired conditions, other plan components, or the planning unit’s fiscal capability and organizational capacity. The sustained yield limit calculated for the Flathead National Forest is 25.4 million cubic feet per year.

To clearly display the intended timber program, the plan identifies the projected wood sale quantity and the projected timber sale quantity. The projected wood sale quantity is the estimated output of timber and all other wood products (such as fuelwood, firewood, or biomass) 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 projected timber sale quantity is the portion of the projected wood sale quantity that meets applicable

utilization standards. Both the projected wood sale quantity and the projected timber sale quantity 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. The resulting projected wood sale quantity and projected timber sale quantity are found in objectives FW-OBJ-TIMB-01 and 02. These timber volume outputs are less than the sustained yield limit.

### **Desired conditions (FW-DC-TIMB)**

- 01** Production of timber and timber harvest contributes to ecological sustainability and contributes to the achievement of vegetation desired conditions (such as species composition, size class, forest density, vegetation diversity, landscape pattern, and forest resilience to disturbances).
- 02** Production of timber and timber harvest contribute to economic sustainability, providing jobs and income to local economies. A mix of timber products (including both sawtimber and non-sawtimber) is offered under a variety of contract methods in response to market demand.
- 03** In areas suitable for timber production, timber harvest, thinning, and planting have a primary role in achieving the desired vegetation conditions.
- 04** Forest conditions on lands suitable for timber production are conducive to providing timber outputs at a sustainable level through a regularly scheduled timber harvest program. A variety of silvicultural practices are used to achieve desired conditions, including regeneration harvest, planting of trees, thinning, and fire (wildfire and prescribed fire).
- 05** In areas suitable for timber production, sanitation or salvage harvest may occur and contribute to the overall economic benefits of harvest while achieving desired conditions and management direction for other resources (e.g., wildlife habitat, snags) and providing for human safety along open roads and trails.
- 06** On lands identified as not suitable for timber production but where timber harvesting is allowed to achieve multiple-use values, timber harvest contributes to achieving desired conditions while providing economic and social services and benefits to people. Timber harvest on these lands occur to protect multiple-use values other than timber production, such as salvage, sanitation, public health, or safety.
- 07** Although natural disturbances (for example, wildfire, insects, and disease) occur on lands suitable for timber production, active management of these lands results in conditions that are resilient and/or resistant to such disturbances, with less potential loss of timber to natural disturbances compared to lands designated unsuitable for timber production.

### **Objectives (FW-OBJ-TIMB)**

- 01** Annually, offer timber for sale at an average projected timber sale quantity of 27.3 million board feet (5.5 million cubic feet)<sup>24</sup>.
- 02** Annually, offer commercial timber and other products for sale at an average annual projected wood sale quantity of 6.3 million cubic feet<sup>24</sup>.

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<sup>24</sup> Estimates of timber outputs may be larger or smaller on an annual basis, or over the life of the plan, if legal authorities, management efficiencies, or unanticipated constraints change in the future. Modeling of the projected timber sale quantity under an unlimited budget and consistent with all plan components resulted in an average annual volume output in the first decade of 38 million board feet (7.6 million cubic feet) (FEIS, section 3.21.2)

## Standards (FW-STD-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 harvesting shall only be done when there is reasonable assurance of restocking within five 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 remove encroaching trees to meet desired vegetation or wildlife habitat conditions, it is acceptable not to restock or to restock at very low tree densities.
- 03** Silvicultural treatments 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, scenery, and other resources.
- 05** The quantity of timber that may be sold per decade shall be less than or equal to the sustained yield limit of 25.4 million cubic feet per year, with the following exceptions: salvage or sanitation harvesting of timber stands that are substantially damaged by fire, windthrow, or other catastrophe or that are in imminent danger from insect or disease attack. In these situations, trees may be harvested over and above the sustained yield limit, consistent with the desired conditions for terrestrial and aquatic ecosystems.
- 06** Even-aged stands shall generally have reached or surpassed culmination of mean annual increment of growth prior to regeneration harvest unless at least one of the following conditions have been identified during project development:
  - Such harvesting would modify fire behavior to protect identified resource, social, or economic values.
  - Harvesting of stands will trend the landscape towards vegetation desired conditions.
  - Harvest uses uneven-aged silvicultural systems, thinning, or other intermediate stand treatments that do not regenerate even-aged or two-aged stands.
  - Harvest is for sanitation or salvage of timber stands that have been substantially damaged by fire, windthrow, or other catastrophe or that are in imminent danger from insect or disease attack.
  - 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 opening size created by clearcutting, seedtree cutting, shelterwood seed cutting, or other cuts designed to regenerate an even-aged stand of timber in a single harvest operation shall be 40 acres. This standard applies to newly created harvest openings on NFS lands only and need not consider existing recently created openings on NFS, adjacent private, or other agency lands.

Exceptions to the 40-acre maximum opening size standard may occur when determined necessary to help achieve desired ecological conditions for the plan area. These desired conditions include providing for forest patterns and patch sizes that are consistent with natural disturbance regimes (see FW-DC-TE&V-03, FW-DC-TE&V-18; FW-DC-TE&V-19, FW-DC-SCN-01), providing for

habitat that contributes to long-term persistence of native plant and animal species (see FW-DC-TE&V-04), maintenance of instream channel conditions (see FW-DC-WTR-04 and 08), and maintaining or creating forests resistant and resilient to future disturbances (see FW-DC-TIMB-01 and 07). Maximum opening size exceptions to the standard are displayed in table 21.

**Table 21. Maximum opening size (acres) created by even-aged harvest in one harvest operation**

Potential vegetation type	Maximum opening size
Warm-dry and warm-moist	80
Cool-moist	150
Cold	90

- 08** Harvest openings created as a result of one harvest operation that exceed the maximum opening size established in table 21 will require 60-day public review and regional forester approval.
- 09** FW-STD-TIMB-07 and 08 shall not apply to the size of harvest openings created as a result of catastrophic (stand-replacing or stand-initiating) natural disturbances such as fire, windstorms, or insect or disease infestations.

### **Guidelines (FW-GDL-TIMB)**

- 01** If salvaging timber in areas burned by wildfire, unburned patches or patches burned with low severity (less than 20 percent mortality of trees) within the burn perimeter should be retained to contribute to wildlife habitat diversity.
- 02** If salvaging timber in areas burned by mixed or high-severity wildfire, clusters of burned trees with a variety of sizes should be retained to provide habitat for wildlife species associated with burned habitats.
- 03** If salvaging timber in areas with high-severity disturbance (e.g., fire, insect or disease epidemic) that were verified old-growth forest prior to the fire, standing (and down) live, dying, and dead western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. should be retained to contribute to diverse forest structure for wildlife, even if the forest stand no longer meets the old-growth forest definition. If these retained trees fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety, they should not be removed but should be left on the ground to contribute to large downed woody material.

### **Other Forest Products**

Other forest products that occur on the Forest include, but are not limited to, huckleberries, mushrooms, firewood, fuelwood, post and poles, Christmas trees, tepee poles, and medicinal or botanical products.

### **Desired conditions (FW-DC-OFP)**

- 01** Provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) from NFS lands while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.
- 02** When permitted, special forest and botanical products are collected in a sustainable manner, providing products for current and future generations.
- 03** Vegetation management activities augment the firewood program, providing opportunities for collecting firewood.

- 04** Berry-producing huckleberries are available for wildlife as well as human use and are collected in a sustainable manner. The public is aware of non-destructive berry-picking methods that preserve the huckleberry plant for future use.

### **Standards (FW-STD-OFP)**

- 01** Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear–human conflicts, as specified in the food/wildlife attractant storage special order.

### **Guidelines (FW-GDL-OFP)**

- 01** Prior to temporarily opening a road to provide public access for gathering firewood, measures should be taken to protect the most valuable snag(s) as habitat for wildlife (e.g., by placing “wildlife tree—no cutting” signs on selected snags).

## **Energy and Mineral Resources**

### **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 decisions. There are three types of mineral and energy resources:

1. locatable minerals: includes commodities such as gold, silver, copper, zinc, nickel, lead, platinum, and some nonmetallic minerals such as asbestos, gypsum, and gemstones. Under the Mining Law of 1872, U.S. 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 minerals 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.

### **Desired conditions (FW-DC-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 are identified, inventoried, and reclaimed in the appropriate manner, with priority given to those that pose a human health risk.
- 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.

### **Standards (FW-STD-E&M)**

- 01** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible, shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added without the agreement of the holder of the lease, permit, or plan of operation.
- 02** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized permits, leases, and/or plans of operation shall include a clause providing for modification or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.
- 03** New plans of operation, permits, and/or leases for mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:
- land surface and vegetation disturbance;
  - water table alterations that affect bear foods on the surface; and
  - construction, operation, and reclamation of mine-related facilities such as impoundments, rights-of-way, motorized routes, pipelines, canals, transmission lines, or other structures.
- 04** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants:
- bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
  - garbage shall be removed in a timely manner;
  - road kills shall be removed daily during active operating periods to a designated location determined in close coordination with MFWP;
  - feeding of wildlife shall not be allowed; and
  - locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in all work camps.
- 05** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, and surface use criteria regarding grizzly bear habitat:
- ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April

- 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears.
- seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears.
  - cumulative impacts of multiple, concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear.
  - reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration, or mitigation of functioning aquatic systems and riparian management zones shall identify how reclamation will occur, plant species to be used in reclamation, a time frame of when reclamation will be completed, and monitoring criteria; and
  - reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed from mineral activities shall be completed as soon as practicable by the operator.
- 06** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation and permits shall include the following mitigation measures regarding motorized access:
- public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development;
  - a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended;
  - helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and
  - speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.
- 07** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), minerals contractors and lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.
- 08** Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).
- 09** Mineral development shall not be allowed in areas withdrawn from mineral entry.

### **Guidelines (FW-GDL-E&M)**

- 01** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities including leases, surface use plans for proposed wells or operations, or permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should:



- avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas;
  - avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.
- 02** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.
- 03** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals, where available (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.
- 04** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat, the following tiered measures should be used to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.
- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation).
  - Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and the habitat available for acquisition.
  - Step 3: If steps 1 and 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.
- 05** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), carrying bear spray should be recommended to mineral permittees, lessees, and operators to reduce the risk of grizzly bear-human conflicts.
- 06** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.
- 07** To protect water quality and inland native fish habitat, wildlife and other riparian-associated resources, mineral operations should not be authorized in riparian management zones. If the riparian management zone cannot be avoided, the authorization should include measures to maintain, protect, and rehabilitate fish and wildlife habitat that may be affected by the operations.

## Livestock Grazing

### Desired conditions (FW-DC-GR)

- 01** Within the NCDE primary conservation area, the number, capacity of, and improvements on livestock grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds, while minimizing the risk of bear-human conflicts on NFS lands.
- 02** Existing cattle-grazing allotments help preserve the rural landscape and cultural heritage of the area while sustaining biological diversity and ecological processes.
- 03** Management of livestock grazing maintains the desired species composition, structure, and condition of plant communities. Regeneration of forests and biological diversity 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, permitted allotments.
- 05** Dispersed grazing is available for use by pack stock.

### Standards (FW-STD-GR)

- 01** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.
- 02** Within the NCDE primary conservation area and zone 1, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use. Note: The Flathead National Forest does not have any sheep allotments.
- 03** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), permits for livestock grazing shall include a provision that requires reporting livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.
- 04** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), there shall be no net increase in the number of active sheep allotments on NFS lands. Note: The Flathead National Forest does not have any sheep allotments.
- 05** Within the NCDE primary conservation area, there shall be no increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as that does not result in grazing allotments in currently unallotted lands.
- 06** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), temporary permits for grazing by small livestock for purposes such as

controlling invasive exotic weeds or reducing fire risk, or for trailing of small livestock across NFS lands, shall not result in an increase in bear-small livestock conflicts.

- 07** New or reauthorized livestock grazing permits shall incorporate requirements that reduce the risk of impacts to native fish or riparian habitat (e.g., through modifying accessibility of riparian areas to livestock, length of grazing season, stocking levels, timing of grazing, etc.).
- 08** New livestock handling and/or management facilities must be located outside of riparian management zones. New areas for livestock trailing, bedding, watering, salting, loading, and other handling or management efforts shall be limited to those areas and times that would not adversely affect listed animal and plant species or animal and plant species of conservation concern.

### **Guidelines (FW-GDL-GR)**

- 01** During allotment management planning, grazing practices (e.g., length of grazing season, stocking levels, timing of grazing) should be adjusted if needed to achieve desired conditions for riparian management zones (this varies on a site-specific basis).
- 02** Within the NCDE primary conservation area, an allotment management plan should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).
- 03** Livestock trailing, bedding, watering, salting, loading, and other handling activities should be avoided in riparian management zones.
- 04** To reduce bank trampling of perennial vegetation on or near the water's edge (i.e., the greenline):
  - do not exceed 20 percent streambank alteration;
  - do not exceed 40 percent utilization of mean annual vegetative production on woody vegetation; and
  - maintain at least 4-6 inches or do not exceed 40 percent utilization of mean annual vegetative production on herbaceous vegetation.

# Social and Economic Environment

## Social and Economic Systems

### Desired conditions (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 and contribute to the local economy through the generation of jobs and income while creating products for use both nationally and locally.
- 03 Opportunities connect people, including youth, with the natural and cultural resources across the Forest through recreation and/or employment opportunities.

## Partnerships and Coordination

### Desired conditions (FW-DC-P&C)

- 01 The Forest works towards an all-lands approach to management, cooperating with other land managers; this includes efforts to mitigate threats or stressors, provide for wildlife and fish habitat connectivity, and provide social, economic, and ecological conditions that contribute to mutual objectives.
- 02 The Forest cooperates and coordinates with State agencies, Federal agencies, tribes, counties, and other groups in ways that lead to a stable or an upward trend of native fish and wildlife species and desired non-native aquatic and terrestrial species.
- 03 Recovery of threatened and endangered species is accomplished through cooperation with USFWS (including section 7 consultation, as required), State agencies, other Federal agencies, tribes, counties, interested groups, and interested private landowners.
- 04 The Forest coordinates with MFWPs and USFWS in managing the wildlife resource within designated wilderness while protecting the wilderness character.
- 05 Partnerships with federal and nonfederal entities help achieve desired conditions and improve overall resources management. Partnerships and/or collaborative processes within local communities foster relationships that help accomplish projects in the communities' and Forest's shared interest.
- 06 Federal, State, county, and tribal agencies, universities, nongovernmental organizations, and private landowners have the opportunity to participate in development, implementation, maintenance, and/or monitoring efforts.

- 07 Ongoing government-to-government and staff consultation for each federally recognized tribe with historical or treaty interests in the Forest's NFS lands occurs through a cooperatively established tribal consultation protocol.
- 08 The Forest and potential partners have an expressed mutual interest in and understanding of a common purpose(s) that helps each achieve their respective missions.
- 09 Partnerships and projects are widely recognized by the public as beneficial to resource management and as an appropriate and efficient use of Forest Service cooperative efforts and funding.
- 10 Partnership arrangements are transparent to the public and free of real or apparent conflicts of interest or endorsement of commercial products, services, or entities.
- 11 The Forest partners with local groups to develop and maintain a trail system as well as trail infrastructure (e.g., a hut-to-hut system) where compatible with other resources.
- 12 The Forest partners with agencies, organizations, and support groups to maintain the Flathead National Forest Backcountry Administrative Facilities Historic District.
- 13 The Forest coordinates with scientists from Rocky Mountain Research Station on the effects of climate change.
- 14 Federal, State, county, and tribal agencies, universities, local schools, nongovernmental organizations, and private landowners have the opportunity to participate in cooperative partnerships to support a quality educational program and program delivery.
- 15 The Forest works towards an all-lands approach to management of species of conservation concern, cooperating with other land managers across the range of a species and including efforts to provide for habitat connectivity, mitigate threats or stressors, and provide other ecological conditions that support the species.
- 16 The bull trout population trends towards recovery through cooperation and coordination with USFWS, tribes, State agencies, other Federal agencies, and interested groups. Recovery is supported through the Bull Trout Conservation Strategy and the Bull Trout Recovery Plan.
- 17 Cooperation and coordination occurs with adjacent landowners to identify and manage non-native invasive weeds.
- 18 Partnerships are developed with various interest and user groups to participate in evaluation, planning, and maintenance programs for both roads and trails.
- 19 The U.S. Border Patrol has access to the U.S.-Canadian border and the infrastructure needed to protect it.
- 20 Partnerships are developed to help address management needs for wilderness and wild and scenic rivers.

## Cultural Resources

### Desired conditions (FW-DC-CR)

- 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 Montana State Historic Preservation Office and the appropriate tribe. 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 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 well-being.
- 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, and/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-CR)**

- 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 National Register of Historic Places 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 the history of the Forest.

## **Standard (FW-STD-CR)**

- 01** To protect cultural resources, provisions shall be included in applicable contracts, agreements, and special-use permits for properties that are unevaluated, eligible for, or listed in the National Register of Historic Places.

## Areas of Tribal Importance

### Desired conditions (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 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 The Forest manages traditional cultural properties through the development of two to five management plans, in consultation with the tribes.

## Research and Education

### Desired conditions (FW-DC-R&E)

- 01 Interpretation and education opportunities enrich visitors' experience and understanding of the Forest by providing, for example, information on wildlife-human conflicts and aquatic and terrestrial invasive species.
- 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 teaching science and natural resource topics.
- 05 Diverse methods and media are used for program delivery, including making best use of new technologies such as social media, Web/Internet presence, self-guided media using smartphones, and other devices to help maintain relevancy for the audience.
- 06 Research continues to provide information and guide management related to ecological, social, and economic conditions across the landscape.

## Chapter 3. Management Area Direction

### Introduction

The NFS land within the Forest boundary has been divided into seven broad management areas and further subdivided into 16 specific management areas, each with a different emphasis that is intended to direct management activities on that particular piece of land. Management area allocations are specific to areas across the Forest with similar management needs and desired conditions.

This chapter includes a description of the management areas, acres allocated, and management direction in the form of desired conditions, standards, guidelines, objectives, and suitability of lands.

The management area categories are listed in table 22 below. Management areas by geographic area are included in chapter 4, and the corresponding maps are figures B-18 through B-24.

**Table 22. Management areas**

Code	Management Area Category
1a	Designated wilderness
1b	Recommended wilderness
2a	Designated wild and scenic rivers
2b	Eligible wild and scenic rivers
3a	Administrative areas
3b	Special areas
4a	Research natural areas
4b	Experimental and demonstration forests
5a	Backcountry nonmotorized year-round primitive
5b	Backcountry motorized year-round (motorized vehicle use only on designated roads, trails, and areas)
5c	Backcountry motorized over-snow vehicle opportunities (on designated routes and areas)
5d	Backcountry motorized wheeled vehicle use on designated roads, trails, and areas from April 1 to November 30
6a	General forest low-intensity vegetation management
6b	General forest medium-intensity vegetation management
6c	General forest high-intensity vegetation management
7	Focused recreation areas

Management area desired conditions are indications of the future conditions that would typically be desired in each management area. They help clarify the general suitability of various parts of the Forest for different activities and management practices (management area desired conditions are part of the “suitability of areas” guidance discussed on page 1). These desired conditions help clarify the outcomes that might be expected in land areas with different general suitability descriptions. Suitability is discussed by management area and summarized at the end of this chapter.



## 1a Designated Wilderness

### Background

The Forest contains 1,069,933 acres of designated wilderness, which accounts for about 45 percent of the Forest (see table 23). There are three designated wilderness areas within the Forest: the Bob Marshall, the Great Bear, and the Mission Mountains Wilderness Areas. Wilderness lands provide a variety of primitive recreation opportunities that include hiking, hunting, fishing, and horseback riding at the primitive end of the spectrum.

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. The Mission Mountains Wilderness is managed to protect wilderness character as defined by the Wilderness Act.

The Bob Marshall, Great Bear, and Scapegoat (the Scapegoat is not on the Forest) wilderness areas comprise the Bob Marshall Wilderness Complex, which makes up an area of more than 1.5 million acres. Management responsibility for the Bob Marshall Wilderness Complex is shared with the Helena-Lewis and Clark and Lolo National Forests. These areas are managed to protect their wilderness character as defined by the Wilderness Act of 1964.

**Table 23: Designated wilderness areas on the Forest**

Name	Acres <sup>a</sup>
Bob Marshall	712,331
Great Bear	286,872
Mission Mountains	76,173

a. Acres are from GIS dataset and include acres for all waterbodies. The official acres for wilderness areas can be found in the land area report (USDA (2015), Land areas of the National Forest System (LAR), USDA Forest Service, Lands and Realty Management, retrieved from <https://www.fs.fed.us/land/staff/lar-index.shtml>).

### Desired conditions (MA1a-DC)

- 01** Designated wilderness areas are managed to preserve and protect their wilderness character as required by the Wilderness Act and each wilderness area's enabling legislation. Wilderness character includes the qualities of untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and other features of value (ecological, geological, scientific, scenic, or historic value unique to each specific wilderness area).
- 02** Natural ecological processes and disturbances (e.g., succession, wildfire, avalanches, 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 a limited amount of human influence.
- 03** Facilities in the Bob Marshall and Great Bear Wilderness Areas provide for the protection and management of the wilderness resource.
- 04** Non-native invasive species are nonexistent or in low abundance and do not disrupt ecological functions.
- 05** The current trail system in the Bob Marshall, Mission Mountains, and Great Bear Wilderness Areas on the Forest is managed to provide for wilderness experience.

- 06 Existing outfitter and guide service opportunities are maintained in the Bob Marshall Wilderness Complex and the Mission Mountains Wilderness as determined by identified public need.
- 07 The Schafer Meadows airstrip serves as an airplane-accessible trailhead.
- 08 The Bob Marshall and Mission Mountains Wilderness Areas are class I air quality areas and managed as such; the Great Bear Wilderness is managed as a class II area.
- 09 Each wilderness area accommodates levels of recreational use that are ecologically sustainable.
- 10 Concentrated use areas within wilderness areas and associated resource impacts are not expanding into nearby areas.

### **Standards (MA1a-STD)**

- 01 Group sizes in excess of 15 people and 35 head of livestock per party within the Bob Marshall and Great Bear Wilderness Areas shall not be authorized.
- 02 Group sizes in excess of eight people and eight head of livestock per party within the Mission Mountains Wilderness shall not be authorized.
- 03 No permanent structures for the administration of the Mission Mountains Wilderness shall be built.
- 04 Prehistoric resources shall not be maintained, rehabilitated, restored, or interpreted within the Mission Mountains Wilderness.

### **Guidelines (MA1a-GDL)**

- 01 To protect water quality and aquatic habitat, tethering and grazing of recreational stock should be more than 100 feet from lakeshores.
- 02 To protect the social and ecological conditions within the Flathead National Forest portion of the Bob Marshall Wilderness Complex, additional outfitter and guide permit use levels should not be issued nor should approval be granted to expand operations beyond 17,953 days for the Flathead National Forest service day use in all seasons of the 30,000 service days authorized across the Bob Marshall Wilderness Complex.
- 03 To protect wilderness character, motorized use and mechanized transport should not be allowed within designated wilderness areas except as allowed by the Wilderness Act and the wilderness area's enabling legislation.
- 04 To protect wilderness character and cave resources, wilderness caves should not be signed, disclosed on maps, mentioned in brochures, or have monument markers indicating a cave name or number outside of the cave.

### **Suitability (MA1a-SUIT)**

- 01 Designated wilderness areas are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).
- 02 Wilderness areas are not suitable for timber production or timber harvest
- 03 Wilderness areas are not suitable for commercial use of non-timber forest products (e.g., firewood, mushrooms, huckleberries).

## 1b Recommended Wilderness Areas

### Description

Recommended wilderness areas are lands that the Forest Service has recommended for consideration as wilderness. The Forest Service only recommends these lands to the U.S. Congress for consideration. Congress, and ultimately the president, must establish legislation (through a wilderness bill) to officially designate a wilderness area.

The specific areas being recommended for inclusion in the National Wilderness Preservation System are shown in table 24.

**Table 24. Total approximate acres of areas recommended for inclusion in the National Wilderness Preservation System**

Recommended wilderness area	Acres*
Alcove-Bunker	18,901
Elk Creek	1,442
Java-Bear Creek	1,824
Jewel Basin	18,462
Limestone-Dean Ridge	15,026
Slippery Bill-Puzzle	12,393
Swan Front	42,534
Tuchuck-Whale	79,821
Total Acres	190,403

\*Acres are from GIS dataset and include acres for all waterbodies.

### Desired conditions (MA1b-DC)

- 01** Recommended wilderness areas preserve opportunities for inclusion in the National Wilderness Preservation System. The Forest maintains and protects the ecological and social characteristics that provide the basis for wilderness recommendation.
- 02** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects, and disease function with a limited amount of human influence.
- 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.

### Standards (MA1b-STD)

- 01** Commercial communications sites shall be located outside of recommended wilderness areas.

### Guidelines (MA1b-GDL)

- 01** To maintain and protect wilderness characteristics, other agencies' communications sites for public safety should be located outside of recommended wilderness areas unless no other alternative is available. If they have to be located in a recommended wilderness area, they should blend with the environment and be located away from system trails and developed sites.

- 02** To maintain and protect wilderness characteristics, new developed recreation facilities with provisions for user comfort such as picnic tables, fire grills, and vault toilets should not be installed.

### **Suitability (MA1b-SUIT)**

- 01** The Jewel Basin recommended wilderness area is not suitable for additional outfitting and guiding or large group events.
- 02** Recommended wilderness areas are not suitable for timber production; timber harvest is not allowed.
- 03** Recommended wilderness areas are suitable for restoration activities where the outcomes will protect the wilderness characteristics of the areas, as long as the ecological and social characteristics that provide the basis for wilderness recommendation are maintained and protected.
- 04** Recommended wilderness areas are not suitable for road construction or reconstruction.
- 05** Recommended wilderness areas are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).
- 06** Mechanized transport and motorized use are not suitable in recommended wilderness areas.
- 07** The Jewel Basin hiking area<sup>25</sup> is not suitable for motorized use, mechanized transport, and stock use.

## **2a and 2b: 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 0.25 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.

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<sup>25</sup> The Jewel Basin hiking area is a designated area within the Jewel Basin recommended wilderness area.

## Desired conditions (MA2-DC)

- 01 The free-flowing conditions and water quality of designated wild and scenic rivers are protected and enhanced.
- 02 The outstandingly remarkable values of designated wild and scenic rivers are protected and enhanced.
- 03 Designated or eligible wild rivers are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.
- 04 Designated or eligible scenic rivers are free of impoundments, with shorelines or watersheds still largely primitive and undeveloped but accessible in places by roads.
- 05 Federal lands within the wild and scenic river corridor are retained in public ownership.
- 06 Administrative facilities on designated wild and scenic rivers are screened or designed to blend into the natural river environment and development is consistent with the river's classification.
- 07 Commercial outfitted river use is a key element in providing guided fishing and rafting experiences on the Flathead Wild and Scenic River.

## Standards (MA2-STD)

- 01 Wilderness management direction must be followed where segments of the Flathead Wild and Scenic River (portions of the South and Middle Forks of the Flathead) are located in the wilderness.
- 02 Designated rivers must be managed to protect the free-flowing character, water quality, and outstandingly remarkable values for which they were designated.

## Guideline (MA2-GDL)

- 01 To protect the outstandingly remarkable values, impacts from recreational use should be in the acceptable range per the direction in the Flathead Wild and Scenic River Recreation Management Direction<sup>26</sup>.

## 2a Designated Wild and Scenic River

### Description

The Forest has one designated wild and scenic river, the Flathead River. Its three forks—the South Fork, Middle Fork, and North Fork—were designated by Congress in 1976 for a total of 219 miles. Table 25 lists the outstandingly remarkable values, miles, and acres of the designated wild and scenic river.

**Table 25. Outstandingly remarkable values, miles, and acres of the designated Flathead Wild and Scenic River**

Designated WSR	Outstandingly Remarkable Values	Miles <sup>a</sup>	Acres <sup>b</sup>
Middle Fork of the Flathead River	Wild section: fisheries, geology, water quality, wildlife, botany, recreation, scenery, history, ethnographic Recreation segment: fisheries, geology, water quality, wildlife, recreation, scenery, history	96	19,421

<sup>26</sup> USDA (1986), Flathead Wild and Scenic River recreation management direction (Kalispell, MT: USDA Forest Service, Flathead National Forest), planning record exhibit # 00655.

Designated WSR	Outstandingly Remarkable Values	Miles <sup>a</sup>	Acres <sup>b</sup>
North Fork of the Flathead River	<u>Scenic section</u> : fisheries, geology, water quality, wildlife, botany, recreation, scenery, history, ethnographic <u>Recreation section</u> : fisheries, geology, water quality, wildlife, recreation, history	59	6,256
South Fork of the Flathead River	<u>Wild/wilderness section</u> : fisheries, geology, water quality, wildlife, botany, recreation, scenery, history, ethnographic <u>Wild/non-wilderness section</u> : fisheries, geology, water quality, wildlife, recreation, scenery, history, ethnographic <u>Recreation section</u> : fisheries, geology, water quality, wildlife, recreation, scenery, history, ethnographic	61	16,484

a. Miles are approximate.

b. Designated wild and scenic river acres overlapping with designated wilderness total 24,570 acres.

## Suitability (MA2a-SUIT)

- 01** Wild river corridors are not suitable for timber production or for commercial use of non-timber forest products; timber harvest is not allowed.
- 02** 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.
- 03** Scenic river corridors are suitable for non-commercial (personal) use of non-timber forest products.
- 04** Recreational river corridors are suitable for the commercial and non-commercial (personal) use of non-timber forest products.
- 05** Scenic and recreational river segments are suitable for commercial communications sites and utility corridors. The scenic section of the North Fork of the Flathead is not suitable for utility corridors.
- 06** Wild river corridors outside of designated wilderness are suitable for mechanized transport and motorized use and equipment.
- 07** Scenic and recreational river corridors are suitable for wheeled motorized travel consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas.
- 08** Suitability for motorized over-snow vehicle use is mapped in figures B-11 and B-12.
- 09** Wild river corridors are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).

## 2b Eligible Wild and Scenic Rivers

Twenty-four rivers on the Forest, totaling about 284 miles of rivers within NFS lands, have been identified as eligible wild and scenic rivers (table 26). These rivers have the potential to be designated as wild and scenic rivers through legislation. For more information about rivers identified as eligible for inclusion in the National Wild and Scenic River System, refer to appendix 5 of the final EIS.

**Table 26. Eligible wild and scenic rivers**

River	Segment	Preliminary Classification	Outstandingly Remarkable Values	Length (miles)	Acres <sup>a</sup>
Aeneas	Headwaters to Hungry Horse Reservoir	Scenic	History, prehistory, recreation, scenery	5	1,770

River	Segment	Preliminary Classification	Outstandingly Remarkable Values	Length (miles)	Acres <sup>a</sup>
Big Salmon	Lena Lake to South Fork of the Flathead; includes Big Salmon Lake	Wild	Recreation, geology, fish, prehistory	19	4,727
Clack	Headwaters to Middle Fork of the Flathead River	Wild	Geology, scenery	8	2,021
Danaher	Headwaters to Youngs Creek	Wild	Scenery, recreation, fish, wildlife, history, prehistory, botany, natural area	23	6,042
Elk	Headwaters to Forest boundary	Scenic	Fish	10	2,636
Gateway	Headwaters to Strawberry Creek	Wild	Scenery, geology, history	5	1,745
Glacier	Headwaters to outlet of Glacier Slough	Wild segment: within Mission Mountains Wilderness; Scenic segment: wilderness boundary to outlet of Glacier Slough	Geology, wildlife, scenery	6	1,774
Graves	Headwaters to Hungry Horse Reservoir	Wild segment: within Jewel Basin hiking area; Scenic segment: from boundary of Jewel Basin Hiking Area to Hungry Horse Reservoir	Prehistory	10	2,467
Le Beau	Headwaters to Le Beau Research Natural Area boundary	Wild	Scenery, geology, natural area	4	1,325
Lion	Headwaters to Lion Creek Trailhead	Scenic	Wildlife	11	3,315
Little Salmon	Headwaters to South Fork of the Flathead River	Wild	Scenery, fish, prehistory	19	5,513
Logan	From NFS Road 539 to Tally Lake	Recreational	Scenery, recreation	4	1,274
Schafer	Headwaters to Middle Fork of the Flathead River	Wild	Prehistory, history	11	2,947
Spotted Bear	Headwaters to South Fork of the Flathead River	Wild segment: headwaters to end of Blue Lake; Recreational segment: Blue Lake to South Fork of the Flathead	Recreation, wildlife, geology	35	10,261
Strawberry	Headwaters to Middle Fork of the Flathead River	Wild	Fish	14	3,869
Swan, lower	Swan River State Forest to Swan Lake <sup>b</sup>	Recreational	Wildlife	11	1,432
Swan, upper	Headwaters to confluence with Lindbergh Lake	Wild	Recreation	2	837

River	Segment	Preliminary Classification	Outstandingly Remarkable Values	Length (miles)	Acres <sup>a</sup>
Twin (also known as Upper Twin)	Nanny Creek to confluence with South Fork of the Flathead	Wild segment: From Nanny Creek to confluence with North Creek; Recreational segment: North Creek to confluence with South Fork of the Flathead	Geology, scenery	6	1,766
Whale	Headwaters to USFS boundary	Scenic segment: Headwaters to confluence to Shorty Creek; Recreational segment: Shorty Creek to USFS boundary	Wildlife, fish	21	6,263
White	Entire segment	Wild	Geology, fish, history, prehistory, scenery	24	6,964
Nokio	Nokio Creek along NFS Road 114 to confluence with Yakinikak Creek;	Scenic	Prehistory	3	672
Yakinikak	Yakinikak Creek to confluence with Thoma Creek (stream becomes Trail Creek);	Scenic	Prehistory	8	2,319
Trail (North Fork)	Trail Creek to USFS boundary	Scenic	Fish, prehistory, geology, wildlife	2	1,475
Youngs	Headwaters to South Fork of Flathead	Wild	Fish, recreation, prehistory, history, scenery	23	6,462

a. There are 47,680 acres of management area 2b within management area 1a, 10,395 acres in management area 1b, and 1,325 acres in management area 4a.

b. Plan direction for management area 2b is only for NFS lands. About 6 miles of this segment is on the Swan River State Forest, which is non-NFS and land and therefore the plan direction does not apply.

## Desired conditions (MA2b-DC)

- 01 The free-flowing character of eligible wild and scenic rivers is maintained.
- 02 Outstandingly remarkable values of eligible wild and scenic rivers are protected.
- 03 Eligible wild river segments are free of impoundments and generally inaccessible except by trail, with watersheds and/or shorelines essentially primitive and waters unpolluted.
- 04 Eligible scenic river segments are free of impoundments, with watersheds and/or shorelines still largely primitive and undeveloped but accessible in places by roads.
- 05 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 (MA2b-SUIT)

- 01 Eligible wild river segments are not suitable for timber production; timber harvest is not allowed.
- 02 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.



- 03** Eligible scenic and recreational river segments are suitable for commercial and non-commercial (personal) use of non-timber forest products.
- 04** Eligible scenic and recreational river segments are suitable for commercial communications sites or utility corridors.
- 05** Eligible wild river classification segments outside of designated wilderness and Jewel Basin hiking area (are suitable for mechanized transport).
- 06** Eligible scenic and recreational river classification segments are suitable for wheeled motorized travel consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas.
- 07** Suitability for motorized over-snow vehicle use is mapped in figures B-11 and B-12.
- 08** Eligible wild river corridors are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).
- 09** Eligible scenic and recreational rivers are suitable for mineral material disposal if the values for which the river may be included in the National Wild and Scenic Rivers System are protected.

## 3a and 3b: Administrative and Special Areas

### 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 and 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 of NFS lands.

### 3a Administrative areas

Administrative areas are facilities and infrastructure, typically buildings and their appurtenances, necessary to support the employees, equipment, and activities necessary for the administration and management of the national forests. Refer to table 27 for administrative sites on the Forest.

**Table 27. Administrative sites on the Forest**

<b>Geographic Area</b>	<b>Site Name</b>	<b>Type of Area</b>	<b>Acres<sup>a</sup></b>
Hungry Horse	Hungry Horse Ranger Station*	Ranger Station	202
South Fork	Spotted Bear Ranger Station*	Ranger Station	148
Swan Valley	Old Condon Ranger Station (historical)	Ranger Station	13
Salish Mountains	Swan Lake Ranger Station*	Ranger Station	13
North Fork	Big Creek Environmental Education Center	Work Center	12
Hungry Horse	Coram	Work Center	355
Hungry Horse	Betty Creek (historical)	Work Center	7
Middle Fork	Fielding (historical)	Work Center	14
Middle Fork	Schafer Meadows	Work Center	7
South Fork	Big Prairie	Work Center	70
Swan Valley	Condon*	Work Center	10

<b>Geographic Area</b>	<b>Site Name</b>	<b>Type of Area</b>	<b>Acres<sup>a</sup></b>
Salish Mountains	Tally Lake (historical)	Work Center	13
North Fork	Nasukoin Lake (historical)	Guard Station	<1
North Fork	Ninko	Guard Station	1
North Fork	Whale Lake (historical)	Guard Station	<1
Hungry Horse	Crevice Cabin	Guard Station	<1
Middle Fork	Challenge Cabin	Guard Station	3
Middle Fork	Gooseberry Park	Guard Station	2
Middle Fork	Granite Creek	Guard Station	1
Middle Fork	Sabido	Guard Station	1
Middle Fork	Spruce Park	Guard Station	2
South Fork	Basin	Guard Station	4
South Fork	Black Bear	Guard Station	2
South Fork	Danaher	Guard Station	1
South Fork	Hahn	Guard Station	2
South Fork	Pendant	Guard Station	1
South Fork	Pentagon	Guard Station	1
South Fork	Salmon Forks	Guard Station	45
South Fork	Shaw	Guard Station	2
Swan Valley	Elbow (historical)	Guard Station	<1
Swan Valley	Swan Lake	Guard Station	<1
Swan Valley	Trinkus Cabin	Guard Station	<1
Swan Valley	Upper Holland Lake	Guard Station	1
Salish Mountains	Star Meadows	Guard Station	4
North Fork	Coal Ridge (historical)	Fire Lookout	1
North Fork	Cyclone (communications site as well)	Fire Lookout	4
North Fork	Thoma (communications site as well)	Fire Lookout	5
Hungry Horse	Baptiste (communications site as well)	Fire Lookout	3
Hungry Horse	Firefighter (communications site as well)	Fire Lookout	8
Middle Fork	Red Plume Mountain (historical)	Fire Lookout	<1
South Fork	Jumbo Mountain (communications site as well)	Fire Lookout	<1
South Fork	Limestone	Fire Lookout	<1
South Fork	Mud Lake Mountain (communications site as well)	Fire Lookout	<1
South Fork	Spotted Bear (communications site as well)	Fire Lookout	2
Swan Valley	Cooney	Fire Lookout	1
Swan Valley	Holland	Fire Lookout	<1
Middle Fork	Schafer Meadows	Fire Lookout	33
South Fork	Meadow Creek	Fire Lookout	32
South Fork	Spotted Bear	Fire Lookout	37
Swan Valley	Condon	Fire Lookout	28

<b>Geographic Area</b>	<b>Site Name</b>	<b>Type of Area</b>	<b>Acres<sup>a</sup></b>
Hungry Horse	Desert Mountain	Commercial Communication Site	10
Middle Fork	Middle Fork Corridor	Commercial Communication Site	2
Salish Mountains	Big Mountain	Commercial Communication Site	3
Salish Mountains	Blacktail Mountain	Commercial Communication Site	30
Swan Valley	Mount Aeneas	Commercial Communication Site	6
North Fork	Cyclone Peak	FS Admin. Communication Site	<1
North Fork	Mount Hefty	FS Admin. Communication Site	<1
North Fork	Werner Peak	FS Admin. Communication Site	<1
Hungry Horse	Mount Baptiste	FS Admin. Communication Site	<1
Middle Fork	Patrol Ridge	FS Admin. Communication Site	<1
South Fork	Stony Hill	FS Admin. Communication Site	<1
Swan Valley	Elbow	FS Admin. Communication Site	1
Swan Valley	Napa	FS Admin. Communication Site	1
Salish Mountains	Ashley Mountain	FS Admin. Communication Site	<1
Salish Mountains	Kerr Mountain	FS Admin. Communication Site	1
North Fork	Elelehum Test Plantation	Silvicultural Site	12
North Fork	Mud Lake Test Plantation	Silvicultural Site	14
Hungry Horse	Firefighter Test Plantation	Silvicultural Site	8
Swan Valley	Cold Ridge Test Plantation	Silvicultural Site	27
Swan Valley	Condon Test Plantation	Silvicultural Site	78
Swan Valley	Weed Hill Test Plantation	Silvicultural Site	7
Salish Mountains	Bigfork Tree Improvement*	Silvicultural Site	92
Salish Mountains	Plume Creek Test Plantation	Silvicultural Site	18
North Fork	China Basin (historical)	Miscellaneous	<1
North Fork	Coal Ridge Cabin (historical)	Miscellaneous	1
North Fork	Funk Schoolhouse	Miscellaneous	<1
North Fork	Kintla Ranch	Miscellaneous	3
North Fork	Moose Creek Cabin (historical)	Miscellaneous	<1
South Fork	East-Side Cable Car over South Fork (USGS permitted)	Miscellaneous	<1
South Fork	Upper Big Bill administrative trailhead	Miscellaneous	1
South Fork	West-Side Cable Car over South Fork (USGS permitted)	Miscellaneous	<1
Swan Valley	Jewel Basin Camp Misery cabin	Miscellaneous	<1
Swan Valley	Owl Creek Packer Barn	Miscellaneous	<1
Hungry Horse	2 sites	Snowtel and snow-monitoring sites <sup>b</sup>	<1

<b>Geographic Area</b>	<b>Site Name</b>	<b>Type of Area</b>	<b>Acres<sup>a</sup></b>
Middle Fork	1 site	Snowtel and snow-monitoring sites <sup>b</sup>	<1
South Fork	2 sites	Snowtel and snow-monitoring sites <sup>b</sup>	1
Swan Valley	5 sites	Snowtel and snow-monitoring sites <sup>b</sup>	<1
Salish Mountains	7 sites	Snowtel and snow-monitoring sites <sup>b</sup>	1
North Fork	12 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	27
Hungry Horse	14 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	35
Middle Fork	4 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	11
South Fork	3 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	14
Swan Valley	13 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	43
Salish Mountains	33 sites	Gravel pits, quarries, borrow sources <sup>b</sup>	68

\* Site is mapped in the GIS dataset.

a. Total acres are more than in the GIS dataset, in which only the sites marked with an asterisk are mapped.

b. Summarized; not listed individually.

Note. The term “historical” refers to sites that are no longer used by the Forest for administrative purposes.

## Desired conditions (MA3a-Admin-DC)

- 01 Administrative sites serve land management needs and purposes of the Forest in a sustainable, economical, and cost-effective manner.

## Objectives (MA3a-Admin-OBJ)

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

## Suitability (MA3a-Admin-SUIT)

- 01 Administrative sites are not suitable for timber production, but timber harvest to achieve desired vegetation conditions and other multiple-use purposes could occur.
- 02 Administrative sites are not suitable for commercial use of non-timber forest products.
- 03 Administrative sites are suitable for wheeled motorized travel on designated routes and areas unless otherwise restricted.
- 04 Suitability for motorized over-snow vehicle use is mapped in figures B-11 and B-12.

## 3b Special Areas

Fourteen special areas totaling 3,033 acres are designated on the Forest. Table 28 lists these special areas and their primary features, with fens being listed alphabetically first. All special areas are designated based on their special botanical features, with associated hydrologic or geological features in some areas. The boundary of the fen special areas includes a 300-foot buffer (riparian management zone) surrounding each fen. See figures B-27 to B-28 for maps of these areas.

**Table 28. Special areas**

<b>Name</b>	<b>Geographic Area</b>	<b>Special character and features</b>	<b>Acres<sup>a</sup></b>
Bent Flat Fen	South Fork	A unique, extremely rich fen with well-developed patterning, extensive marl deposits, and a large number of rare plants that are restricted to calcareous habitats. The Trail Creek Fire in August of 2015 burned the forest surrounding and immediately adjacent to the fen.	44
Condon Creek Botanical Area	Swan Valley	Concentration of pond habitats occupied by water howellia, a federally threatened plant species. Associated with upland mixed conifer forest featuring several groves of mature ponderosa pine as well as western larch and Douglas-fir.	226
Gregg Creek Fen	Salish Mountains	Features peatland, wet forest, and shrub communities within an undisturbed portion of the Gregg Creek watershed. Rare plants present.	33
Lost Creek Fens	Swan Valley	Contain two distinctly different types of fens separated by a patch of moist coniferous forest. The northern fen is at the toe of a slope. An upwelling spring supplies water to a thick accumulation of peat that slopes gently to the south. The southern fen has two shallow potholes filled with peat and alluvium. The water table fluctuates seasonally; drawdown in the fall hastens peat decomposition and minimizes peat accumulation. A number of rare plant species are present at both sites.	36
Meadow Lake Fen	Swan Valley	One of the few places on the Forest that has a floating organic mat. Rare plants present. Loons and bog lemmings have also been observed at this lake.	62
Porcupine Fens	Swan Valley	Features two fens that are part of a larger complex of fens. Porcupine Fen is at the toe of a slope from which several springs emerge. This constant supply of mineral-rich water has favored the accumulation of organic matter. The site supports diverse flora. The site is largely ringed by wet to moist spruce forests except on a portion of the west margin, where a harvested area upslope of the fen extends down nearly to the fen. The site is an excellent example of a flow-through fen. A number of rare plants occur.	145
Sanko Creek Fen North	Salish Mountains	Features two wetland areas. One is a small pond, up to 4 meters deep and surrounded by a floating to anchored organic mat and a wet meadow. The other wetland is a north-south-oriented fen. The fen is surrounded by moist spruce forest. The fen has a series of broad, gently sloping terraces with interspersed water tracks and upwelling pools of water. Western larch is common on adjacent uplands. Rare plant species have been observed at the site.	49
Sanko Creek Fen South	Salish Mountains	Oriented east-west along the base of a slope. A number of seeps and springs emerge from the toe of this slope and maintain wet conditions in the peatland. One rare plant species has been observed here, as well as a possible bog lemming.	23
Trail Creek Fen	South Fork	A relatively large, highly calcareous peatland. The site contains three abandoned beaver dams and ponds and a well-developed peatland on the upper easternmost portion of the wetland. Several rare plants occupy this relatively large, well-developed peatland.	98
Trout Lake Fen	Hungry Horse	Trout Lake is an excellent example of an organic mat (floating and anchored) surrounding a deep pond. A sedge meadow lies southwest of the pond. Several species of sphagnum moss form a nearly continuous carpet adjacent to the pond. Rare plant species have been observed in the peat mat. The site is easily accessible by motor vehicle and supports a handicapped-accessible fishing dock. Most of the organic mat, however, is undisturbed by human use.	34
Windfall Creek Fen	Swan Valley	Occupies a basin formed by glacial scouring. Rare plant species have been observed here.	31

Name	Geographic Area	Special character and features	Acres <sup>a</sup>
Glacier Slough	Swan Valley	One of the largest wetlands in the Swan Valley, with a diversity of wetland- and riparian-associated plant and animal species and adjacent forests of mixed conifer species.	1,690
Johnson Terrace	Salish Mountains	Includes a mossy forb meadow on shallow residual soils over a Precambrian 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. In addition to botanical features, contains geologic/topographic features that harbor a diversity of plants unique to this Forest.	331
Fatty Creek Cedars	Swan Valley	Moist, riparian-associated western red cedar forest type supporting stands dominated by very large, old cedar trees and associated unique assemblages of understory plants. Provides aesthetic values associated with "ancient" cedar groves. Groves such as this are relatively rare on the Forest due to the limited area with suitable site conditions for their development, past fire disturbance, and removal through previous logging or development activities.	261
Total Acres			3,063

a. The GIS dataset for management areas only has the Condon Creek Botanical Area, Glacier Slough, Johnson Terrace, and Fatty Creek Cedars areas mapped, and therefore the acres differ from those given in this table.

### Desired conditions (MA3b-Special Area-DC)

- 01 Special areas are in a substantially natural condition, in which ecosystems primarily reflect the influence of natural processes and 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.
- 04 In the Condon Creek Botanical Area, habitat conditions support sustainable and healthy populations of water howellia. 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.

### Suitability in special areas (MA3b-Special Area-SUIT)

- 01 Special areas are not suitable for timber production. Vegetation management activities (such as prescribed fire) may be allowed if specifically designed to restore or enhance the terrestrial or aquatic resources associated with the special area.
- 02 Special areas are not suitable for commercial use of non-timber forest products.
- 03 Special areas are not suitable for construction of new wheeled motorized trails and areas or associated structures. Existing trails that access these areas are suitable.
- 04 Suitability for motorized over-snow vehicle use is mapped in figure B-11.
- 05 Special areas are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).

## 4a and 4b: Designated Research Natural Areas, Experimental Forest, and Demonstration Forest

### Introduction

The Forest has six research natural areas, one experimental forest, and one demonstration forest. Research natural areas are permanently established to maintain representative areas of natural ecosystems and areas of special ecological significance. The Coram Experimental Forest was established to study the ecology and silviculture of western larch in a mix with other commonly associated species. The Miller Creek Demonstration Forest was established to study the effects of prescribed fire and silvicultural treatments on regeneration and other forest conditions.

### 4a Designated Research Natural Areas

#### Description

The Forest has six designated research natural areas, listed in table 29. The research natural areas 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 research natural area has its own establishment record<sup>27</sup> that contains detailed location maps, information on distinguishing features, and the purpose for which the research natural area was established. The research natural areas are cooperatively managed with the Rocky Mountain Research Station.

**Table 29. Existing research natural areas**

Research Natural Area	Location/Ranger District (RD)	Key Features	Date established	Official acres <sup>a</sup>	GIS acres <sup>b</sup>
Coram	Within the Coram Experimental Forest/ Hungry Horse-Glacier View RD	Forests of late-successional/old-growth forests composed of western larch and interior Douglas-fir stands.	1988	839	876
East Shore	Crane Mountain area, facing into Flathead Lake above Woods Bay/Swan Lake RD	Transition vegetation types ranging from aquatic and moist sites to dry sites within the Douglas-fir, grand fir, and western red cedar habitat type series.	1991	646	654
Le Beau	Within Le Beau Creek in the Stillwater River drainage/Tally Lake RD	High diversity of vegetation types and geologic landforms. Western red cedar, western hemlock, grand fir, larch, and herbaceous plant communities on glacier-formed rocky land, lake, ponds, and wetlands.	1997	5,709	5,397

<sup>27</sup> Establishment records are located at the forest supervisor's office.

Research Natural Area	Location/Ranger District (RD)	Key Features	Date established	Official acres <sup>a</sup>	GIS acres <sup>b</sup>
Little Bitterroot	Southwest of Marion along the Little Bitterroot River in the "Island Unit"/Swan Lake RD	Lies within a narrow, steep-walled canyon with two narrow lakes at the base of the cliffs. Below the lakes are shrub-dominated riparian areas. Dry site Douglas-fir forests dominate, representing all four phases of the dry Douglas-fir/pinegrass habitat type.	1991	200	202
Swan River	Along the Swan River south of Swan Lake, Porcupine Creek area/Swan Lake RD	Contains upland forests dominated by old western larch as well as mature western red cedar, grand fir, western white pine, and Douglas-fir. Contains wetland and riparian plant communities dominated by western red cedar, spruce, black cottonwood, and various shrub and herbaceous species. Wet meadows, bogs, peatlands, river edges, and beaver ponds present.	1997	682	692
Tuchuck	Within Tuchuck Creek, a tributary of Trail Creek that flows into the North Fork of the Flathead River just south of the Canadian border/Hungry Horse-Glacier View RD	Upper-elevation and alpine vegetation types; avalanche chutes and open areas dominated by shrubs and herbaceous species; wet meadows and talus slopes. Extensive stands of whitebark pine as well as alpine larch.	1991	2,062	2,050
TOTAL ACRES				10,138	9,871 <sup>b</sup>

a. Acres from the establishment record (the official research natural area acreage).

b. Acres from the Forest's GIS datasets are presented in this table.

## Desired conditions (MA4a-DC)

- 01 Research natural area lands generally appear natural. Ecological processes such as plant succession and fire, insect, and disease activity function with limited human influences.
- 02 Research natural areas serve as areas for the observation and study of relatively undisturbed ecosystems and ecological processes, including succession, and as baseline areas for measuring ecological change due to disturbances or stressors such as climate change.
- 03 The ecological features and values for which each research natural area was established are protected and managed in accordance with its establishment record, with any management plans established for the individual research natural area, and in consultation with Rocky Mountain Research Station.

## Suitability (MA4a-SUIT)

- 01 Research natural areas are not suitable for timber production. Timber harvest (outside of designated and recommended wilderness) and other vegetation management (such as prescribed fire) may be allowed for study and research purposes and in situations where the values for which the research natural area was designated would be degraded or lost without management.
- 02 Research natural areas outside of designated and recommended wilderness are suitable for nonmotorized travel, with wheeled motorized travel suitable on designated routes consistent with



desired recreation opportunity spectrum settings as mapped to meet administrative, research, and educational objectives.

- 03 Suitability for motorized over-snow vehicle use is mapped in figure B-11.
- 04 Research natural areas are not suitable for removal of salable mineral material (includes sand, stone, gravel, cinders, clay, pumice, and pumicite).

## 4b Experimental Forest and Demonstration Forest

### Coram Experimental Forest

#### Description

The approximately 7,500-acre Coram Experimental Forest was established in 1933 to study the ecology and silviculture of western larch in a mix with other commonly associated species. The Rocky Mountain Research Station is responsible for all research and usage activities on the Coram Experimental Forest. The Flathead National Forest is responsible for all non-research-based general management activities that occur on the Coram Experimental Forest. A letter of agreement between the Rocky Mountain Research Station and the Flathead National Forest contains an operating plan and fire management plan that further clarifies the responsibilities of each party and the protocol for coordination of activities on the Coram Experimental Forest.<sup>28</sup>

The Coram Research Natural Area is located within the Coram Experimental Forest. More information about the Coram Research Natural Area is located in the Description section under 4a Research Natural Areas above.

#### Desired conditions (MA4b-CEF-DC)

- 01 The Coram Experimental Forest serves as a demonstration and study area for researchers, educators, forest managers, and the public. It provides areas that can be used for new administrative or research studies to help answer current and future management questions as well as areas that can be used for educational activities and demonstrations.
- 02 Remeasurement and evaluation of long-term studies continue, as well as the collection of baseline hydrology, climate, and other resource information.
- 03 Research facilities and infrastructure (e.g., office building, weather stations, roads and trails, and signs) are sufficient to support the research and education programs of the Coram Experimental Forest.

#### Guidelines (MA4b-CEF-GDL)

- 01 Fires should be suppressed in the Coram Experimental Forest.

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<sup>28</sup> USDA (2016), Letter of agreement between the USDA Forest Service Rocky Mountain Research Station and the Flathead National Forest: Coram Experimental Forest, Kalispell, MT: USDA Forest Service, Flathead National Forest, planning record exhibit # 00563.

## Suitability for the Coram Experimental Forest (MA4b-CEF-SUIT)

- 01 The Coram Experimental Forest is not suitable for timber production; however, timber harvesting for salvage logging, for research purposes, and to achieve desired vegetation conditions could occur, as mutually agreed upon between the Rocky Mountain Research Station and the Forest.
- 02 The Coram Experimental Forest is not suitable for the removal of non-forest products for commercial use.
- 03 The Coram Experimental Forest is not suitable for the removal of the following non-forest products for personal use: firewood, Christmas trees, boughs, and surface rock. It is suitable for the removal of other non-forest products for personal use (e.g., huckleberries, mushrooms).
- 04 The Coram Experimental Forest is not suitable for livestock grazing.
- 05 The Coram Experimental Forest is suitable for wheeled motorized and mechanized transport on designated roads and trails.
- 06 Suitability for motorized over-snow vehicle use is mapped in figure B-11.

## Miller Creek Demonstration Forest

### Description

The approximately 4,900-acre Miller Creek Demonstration Forest was set aside in 1989 by the Flathead National Forest, and its management is the responsibility of the Forest. A memorandum of understanding between the Rocky Mountain Research Station and the Flathead National Forest clarifies the role of the two agencies regarding activities within the demonstration forest.<sup>29</sup> Research in this area began 23 years earlier, in 1966, to study the effects of prescribed fire and silvicultural treatments on regeneration and other conditions within the mixed conifer forests typical of the area. The Miller Creek Demonstration Forest was established to encourage continuing research and to recognize the value of the area for educational and demonstration purposes.

The Miller Creek Demonstration Forest is a multiple-use area and will have regularly scheduled timber harvest and active vegetation management practices (e.g., timber harvest, thinning, planting, prescribed burning) and will provide ecosystem services and a diversity of recreation opportunities. The expected intensity of vegetation management is similar to management area 6c.

### Desired conditions (MA4b-MCDF-DC)

- 01 The Miller Creek Demonstration Forest 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.
- 03 Facilities are provided that adequately support the study and education programs of the Miller Creek Demonstration Forest.

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<sup>29</sup> USDA (1989), Memorandum of understanding between the Intermountain Research Station and the Flathead National Forest [re: Miller Creek Demonstration Forest], Kalispell, MT: USDA Forest Service, Flathead National Forest and USDA Intermountain Research Station, planning record exhibit # 00628.

## Suitability for the Miller Creek Demonstration Forest (MA4b-MCDF-SUIT)

- 01** The Miller Creek Demonstration Forest is suitable for timber production.
- 02** The Miller Creek Demonstration Forest is suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- 03** The Miller Creek Demonstration Forest is suitable for wheeled motorized travel on designated roads and trails.
- 04** Suitability for motorized over-snow vehicle use is mapped in figure B-11.

## 5a through 5d: Backcountry

### Introduction

The backcountry 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 nonmotorized recreation opportunities. Trails are the primary improvements constructed and maintained for recreational users. In some areas, fire lookouts, cabins, or other structures are present as well as some evidence of management activities. There are four different backcountry management areas, which are shown in table 30.

**Table 30. Acres of backcountry management areas (MAs) and description of motorized use**

Backcountry MA	Motorized Use	Acres
5a	Nonmotorized year-round	149,528
5b	Motorized year-round (motorized vehicle use only on designated roads, trails, and areas)	50,002
5c	Motorized over-snow vehicle opportunities (on designated routes and areas)	107,656
5d	Motorized wheeled vehicle use on designated roads, trails, and areas from April 1 to November 30	99,854

### Desired conditions (MA5-DC)

- 01** Backcountry areas provide for less developed, semiprimitive recreation opportunities with motorized travel as described in each backcountry management area.
- 02** Fire and other natural ecological processes play a major role in influencing vegetation conditions, with a 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 for management area 5 (MA5-SUIT)

- 01** None of the backcountry areas (management areas 5a through 5d) are 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.
- 02** In all backcountry areas (management areas 5a through 5d), mechanized transport (e.g., mountain bicycles) are suitable, including mechanized transport that is configured to ride on snow (e.g., has large tires).
- 03** Management area 5a is not suitable for motorized travel.

- 04** Management area 5b is suitable for motorized travel consistent with desired recreation opportunity spectrum settings as mapped and only on designated roads, trails, and areas.
- 05** Management area 5c is not suitable for wheeled motorized travel.
- 06** Management area 5d is suitable for wheeled motorized travel from April 1 to November 30 consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas
- 07** Suitability for motorized over-snow vehicle use is mapped in figure B-11.

## Management Area 6: General Forest

These general forest areas provide a wide range of multiple uses, including habitat for wildlife, commercial and non-commercial forest products, and nonmotorized and motorized recreation opportunities. Active vegetation management (such as prescribed burning, thinning, and timber harvest) and other activities would occur to achieve desired vegetation and wildlife habitat conditions.

Management area 6 is divided into three designations: 6a, 6b, and 6c. These designations display different levels of anticipated timber harvest intensity at the landscape scale, i.e., across the management area designation as a whole. Treatment prescriptions and timber volume removed at the stand level would not necessarily differ between management areas 6a, 6b, and 6c, but timber outputs across the management area are expected to differ because of various resource considerations that affect the amount of acres and/or rate of harvest over time. Analysis at the project level will determine the appropriate management intensity within a particular general forest area, based on project-level objectives and site-specific conditions.

Acres within each management area 6 designation are displayed in table 31.

**Table 31. Acres of general forest management areas**

<b>General Forest management area</b>	<b>Acres</b>
6a Low-intensity vegetation management	123,693
6b Medium-intensity vegetation management	297,674
6c High-intensity vegetation management	271,895

## 6a General Forest Low-Intensity Vegetation Management

### Description

A low intensity of timber harvest is expected in management area 6a, and regularly scheduled timber harvest would not occur (it is unsuitable for timber production). Management area 6a is located in areas with a higher level of other resource considerations or site limitations that would restrict active vegetation management compared to management area 6b or management area 6c. For example, management area 6a may be within grizzly bear secure core, within high-use white-tailed deer winter habitat, in important wildlife habitat connectivity areas, in areas of low site productivity, in areas with especially high scenic values, and/or within inventoried roadless areas. In combination, these and other factors are expected to considerably limit the regularity, rate, and amount of timber harvest over time and space. Costs associated with timber harvest and other active vegetation management may be higher, including greater restrictions on road management and access.

### **Desired conditions (MA6a-DC)**

- 01 Vegetation management activities (including timber harvest, thinning, and prescribed fire) have a role in affecting the composition, structure, and pattern of vegetation and maintaining or trending vegetation and wildlife habitat towards the desired conditions. Natural disturbances, such as unplanned fire, insects, and disease, may be present on the landscape, though influencing vegetation conditions to a lesser degree than vegetation management activities.
- 02 There are opportunities for both motorized and nonmotorized recreation opportunities, with some areas restricted by yearlong or seasonal closures to protect big game security and winter habitat, grizzly bear secure core, and/or wildlife habitat connectivity.

### **Suitability (MA6a-SUIT)**

- 01 These areas are not suitable for timber production; however, timber harvest to achieve desired vegetation conditions and other multiple-use purposes could occur.
- 02 These areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- 03 These areas are suitable for wheeled motorized travel consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas.
- 04 Suitability for motorized over-snow vehicle use is mapped in figure B-11.

## **6b General Forest Medium-Intensity Vegetation Management**

### **Description**

A medium intensity of timber harvest is expected to occur in management area 6b, and these areas will have regularly scheduled timber harvest (suitable for timber production). Management area 6b is located in areas where other resource considerations or site limitations are expected to restrict active vegetation management to a lesser degree than in management area 6a but more than in management area 6c. For example, management area 6b includes areas within the primary conservation area for grizzly bear, within white-tailed deer winter habitat, and/or within important wildlife habitat connectivity areas. In combination, these and other factors would limit the rate and amount of timber harvest over time and space. There may be increased costs associated with timber harvest and other vegetation management activities, as well as road management and access restrictions, in comparison to management area 6c areas.

### **Desired conditions (MA6b-DC)**

- 01 Vegetation management activities (including timber harvest, thinning, and prescribed fire) have a dominant role in affecting the composition, structure, and pattern of vegetation and maintaining or trending vegetation and wildlife habitat towards the desired conditions. Natural disturbances, such as unplanned fire, insects, or disease, have a minor influence on vegetation conditions.
- 02 There are opportunities for both motorized and nonmotorized recreation, with some areas restricted by yearlong or seasonal closures to protect big game security and winter habitat, grizzly bear secure core, and/or wildlife habitat connectivity.

### **Suitability (MA6b-SUIT)**

- 01 These areas are suitable for timber production.

- 02 These areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- 03 These areas are suitable for wheeled motorized travel consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas.
- 04 Suitability for motorized over-snow vehicle use is mapped in figure B-11.
- 05 These areas are suitable for new airstrip development in desired recreation opportunity spectrum classes semiprimitive motorized and roaded natural.

## 6c General Forest High-Intensity Vegetation Management

### Description

A higher intensity of timber harvest is expected to occur in management area 6c compared to management area 6a or management area 6b, and these areas will have regularly scheduled timber harvest (suitable for timber production). Management area 6c is located in areas where other resource considerations or site limitations are expected to restrict active vegetation treatments to a lesser degree than either 6a or 6b. For example, management area 6c may include areas located outside the NCDE primary conservation area for grizzly bear and/or within wildland-urban interface areas. In comparison to management areas 6a and 6b, the rate and amount of timber harvest over time and space would be less limited, as would road management flexibility and access. Outside the NCDE primary conservation area for grizzly bear, new road construction would facilitate timber harvest where needed and where consistent with desired conditions for other resources.

### Desired conditions (MA6c-DC)

- 01 Vegetation management activities (including timber harvest, thinning, and prescribed fire) have a dominant role in affecting the composition, structure, and pattern of vegetation and maintaining or trending vegetation and wildlife habitat towards the desired conditions. Natural disturbances, such as unplanned fire, insects, or disease, have a minor influence on vegetation conditions.
- 02 Motorized and nonmotorized recreation opportunities are readily available, with some areas restricted by yearlong or seasonal closures to protect and maintain big game security and winter habitat, wildlife security, or habitat connectivity.

### Suitability (MA6c-SUIT)

- 01 These areas are suitable for scheduled timber production.
- 02 These areas are suitable for salvage logging and the removal of non-timber products for commercial or personal use.
- 03 These areas are suitable for wheeled motorized travel consistent with desired recreation opportunity spectrum settings as mapped and on designated roads, trails, and areas.
- 04 Suitability for motorized over-snow vehicle use is mapped in figure B-11.
- 05 These areas are suitable for new airstrip development in desired recreation opportunity spectrum classes semiprimitive motorized and roaded natural.

## Management Area 7: Focused Recreation Area

### Introduction

Focused recreation areas typically feature certain types of recreation activities that take place near or at a large lake or reservoir, developed ski area or year-round resort, large campground, or trail system. Recreational use is already occurring in many of these areas, but in some cases the use would be enhanced through an emphasis on trail, road, and facility maintenance; increased visitor contact, education, and/or the development of additional recreation opportunities such as mountain bike trails, hiking trails, or boat ramps. These areas would accommodate existing as well as additional recreation growth and are intended to benefit local economies by having robust recreation settings that are responsive to changing conditions and changing use patterns and demands. This management area provides a focal point for not only existing recreation but also for new and/or enhanced recreation activities.

Focused recreation areas recognize a variety of sustainable recreation settings and opportunities throughout the year on the forest. This management area provides a wide variety of recreation opportunities, including motorized and nonmotorized uses. Opportunities for solitude and a primitive experience may be limited near roads or trails due to frequent contact with other users. Additional motorized and nonmotorized recreation opportunities not specifically designated as management area 7 are also broadly available across the Forest, such as hiking, mountain biking, and over-snow motorized uses. The suitability of some of these additional recreation opportunities is identified in the management area descriptions and displayed on associated motorized over-snow vehicle use, motor vehicle use, and district maps.

Focused recreation areas are listed in table 32 and are depicted in figures B-31 and B-32. Management direction pertinent to all management area 7 areas is included in this section. Specific management direction for each focused recreation area is provided under its associated geographic area section.

**Table 32. Focused recreation areas**

<b>Focused Recreation Area</b>	<b>Geographic Area<sup>a</sup></b>	<b>Featured Activities</b>	<b>acres</b>
Ashley Lake (two sites: north side 93 acres, south side 10 acres)	Salish Mountains	Developed recreation, including camping, fishing, and boating	103
Big Creek Campground and Work Station	North Fork	Developed recreation, including camping, boating, fishing, and hiking; youth conservation education	57
Big Mountain (includes Whitefish Mountain Resort)	North Fork and Salish Mountains	Downhill skiing, cross-country skiing, hiking, mountain biking, conservation education	4,111
Blacktail Mountain Ski Area	Salish Mountains	Downhill skiing, hiking, mountain biking,	911
Blacktail Wild Bill Trail System	Salish Mountains	Motorized trail-riding	4,966
Blacktail-Foy's	Salish Mountains	Hiking, mountain biking, horseback riding close to communities; includes Lakeside to Blacktail, and Foy's to Blacktail trails	1,027
Camp Misery Trailhead	Swan Valley	Access to Jewel Basin hiking area	330
Crystal-Cedar Area	North Fork	Dispersed nonmotorized recreation, hiking, mountain biking, horseback riding close to communities	13,395

Focused Recreation Area	Geographic Area <sup>a</sup>	Featured Activities	acres
Cedar Flats Off-Highway Vehicle Area	North Fork	Motorized trail-riding	2,008
Crane Mountain	Swan Valley	Mountain biking and dispersed recreation	1,023
Holland Lake Campground	Swan Valley	Developed recreation, including camping, boating, fishing, and hiking	593
Hungry Horse Off-Highway Vehicle Area	Hungry Horse	Motorized trail-riding opportunities	71
Hungry Horse Reservoir	Hungry Horse	Developed and dispersed recreation, including camping, boating, fishing, and hiking	13,113
Ingalls Mountain	Salish Mountains	Single-track wheeled motorized use on existing open roads	2,431
Krause Basin	Swan Valley	Nonmotorized trails and limited motorized trails on designated and signed routes	1,566
Lion Lake	Hungry Horse	Day-use picnic site, hiking, fishing, and swimming	99
Nordic groomed ski areas	Salish Mountains and Middle Fork	Groomed cross-country ski areas: Round Meadow, Essex, and Blacktail Mountain	3,906
Swan Lake Campground and day-use area	Swan Valley	Developed recreation, including camping, boating, fishing, and hiking	95
Tally Lake Campground	Salish Mountains	Developed recreation, including camping, boating, fishing, and hiking	159
Tally Mountain	Salish Mountains	Mountain bike loop trail opportunities	4,692
Werner-Nicola	North Fork and Salish Mountains	Dispersed nonmotorized recreation, hiking, mountain biking, horseback riding close to communities	6,392

a. See discussions of specific geographic areas in chapter 4 for additional management direction related to these focused recreation areas.

## Desired conditions (MA7-DC)

These desired conditions are applicable to all focused recreation areas.

- 01** Focused recreation areas provide sustainable recreational opportunities and settings that respond to increasing recreation demand. Local communities can readily access these areas for a variety of motorized and nonmotorized experiences.
- 02** These areas provide opportunities for large groups that may have high levels of social interaction as well as for competitive and non-competitive events.
- 03** Although natural ecological processes and disturbances may be present within this management area, vegetation management activities play a role in affecting the composition, structure, and pattern of vegetation across most of these focused recreation areas. These management activities maintain or trend the vegetation and wildlife habitat towards the desired conditions.



## Summary of Suitability within Management Areas and Inventoried Roadless Areas

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. If certain lands are identified as not suitable for a use, then that use or activity may not be authorized without a site-specific amendment to the forest plan. Prohibiting an existing or authorizing a new use requires subsequent site-specific National Environmental Policy Act analysis. Generally, the lands on the Forest are suitable for uses and management activities appropriate for national forests, such as outdoor recreation or timber, unless identified as not suitable.

Table 34 lists the management areas, and table 35 lists some of the suitable activities that may be allowed to move towards or maintain desired conditions displayed by management area and inventoried roadless areas (see figures B-25 and B-26). This list is not intended as a substitute for the actual desired conditions, standards, and guidelines found in each management area. It is intended as a summary and a reference for the reader to see what activities are generally allowed within different management areas. Please refer to the direction for each management area for specific direction. *Note: Planned activities may occur in areas that are not identified as suitable under the auspices of agency policy.*

Suitability for motorized and nonmotorized recreation may be determined at three levels: (1) the broad level for motorized suitability is done through management area descriptions that describe the general suitability of the management area, (2) the desired recreation opportunity spectrum settings (refer to table 33 and figures B-13 and B-14) describe desired summer wheeled motorized suitability and winter motorized over-snow vehicle use, and (3) the recreation opportunity spectrum can be further defined through site-specific decisions to show nonmotorized and motorized suitability.

Suitability for motorized recreation is defined for summer and winter use. For summer suitability of motorized use, refer to the management areas and desired summer recreation opportunity spectrum class allocations, figures B-13 to B-14, and table 33. For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle suitability maps, figure B-11.

**Table 33. Desired summer and winter recreation opportunity spectrum class suitability**

Class	Wheeled Motorized Suitability	Motorized Over-Snow Vehicle Use <sup>a</sup>
Primitive	N	N
Semiprimitive nonmotorized	N	N
Semiprimitive motorized	Y <sup>b</sup>	Y
Roaded natural	Y	Y
Rural	Y	Y
Urban	Y	Y

a. Suitability for motorized over-snow vehicle use has been further refined and is reflected in the over-snow vehicle suitability maps (figures B-11 and B-12).

b. The designation of an area as suitable for motorized use does not mean motorized use is allowable everywhere in that setting (semiprimitive motorized, roaded natural, rural, or urban).

**Table 34. Management areas**

Code	Management Area Categories	Code	Management Area Categories
1a	Designated wilderness	5a	Backcountry nonmotorized year-round
1b	Recommended wilderness	5b	Backcountry motorized year-round
2a	Designated wild and scenic rivers	5c	Backcountry motorized over-snow vehicle opportunities
2b	Eligible wild and scenic rivers	5d	Backcountry motorized wheeled vehicle use on designated roads, trails, and areas from April 1 to November 30
3a	Administrative areas	6a	General forest low-intensity vegetation management
3b	Special areas	6b	General forest medium-intensity vegetation management
4a	Research natural areas	6c	General forest high-intensity vegetation management
4b	Experimental and demonstration forests	7	Focused recreation areas

**Table 35. Suitability<sup>a</sup> of management areas and inventoried roadless areas for specific uses or activities**

Use or Activity	1a	1b	2a/2b Wild	2a/2b Scenic/Rec	3a/3b	4a	4b	5a	5b	5c	5d	6a	6b	6c	7	IRAs
Timber production (scheduled on rotation basis)	N	N	N	N	N	N	Y/N	N	N	N	N	N	Y	Y	Y/N	N
Timber harvest allowed	N	N	N	Y	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y/N
Commercial use—special forest products and firewood	N	Y	N	Y	N	N	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y/N
Personal use—special forest products and firewood	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Removal of salable mineral materials	N	N	N	Y	Y/N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Grazing allotments	N	N	N	N	Y/N	N	Y	N	N	N	N	Y	Y	Y	N	Y
New facilities	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y/N
Wheeled motor vehicles	N	N	N	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y
Mechanized transport (e.g., mountain bike)	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
New airstrip	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N
Road construction (permanent)	N	N	N	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	N
Road reconstruction	N	N	N	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	N
Use of wildland fire to meet desired conditions	Y	Y	Y	Y	Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

a. Y = yes, N = no, Y/N = potentially, in some areas; see specific management area section for clarification.

## Chapter 4. Geographic Area Direction

### Introduction

Geographic area management direction is specific to an area or place, such as a river basin or valley, and reflects community values and local conditions within the area. The direction does not substitute for or repeat forestwide desired conditions. These desired conditions allow the Forest to focus on specific circumstances in specific geographic locations. Geographic areas define a landscape that people associate with the Forest. Identifying these areas gives us the opportunity to direct management to better respond to local conditions and situations. The Forest has been divided into the following six geographic areas (see figure 2 below):

- Hungry Horse (HH)
- Middle Fork of the Flathead (MF)
- North Fork of the Flathead (NF)
- Salish Mountains (SM)
- South Fork of the Flathead (SF)
- Swan Valley (SV)

Geographic areas provide a means for describing conditions and trends at a more local scale if appropriate. Geographic areas are ecological areas that are synonymous with basin and watershed. Table 36 displays geographic area acreage and percentage of each geographic area in NFS lands.

**Table 36. Acres within the six geographic areas on the Forest**

<b>GA</b>	<b>Total acres all ownerships</b>	<b>Forest acres</b>	<b>Percent of geographic area in NFS lands</b>
Hungry Horse	331,752	286,234	86
Middle Fork	375,354	370,156	99
North Fork	389,682	320,044	82
Salish Mountains	836,805	262,859	31
South Fork	790,585	789,074	100
Swan Valley	533,139	364,440	68
Total acres	3,257,317	2,392,807	73

The geographic area section on the following pages provides an overview of the area, including unique characteristics, and geographic area desired conditions that are not necessarily covered by forestwide or management area desired conditions. Geographic area objectives, and in some cases standards and guidelines, are also specified. Maps of each geographic area can be found in appendix B. The geographic area maps shows management area allocation (figures B-19 to B-24). Descriptions of the management areas can be found in chapter 3. Information on the potential vegetation types referred to in each geographic area description, and the proportion within each geographic area, can be found in appendix D.

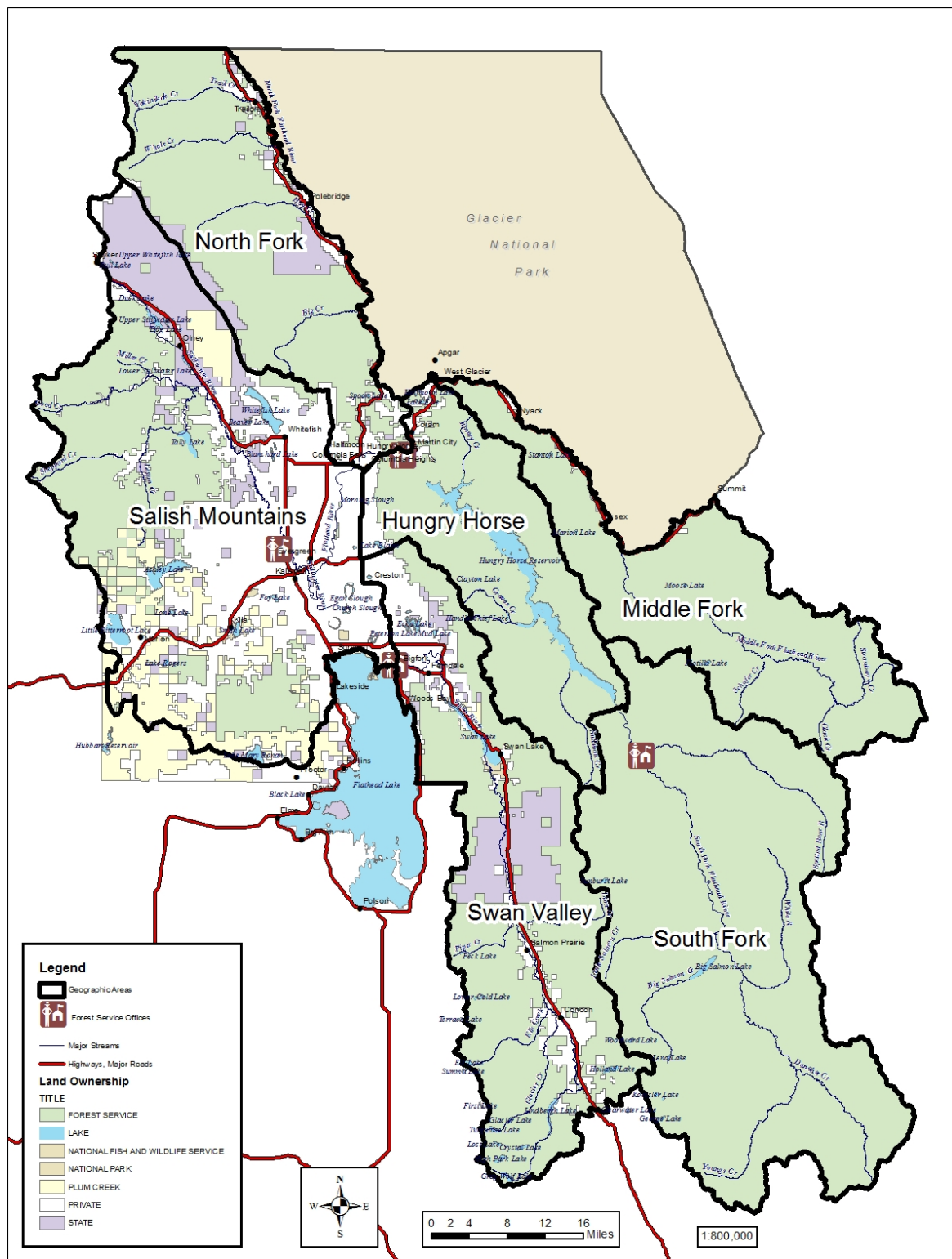


Figure 2. The six geographic areas on the Flathead National Forest

# Hungry Horse Geographic Area

## General overview

The Hungry Horse geographic area encompasses the lower half of the South Fork of the Flathead River basin, bordered by the Middle Fork of the Flathead River to the north and dropping over the Swan Ridge to extend down to the Flathead Valley. The vast majority is NFS lands, 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 geographic area. Portions of the Hungry Horse-Glacier View and Spotted Bear Ranger Districts lie within this geographic area.

Steep mountain slopes dissected by narrow stream channels characterize much of this geographic area. The Hungry Horse Reservoir is a primary feature within this geographic area. Elevations range from 3,200 feet near the town of Hungry Horse to well over 8,000 feet on the highest mountain peaks. The vast majority of the geographic area is covered by forests of the cool-moist potential vegetation type. A small amount of cold, warm-moist, and warm-dry types also occur. For a map of the potential vegetation types for the Hungry Horse geographic area, see figure B-04. Refer to appendix D for a description and acreages of the potential vegetation types within this geographic area.

The Hungry Horse Reservoir provides the focal point for many 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 geographic area. Timber production has also been a primary use within this geographic area. The crest of the Swan Range runs north-south and provides limited motorized recreation in a semiprimitive setting. The section of Highway 2 between Hungry Horse and West Glacier is one of the gateways to Glacier National Park. This corridor has high use during the summer.

## Unique characteristics

- Contains the Hungry Horse Dam and Reservoir on the South Fork of the Flathead River. The dam, completed in 1953, impounds a reservoir that is 35 miles long and covers over 23,500 acres.
- A popular 110-mile-long driving loop around the Hungry Horse Reservoir provides access to areas of the reservoir and opportunities for driving for pleasure.
- The area has a high-quality fishery with a healthy bull trout population and an intact native fish assemblage; except for grayling, no non-native fish are present.
- Most of the approximately 15,315-acre Jewel Basin hiking area lies within this geographic area, 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 is in this geographic area and has been set aside for forest and ecological research purposes. Embedded in this experimental forest is the Coram Research Natural Area.
- Hungry Horse Dam Visitor Center, operated by the U.S. Bureau of Reclamation, provides an opportunity for cooperative interpretation of Hungry Horse Reservoir and the surrounding environment.

Table 37 displays the acres and percentages identified for each management area in the Hungry Horse geographic area. In some instances, management area allocations overlap; e.g., an area that is management area 1a, designated wilderness, may also be 2a, a designated wild and scenic river. In this

table, the allocation of acres is listed under all assigned management areas even if an overlap occurs (in other words, as actual accounting). Refer to figure B-19.

**Table 37. Hungry Horse geographic area management area actual allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	20,562	7%
1b Recommended wilderness	15,960	6%
2a Designated wild and scenic rivers	748	< 1%
2b Eligible wild and scenic rivers	4,210	1%
3a Administrative areas	202	< 1%
3b Special areas	—	—
4a Research natural areas	876	< 1%
4b Experimental and demonstration forests	7,478	3%
5a Backcountry nonmotorized year-round	34,152	12%
5b Backcountry motorized year-round, motorized vehicle use only on designated routes/areas	31,131	11%
5c Backcountry motorized over-snow vehicle use	46,021	16%
5d Backcountry motorized summer, wheeled vehicle use only on designated routes/areas	530	< 1%
<b>5a-5d Backcountry total</b>	<b>111,833</b>	<b>39%</b>
6a General forest low-intensity vegetation management	38,069	13%
6b General forest medium-intensity vegetation management	69,504	24%
6c General forest high-intensity vegetation management	6,838	2%
<b>6a-6c General forest total</b>	<b>114,411</b>	<b>40%</b>
7 Focused recreation areas	13,276	5%

a. Some management areas overlap. For example, management area 1a designated wilderness may have an overlapping management area 2a designated wild and scenic river. Due to dual designations, acreage and percentage totals will be greater than the actual land base.

## Desired conditions (GA-HH-DC)

- 01** Non-native aquatic species are not present in this geographic area except for grayling in Handkerchief Lake.
- 02** Winter big game habitat (determined in cooperation with MFWP), in the area from Firefighter Mountain to Abbott Bay and in the Lion Lake area, provides desired winter habitat conditions, including snow intercept cover for big game species.
- 03** The Coram connectivity area (see figure B-30) provides habitat connectivity for a north-south movement corridor for wide-ranging species (e.g., grizzly bear, Canada lynx, wolverine) moving between the southern and northern watersheds on the Forest.
- 04** The Lost Johnny and Six Mile areas (see figure B-12) provide quality motorized over-snow vehicle opportunities, including late-season opportunities.

## Standards (GA-HH-STD)

- 01** Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 38, and all snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the

minimum levels in each column of table 38 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 15 inches d.b.h., decayed/decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).

**Table 38. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas<sup>a</sup>**

Forest dominance type	Potential vegetation type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 15 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	4	2
All except lodgepole pine	Warm-moist	7	2
All except lodgepole pine	Cool-moist	5	2
All except lodgepole pine	Cold	4	1
Lodgepole pine	All	2	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognize the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags or decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.

## Hungry Horse management area 7 focused recreation direction

### Suitability (GA-HH-MA7-SUIT)

- 01** The following management area 7 areas are suitable for timber production: Hungry Horse Reservoir *excluding the developed recreation sites*.
- 02** The following management area 7 areas are not suitable for timber production: developed campgrounds and day-use areas within Hungry Horse Reservoir management area 7; the Hungry Horse Off-Highway Vehicle Track; and Lion Lake. Timber harvest or other vegetation management activities may occur to achieve desired conditions for vegetation or for other multiple-use purposes associated with the area (such as public safety and health).
- 03** For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle suitability maps, figures B-11.

## Hungry Horse Reservoir (GA-HH-MA7-Reservoir)

This management area 7 area surrounds the 35-mile-long Hungry Horse Reservoir and consists of a band that extends 0.25 to 0.75 mile from the shoreline, frequently bordering the main road that encircles the reservoir (NFS Roads 38 and 895). These two roads also access the Spotted Bear Ranger District, the South Fork of the Flathead Wild and Scenic River, and trailheads leading into the Bob Marshall and Great Bear Wilderness Areas. These roads are commonly called the Hungry Horse Reservoir loop road, which is a popular scenic loop drive, and they access several boat launch sites and numerous developed campgrounds and dispersed sites that provide over 250 campsites for visitors.

The recreation opportunity spectrum is roaded natural for summer and semiprimitive motorized for the winter season. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Semiprimitive provides backcountry skiing and snowmobiling opportunities where routes are typically ungroomed but are often signed and marked. Occasionally, historic cabins are available for short breaks or overnight use.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6b in locations outside developed recreation sites. Refer to management area 6b for vegetation management direction.

### Desired conditions (GA-HH-MA7-Reservoir-DC)

- 01** The Hungry Horse Reservoir area provides a diverse spectrum of recreational experiences, including boating, camping, fishing, hunting, berry picking, photography, cabin rental, driving for pleasure, and viewing of scenery and wildlife. Visitor facilities range from developed fee sites to dispersed (non-fee) sites, with undeveloped areas interspersed between existing camping areas.
- 02** The southern end of Hungry Horse Reservoir emphasizes dispersed recreation and has some developed sites that provide boat and vehicle access to the reservoir. Some dispersed recreation sites provide group camping opportunities.
- 03** The north end of Hungry Horse Reservoir emphasizes recreational development that accommodates higher use levels at concentrated developed sites, including boat launches.
- 04** Dispersed recreation sites in the Hungry Horse Reservoir area, along the shoreline and on islands, have minimal impacts to shoreline vegetation and meet health and safety requirements.
- 05** Motorized and nonmotorized water-based recreation opportunities have sufficient reservoir access points along Hungry Horse Reservoir for users to access the reservoir.
- 06** Water-based outfitters and guides and livery services provide water-based outfitting experiences for the public on Hungry Horse Reservoir.
- 07** The loop road around Hungry Horse Reservoir provides opportunities for driving for pleasure, offers vistas for viewing the reservoir and surrounding landscape, and allows for passenger vehicles to travel in a moderate degree of user comfort and convenience. Some sections of roads are paved or dust abated.
- 08** Hungry Horse Reservoir provides angling opportunities for bull trout and supports an intact native fish assemblage.
- 09** Winter recreation opportunities are provided at the Anna Creek Rental Cabin.



**Objectives (GA-HH-MA7-Reservoir-OBJ)**

- 01** Improve one to five campgrounds.
- 02** Complete two to five vista-enhancement projects along Hungry Horse Reservoir.
- 03** Construct one to three boat launches on the southern end of Hungry Horse Reservoir, providing access to the South Fork of the Flathead River.

**Hungry Horse Off-Highway Vehicle Area (GA-HH-MA7-OHV)**

This management area 7 encompasses an area adjacent to the town of Hungry Horse, Montana, that is available yearlong for motorized vehicles less than or equal to 50 inches wide. The area has about two miles of motorized routes, including a concentration of trails in a 5-acre area that provide steep inclines, sharp turns, and other challenge features.

The recreation opportunity spectrum is roaded natural for both the summer and winter season. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system.

**Desired conditions (GA-HH-MA7-OHV Area-DC)**

- 01** The Hungry Horse Off-Highway Vehicle Area provides day-use summer and winter motorized opportunities close to local communities as well as opportunities for day-use special-use events.

**Lion Lake (GA-HH-MA7-Lion)**

This approximately 40-acre lake is located only 1.5 miles from the town of Hungry Horse, Montana, and has two day-use sites. It is a very popular site for swimming, nonmotorized boating, and picnicking. A hiking trail encircles the lake.

The recreation opportunity spectrum setting is roaded natural for both the summer and winter seasons. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system.

**Desired condition (GA-HH-MA7-Lion-DC)**

- 01** Lion Lake and its facilities provide quality day-use, water-based recreational experiences in a natural setting close to local communities.

**Objective (GA-HH-MA7-Lion-OBJ)**

- 01** Construct an accessible day-use fishing platform on Lion Lake.

## Middle Fork Geographic Area

### General overview

The Middle Fork geographic area encompasses most of the Middle Fork of the Flathead River Basin and is bordered to the north by Glacier National Park, which contains the remaining part of the river basin. The east boundary of the geographic area follows the crest of the Continental Divide, adjacent to the Lewis and Clark National Forest. The Great Bear Wilderness and a portion of the Bob Marshall Wilderness make up the vast majority of this geographic area, and the geographic area is largely wild and undeveloped. Only about 1 percent of the geographic area is non-NFS land. This geographic area 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 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 and cold potential vegetation types cover the vast majority of this geographic area. Very little to no warm-moist or warm-dry types are present. For a map of the potential vegetation types for the Middle Fork geographic area, see figure B-05. Refer to appendix D for a description and acreages of the potential vegetation types within this geographic area.

The U.S. Highway 2 corridor, on the northern boundary of this geographic area, is a busy area separating Glacier National Park on the north and the Great Bear Wilderness on the south. This corridor includes heavy recreational use on the Middle Fork River, heavy recreational and general traffic on the highway, the Burlington Northern Santa Fe Railway line, a natural gas line, electrical transmission lines, and other utility and communications facilities. The geographic area is popular for recreational use and is a focal point for hiking, horseback riding, hunting, fishing, and river float trips on the Middle Fork of the Flathead Wild and Scenic River. Outfitting and guiding opportunities exist for many activities. 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 of the Flathead River, a designated wild and scenic river, is a free-flowing river that originates in the Bob Marshall Wilderness and provides whitewater experience.
- Schafer Meadows is a historical facility that operates seasonally. This facility, along with several backcountry guard stations and an intricate trail system, make up the Flathead National Forest Backcountry Administrative Facilities Historic District.
- The geographic area contains the Schafer Meadows Airstrip, the only open airstrip within the Bob Marshall Wilderness Complex. Livery service is permitted to the Schafer Meadows Airstrip. 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 39 displays the acres identified for each management area in the Middle Fork geographic area.

**Table 39. Middle Fork geographic area management area allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	305,126	78%
1b Recommended wilderness	14,218	4%
2a Designated wild and scenic rivers	17,996	5%
2b Eligible wild and scenic rivers	10,581	3%
3a Administrative areas	—	—
3b Special areas	—	—
4a Research natural areas	—	—
4b Experimental and demonstration forests	—	—
5a Backcountry nonmotorized year-round	6,686	2%
5b Backcountry motorized year-round, motorized vehicle use only on designated routes or areas	—	—
5c Backcountry motorized over-snow vehicle use	17,996	5%
5d Backcountry motorized summer, wheeled vehicle use only on designated routes or areas	—	—
<b>5a-5d Backcountry total</b>	<b>24,682</b>	<b>6%</b>
6a General forest low-intensity vegetation management	13,614	3%
6b General forest medium-intensity vegetation management	5,541	1%
6c General forest high-intensity vegetation management	1,578	< 1%
<b>6a-6c General forest total</b>	<b>20,733</b>	<b>5%</b>
7 Focused recreation areas	163	< 1%

a. Some management areas overlap. For example, management area 1a, designated wilderness, may have an overlapping management area 2a, designated wild and scenic river. Due to dual designations, acreage and percentage totals will be greater than the actual land base.

## 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 National Park to protect its outstandingly remarkable values. Management of infrastructure (e.g., pipelines, railroad, gas lines, highway) within the wild and scenic river corridor is coordinated with Glacier National Park.
- 02** The Challenge-Skyland groomed trail and area (see figure B-12) provide quality motorized over-snow vehicle recreational opportunities, including a late-season motorized over-snow vehicle use area.
- 03** Safe winter parking opportunities and access to NFS lands and trailheads off U.S. Highway 2 are provided in conjunction with support from partners (e.g., Montana Department of Transportation, Izaak Walton Inn, and Burlington Northern Santa Fe Railway).
- 04** The Nyack Pinnacle, Essex, and South Glacier connectivity areas (see figure B-30) provide habitat connectivity for wide-ranging species (e.g., grizzly bear, Canada lynx, wolverine) moving north-south between Glacier National Park and the Bob Marshall Wilderness and east-west within the Middle Fork watershed.
- 05** Emergency disaster response is implemented cooperatively with Burlington Northern Santa Fe Railway and other cooperators to protect the Middle Fork of the Flathead River corridor and associated resources.

- 06** The Flathead National Forest Backcountry Administrative Facilities Historic District adjacent to and within the Bob Marshall and Great Bear Wilderness Areas provides national and regional recognition of wilderness and land management history.

### Objectives (GA-MF-OBJ)

- 01** Acquire one or more parcels and/or provide one or more easements for wildlife crossings along Highway 2 and the Burlington Northern Santa Fe Railway corridor in the Nyack Pinnacle and Essex connectivity areas (see figure B-30).

### Standards (GA-MF-STD)

- 01** The Schafer Meadows Airstrip provides public and administrative access for small aircraft, not exceeding 550 landings annually.
- 02** Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 40. All snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the minimum levels in each column of table 40 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 15 inches d.b.h., decayed or decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).

**Table 40. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas.<sup>a</sup>**

Forest dominance type	Potential vegetation type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 15 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	4	2
All except lodgepole pine	Warm-moist	7	2
All except lodgepole pine	Cool-moist	5	2
All except lodgepole pine	Cold	4	1
Lodgepole pine	All	2	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags or decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are

deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.

### **Suitability (GA-MF-SUIT)**

- 01 For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle suitability maps, figure B-11.
- 02 A portion of the Middle Fork geographic area is withdrawn from mining and mineral leasing laws, subject to valid and existing rights per the North Fork Watershed Protection Act of 2013.<sup>30</sup> See figure B-29.

## **Middle Fork management area 7 focused recreation direction**

### **Suitability (GA-MF-MA7-SUIT)**

- 01 Management area 7 Nordic groomed ski areas are suitable for timber production.
- 02 Management area 7 Nordic groomed ski areas are suitable for wheeled motorized travel on designated roads, trails, and areas.

### **Essex Nordic groomed ski area**

This is one of three management area 7 areas on the Forest that focuses on Nordic ski opportunities. This area provides about 20 miles of groomed ski trails on an approximately 163-acre area adjacent to the town of Essex, Montana, and about 28 miles east of West Glacier, Montana, on U.S. Highway 2. The recreation opportunity spectrum setting is roaded natural for the summer and semiprimitive motorized during the winter season, primarily because motorized groomers are used to groom Nordic trails and this area is close to the highway and railroad. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Semiprimitive motorized provides opportunities for exploration and challenge in winter in the backcountry.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6b. Refer to management area 6b for vegetation management direction.

### **Desired conditions (GA-MF-MA7-EssexNordic-DC)**

- 01 The Essex area provides high-quality groomed Nordic skiing and snowshoeing opportunities for the public that are easily accessed from local communities.

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<sup>30</sup> Section 3063 of the Buck McKeon National Defense Authorization Act, the North Fork Federal Lands Withdrawal Area, was enacted fiscal year 2015.

## North Fork Geographic Area

### General overview

The North Fork geographic area lies within the North Fork of the 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 National Park. The headwaters of the North Fork of the Flathead River lie in Canada to the north. The crest of the Whitefish Range forms the west boundary of this geographic area, with the highest peaks reaching close to 8,000 feet in elevation. The northwestern boundary of this geographic area is adjacent to the Kootenai National Forest. The southern boundary of this geographic area extends down to about 3,000 feet in elevation and borders the Middle Fork of the Flathead River and the town of Columbia Falls, Montana. Private and State landholdings are dispersed from the southern end of this geographic area north to the Canadian border, concentrated in the regions of gentler terrain nearest the river and nearest the town of Columbia Falls. The geographic area includes the approximately 20,000-acre Coal Creek State Forest. This geographic area includes portions of the Hungry Horse-Glacier View Ranger District.

Steep mountain slopes bisected by narrow stream channels characterize most of this geographic area. South of the Canadian border, the North Fork is generally wide, with large areas of rolling terrain and terraces bordering the Flathead River valley bottom, narrowing at its southernmost end. The cool-moist potential vegetation type covers the great majority of this geographic area. Most of the remaining land is high elevation and of the cold potential vegetation type. A good representation of sites in the warm-moist potential vegetation type occurs in the far southern end of the geographic area. Almost no warm-dry sites occur in the geographic area. For a map of the potential vegetation types, see figure B-06, and refer to appendix D for a description and acreages of the potential vegetation types within this geographic area.

The combination of large inventoried roadless areas and proximity to Glacier National Park influences the kinds of uses that this area has traditionally received. Recreational activities are popular, ranging from backcountry nonmotorized uses to high-quality motorized over-snow vehicle opportunities. Timber production has been a major activity in portions of this geographic area. The small communities of Polebridge and Hungry Horse are also within this geographic area.

### Unique characteristics

- The North Fork of the Flathead River is one fork of the designated Flathead Wild and Scenic River, a free-flowing river that originates in Canada and is managed cooperatively with Glacier National Park.
- The area contains seven significant wetland complexes, some of the least-impacted wetlands in the Flathead River watersheds on the Forest.
- The historic Big Creek Work Center is currently occupied by Glacier Institute, which provides environmental education in cooperation with the Forest Service and other resource management agencies.
- The cabin and lookout rental program provides a popular recreation option for visitors, and it includes six historic Forest Service cabins.
- The area has some of the highest densities of grizzly bears in the lower 48 states and is key grizzly bear habitat.
- The area shares a border with Glacier National Park and an international border with Canada referred to as the Transboundary Flathead. The area provides essential terrestrial and aquatic connectivity for

fish and wildlife species across the international border as part of an acknowledged "international wildlife corridor."

- The area contains Tuchuck Research Natural Area, which is a reference habitat for the subalpine larch/subalpine fir habitat type.
- A portion of the Whitefish Mountain Resort is within this geographic area.

Table 41 displays the acres identified for each management area in the North Fork geographic area.

**Table 41. North Fork geographic area management area allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	–	–
1b Recommended wilderness	79,821	24%
2a Designated wild and scenic rivers	6,944	2%
2b Eligible wild and scenic rivers	10,728	3%
3a Administrative areas	–	–
3b Special areas	–	–
4a Research natural areas	2,050	1%
4b Experimental and demonstration forests	–	–
5a Backcountry nonmotorized year-round	66,690	20%
5b Backcountry motorized year-round, wheeled vehicle use only on designated routes/areas	262	< 1%
5c Backcountry motorized over-snow vehicle use	11,209	3%
5d Backcountry wheeled motorized vehicle use only on designated routes/areas	–	–
<b>5a-5d Backcountry total</b>	<b>78,160</b>	<b>24%</b>
6a General forest low-intensity vegetation management	45,377	14%
6b General forest medium-intensity vegetation management	82,345	25%
6c General forest high-intensity vegetation management	914	< 1%
<b>6a-6c General forest total</b>	<b>128,637</b>	<b>39%</b>
7 Focused recreation areas	19,806	6%

a. Some management areas overlap. For example, management area 1a, designated wilderness, may have an overlapping management area 2a, designated wild and scenic river. Due to dual designations, acreage and percentage totals will be greater than the actual land base.

## Desired conditions (GA-NF-DC)

- 01** Motorized over-snow vehicle use opportunities exist in designated areas in the McGinnis, Deep, and Lookout Creek areas.
- 02** Designated motorized over-snow vehicle use areas remain on the landscape to continue to provide over-snow opportunities.
- 03** The North Fork Road has vistas and vehicle pullouts for viewing Glacier National Park and the North Fork of the Flathead River.
- 04** A system of mountain bike trails provides alpine riding opportunities in the Whitefish Range.
- 05** The North Fork of the Flathead Wild and Scenic River corridor is managed in cooperation with Glacier National Park to protect its outstandingly remarkable values.

- 06 The Haskill Basin connectivity area (see figure B-30) provides habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, wolverine) moving north-south between the Swan Range and the Whitefish Range.
- 07 The North Fork and North Whitefish Range connectivity areas (see figure B-30) provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, wolverine) moving between Glacier National Park and the Whitefish Range.
- 08 Winter habitat for big game species (determined in cooperation with MFWP) from lower Big Creek to Polebridge, Montana, provide desired winter habitat conditions, including snow intercept cover for big game species.
- 09 Migratory bull trout and westslope cutthroat trout populations exist, and transboundary agreements with Canada protect water quality to sustain these important native fish.
- 10 Canyon Creek groomed trail (including late-season use), Big Mountain, and Big Creek provide quality motorized over-snow vehicle use and include snowmobiling experiences offered by outfitters and guides.
- 11 Red Meadow Road and Trail Creek Road provide access, including emergency egress, across the Whitefish Divide.

### **Objectives (GA-NF-OBJ)**

- 01 Complete one vista enhancement and vehicle pull-out project.
- 02 Complete one to three trails that provide for mountain bike opportunities in the Whitefish Range vicinity.
- 03 Acquire one or more parcels and/or provide one or more easements for wildlife crossings along Highway 2 (Badrock Canyon), the North Fork Road (NFS Road 486), and/or the Burlington Northern Santa Fe Railway corridor.
- 04 Improve one to two campgrounds.

### **Standards (GA-NF-STD)**

- 01 Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 42. All snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the minimum levels in each column of table 42 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 15 inches d.b.h., decayed or decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).



**Table 42. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas.<sup>a</sup>**

Forest dominance type	Potential vegetation type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 15 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	4	2
All except lodgepole pine	Warm-moist	7	2
All except lodgepole pine	Cool-moist	5	2
All except lodgepole pine	Cold	4	1
Lodgepole pine	All	2	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags/decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.

### Suitability (GA-NF-SUIT)

- 01 The North Fork Geographic Area is suitable for motorized travel on designated routes and areas.
- 02 For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle suitability map, figures B-11.
- 03 The North Fork geographic area is withdrawn from mining and mineral leasing laws, subject to valid and existing rights, per the North Fork Watershed Protection Act of 2013<sup>31</sup> (refer to figure B-29).

### North Fork management area 7 focused recreation direction

#### Suitability (GA-NF-MA7-SUIT)

- 01 The following management area 7 areas are suitable for timber production: Cedar Flats Off-Highway Vehicle Area; portions of Crystal-Cedar; and portions of Werner-Nicola. Refer to figure B-31.
- 02 The following management area 7 areas are not suitable for timber production: Big Mountain; Big Creek Campground and Work Station; portions of Crystal-Cedar; and portions of Werner-Nicola.

<sup>31</sup> Section 3063 of the Buck McKeon National Defense Authorization Act, the North Fork Federal Lands Withdrawal Area, was enacted fiscal year 2015.

Refer to figure B-31. Timber harvest or other vegetation management activities may occur to achieve desired conditions for vegetation or for other multiple-use purposes associated with the area (such as public safety and health).

## **Big Creek Campground and Work Station**

This management area 7 encompasses both the Big Creek Campground and the adjacent work station, a historic Flathead National Forest ranger station. The Big Creek campground lies adjacent to the North Fork of the Flathead River, within the wild and scenic river corridor. The Big Creek Outdoor Education Center is located at the Big Creek Work Station, where the Glacier Institute, a private non-profit under a permit with the Forest Service, has provided field-based educational experiences for over 20 years. The recreation opportunity spectrum setting for the Big Creek Campground and Work Station is roaded natural for both the summer and winter season, which provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system.

### **Desired conditions (GA-NF-MA7-Big Creek-DC)**

- 01** Big Creek Work Station provides a base for facilitated conservation and environmental education on NFS lands, in partnership with nongovernmental organizations.

## **Big Mountain (GA-NF-MA7-Big Mtn)**

This management area 7 is located in both the North Fork and the Salish Mountains geographic areas. Plan components are located in the Salish Mountains geographic area section.

## **Crystal-Cedar Area**

This area is located close to the towns of Columbia Falls and Kalispell, Montana, and offers a variety of frontcountry summer and winter recreational opportunities, including dispersed camping, hiking, mountain biking, snowshoeing, and Nordic skiing. The desired recreation opportunity spectrum setting is roaded natural for the summer and a mixture of roaded natural, semiprimitive motorized, and semiprimitive nonmotorized settings. The roaded natural setting provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. The semiprimitive motorized winter setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional vast areas for traveling cross-country. The winter semiprimitive nonmotorized setting provides opportunities for solitude for those accessing the Forest on skis, snowshoes, or snowboards. Trails are ungroomed and often not marked. Rustic facilities such as historic cabins and yurts may exist but are rare.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6a (the western portion of the area) or management area 6b (the eastern portion of the area), refer to figures B-33. Refer to management area 6a or 6b for vegetation management direction.

### **Desired conditions (GA-NF-MA7-Crystal-Cedar-DC)**

- 01** Recreational opportunities within the Crystal-Cedar Area provide a diversity of year-round recreational activities that are close to local communities.

## Cedar Flats Off-Highway Vehicle Area

This management area 7 is located close to the town of Columbia Falls, Montana, and primarily offers summer motorized use on designated routes (5 miles); other activities include biking, hiking, Nordic skiing, and snowshoeing. The recreation opportunity spectrum setting is roaded natural for both the summer and winter. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system.

Opportunities for expansion of routes within the management area 7 area exist if compatible with other resource needs.

Vegetation management activities occur in order to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as for management area 6b. Refer to management area 6b for vegetation management direction.

### Desired conditions (GA-NF-MA7-Cedar Flats OHV-DC)

- 01** The Cedar Flats Off-Highway Vehicle Area provides a system of mechanized and motorized trails for mountain biking and off-highway vehicles on designated routes linking local communities to easily accessed recreation opportunities.

## Werner-Nicola

This area is located northwest of Whitefish Mountain Resort and offers a variety of frontcountry recreational opportunities such as hiking, dispersed camping, mountain biking, backcountry skiing, and snowshoeing. The desired recreation opportunity spectrum setting is roaded natural in the summer and a mix of semiprimitive motorized and semiprimitive nonmotorized in the winter. The semiprimitive motorized winter setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional vast areas for traveling cross-country. The winter semiprimitive nonmotorized setting provides opportunities for solitude for those accessing the Forest on skis, snowshoes, or snowboards. Trails are ungroomed and often not marked. Rustic facilities such as historic cabins and yurts may exist but are rare. See figures B-13 and B-14 for the distribution of desired recreation opportunity spectrum settings in this management area 7 area.

Vegetation management activities occur to achieve desired conditions in portions of this management area 7 area, with the expected intensity of vegetation management the same as for management area 6a (the eastern portion of the area) or 6b (the western portion of the area); refer to figure B-33. Refer to management area 6a or 6b for vegetation management direction.

### Desired conditions (GA-NF-MA7-Werner-Nicola-DC)

- 01** Recreational opportunities within the Werner-Nicola Area provide a diversity of year-round recreational activities that are close to local communities.

## Salish Mountains Geographic Area

### General overview

The Salish Mountain geographic area lies in the relatively gently sloped, rolling terrain of the Salish Mountain range and includes most of the main Flathead River valley. NFS lands comprise 31 percent of the area, with most land in private or State ownership, including the Stillwater State Forest. 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 geographic area, 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, Montana, are within this geographic area.

Due to the favorable topography and relatively close proximity to human settlements, lands within this geographic area 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 and Federal lands that have been managed primarily for timber production over the last several decades. Communities near this area include Whitefish, Kalispell, Olney, Lakeside, Marion, Kila, and Somers.

The cool-moist potential vegetation type covers the majority of the geographic area. However, nearly a quarter of the total acres on the Forest in the warm-dry potential vegetation type lie within this geographic area due to the preponderance of lower-elevation sites and generally drier soils and weather patterns. A small portion of the Forest sites in the warm-moist potential vegetation type also occur, concentrated in the north end within the Stillwater River basin. Very little high-elevation cold type occurs in this geographic area. For a map of the potential vegetation types, see figure B-07. Refer to appendix D for a description and acreages of the potential vegetation types within this geographic area.

Recreation is a major use within this geographic area, 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 habitats in the Flathead Valley.
- The Le Beau and Little Bitterroot Research Natural Areas and Johnson Terrace are unique topographic features that harbor a diversity of plants.
- The area has seven ecologically significant wetland complexes with a diversity of plants and features.

Table 43 displays the acres identified for each management area in the Salish geographic area.

**Table 43. Salish Mountains Geographic Area management area allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	–	–
1b Recommended wilderness	–	–
2a Designated wild and scenic rivers	–	–
2b Eligible wild and scenic rivers	2,599	1%
3a Administrative areas	107	< 1%
3b Special areas	331	< 1%
4a Research natural areas	5,599	2%
4b Experimental and demonstration forests	4,942	2%
5a Backcountry nonmotorized year-round	6	< 1%
5b Backcountry motorized year-round, wheeled vehicle use only on designated routes/areas	–	–
5c Backcountry motorized over-snow vehicle use	–	–
5d Backcountry wheeled motorized vehicle use only on designated routes/areas	–	–
<b>5a-5d Backcountry total</b>	<b>6</b>	<b>&lt; 1%</b>
6a General forest low-intensity vegetation management	5,725	2%
6b General forest medium-intensity vegetation management	27,670	10%
6c General forest high-intensity vegetation management	193,133	73%
<b>6a-6c General forest total</b>	<b>226,528</b>	<b>86%</b>
7 Focused recreation areas	24,189	9%

a. Some management areas overlap. For example, management area 1a, designated wilderness, may have an overlapping management area 2a, designated wild and scenic river. Due to dual designations, acreages and percentage totals will be greater than the actual land base.

## Desired conditions (GA-SM-DC)

- 01** Within the Flathead National Forest portion of NCDE zone 1 (including the Salish demographic connectivity area) (see figure B-10), roads and trails provide for public and administrative access to NFS lands. Grizzly bear habitat in zone 1 contributes to sustaining recovery of the grizzly bear population in the NCDE. The demographic connectivity area provides habitat that can be used by female grizzly bears and allows for bear movement between grizzly bear ecosystems.
- 02** Outside the NCDE primary conservation area and the Salish demographic connectivity area, motorized trails (single-track or off-highway vehicles) provide high-elevation loop opportunities.
- 03** In areas between the primary conservation area and the Salish demographic connectivity area, NFS lands are consolidated and conservation easements with willing landowners are supported in a manner that provides habitat connectivity and facilitates movement of wildlife. National Forest System lands in the Swift Creek-Stillwater connectivity area (see figure B-30) provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, elk) moving between the Whitefish and Salish Mountain Ranges.
- 04** Security from motorized disturbance exists in key winter habitat areas for big game species (e.g., Pete Ridge/Pilot Knob to Tally Lake and Rogers Lake to Smith Lake areas).
- 05** Habitat security contributes to MFWP objectives for big game populations, their distribution, and types of hunter access.

- 06 Big game winter habitat (determined in cooperation with MFWP) provides desired winter habitat conditions, including snow intercept cover, in the following areas: (1) Pete Ridge, Pilot Knob, the area from Rhodes Draw to just north of Good Creek, and the Stillwater River west to Tally Lake and Lost Creek; and (2) the Porter, Mount, Truman, Emmons, Stoner, and Cramer Creek subwatersheds.
- 07 Transitory forage is available within active grazing allotments.
- 08 Haskill Basin, which is the municipal watershed for the city of Whitefish, Montana, is managed to reduce the risk of high-intensity fires that have the potential to affect water quality.

### Objectives (GA-SM-OBJ)

- 01 Construct and designate approximately 1 to 4 miles of motorized trail connectors that provide high-elevation loop opportunities outside the NCDE primary conservation area and Salish demographic connectivity area, where consistent with desired recreation opportunity spectrum settings.
- 02 Construct a nonmotorized trail that connects the Whitefish Trail<sup>32</sup> through NFS lands.
- 03 Implement vegetation treatments within the Haskill Basin (Whitefish) municipal watershed to reduce the risk of high-severity fire that could potentially affect water quality.
- 04 Acquire one or more parcels and/or provide one or more easements for wildlife crossings along U.S. Highway 93 north of Whitefish.

### Standards (GA-SM-STD)

- 01 Within the Flathead National Forest portion of NCDE zone 1 *outside* the Salish demographic connectivity area (see figure B-10), there shall be no net increase above the baseline (see glossary) in the density of roads open to public motorized use on NFS lands. *Inside* the Salish demographic connectivity area, there shall be no net increase above the baseline (see glossary) in the density of roads and trails open to public motorized use during the non-denning season on NFS lands. Density is calculated by dividing the total miles open to public motorized use on NFS lands during the non-denning season, by the total square miles of NFS lands in that same area. This standard does not apply to the following:
  - motorized use by agency personnel or others authorized by the appropriate agency personnel;
  - the temporary opening of a road for a short period of time to allow for public firewood gathering and other authorized uses (see also FW-STD-IFS-04);
  - updated/improved road data without an actual change on the ground;
  - changes in technology or projections that result in changed calculations without actual change on the ground (e.g., a switch in geodetic systems from the North American Datum of 1927 to the North American Datum of 1983);
  - moving a road closure location a short distance (e.g., to the nearest intersection or turnout) to a better location to allow turn-arounds that provide for public safety, to reduce vandalism, or to improve enforcement of the road closure;

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<sup>32</sup> For additional information about this trail system, see the Whitefish Legacy Partners website, <http://whitefishlegacy.org>.

- exchanging, acquiring, buying, or selling lands by the agency;
- a change in an open road that is necessary to comply with Federal laws (e.g., the Architectural Barriers Act of 1968, as amended);
- motorized use for mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) because these types of permitted resource development are subject to existing rights and have a separate set of standards and guidelines;
- a change in an open road that is necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage or concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- motorized use for emergency situations as defined by 36 CFR § 218.21;
- temporary roads (see glossary).

- 02** Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 44. All snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the minimum levels in each column of table 44 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 10 inches d.b.h., decayed or decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).

**Table 44. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas.<sup>a</sup>**

Forest dominance type	Potential Vegetation Type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 10 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	9	2
All except lodgepole pine	Warm-moist	13	3
All except lodgepole pine	Cool-moist	10	2
All except lodgepole pine	Cold	10	1
Lodgepole pine	All	7	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags or decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural

diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.

### **Guidelines (GA-SM-GDL)**

- 01** In order to provide elk habitat security (see glossary), access management actions should not result in a decrease in total acres of NFS lands within the geographic area that are at least 250 contiguous acres and at least 0.5 mile from routes open to wheeled motorized use by the public during the hunting season. If vegetation management occurs in elk security habitat, a mosaic of cover and forage should be provided, in consideration of the site-specific topography and vegetation types. Roads closed yearlong may be temporarily opened, after consultation with a forest wildlife specialist, for up to 30 days during July and August to allow for activities such as firewood gathering.

## **Salish Mountains management area 7 focused recreation direction**

**Note:** The Werner-Nicola MA7 area is located in both the North Fork and the Salish Mountains geographic areas. Plan components are found under the North Fork geographic area section.

### **Suitability (GA-SM-MA7-SUIT)**

- 01** The following management area 7 areas are suitable for timber production: Blacktail Mountain Nordic Ski Trail, Round Meadow Cross-Country Ski Area, Blacktail Wild Bill Trail System, Blacktail-Foy's, Tally Mountain, and Ingalls Mountain.
- 02** The following management area 7 areas are not suitable for timber production: Blacktail Mountain Ski Area, Big Mountain, Tally Lake Campground, and Ashley Lake Campground. Timber harvest or other vegetation management activities may occur to achieve desired conditions for vegetation or for other multiple-use purposes associated with the area (such as public safety and health).
- 03** These areas are suitable for motorized travel on designated roads, trails, and areas.
- 04** For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle suitability map, figure B-11.

### **Big Mountain (GA-SM-MA7-Big Mtn)**

This management area 7 area is located in both the North Fork and Salish Mountain geographic areas. The area provides a variety of both winter and summer recreational opportunities, including downhill and Nordic skiing, snowshoeing, hiking, biking, berry picking, and snowmobiling. The Whitefish Mountain Resort permit area is within this management area. The Summit Nature Center is located at the Whitefish Mountain Resort on the top of Big Mountain and, in partnership with the resort, offers conservation education and a hands-on discovery center.

The desired recreation opportunity spectrum setting is rural for both the summer and winter season. Winter rural settings are high-use areas. Groomed motorized and nonmotorized trails offer users the chance to get outside for a day trip or to take longer, cross-country excursions. These areas are accessed from paved and plowed roads and are generally close to population centers. User comfort facilities such as toilets, restaurants, heated shelter facilities, and information and education are commonly present.

Summer rural recreation opportunity spectrum settings are high-use areas. These highly structured and hardened settings accommodate large group gatherings and serve as day-use destinations. 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.

### **Desired conditions (GA-SM-MA7-Big Mtn-DC)**

- 01** The Canyon Creek groomed trails provide quality motorized over-snow recreation consistent with the desired recreation opportunity spectrum settings. Mixed uses of motorized over-snow vehicles and downhill skiers are compatible in the Canyon Creek area.
- 02** A quality conservation and environmental education program is provided in partnership with the Whitefish Mountain Resort.
- 03** Forest conditions within the Whitefish Mountain Resort permit 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** Year-round recreational opportunities in an alpine setting exist at the Whitefish Mountain Resort on Big Mountain. Winter recreation opportunities occur in all portions of the Whitefish Mountain Resort permit area. During the grizzly bear non-denning season, developed recreation opportunities are provided on the south-facing slope in the Whitefish Mountain Resort permit area. The portion of the upper Hellroaring watershed below Taylor Creek Road (NFS Road 9790) provides higher levels of grizzly bear habitat security.
- 05** Existing groomed motorized over-snow vehicle routes continue to provide recreation opportunities to Whitefish Mountain Resort on Big Mountain.
- 06** A connective nonmotorized trail system exists linking the Whitefish Legacy Trails to NFS lands near the summit of Big Mountain and the Whitefish Divide. New trails are designed and located to reduce the risk of grizzly bear-human conflicts.

### **Guidelines (GA-SM-MA7-Big Mtn GDL)**

- 01** To reduce grizzly bear-human conflicts at the Whitefish Mountain Resort during the non-denning season, existing mitigation measures for grizzly bears regarding food and garbage handling, odor control, and grizzly bear education at the Summit House should be retained.

### **Blacktail Mountain Ski Area (GA-SM-MA7-BlacktailSki)**

This management area 7 area includes the Blacktail Mountain Ski permit area, which provides downhill skiing winter recreational opportunities. The recreation opportunity spectrum setting is roaded natural in the summer season and rural in the winter season. The roaded natural setting provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Winter rural setting are high-use areas. Groomed motorized and nonmotorized trails offer users the chance to get outside for a day trip or to take longer, cross-country excursions. These areas are accessed from paved and plowed roads and are generally close to population centers. User comfort facilities such as toilets, restaurants, heated shelter facilities, and information and education are commonly present.

### **Desired conditions (SM-MA7-BlacktailSki-DC)**

- 01** Forest vegetation conditions within the Blacktail Mountain Ski Area are conducive to achieving the desired recreational setting and experience for users.

- 02** A nonmotorized trail system exists on NFS lands to connect Blacktail Mountain to trails on adjacent ownerships (Lakeside, Montana, and Foy's Lake area).
- 03** A nonmotorized trail system that connects the community of Lakeside, Montana, to Blacktail Mountain is maintained.
- 04** Facilities at the ski area provide year-round recreation within the existing Blacktail Mountain Ski Area permit boundary.

### Objectives (GA-SM-MA7-Blacktailski-OBJ)

- 01** Construct a nonmotorized trail that connects NFS lands in the vicinity of Blacktail Mountain to trails on other ownerships in the Foy's Lake area (Foy's to Blacktail Trails).

### Blacktail Mountain Nordic Ski Trail (GA-SM-MA7-BlacktailNordic)

This is one of three management area 7 areas on the Forest that focuses on Nordic ski opportunities. This area provides about 17 miles of ski trails on an approximately 2,550-acre area in close proximity to the town of Lakeside, Montana. The area also provides mountain biking, hiking, wheeled motorized use, and horseback riding opportunities in the summer.

The recreation opportunity spectrum is a mixture of roaded natural and semiprimitive motorized for the summer season and a mixture of semiprimitive motorized and semiprimitive nonmotorized for the winter season. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Summer semiprimitive motorized recreation opportunity spectrum settings provide motorized recreation opportunities in backcountry settings. Routes are designed for off-highway vehicles and high-clearance vehicles. 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.

The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country. The winter semiprimitive nonmotorized setting provides opportunities for solitude for those accessing the Forest on skis, snowshoes, or snowboards. Trails are generally ungroomed and often are not marked. Rustic facilities such as historic cabins and yurts may exist but are rare.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6c. Refer to management area 6c for vegetation management direction.

### Desired conditions (GA-SM-MA7-BlacktailNordic-DC)

- 01** The Blacktail Mountain Cross-Country Ski Area provides Nordic skiing and snowshoeing opportunities in the winter and recreation opportunities such as hiking, wheeled motorized use, mountain biking, and equestrian use in the summer that are close to local communities.

### Blacktail Wild Bill Trail System (GA-SM-MA7-BlacktailOHV)

This area located west of Lakeside, Montana, provides about 10 miles of trails available for use by off-highway vehicles as well as for mountain biking, horseback riding, and hiking. The Blacktail Wild Bill Off-Highway Vehicle Trail was designated as a National Recreation Trail in the 1970s. It is popular with jeep and all-terrain vehicle users.

The recreation opportunity spectrum is roaded natural in the summer season and a mixture of roaded natural and semiprimitive motorized in the winter season. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6c. Refer to management area 6c for vegetation management direction.

#### **Desired conditions (GA-SM-MA7-BlacktailOHV-DC)**

- 01** The Blacktail Wild Bill Off-Highway Vehicle National Recreation Trail provides yearlong recreation opportunities close to local communities. Wheeled motorized vehicle use occurs on designated routes, with loop trails and trail connectors to the Blacktail and Truman Creek Off-Highway Vehicle Trail systems. Challenge features for off-highway vehicles are provided along a portion of the trail system.

#### **Round Meadow Cross-Country Ski Area (GA-SM-MA7-Round Meadow)**

This management area 7 area is one of three areas on the Flathead National Forest that focuses on Nordic skiing and snowshoeing opportunities. It provides about 12 miles of groomed Nordic ski trails on about 1,209 acres and is located 12 miles west of the city of Whitefish, Montana. Summer recreational opportunities include horseback riding, biking, and hiking. The recreation opportunity spectrum setting is roaded natural in the summer season and semiprimitive nonmotorized in the winter season. Roaded natural provides for a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. The winter semiprimitive nonmotorized setting provides opportunities for solitude for those accessing the Forest on skis and snowshoes. Rustic facilities such as historic cabins and yurts may exist but are rare.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6b. Refer to management area 6b for vegetation management direction.

#### **Desired conditions (GA-SM-MA7-Round Meadow-DC)**

- 01** The Round Meadow Cross-Country Ski Area provides groomed Nordic skiing and snowshoeing opportunities in the winter and nonmotorized recreation opportunities such as hiking, mountain biking, and equestrian use in the summer.
- 02** A hut-to-hut system provides for progressive use of Forest facilities that link Round Meadow with Sylvia Lake.

#### **Tally Lake Campground (GA-SM-MA7-Tally Lake)**

This developed campground is located about 12 miles west of Whitefish, Montana, on the northern shore of Tally Lake, the second deepest lake in Montana. Camping, fishing, boating, hiking, horseback riding, biking, picnicking, and swimming are popular activities in this area. The campground has 40 campsites, a boat launch, open-air pavilion, beach area, picnic site, and water. The Tally Lake pavilion is a timber-framed open-air pavilion with parking for 50 vehicles, a vault toilet, picnic tables, fire grill, group fire ring, horse pit, volleyball court, and nature trail.

### Desired conditions (GA-SM-MA7-Tally Lake-DC)

- 01 Tally Lake Campground provides a quality developed camping experience consistent with the recreation opportunity spectrum of roaded natural for both the summer and winter seasons that provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use.

### Ashley Lake Campgrounds (GA-SM-MA7-Ashley Lake)

About 15 miles west of Kalispell lies Ashley Lake, an approximately 3,000-acre lake popular for water-based recreational opportunities such as boating, fishing, and swimming. The majority of the shoreline is privately owned. Public access to the lake is provided at three areas on NFS lands, with facilities for camping, boat launching, and day-use activities. There are a total of 11 campsites associated with the three public-access areas along the lake.

The recreation opportunity spectrum setting is roaded natural for both the summer and winter seasons which provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use.

### Desired conditions (GA-SM-MA7-Ashley Lake-DC)

- 01 The three sites on Ashley Lake provide visitor access to a quality, water-based recreational experience. Camping opportunities complement the existing developed environment surrounding the lake.
- 02 Ashley Lake campgrounds and facilities are well maintained, have minimal damage to resources, and accommodate current use.

### Objectives (SM-MA7-Ashley Lake-OBJ)

- 01 Reconstruct three developed recreation sites at Ashley Lake within the next 10 years.

### Blacktail-Foy's (GA-SM-MA7-Blacktail-Foys)

This area provides summer recreational opportunities including horseback riding, mountain biking, disperse camping, and hiking. The recreation opportunity spectrum setting is roaded natural in the summer season and semiprimitive motorized in the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6c. Refer to management area 6c for vegetation management direction.

**Desired conditions (GA-SM-MA7-Blacktail Foyes-DC)**

- 01** Nonmotorized trails provide summer (July and August) hiking and mountain biking opportunities close to local communities, connecting the Blacktail Mountain area to trail systems located on non-Federal lands.

**Tally Mountain (GA-SM-MA7-Tally Mountain)**

This area provides summer recreational opportunities including horseback riding, mountain biking, disperse camping, and hiking. The recreation opportunity spectrum setting is roaded natural for the summer season and a mixture of semiprimitive motorized and semiprimitive nonmotorized for the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country. The winter semiprimitive nonmotorized setting provides opportunities for solitude for those accessing the Forest on skis and snowshoes. Trails are generally ungroomed and often not marked. Rustic facilities, such as historic cabins or yurts, may exist but are rare.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6c. Refer to management area 6c for vegetation management direction.

**Desired conditions (GA-SM-MA7-Tally Mountain-DC)**

- 01** Recreational opportunities within the Tally Mountain area are consistent with the desired recreation opportunity spectrum settings of roaded natural for the summer season and a mixture of semiprimitive motorized and semiprimitive nonmotorized for the winter season and provide a diversity of summer nonmotorized recreational activities.

**Ingalls Mountain (GA-SM-MA7-Ingalls Mountain)**

This area provides summer recreational opportunities including horseback riding, mountain biking, driving for pleasure, and motorcycle riding on single-track trails. The recreation opportunity spectrum setting is roaded natural for the summer season and semiprimitive motorized in the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well-maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country. Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6c. Refer to management area 6c for vegetation management direction.

**Desired conditions (GA-SM-MA7-Ingalls Mountain-DC)**

- 01** Motorized trails provide summer (July and August) wheeled motorized trail experiences on designated routes.
- 02** This area provides a high-elevation wheeled motorized loop trail.

## South Fork Geographic Area

### General overview

The South Fork geographic area is the largest on the Flathead National Forest and encompasses the upper half of the South Fork of the 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 National Forest. This geographic area includes the vast, undeveloped area of the Bob Marshall Wilderness and portions of the Great Bear Wilderness and is 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 3,600 to over 8,000 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. For a map of the potential vegetation types in the South Fork geographic area, see figure B-08, and refer to appendix D for a description and acres of the potential vegetation types within this geographic area. This geographic area includes all of the Spotted Bear Ranger District and is entirely NFS lands.

This geographic area is popular for recreational use. It is a focal point for hiking, horseback riding, hunting, and 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 area's 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 Bob Marshall Wilderness Complex, which includes lands on the Flathead, Helena-Lewis and Clark, and Lolo National Forests. The Bob Marshall Wilderness Complex is part of one of the largest remaining wildland areas in the lower 48 states, containing world-class backcountry, and is entirely NFS lands.
- A popular 110-mile-long driving loop around Hungry Horse Reservoir provides access to areas of the reservoir and driving for pleasure opportunities.
- Very large expanses of unroaded lands characterize most of this geographic area, 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 Hungry Horse Reservoir is a designated Wild and Scenic River.
- The Meadow Creek and Spotted Bear Airstrips are within this geographic area.
- 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 elk and other big game species.
- Bull trout migrate from Hungry Horse Reservoir and provide catch-and-release angling that is not found elsewhere in Montana. The westslope cutthroat trout populations are non-hybridized as there are no non-native fish populations.
- Spotted Bear Ranger Station and Big Prairie guard station are historic facilities that operate seasonally. These, along with several backcountry guard stations, 40 miles of operational historic

phone line, and an intricate trail system, make up the Flathead National Forest Backcountry Administrative Facilities Historic District.

Table 45 displays the acres identified for each management area in the South Fork geographic area.

**Table 45. South Fork geographic area management area allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	671,650	80%
1b Recommended wilderness	33,880	4%
2a Designated wild and scenic rivers	16,473	2%
2b Eligible wild and scenic rivers	41,735	5%
3a Administrative areas	170	< 1%
3b Special areas	—	—
4a Research natural areas	—	—
4b Experimental and demonstration forests	—	—
5a Backcountry nonmotorized year-round	31,097	4%
5b Backcountry motorized year-round, wheeled vehicle use only on designated routes and areas	—	—
5c Backcountry motorized over-snow vehicle use	12,189	1%
5d Backcountry wheeled motorized vehicle use only on designated routes/areas	—	—
<b>5a-5d Backcountry total</b>	<b>43,286</b>	<b>5%</b>
6a General forest low-intensity vegetation management	4,744	1%
6b General forest medium-intensity vegetation management	20,662	2%
6c General forest high-intensity vegetation management	4,678	1%
<b>6a-6c General forest total</b>	<b>30,084</b>	<b>4%</b>
7 Focused recreation areas	7	< 1%

a. Some management areas overlap. For example, management area, 1a designated wilderness, may have an overlapping management area 2a, designated wild and scenic river. Due to dual designations, acre and percentage totals will be greater than the actual land base.

## Desired conditions (GA-SF-DC)

- 01** The 40 miles of operational historic phone line is maintained for continued use for wilderness management.
- 02** The Flathead National Forest Backcountry Administrative Facilities historic district adjacent to and within the Bob Marshall and Great Bear Wilderness Areas provides recognition of national and regional wilderness and land management history.
- 03** The Spotted Bear and Meadow Creek Airstrips provide public and administrative access for small aircraft.
- 04** Lands mapped as winter big game habitat by MFWP in the Dry Park, Horse Ridge, lower Spotted Bear River, and Danaher to Big Prairie areas provide desired winter habitat conditions.
- 05** 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.
- 06** Water-based outfitter and guide and livery services provide water-based outfitting experiences on the South Fork of the Flathead River.

## Objectives (GA-SF-OBJ)

- 01 Annually, maintain 40 miles of the historic phone line.
- 02 Improve one to two campgrounds.

## Standards (GA-SF-STD)

- 01 Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 46. All snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the minimum levels in each column of table 46 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 15 inches d.b.h., decayed or decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).

**Table 46. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas.<sup>a</sup>**

Forest dominance type	Potential vegetation type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 15 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	4	2
All except lodgepole pine	Warm-moist	7	2
All except lodgepole pine	Cool-moist	5	2
All except lodgepole pine	Cold	4	1
Lodgepole pine	All	2	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags/decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.



## Swan Valley Geographic Area

### General overview

The Swan Valley geographic area encompasses the entire Swan River basin and also extends north into the eastern portion of the Flathead River valley and west to encompass a portion of the east shore of Flathead Lake. The Flathead Indian Reservation borders the geographic area 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 National Forest. The peaks of the Swan Range form the eastern border.

The Flathead River valley in the northern portion of the geographic area is mostly non-NFS land. A substantial portion (approximately 28 percent) of the Swan River watershed is also non-NFS land, 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 approximately 45,000 acres of Plum Creek Timber Company lands through the Montana Legacy Project. Portions of the Swan Lake Ranger District are within this geographic area.

The Swan River watershed is characterized by a wide valley bottom of flat to rolling, gently sloped terrain that is bordered on both sides by rugged mountains jutting up steeply from the valley floor. Elevation ranges from about 3,000 feet at the mouth of the Swan River on the shores of Flathead Lake to over 8,000 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 Valley when compared to other regions of the Forest. The majority of the warm-moist potential vegetation types, the most productive lands that occur on the Forest, are within this geographic area. Warm-dry potential vegetation types 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 potential vegetation types. For a map of the potential vegetation types for this geographic area, see figure B-09. Refer to appendix D for a description and acreages of the potential vegetation types within this geographic area.

This geographic area links the Bob Marshall Wilderness Complex and the Mission Mountains Wilderness and is an important connectivity zone for many species of wildlife, including grizzly bears. Recreation and timber management are major uses within this geographic area.

### Unique characteristics

- The Mission Mountains Wilderness is within this geographic area.
- This geographic area contains Swan, Holland, and Lindbergh Lakes, which are popular day-use and camping areas.
- This geographic area contains large acreages of diverse, high-quality riparian habitats and wetlands, including on the Swan Valley floor the Forest's most extensive, floristically diverse concentration of peatlands (fens), many of which are designated as special areas (management area 3b).
- This geographic area 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.
- The Swan River Research Natural Area occurs in this geographic area 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 approximately 15,315-acre Jewel Basin hiking area lies within this geographic area and contains hiking trails without motorized, mechanized, or stock use.
- The Condon Airstrip is an open, public airstrip in the Swan Valley.
- The Condon Work Center is currently operated by Swan Valley Connections under a partnership agreement with the Forest Service.

Table 47 displays the acres identified for each management area in the Swan Valley geographic area.

**Table 47. Swan Valley Geographic Area management area allocation<sup>a</sup> (acres and percent)**

Management Area	acres	percent
1a Designated wilderness	74,703	20%
1b Recommended wilderness	46,524	13%
2a Designated wild and scenic rivers	—	—
2b Eligible wild and scenic rivers	10,020	3%
3a Administrative areas	10	< 1%
3b Special areas	2,178	1%
4a Research natural areas	1,345	< 1%
4b Experimental and demonstration forests	—	—
5a Backcountry nonmotorized year-round	10,638	3%
5b Backcountry motorized year-round, wheeled vehicle use only on designated routes/areas	18,609	5%
5c Backcountry motorized over-snow vehicle use	20,234	5%
5d Backcountry wheeled motorized vehicle use only on designated routes/areas	9,325	3%
<b>5a-5d Backcountry total</b>	<b>58,806</b>	<b>16%</b>
6a General forest low-intensity vegetation management	16,163	4%
6b General forest medium-intensity vegetation management	91,951	25%
6c General forest high-intensity vegetation management	64,754	18%
<b>6a-6c General forest total</b>	<b>172,868</b>	<b>47%</b>
7 Focused recreation areas	3,607	1%

a. Some management areas overlap. For example, management area 1a, designated wilderness, may have an overlapping management area 2a, designated wild and scenic river. Due to dual designations, acreage and percentage totals will be greater than the actual land base.

## Desired conditions (GA-SV-DC)

- 01** Known sites and habitat for the currently threatened species water howellia (*Howellia aquatilis*) persist over time in special aquatic habitats and backwaters in larger, low-elevation valleys (see also FW-DC-PLANTS-01).
- 02** The Swan Highway (Montana Highway 83) from Swan Lake to Holland Lake has vistas for viewing the Mission Mountains and the Swan Range.
- 03** Lands acquired in the Swan Valley provide access to NFS lands by the public while maintaining and improving water quality, wildlife habitat conditions, and water howellia habitat.
- 04** Educational guided services are provided in the Mission Mountains Wilderness.

- 05 Winter habitat for big game species in the Swan Valley (determined in cooperation with MFWP), from the Holland Lake area on the south to the Swan Lake State Forest boundary on the north, provides desired winter habitat conditions, including snow intercept cover.
- 06 The size, shape, and characteristics of forest patches in the Swan Valley form a natural-appearing mosaic pattern rather than the straight-edged “checkerboard” pattern resulting from past land ownership and management practices.
- 07 Vegetation conditions across the valley bottom and foothill landscapes of the Swan Valley are highly diverse in species composition and forest structure, reflecting the conditions that would naturally be associated with this area’s unique and varied site conditions and terrain, including much of the Forest’s warm-moist potential vegetation type lands and an abundance of forest/wetland interface areas.
- 08 The extensive and floristically diverse concentration of peatlands and fens within this geographic area supports sustainable and healthy populations of the plant species or communities associated with this feature.
- 09 The portion of the Seeley Clearwater connectivity area from Condon south to the boundary of the Swan Valley geographic area and from the south end of Swan Lake to Lost and Porcupine Creeks (see figure B-30) provide habitat connectivity for wide-ranging wildlife species (e.g., grizzly bear, Canada lynx, and wolverine) moving between the Swan and Mission Mountain Ranges.
- 10 The Six Mile area provides motorized over-snow vehicle use, including late-season use (see figure B-12), as well as summer wheeled motorized use, consistent with the desired recreation opportunity spectrum.
- 11 Habitat conditions and ecological processes support known populations of the carinate mountainsnail on and adjacent to talus slopes in the Swan Valley geographic area.

### **Objectives (GA-SV-OBJ)**

- 01 Complete one vista enhancement project along the Swan Highway (Montana Highway 83).
- 02 Improve one to three campgrounds.
- 03 Out of the total treatment acres across the Forest, treat 1,500 to 7,500 acres of young forest (e.g., sapling stands) in the Swan Valley geographic area to maintain or move towards achieving desired forest composition, structure, forest fuel conditions, landscape patterns, and scenic integrity, with a focus on the previously harvested lands recently added to the NFS.
- 04 Decommission or place into intermittent stored service 10 to 30 miles of roads. Priorities are roads causing resource damage in priority watersheds, roads on acquired lands in the Swan Valley that are not needed for fire protection or other resource management, roads within desired nonmotorized recreation opportunity spectrum settings, and/or roads within bull trout watersheds.

### **Standards (GA-SV-STD)**

- 01 Within timber harvest areas, snags or live replacement trees shall be retained at or above the minimum levels displayed in table 48. All snags of western larch, ponderosa pine, and black cottonwood trees greater than 20 inches d.b.h. shall be retained. If sufficient snags to meet the minimum levels in each column of table 48 are not present, live replacement trees shall be substituted for each snag. Live replacement trees shall be of the largest size present above 10 inches

d.b.h., decayed or decadent trees if present, and the following species if present: western larch, ponderosa pine, Douglas-fir, cottonwood, aspen, birch, or western redcedar. In regeneration harvest units, suitable replacement trees include those that would not cause unacceptable impacts to the conifer tree regeneration (e.g., dwarf mistletoe infection or potential dysgenic seed source).

**Table 48. Minimum average number of snags or live replacement trees per acre greater than 10 feet tall to retain within timber harvest areas.<sup>a</sup>**

Forest dominance type	Potential vegetation type	Total minimum number of snags or live replacement trees per acre of the largest d.b.h. present (greater than 10 inches d.b.h.)	Minimum number of snags or live replacement trees per acre greater than or equal to 20 inches d.b.h.
All except lodgepole pine	Warm-dry	9	2
All except lodgepole pine	Warm-moist	13	3
All except lodgepole pine	Cool-moist	10	2
All except lodgepole pine	Cold	10	1
Lodgepole pine	All	7	1

a. Minimum retention levels should be analyzed and applied at the project level across individual harvest units, all units, or groups of units (e.g., grouped by potential vegetation type). An alternative analysis area for application of snag retention direction may be developed for salvage harvest in areas of very high snag densities (e.g., due to fire, severe insect or disease mortality), based on site-specific conditions and potentially including areas outside harvest units. This analysis approach recognizes the naturally uneven distribution of snags across the forested landscape, particularly of the larger, higher-quality snags or decadent trees. It allows for variation in snag retention within treatment units that is consistent with the natural distribution and with the intent of preserving the most desirable snags, decadent trees, and replacement trees.

Exceptions to the snag retention standard may occur in areas where there are issues of human health and safety (e.g., developed recreation sites, adjacent to landings). To contribute to forest structural diversity and wildlife habitat (such as for fisher or marten), snags or live replacement trees within harvest units that are designated for retention but fall down due to natural causes (e.g., wind) or are deliberately felled for reasons of human safety shall not be removed. See also FW-GDL-RMZ-10 for snag retention direction in harvest units within riparian management zones.

## Guidelines (GA-SV-GDL)

- 01** To provide coordinated management of the Mission Mountains Wilderness, consultation with the Confederated Salish and Kootenai Tribes should occur prior to authorization of new outfitter and guide permits.
- 02** To protect the carinate mountainsnail, talus slopes with known populations of this invertebrate species should not be used as a gravel or ornamental rock source, and immediately adjacent vegetation should not be harvested or sprayed for non-native invasive weeds.
- 03** To maintain and protect wilderness character, Glacier, Cold, and Upper Cold Lakes should provide only day-use opportunities in the Mission Mountains Wilderness.
- 04** For efficient management of the grazing program, open and active cattle grazing allotments should be closed if the opportunity arises with a willing permittee.

## Swan Valley management area 7 focused recreation direction

### Suitability (GA-SV-MA7-SUIT)

- 01 The following management area 7 areas are suitable for timber production: Krause Basin and Crane Mountain.
- 02 The following management area 7 areas are not suitable for timber production: Holland Lake Campground, Swan Lake Campground and day-use area, and Camp Misery trailhead. Timber harvest or other vegetation management activities may occur to achieve desired conditions for vegetation or for other multiple-use purposes associated with the area (such as public safety and health).
- 03 These areas are suitable for wheeled motorized travel on designated roads, trails, and areas.
- 04 For suitability of winter motorized over-snow vehicle use, refer to the motorized over-snow vehicle use suitability maps, figures B-11 and B-12.

### Crane Mountain (GA-SV-MA7-Crane)

This area is located approximately 5 miles south and east of the town of Bigfork. Mountain biking is a popular summer use of the area. In addition, there are approximately 43 miles of motorized over-snow vehicle trails, which are also available for Nordic skiing and snowshoeing.

The recreation opportunity spectrum setting for the summer season is roaded natural, and it is semiprimitive motorized for the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well-maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. Winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6b. Refer to management area 6b for vegetation management direction.

### Desired conditions (GA-SV-MA7-Crane-DC)

- 01 A system of trails provides mountain biking opportunities in the Crane Mountain area close to local communities.
- 02 The Crane Mountain groomed motorized over-snow vehicle trail system provides for motorized winter recreation opportunities close to local communities.

### Objective (GA-SV-MA7-Crane-OBJ)

- 01 Construct a designated mountain bike trail system in the Crane Mountain area.

### Krause Basin (GA-SV-MA7-Krause)

This area is located in the Krause Creek area in the foothills of the Swan Mountains close to the communities of Kalispell and Bigfork, Montana, about 20 miles drive east of Kalispell. This area provides nonmotorized and motorized opportunities. Nonmotorized opportunities include hiking, biking, and

horseback riding. An interpretive nature trail that goes through a cedar/hemlock old forest stand is within this area. In July and August, the area provides about 13 miles of wheeled motorized trail opportunities that connect to the Alpine #7 motorized trail system along the Swan Divide. During the winter months, the area is suitable for motorized over-snow vehicle use.

The recreation opportunity spectrum setting for the summer season is roaded natural, and it is semiprimitive motorized for the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

This focused recreation area reflects natural conditions with some development in the form of trailhead, trail markers and trail signing. Management focus will be on frequent site visits by forest employees, obliterating user-created trails and focusing use on designated trails through use of trailhead signage, and additional facilities (such as a toilet) if needed to protect resources. Vegetation management activities occur to achieve desired conditions within this management area 7 area, with the expected intensity of vegetation management the same as management area 6b. Refer to management area 6b for vegetation management direction.

### **Desired conditions (GA-SV-MA7-Krause-DC)**

- 01** Existing trails provide summer (July and August) wheeled motorized trail experience on designated and signed routes. This area provides for motorized winter recreation opportunities close to local communities.
- 02** Nonmotorized (hiking, mountain biking, and equestrian) trail opportunities are provided.
- 03** The old forest conditions of the cedar/hemlock stand containing the interpretive nature trail are preserved and continue to provide the opportunity to educate the public about this forest type.

### **Holland Lake Campground (GA-SV-MA7-Holland Lake)**

This area encircles Holland Lake in the south end of the Swan Valley. It includes the Holland Lake developed campground and day-use areas, and the Owl Creek Packer Camp. Camping, boating, swimming, horseback riding, fishing, and hiking are popular uses of this area. An interpretive nature trail is located near the campground. This area also encompasses the popular Holland Falls National Recreation Trail, a 1.6-mile trail that follows the lake shoreline to the base of Holland Falls at the head of the lake. The Holland Lake area is also a popular access point to the trail system in the Bob Marshall Wilderness Complex.

The recreation opportunity spectrum setting for the summer season is roaded natural, and it is semiprimitive motorized for the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling opportunities. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

**Desired conditions (GA-SV-MA7-Holland Lake-DC)**

- 01** Holland Lake Campground and associated recreational facilities provide quality visitor experiences in a natural setting. Facilities are maintained to a standard that protects Forest resources and are updated as needed to accommodate current and anticipated recreational use.

**Swan Lake Campground and Day-Use Area (GA-SV-MA7-Swan Lake)**

This campground and day-use area is located about 14 miles south of Bigfork, Montana, at the southern end of Swan Lake, near the village of Swan Lake, Montana. The majority of the shoreline of Swan Lake is privately owned; this area provides public access to the 3,300-acre lake. Boating, swimming, camping, fishing, and hiking are popular activities.

**Desired conditions (GA-SV-MA7-Swan Lake-DC)**

- 01** Swan Lake Campground and day-use area provides a high-quality water-based visitor experience. Facilities are maintained to a standard that protects Forest resources and are updated as needed to accommodate current and anticipated recreational use.

**Camp Misery trailhead (GA-SV-MA7-Camp Misery)**

This management area 7 area encompasses the Camp Misery trailhead, which is a very popular access point to the Jewel Basin Hiking Area. The Jewel Basin hiking area is an approximately 15,300-acre area maintained exclusively for hiking and camping, characterized by high alpine meadows, lakes, and forests. The Camp Misery trailhead is in close proximity to Kalispell, Montana, and is readily accessible by car.

The recreation opportunity spectrum setting for the summer season is roaded natural, and it is semiprimitive motorized for the winter season. Roaded natural provides a natural-appearing landscape that supports higher concentrations of use, user comfort, and social interactions with a well-defined road system. Facilities are well maintained to protect Forest resources and are updated as needed to accommodate current and anticipated recreational use. The winter semiprimitive motorized setting provides opportunities for exploration and challenge in backcountry skiing and snowmobiling. Routes are typically ungroomed but are often signed and marked, with additional areas for traveling cross-country.

**Desired conditions (GA-SV-MA7-Camp Misery-DC)**

- 01** The Camp Misery trailhead provides quality visitor experiences and facilities in a natural setting. Facilities are maintained to a standard that protects Forest resources and are updated as needed to accommodate current and anticipated recreational use.

## Chapter 5. Monitoring Program

### Introduction

Monitoring provides feedback for the Forest's 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 whether 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 2012 planning rule states that a plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following:

1. The status of select **watershed conditions**.
2. The status of select **ecological conditions**, including **key characteristics** of terrestrial and aquatic ecosystems.
3. The status of **focal species** to assess the **ecological conditions** required under § 219.9.
4. 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**.
5. The status of **visitor use, visitor satisfaction, and progress towards meeting recreation objectives**.
6. Measurable changes in the plan area related to **climate change** and other **stressors** that may be affecting the plan area.
7. Progress towards **meeting the desired conditions and objectives** in the plan, including providing **multiple-use opportunities**.
8. The effects of each management system to determine that they do not substantially and permanently **impair the productivity of the land**.

Additionally, monitoring may be conducted for other purposes, such as to

- comply with USFWS biological opinion terms and conditions or court orders;
- track social, cultural, and economic indicators;
- discern the magnitude of departures from desired conditions and the reasons for the departures, if applicable;
- reduce uncertainty or verify assumptions;
- assess whether there are changes in drivers or stressors that are affecting sustainability; and
- respond to key public issues.

The plan monitoring program addresses the most critical components related to 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 Table 49 through table 68. Consideration and coordination with broader-scale monitoring strategies adopted by the regional forester, multi-party monitoring collaboration, and cooperation with State and private forestry as well as research and development, as required by § 219.12(a), 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, plan components, and associated indicators. The monitoring program will be guided by a monitoring guide that will provide more detailed information on the monitoring questions, indicators, frequency and reliability, data sources and storage, and cost. For example, the Forest anticipates that Forest Inventory and Analysis data will be used to monitor vegetation conditions and that data will be updated about every 10 years. However, data sources and frequency of updates may change, so the specifics will be included in a monitoring guide. It is important to note that not all monitoring questions are expected to be evaluated biennially.

The Forest used the best available scientific information in the development of the monitoring plan, giving consideration to expected budgets and agency protocols. For example, Forest Inventory and Analysis data is the most accurate, reliable, and relevant data source for monitoring terrestrial vegetation conditions because it follows nationwide, statistically based protocols. Similarly, Pacific Fish Strategy/Inland Native Fish Strategy biological opinion (PIBO) data is the most accurate, reliable, and relevant data for monitoring aquatic ecosystem conditions because it uses a probabilistic sampling design. The program was initiated to evaluate the effect of land management activities on aquatic and riparian communities at multiple scales and to determine whether management practices are effective in maintaining or improving the structure and function of riparian and aquatic conditions.

An interdisciplinary team will develop a biennial monitoring evaluation report that summarizes the results of completed monitoring, including the evaluation of the collected data and relevant information from broader-scale or other monitoring efforts. The report will also include recommendations for the responsible official as to whether a change to forest plan management activities, the monitoring program, or a new assessment may be warranted based on the assessed information. The monitoring evaluation report is used to inform adaptive management of the plan area and will be made available to the public (26 CFR § 219.12(d)(2)).

Some types of monitoring indicators require longer time frames for thorough evaluation of results, but a biennial review of the certain information that has been collected ensures 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.

Table 49 through table 68 are organized to display the monitoring question(s), the indicator(s) for answering the monitoring question(s), and the plan components associated with them. Monitoring questions are used to evaluate whether management is maintaining or moving towards or away from desired conditions. Indicators are the specific resource measures used in answering the monitoring

questions. In general, the forest plan components listed are the primary direction being addressed by the monitoring question.

## Adaptive management

The revised plan follows adaptive management principles outlined in the planning rule directives (Forest Service Handbook 1909.12, zero code 06.1 and 06.2). Assumptions and uncertainty are characterized throughout the plan and the plan's environmental impact statement. For example, the Forest modeled acres burned by wildfire over the last 1,000 years and interpreted results to assess the natural range of variability for the Forest's ecosystems. Actual acres burned by wildfire in the last 100 years were graphed to help validate assumptions, modeled acres that may be burned by wildfire in the future based upon projections of downscaled climate models, and disclosed the uncertainty of the models. The environmental impact statement used this information to inform the establishment of desired conditions and to assess effects of alternatives on ecological sustainability, considering likely future environments. Once the plan is implemented, monitoring item MON-TE&V-02 would be used to assess wildfire acres by burn severity class and monitoring item MON-T&E-LYNX-01 would be used to relate this information to the percentage of lynx habitat burned by wildfire in each lynx analysis unit. This monitoring information would be shared internally and with the public through the monitoring report so that the Forest can adapt its strategies and adjust decisions based upon what has been learned.

Items included in this monitoring plan also use data collection protocols for terrestrial and aquatic ecosystems at appropriate temporal and spatial scales. For example, monitoring item MON-TE&V-01 would be used to assess the change in key ecosystem characteristics of forest and non-forest vegetation at the scale of the potential vegetation type as well as forestwide. Using adaptive management principals, recently remeasured Forest Inventory and Analysis data informed the development of management direction in the revised plan and will assist the Forest in determining if adjustments to management direction are needed in the future. For example, Forest Inventory and Analysis data was used to assess the trend in the amount of old-growth forest by determining the amount burned by wildfire since the last Forest Inventory and Analysis measurements were completed. In light of this monitoring information, the revised plan has added plan components that place more emphasis on management for key ecosystem characteristics of old-growth forest, such as live trees and snags in the 20-inch-d.b.h. class. Monitoring item MON-WL-10 would be used to assess the status of habitat for wildlife species associated with snags and live trees in the 20-inch-or-greater d.b.h. class. Monitoring item MON-WL-15 would be used to assess the status of the breeding season bird community on the Forest using Integrated Monitoring in Bird Conservation Regions data and reports on species associated with those characteristics.

Past monitoring has helped to inform development of plan components and will help make the plan adaptive in the future. For example, birds, including neo-tropical migratory birds, have been extensively monitored on the Forest. The Forest participates in the Region 1 Landbird Monitoring Program that includes (1) standard point-count surveys; (2) monitoring of avian productivity and survivorship (MAPS); and (3) single species habitat use and distribution surveys. In addition to point count surveys, the Avian Science Center at the University of Montana conducted habitat and distribution surveys for individual bird species on the Forest from 1994 to 2004, including flammulated owls, goshawks, and black-backed woodpeckers. The USDA Forest Service Northern Region Songbird Monitoring Program<sup>33</sup> has provided

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<sup>33</sup> R. L. Hutto & J. S. Young, J. S. (1999), *Habitat relationships of landbirds in the Northern Region*, USDA Forest Service (Ogden, UT: USDA Forest Service, Rocky Mountain Research Station), retrieved from <https://www.treesearch.fs.fed.us/pubs/37402>, [https://www.fs.fed.us/rm/pubs/rmrs\\_gtr032.pdf](https://www.fs.fed.us/rm/pubs/rmrs_gtr032.pdf), planning record exhibit # 00582.

data on occupancy, habitat relationships, and effects from past management activities for breeding birds in western Montana.

For aquatic ecosystems, monitoring item MON-WTR-01 would be used to assess water quality and riparian and aquatic habitats. Pacific Fish Strategy/Inland Native Fish Strategy biological opinion monitoring data was used to develop plan components and will be used in the future to test assumptions and assess the trend in key ecosystem characteristics of aquatic ecosystems. For example, metrics such as percent fines, residual pool depth, percent pools, and median substrate size will be collected, along with native fish population monitoring using bull trout redd counts, electrofishing, and genetic status monitoring (in cooperation with MFWP). This information will enable the Forest to adapt its management strategies and adjust decisions in the future, as needed, based upon what has been learned.

## Monitoring scale and responsibility

Monitoring occurs at the scale of the Forest, the Northern Region, and even larger areas. Monitoring may be the responsibility of the Forest Service or another agency or may involve multiple agencies and organizations. For example, key ecosystem characteristics related to a changing climate may be monitored at very large scales. One key ecosystem characteristic associated with high elevations is “persistent spring snow,” which is useful in monitoring habitat for species such as the wolverine. Persistent spring snow maps and data layers were produced by researchers at the scale of the broad range of the wolverine. These maps and data layers are updated by researchers, not by the individual national forests, and changes are made only if and when researchers update the existing data. Similarly, a research effort would be required for monitoring of deep, fluffy snow in critical habitat for Canada lynx, or for a retrospective study of the density of snowshoe hares and habitat use by lynx in response to various past vegetation management practices.

Similarly, the presence and distribution of threatened or endangered species, species of conservation concern (see glossary), and species that are of interest to the public for hunting, trapping, fishing or observing, may be assessed as part of a research effort or monitored across large scales in cooperation with others (e.g., IND-WLD-28, 45, 69-72, and 75 in table 53). The Montana Natural Heritage Program, MFWP, USFWS, the tribes, universities, research stations, nongovernmental organizations, and Federal agencies other than the Forest Service are all instrumental in monitoring species across multiple land management jurisdictions (e.g., Integrated Bird Monitoring in Bird Conservation Regions).

Monitoring related to the grizzly bear occurs at the large scale of the NCDE and is the responsibility of multiple agencies. For example, the USFWS and MFWP are responsible for monitoring grizzly bear-human conflicts, grizzly bear-livestock conflicts, and grizzly bear mortality. As directed by the draft NCDE Grizzly Bear Conservation Strategy,<sup>34</sup> monitoring results are to be reported to the NCDE coordinating committee. The coordinating committee is not a decisionmaking body, although it may provide recommendations to member agencies from time to time. Additionally, the coordinating committee does not supersede the authority of the management agencies beyond the specific actions agreed to by the signatories to the Grizzly Bear Conservation Strategy.

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<sup>34</sup> USFWS (2013), *Draft Northern Continental Divide Ecosystem grizzly bear conservation strategy*, U.S. Fish and Wildlife Service, retrieved from <http://www.fws.gov/mountain-prairie/species/mammals/grizzly/continentalindex.html>, [http://www.fws.gov/mountain-prairie/species/mammals/grizzly/NCDE\\_Draft\\_CS\\_Apr2013\\_Final\\_Version\\_corrected\\_headers.pdf](http://www.fws.gov/mountain-prairie/species/mammals/grizzly/NCDE_Draft_CS_Apr2013_Final_Version_corrected_headers.pdf).

As detailed in the monitoring sections of the draft Grizzly Bear Conservation Strategy, the following monitoring information will be compiled by the USFS to support the habitat-related tasks of the NCDE monitoring team:

- Coordinate updates and maintenance of the motorized access, developed sites, and livestock allotments databases.
- Document and report any changes in motorized access route density, levels of secure core habitat, developed sites and their capacity, livestock allotments, and permitted sheep numbers biennially, according to the monitoring schedules described in chapter 3 of the draft Grizzly Bear Conservation Strategy.
- Ensure that cooperators have the tools and training to evaluate motorized access route density and secure core habitat for projects.
- Evaluate the need to update or change the methods used to evaluate habitat parameters and make recommendations to the NCDE coordinating committee on such changes, as necessary.
- Set and maintain standards, definitions, values, formats, and processes for collecting and updating habitat data and assessment models consistently across jurisdictions.

In order to accomplish this, a coordinated approach to the funding, use, and intensive maintenance of GIS databases is required. The Grizzly Bear Conservation Strategy monitoring team will include biologists and GIS specialists from the signatory agencies (including the USFS) and the tribes.

Because the draft Grizzly Bear Conservation Strategy describes the need for monitoring to adequately assess habitat conditions, for adherence to the habitat standards, and to report on the habitat monitoring items identified in the draft Grizzly Bear Conservation Strategy, some of the monitoring items listed in the table below are part of the Northern Region's broad-scale monitoring strategy, but these will also be evaluated at the Forest scale. The grizzly bear monitoring questions with an "NCDE" prefix, as identified in the tables, will apply to the NCDE national forests (Flathead, Helena-Lewis and Clark, Kootenai, and Lolo). The other monitoring items listed in this chapter are intended to be used for forest plan monitoring at smaller scales but may also be compiled at a regional scale.

Monitoring of ecosystem characteristics may also 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 the Northern Region's existing vegetation classification system (Region 1 VMap) or other vegetation databases to assess habitat conditions and their distribution for projects. Species-specific habitat models may also be used at the project scale to assess potential effects of forest plan implementation. For example, project-level monitoring can be used to assess the availability of multistoried hare habitat within a lynx analysis unit or to assess spatial distribution of old-growth forest patch size and connectivity within a subwatershed.

## Physical and Biological Elements

The plan monitoring program contains monitoring questions and indicators addressing the physical and biological elements of the ecosystem, including questions and indicators associated with vegetation, soils, fish, water, and wildlife (shown in table 49 through table 57).

### Aquatic ecosystems

**Table 49. Plan monitoring questions and indicators for aquatic ecosystems**

<b>Monitoring Question(s)</b>	<b>Plan Component(s)</b>	<b>Indicator(s)</b>
<b>MON-WTR-01:</b> What are the changed conditions of instream physical habitat parameters in managed vs. unmanaged sites?	<b>FW-DC-WTR-04</b>	<b>IND-WTR-</b> <b>01.</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) <b>02.</b> Results of McNeil core samples of percent fines
<b>MON-WTR-02:</b> To what extent are forest management activities moving towards habitat objectives for native fish?	<b>FW-OBJ-CWN-01</b> <b>FW-OBJ-WTR-01 through 04</b> <b>FW-DC-CWN-01</b>	<b>IND-WTR-</b> <b>03.</b> Number of fish passage barriers removed or created <b>04.</b> Miles of roads decommissioned within the riparian management zone <b>05.</b> Number of culverts removed or upgraded <b>06.</b> Number of activities with stream miles of habitat improvements
<b>MON-WTR-03:</b> What vegetation treatment activities have occurred in the riparian management zone?	<b>FW-STD-RMZ-05, 06</b> <b>FW-DC-RMZ-01, 03, 04, 05</b> <b>FW-RMZ-OBJ-01</b> <b>FW-GDL-CWN-01</b>	<b>IND-WTR-</b> <b>07.</b> Treatment type and acres within riparian management zones <b>08.</b> Number of entries and road crossing inside riparian management zones
<b>MON-WTR-04:</b> What is the condition of water quality in waterbodies?	<b>FW-DC-WTR-06</b>	<b>IND-WTR-</b> <b>09.</b> Number of waterbodies listed on the Montana Department of Environmental Quality integrated report (305b/303d)
<b>MON-WTR-05:</b> What is the status of native fish populations?	<b>FW-DC-CNW-01</b>	<b>IND-WTR-</b> <b>10.</b> Number of redds (bull trout) <b>11.</b> Fish density—number/100 square meters <b>12.</b> Degree of spread of hybridization (MFWP data, redd counts)
<b>MON-WTR-06:</b> Do management activities contribute nutrients to Flathead Lake?	<b>FW-DC-WTR-17</b>	<b>IND-WTR-</b> <b>13:</b> Amount of phosphorus, nitrites, and nitrates that originate from NFS lands.
<b>MON-WTR-07:</b> What is the status of streambanks within grazing allotments?	<b>FW-GDL-05</b>	<b>IND-WTR-</b> <b>14.</b> Percent streambank alteration <b>15.</b> Percent stubble height

## Terrestrial ecosystems and vegetation and focal species

**Table 50. Plan monitoring questions and indicators for terrestrial ecosystems and vegetation and focal species**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-TE&amp;V-01:</b> What is the change in key ecosystem characteristics for forest and non-forest vegetation?	<b>FW-DC-TE&amp;V-03</b> <b>FW-DC-TE&amp;V-07, 08, 10 through 15</b>	<b>IND-TE&amp;V-</b> Proportion (percentage of total acres) forestwide and/or by PVT for each of these indicators: <b>01.</b> Dominance type (i.e., cover type)—forestwide <b>02.</b> Species presence—forestwide and by PVT <b>03.</b> Forest size class—forestwide and by PVT <b>04.</b> Tree canopy cover—forestwide and by PVT <b>05.</b> Old-growth forest—proportion of area forestwide and by potential vegetation type. <b>06.</b> Very large tree presence—proportion of area forestwide and by potential vegetation type <b>07.</b> Very large tree density, trees per acre. All species combined as well as for these species groups: cedar, Douglas-fir, larch, ponderosa pine, western white pine, cottonwood <b>08.</b> Snag density: Snags per acre $\geq 10$ inches d.b.h.; $\geq 15$ inches d.b.h.; $\geq 20$ inches d.b.h., forestwide and by PVT
<b>MON-TE&amp;V-02:</b> What is the change in amount and severity of wildfire and the status of fire regimes?	<b>FW-DC-TE&amp;V-03, 25</b> <b>FW-DC-FIRE-04</b>	<b>IND-TE&amp;V-</b> <b>09.</b> Forestwide acres burned by wildfire by severity class (low, medium, high) and acres not burned
<b>MON-TE&amp;V-03:</b> What is the change in insect hazard and root disease severity?	<b>FW-DC-TE&amp;V-03 and 20</b>	<b>IND-TE&amp;V-</b> <b>10.</b> Acres or percent of Douglas-fir beetle hazard, mountain pine beetle hazard, western spruce budworm hazard, and root disease severity
<b>MON-TE&amp;V-04:</b> How many acres of vegetation treatments are occurring that contribute to maintaining or moving towards achieving desired conditions in the plan?	<b>FW-OBJ-TE&amp;V-01, 02, 03, 04</b>	<b>IND-TE&amp;V-</b> <b>11.</b> Acres treated by vegetation management actions (e.g. harvest, prescribed fire, precommercial thinning, tree/shrub planting, fuel treatments, control of invasive plants) <b>12.</b> Acres treated by vegetation management that specifically address the Northern Region indicators associated with restoration and resilience of forests
<b>MON-TE&amp;V-05:</b> To what extent have management actions maintained required levels of snags or snag replacement trees within harvest units?	<b>FW-STD-TE&amp;V-03</b> <b>GA-STD-HH, SF, SV, NF-01</b> <b>GA-STD-MF, SM-02</b>	<b>IND-TE&amp;V-</b> <b>13.</b> Snag and snag replacement tree densities retained within a sample of timber harvest areas

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-TE&amp;V Focal-01:</b> What is the change in ecological conditions within the warm-moist and cool-moist PVTs, as indicated by conditions suitable for western white pine?	<b>FW-DC-TE&amp;V-04, 07</b>	<b>IND-TE&amp;V Focal-</b> <b>01.</b> Proportion (percentage of total acres) forestwide and by the warm-moist and cool-moist PVTs for western white pine species presence <b>02.</b> Proportion (percentage of total acres) forestwide of forest size classes in the areas where western white pine is present
<b>MON-TE&amp;V Focal-02:</b> What management actions are contributing to the restoration of western white pine?	<b>FW-OBJ-TE&amp;V-02</b>	<b>IND-TE&amp;V Focal-</b> <b>03.</b> Acres treated for the purpose of sustaining or restoring western white pine <b>04.</b> Survival of planted western white pine seedlings

## Plant species at risk

**Table 51. Plan monitoring questions and indicators for plant species at risk (threatened, endangered, proposed, and candidate plant species and species of conservation concern)**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-PLANT-01:</b> What is the status of water howellia in areas where disturbances (natural or human-caused) have occurred?	<b>FW-DC-PLANT-01</b>	<b>IND-PLANT-</b> <b>01.</b> Presence/absence of water howellia in habitat that has been disturbed
<b>MON-PLANT-02:</b> How are ecological conditions in the cold PVT affecting whitebark pine populations and habitats?	<b>FW-DC-PLANT-03</b>	<b>IND-PLANT-</b> <b>02.</b> Proportion (percentage of total acres) forestwide and by cold PVT for whitebark pine dominance type (i.e., cover type) <b>03.</b> Proportion (percentage of total acres) forestwide, and by cold PVT for whitebark pine species presence <b>04.</b> Proportion (percentage of total acres) forestwide of forest size classes in the areas where whitebark pine is present.
<b>MON-PLANT-03:</b> What management actions are contributing to the restoration of whitebark pine?	<b>FW-OBJ-PLANT-01</b>	<b>IND-PLANT-</b> <b>05.</b> Acres treated for the purpose of sustaining or restoring whitebark pine. <b>06.</b> Survival of planted whitebark pine seedlings
<b>MON-PLANT DIV-01:</b> What is the status of the known occurrences of plant species of conservation concern?	<b>FW-DC-PLANT DIV-01</b>	<b>IND-PLANT DIV-</b> <b>01.</b> Occurrences of plant species of conservation concern and associated habitats that are being monitored

## Non-native invasive species

**Table 52. Plan monitoring questions and indicators for non-native invasive species**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-NNIP-01:</b> What is the status of plant communities at highest risk of negative impacts to their system functions from established or new invaders?	<b>FW-DC-NNIP-01, 02, 04</b>	<b>IND-NNIP-01:</b> Percent of invasive plant species cover within identified high-risk/high-priority areas. These would include such areas as forests of the warm-dry PVT, dry grassland plant communities, wilderness trailheads, and management area 3b (special areas)
<b>MON-NNIP-02:</b> What management actions are contributing to coordination and cooperation with adjacent landowners and partners in managing non-native invasive weeds?	<b>FW-DC-P&amp;C-16</b>	<b>IND-NNIP-02:</b> Number and type of weed management actions conducted involving coordination and cooperation with partners and adjacent landowners

## Wildlife

Note that Northern Rockies Lynx Management Direction plan components can be found in appendix A, along with monitoring items required for this lynx direction. Monitoring items required in the biological opinion for the revised forest plan (USFWS 2017<sup>35</sup>) are also included in this monitoring plan. If a monitoring item applies to the NCDE, the alphanumeric identifier references NCDE.

**Table 53. Plan monitoring questions and indicators for grizzly bear**

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON-NCDE-01:</b> Within the NCDE primary conservation area, what is the level of secure core, open motorized route density (> 1 square mile) and total motorized route density (> 2 square miles) within each bear management subunit during the non-denning season?	<b>FW-STD-IFS-02</b>	<b>IND-NCDE-</b> For each grizzly bear subunit in the PCA: <b>01.</b> Open motorized route density percentage <b>02.</b> Total motorized route density percentage <b>03.</b> Secure core percentage
<b>MON-NCDE-02:</b> a) Within the NCDE PCA, what is the number and overnight capacity of developed recreation sites designed and managed for overnight use on NFS lands within each bear management unit, and how does this compare to the baseline? b) Within the NCDE primary conservation area, what is the status of administrative sites, day-use developed recreation sites, and trailheads in each bear management unit?	<b>FW-STD-REC-01</b> <b>FW-GDL-REC-01</b>	<b>IND-NCDE-</b> <b>04.</b> Number of developed recreation sites (NCDE definition) managed for overnight use in each grizzly bear management unit. <b>05.</b> Capacity of sites managed for overnight developed recreation use in each grizzly bear management unit. <b>06.</b> If increases in number or capacity occur, measures used to reduce the risk of grizzly-bear human conflicts. <b>07.</b> Number of new administrative sites, day-use developed recreation sites or trailheads (NCDE definition) in each grizzly bear management unit.

<sup>35</sup> USFWS (2017). Biological opinion for the revised forest plan—Flathead National Forest. Helena, MT: U.S. Fish & Wildlife Service, Ecological Services, pp. IV-93-94. Retrieved from [www.fs.usda.gov/goto/flathead/fpr](http://www.fs.usda.gov/goto/flathead/fpr).



Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON-NCDE-03:</b> Within the NCDE primary conservation area, is there a change in the number of allotments? Have conflicts occurred between grizzly bears and livestock on NFS lands?	<b>FW-STD-GR-05</b>	<b>IND-NCDE-</b> <b>08.</b> Number of livestock allotments in the PCA (by livestock type). <b>09.</b> Permitted animal unit months for sheep allotments. <b>10.</b> Number of grizzly bear-livestock conflicts on NFS lands by grizzly bear management zone (e.g., PCA, DCA) and livestock type.
<b>MON-NCDE-04:</b> If new leasable and locatable mineral activities occur in the PCA, do the record of decision and permit/plan of operation include a monitoring plan for changes in habitat and/or measures to avoid, minimize, or mitigate environmental impacts to grizzly bears or their habitat?	<b>FW-STD-E&amp;M-01, 03 through 06</b>	<b>IND-NCDE-</b> <b>11.</b> Number of permits authorized in the PCA and mitigation measures included in the permit/plan of operations where it is determined there is potential for adverse effects to the grizzly bear population or its habitat resulting from leasable or locatable mineral activities.
<b>MON-NCDE-05:</b> Within the NCDE primary conservation area, what is the status of grizzly bear subunits that have temporary increases in motorized access due to projects (see glossary)?	<b>FW-STD-IFS-03</b>	<b>IND-NCDE-</b> <b>12.</b> Percent change in the 10-year running average of open motorized route density, total motorized route density, and secure core for each subunit that has had temporary increases in projects (see appendix C for examples of methods).
<b>MON-NCDE-06:</b> Within the NCDE primary conservation area, are projects (see glossary) completed within the five-year time period specified by guideline FW-GDL-IFS-01?	<b>FW-GDL-IFS-01</b>	<b>IND-NCDE-</b> <b>13.</b> For each grizzly bear subunit in the PCA with a project (see glossary): Number of years to complete a project (the definition of "project (in grizzly bear habitat in the NCDE)" in the glossary).
<b>MON-NCDE-07:</b> In the Salish DCA, what is the density of roads and motorized trails on NFS lands that are open to public use during the non-denning season? In zone 1 outside the Salish DCA, what is the density of roads on NFS lands that are open to public use during the non-denning season?	<b>GA-SM-STD-01</b>	<b>IND-NCDE-</b> <b>14.</b> Density of roads and motorized trails on NFS lands in the DCA that are open to public motor vehicle use during the non-denning season. <b>15.</b> Density of roads on NFS lands in zone 1 outside the DCA that are open to public motor vehicle use during the non-denning season.
<b>MON-NCDE-08:</b> What is the risk of human disturbance in areas modeled as grizzly bear denning habitat during the den emergence time period (see glossary)?	<b>FW-STD-REC-05</b>	<b>IND-NCDE-</b> <b>16.</b> Percentage of modeled grizzly bear denning habitat where public motorized over-snow vehicle use is allowed during the den emergence time period (MFWP model for the NCDE or subsequent updates)

Table 54. Plan monitoring questions and indicators for Canada lynx

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON- LYNX-01:</b> How much of lynx critical habitat does not yet provide stand initiation snowshoe hare habitat (PCE1a) but is progressing towards providing PCE1a?	<b>Critical Habitat, FW-DC-WL-05</b>	<b>IND-LYNX-</b> <b>01.</b> Percentage of lynx critical habitat on NFS lands in each lynx analysis unit that is not yet winter snowshoe hare habitat due to wildfire <b>02.</b> Percentage of lynx critical habitat on NFS lands in each lynx analysis unit that is not yet winter snowshoe hare habitat due to vegetation management projects

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON- LYNX-02:</b> What is the percentage of lynx critical habitat that has vegetation treatments in stand initiation hare habitat (PCE1a)?	<b>Critical Habitat, FW-DC-WL-05</b>	<b>IND-LYNX-</b> <b>03.</b> Number of acres of lynx critical habitat on NFS lands in each lynx analysis unit that were precommercially thinned using exceptions to VEGS5 <b>04.</b> Number of acres of lynx critical habitat on NFS lands in each lynx analysis unit that were precommercially thinned using wildland-urban interface exemptions to VEGS5
<b>MON- LYNX-03:</b> If modified precommercial thinning techniques are used in lynx critical habitat, do they increase snowshoe hare habitat (PCE1a) and/or its persistence?	<b>Critical Habitat, FW-DC-WL-05</b>	<b>IND-LYNX-</b> <b>05.</b> Number of acres of lynx critical habitat that were treated with modified thinning techniques under VEG S5 exception #2 or #3 <b>06.</b> The percentage of dense horizontal cover developing over time in areas treated with modified thinning techniques compared to areas treated with conventional thinning techniques.
<b>MON- LYNX-04:</b> What is the percentage of lynx critical habitat that has vegetation treatments in multistoried hare habitat (PCE1a)?	<b>Critical Habitat, FW-DC-WL-05</b>	<b>IND-LYNX-</b> <b>07.</b> Number of acres of multistory hare habitat in lynx critical habitat on NFS lands in each lynx analysis unit that were treated using exceptions to VEGS6 <b>08.</b> Number of acres of multistory hare habitat in lynx critical habitat on NFS lands in each lynx analysis unit that were treated using wildland-urban interface exemptions to VEGS6
<b>MON- LYNX-05:</b> Are fuel treatment and vegetation management projects compliant with the Canada lynx vegetation standards in the Northern Rockies Lynx Management Direction?	<b>Appendix A VEGS1, VEGS2, VEGS5, VEGS6</b>	<b>IND-LYNX-</b> <b>09.</b> Cumulative total acres of fuel treatment projects in lynx habitat conducted under exemptions to standards VEGS1, S2, S5, and S6 within the WUI (as defined by HFRA), by LAU and forestwide, since the end of 2017. <b>10.</b> Number of projects/acres treated in lynx habitat conducted under exemptions to standards VEGS1, S2, S5, and S6 that result in more than three adjacent lynx analysis units that do not meet the standard VEG S1 (more than 30 percent of a lynx analysis unit that is not yet snowshoe hare habitat.) <b>11.</b> Number of projects/acres treated in lynx habitat that create stand initiation hare habitat (e.g., regeneration harvest) that occur in LAUs that exceed VEGS1 (have >30% of area currently in stand initiation stage that does not yet provide hare habitat). <b>12.</b> Number of timber management projects conducted under exceptions to VEG S5 and VEGS6 that regenerate more than 15 percent of lynx habitat on Forest lands within a lynx analysis unit in a 10-year period. <b>13.</b> Cumulative total acres of vegetation treatments conducted under exceptions to VEG S5 and VEGS6 since the end of 2017.

**Table 55. Plan monitoring questions and indicators for other wildlife species**

<b>Monitoring Question</b>	<b>Plan Component(s)</b>	<b>Indicator(s)</b>
<b>MON-WL-01:</b> What is the status of habitat conditions that support harlequin ducks during the nesting season?	<b>FW-DC-WL DIV-01, FW-GDL-WL DIV-05</b>	<b>IND-WL-</b> <b>01.</b> Stream habitat data on known harlequin duck nesting stream reaches (see aquatics section) <b>02.</b> Number of projects authorized within the riparian management zone along known harlequin duck nesting stream reaches <b>03.</b> Number of project authorizations that include timing requirements for harlequin duck nesting <b>04.</b> Number of nesting stream reaches surveyed, number of harlequin duck broods detected, and size of broods, in cooperation with other partners
<b>MON-WL-02:</b> What is the status of habitat conditions that support flammulated owls during the nesting season?	<b>FW-DC-WL DIV-01</b>	<b>IND-WL-</b> <b>05.</b> Percentage of the warm-dry PVT with presence of live trees and dead trees greater than or equal to 15 inches d.b.h. (preferably ponderosa pine, if able to query) <b>06.</b> Acres and percentage of the Forest that meets modeled habitat criteria for flammulated owl habitat (as classified in R1 Summary database, using FIA data). <b>07.</b> Density (canopy cover) in the ponderosa pine dominance type forestwide <b>08.</b> Number of acres of forest treated in the warm-dry and warm-moist PVT focused on promoting desired habitat conditions for flammulated owls
<b>MON-WL-03:</b> What is the status of habitat conditions that support fisher?	<b>FW-DC-WL DIV-01</b>	<b>IND-WL-</b> <b>09.</b> Percentage of area in the warm-moist PVT where very large live trees and very large dead trees ( $\geq 20"$ DBH) are present. <b>10.</b> Acres and percent of area in the warm-moist PVT that meets modeled habitat criteria for fisher winter and summer habitat (as classified in the R1 Summary database, using FIA data).
<b>MON-WL-04:</b> What is the status of forest conditions that support wildlife habitat connectivity for fisher and other species?	<b>FW-DC-TE&amp;V-19, FW-DC-RMZ-06, FW-DC-WL DIV-01</b>	<b>IND-WL-</b> <b>11.</b> In the areas of the Forest where the warm-moist PVT is concentrated: landscape pattern of forests where tree size class is 5 inches or greater DBH (small, medium, large and very large forest size classes), and tree canopy cover is greater than 40%. <b>12.</b> In riparian management zones: acres where tree size class is 5 inches or greater DBH (small, medium, large and very large forest size classes), and tree canopy cover is greater than 40%. <b>13.</b> In riparian management zones: distribution of areas where tree size class is 5 inches or greater DBH and tree canopy cover is greater than 40% <b>14.</b> In key connectivity areas identified for the geographic areas: mapped distribution of forest cover with an average tree d.b.h. of 5 inches or greater and canopy cover greater than 40%

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON-WL-05:</b> What is the status of habitat conditions that support Clark's nutcrackers during the nesting season?	<b>FW-DC-WL DIV-01, FW-OBJ-PLANT-01</b>	<b>IND-WL-</b> <b>15.</b> Trees per acre of live whitebark pine greater than or equal to 10 inches d.b.h., in the Cold PVT <b>16.</b> Basal area per acre of live whitebark pine greater than or equal to 10 inches d.b.h., in the Cold PVT <b>17.</b> Acres of whitebark pine habitat (i.e., acres in the cold PVT) affected by recent wildfire <b>18.</b> Acres of vegetation management treatments that contribute to restoration of whitebark pine
<b>MON-WL-06:</b> What is the status of habitat conditions that support Townsend's big-eared bats and other bat species?	<b>FW-DC-WL DIV-01, FW-GDL-CAVES-03</b>	<b>IND-WL-</b> <b>19.</b> Number of caves or structures (e.g., old buildings) surveyed and number of detections of Townsend's big-eared bats or other bat species <b>20.</b> Number of evaluations for closure or removal of structures used by bats and measures specified to mitigate or provide for bat use
<b>MON-WL-07:</b> What is the status of habitat conditions that support common loons on code A territorial nesting lakes?	<b>FW-DC-WL DIV-01, FW-OBJ-WL DIV-01, FW-GDL-WL DIV-03</b>	<b>IND-WL-</b> <b>21.</b> Number of code A territorial nesting lakes surveyed for loon presence (Hammond 2009 or subsequent updates), <sup>36</sup> in cooperation with other partners <b>22.</b> Number of loon breeding pairs/chicks detected on code A territorial nesting lakes during July <b>23.</b> Structures installed to support common loon nesting (if needed) <b>24.</b> Number of projects authorized on NFS lands within 150 yards of active loon nesting sites and number that included activity timing
<b>MON-WL-08:</b> What is the status of habitat for wildlife species associated with hardwood tree habitats on NFS lands?	<b>FW-DC-TE&amp;V-09, FW-OBJ-TE&amp;V-03</b>	<b>IND-WL-</b> <b>25.</b> Percentage of NFS lands with presence of hardwood tree species (birch, aspen, or cottonwood). <b>26.</b> Number of acres with vegetation management treatments focused on promoting hardwood tree species (birch, aspen and/or cottonwood)
<b>MON-WL-09:</b> What is the status of habitat for wildlife species associated with grass/forb/shrub habitats on NFS lands?	<b>FW-DC-TE&amp;V-09, FW-OBJ-TE&amp;V-04, FW-OBJ-NNIP-01</b>	<b>IND-WL-</b> <b>27.</b> Percentage of NFS lands in the grass/forb/shrub condition class <b>28.</b> Number of acres treated to promote grass/forb/shrub habitats for wildlife <b>29.</b> Number of key ungulate winter habitat acres treated to control non-native invasive plants

<sup>36</sup> C. A. M. Hammond, (2009), Conservation plan for the common loon in Montana (Kalispell, MT: Montana Department of Fish, Wildlife and Parks, Montana Common Loon Working Group), retrieved from <http://fwp.mt.gov/fishAndWildlife/management/commonLoon/>.

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON-WL-10:</b> What is the status of habitat for wildlife species associated with snags and potential live snag replacement trees in the 20-inch-or-greater d.b.h. class?	<b>FW-DC-TE&amp;V-15, 16</b>	<b>IND-WL-</b> <b>30.</b> Percentage of NFS lands with presence of snags greater than or equal to 20 inches d.b.h. in each PVT <b>31.</b> Average number of snags per acre on NFS lands greater than or equal to 20 inches d.b.h. in each PVT <b>32.</b> Average number of live trees per acre greater than or equal to 20 inches d.b.h. in each PVT
<b>MON-WL-11:</b> What is the status of habitat for wildlife species associated with snags and potential live snag replacement trees in the 10-inch or greater d.b.h. class?	<b>FW-DC-TE&amp;V-15</b>	<b>IND-WL-</b> <b>33.</b> Percentage of NFS lands with presence of snags greater than or equal to 10 inches d.b.h. in each PVT <b>34.</b> Average number of snags per acre on NFS lands greater than or equal to 10 inches d.b.h. in each PVT <b>35.</b> Average number of live trees per acre greater than or equal to 15 inches d.b.h. in each PVT
<b>MON-WL-12:</b> What is the status of habitat for wildlife species associated with downed woody material?	<b>FW-DC-TE&amp;V-17</b>	<b>IND-WL-36:</b> Average tons per acre on NFS lands of coarse woody material greater than 3 inches d.b.h. in each PVT
<b>MON-WL-13:</b> What is the status of habitat for wildlife species associated with forests burned with moderate- to high-severity wildfire?	<b>FW-DC-TE&amp;V-25, FW-GDL-TIMB-01 through 03</b>	<b>IND-WL-</b> <b>37.</b> Forestwide acres burned by wildfire by severity class (low, medium, high) in previous decade <b>38.</b> Percentage of acreage burned with moderate- to high-severity wildfire followed by salvage harvest in previous decade <b>39.</b> For wildfires with salvage harvest, acres of unburned forest or forest burned with low-severity retained within fire perimeter <b>40.</b> For wildfires with salvage harvest, size range of burned forest patches retained within burn perimeter <b>41.</b> For wildfires with salvage harvest, number of trees per acre greater than 20 inch d.b.h. retained within salvage harvest units that were verified old-growth forest prior to the fire
<b>MON-WL-14:</b> What is the risk of human disturbance in areas modeled as wolverine maternal denning habitat during the time period of February 15 to May 15?	<b>FW-GDL-REC-04, FW-GDL-WL-04</b>	<b>IND-WL-</b> <b>42.</b> Projects or activity authorizations in modeled maternal denning habitat and design features to reduce the risk of disturbance <b>43.</b> Percentage of modeled maternal denning habitat where public motorized over-snow vehicle use is allowed (Modeling based upon Copeland and Yates <sup>37</sup> or subsequent updates for the northern Rocky Mountains by the USFWS or USFS Rocky Mountain Research Station)

<sup>37</sup> J. P. Copeland & R. E. Yates (2006), *Wolverine population assessment in Glacier National Park*, Missoula, MT: USDA Forest Service, Rocky Mountain Research Station, planning record exhibit # 00355.

Monitoring Question	Plan Component(s)	Indicator(s)
<b>MON-WL-15:</b> What is the status of the breeding season bird community on the Forest (including neo-tropical migratory birds)?	<b>FW-DC-WL DIV-01</b>	<b>IND-WL-</b> <b>44.</b> Bird species presence on the Forest based upon data collected for Integrated Monitoring in Bird Conservation Regions. <b>45.</b> Bird species density on the Forest based upon data collected for Integrated Monitoring in Bird Conservation Regions. <b>46.</b> Bird species for which there are statistically significant changes in Bird Conservation Region 10.
<b>MON-WL-16:</b> What is the status of the aquatic amphibian community on the Forest?	<b>FW-DC-WL DIV-01</b> <b>FW-DC-WTR-12</b>	<b>IND-WL-</b> <b>47.</b> Aquatic sites surveyed for amphibian presence, in cooperation with other partners. <b>48.</b> Amphibian species detections; whether there is evidence of reproduction <b>49.</b> Percentage of sites surveyed where aquatic invasive species (plants or animals) are detected
<b>MON-WL-17:</b> What is the status of forest mesocarnivores (e.g., lynx, wolverine, fisher) on the Forest?	<b>FW-DC-WL DIV-01</b>	<b>IND-WL-</b> <b>50.</b> Grid cells surveyed and number of detections of each mesocarnivore species on the Forest, in cooperation with other partners

## Soils and geology

Table 56. Plan monitoring questions and indicators for soils and geology

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-SOIL-01:</b> To what extent are vegetation management activities not causing irreversible damage to soil conditions?	<b>FW-DC-SOIL-01</b> <b>FW-STD-SOIL-01</b>	<b>IND-SOIL-01.</b> Number of harvest units surveyed and percent that meet the soil quality standard post-harvest
<b>MON-SOIL-02:</b> How many miles of temporary road are constructed and rehabilitated?	<b>FW-DC-SOIL-01</b> <b>FW-STD-SOIL-03</b>	<b>IND-SOIL-</b> <b>02.</b> Miles of temporary roads constructed <b>03.</b> Miles of temporary roads rehabilitated

## Fire and fuels management

Table 57. Plan monitoring questions and indicators for fire and fuels management

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-FIRE-01:</b> What management actions are contributing towards reducing wildland fuels?	<b>FW-OBJ-FIRE-01</b> <b>FW-DC-FIRE-02</b>	<b>IND-FIRE-</b> <b>01.</b> Acres of fuel reduction treatments in and out of the wildland-urban interface <b>02.</b> Acres of treatment effectiveness by treatment type.
<b>MON-FIRE-02:</b> To what extent is natural fire used to achieve desired ecological, social, or economic conditions?	<b>FW-DC-FIRE-03</b>	<b>IND-FIRE-</b> <b>03.</b> Number and acres of natural fire ignitions managed for ecological, social, or economic reasons and the number of natural ignitions managed with the primary goal of suppression

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-FIRE-03:</b> To what extent is prescribed fire used to achieve desired ecological, social, or economic conditions?	<b>FW-DC-FIRE-03</b>	<b>04.</b> Number and acres of prescribed fire ignitions managed for ecological, social, or economic reasons

## Human Uses and Designations of the Forest

The plan monitoring program contains monitoring questions and indicators addressing human uses of the Forest associated with the transportation system, recreation, scenery, timber production, and other socioeconomic factors. Monitoring items associated with designated areas such as recommended wilderness and wild and scenic rivers are also identified. Monitoring questions and indicators are shown in Table 58 through Table 68.

### Sustainable recreation

**Table 58. Plan monitoring questions and indicators for sustainable recreation**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-REC-01:</b> What is the status of visitor use? <b>MON-REC-02:</b> Are facilities maintained to users' satisfaction?	<b>FW-DC-REC-13</b> <b>FW-DC-REC-14, 15</b> <b>FW-DC-REC-04</b>	<b>IND-REC-</b> Using the National Visitor Use Monitoring data, show trends in <b>01.</b> Visitation estimates <b>02.</b> Visitor activities <b>03.</b> Percent overall satisfaction
<b>MON-REC-03:</b> Are the recreation objectives in the plan being achieved??	<b>FW-OBJ-REC 01, 03, 04</b> <b>GA-NF-OBJ-02GA-SV-MA7-Crane-OBJ-01</b> <b>GA-SM-OBJ-01</b> <b>GA-SM-MA7-Blacktailski-OBJ-01</b> <b>GA-SM-OBJ-02 through 04</b>	<b>IND-REC-</b> <b>04.</b> Number of dispersed recreation sites on the Forest that have been rehabilitated to correct erosion or sanitation issues <b>05.</b> Number of campgrounds that have been improved <b>06.</b> Number of recreation cabin rentals added to the national reservation system since the record of decision <b>07.</b> Number of bicycle trails constructed in the Whitefish Range vicinity <b>08.</b> Construction of a bicycle trail in the Crane Mountain area <b>09.</b> Construction of a nonmotorized trail that connects NFS lands in the Blacktail vicinity to the Foy's to Blacktail Trails system <b>10.</b> Construction and designation of motorized trail connectors that provide high-elevation loop opportunities <b>11.</b> Construction of a nonmotorized trail that connects the Whitefish Trail (Whitefishlegacy.org) to NFS lands
<b>MON-REC-04:</b> Are current recreation settings and opportunities meeting or moving toward desired recreation settings and opportunities?	<b>FW-DC-SREC-01</b> <b>FW-DC-WREC-01</b> <b>FW-DC-REC-03</b>	<b>IND-REC-12:</b> Management actions or activities that move towards desired recreation opportunity spectrum class characteristics

## Scenery

**Table 59. Plan monitoring questions and indicators for scenery**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-SCN-01:</b> Is the existing condition and trend of the scenic character meeting or moving toward desired conditions??	<b>FW-DC-SCN-02</b> <b>FW-GDL-SCN-03</b>	<b>IND-SCN-01:</b> Management actions or activities that move towards the desired scenic integrity objectives

## Infrastructure

**Table 60. Plan monitoring questions and indicators for Infrastructure (roads and trails)**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-IFS-01:</b> Are road closure devices effective at restricting public motorized use?	<b>FW-DC-IFS-12</b>	<b>IND-IFS-01:</b> Number and percentage of road closure devices checked and percentage determined to be effective at restricting public motorized use
<b>MON-IFS-02:</b> What is the status of the road system on the Forest?	<b>FW-DC-IFS-06</b> <b>FW-OBJ-IFS-01 through 03</b> <b>FW-GDL-IFS-03</b>	<b>IND-IFS-</b> <b>02.</b> Miles of roads open year-long by operational maintenance level <b>03.</b> Miles of roads open seasonally by operational maintenance level <b>04.</b> Miles of roads maintained by operational maintenance level <b>05.</b> Miles of roads decommissioned <b>06.</b> Miles of roads put into intermittent storage <b>07.</b> Miles of reconstruction or improvement projects <b>08.</b> Number of culverts inspected, assessed, and/or cleaned
<b>MON-IFS-03:</b> What is the status of the trail system on the Forest?	<b>FW-DC-IFS-07 through 09</b> <b>FW-OBJ-IFS-04 through 06</b>	<b>IND-IFS-</b> <b>09.</b> Miles of motorized and nonmotorized summer trails <b>10.</b> Miles of motorized and nonmotorized winter trails <b>11.</b> Miles and percent of system trails meeting standards <b>12.</b> Miles of system trails improved <b>13.</b> Miles of trails maintained <b>14.</b> Miles of new motorized trails constructed <b>15.</b> Miles of new nonmotorized trails constructed <b>16.</b> Miles of trails reported reconstructed



## Wild and scenic rivers, designated and eligible

**Table 61. Plan monitoring questions and indicators for designated wild and scenic rivers**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-MA2a-01:</b> Are the statutory requirements (outstandingly remarkable values, water quality, and free-flowing conditions) of the three forks of the Flathead Wild and Scenic River being protected?	<b>MA2a-DC-01, 02, 06</b>	<b>IND-MA2a-01.</b> Number, kind, extent, and evaluated outcomes of identified management activities that occur within designated wild and scenic river corridors

**Table 62. Plan monitoring questions and indicators for eligible wild and scenic rivers**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-MA2b-01:</b> Are the outstandingly remarkable values for which the river was deemed eligible and the free-flowing conditions protected?	<b>MA2b-DC-01, 02</b>	<b>IND-MA2b-01.</b> Number, kind, extent, and evaluated outcomes of identified management activities that occur within eligible wild and scenic river corridors

## Wilderness, designated and recommended

**Table 63. Plan monitoring questions and indicators for designated wilderness areas**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-WILD-01:</b> Do management activities in designated wilderness areas preserve and protect wilderness character?	<b>FW-MA1a-DC-01, 02</b> <b>MA1a-GDL-03</b>	<b>IND-WILD-</b> <b>01.</b> Score on National Wilderness Stewardship Performance elements <b>02.</b> Limits of acceptable change monitoring measures for the Bob Marshall Wilderness Complex and Mission Mountains Wilderness <b>03.</b> The number and type of authorized motorized use and mechanized transport entry as reported through the USFS INFRA database <b>04.</b> The number and type of unauthorized motorized use and mechanized transport <b>05.</b> Number, kind, and extent of identified actions (e.g., natural and human-caused fire) that have occurred in designated wilderness areas on the Forest

**Table 64. Plan monitoring questions and indicators for recommended wilderness areas**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-RWILD-01:</b> Do outcomes from management activities protect the wilderness characteristics of the recommended wilderness area?	<b>MA1b-DC-01, 02</b> <b>MA1b-SUIT-06</b>	<b>IND-RWILD-</b> <b>01.</b> Number, kind, extent, and evaluated outcomes of identified management activities (including prescribed fire) that have occurred in recommended wilderness areas <b>02.</b> Number and type of unauthorized motorized travel, uses, and mechanized transport

## Inventoried roadless areas

**Table 65. Plan monitoring questions and indicators for inventoried roadless areas**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-IRAs-01:</b> Do outcomes from management actions maintain roadless area characteristics within inventoried roadless areas?	Roadless Area Conservation Rule <sup>38</sup>	<b>IND-IRA-01.</b> Number, kind, and extent of identified actions that have occurred in inventoried roadless areas on the Forest

## Production of Natural Resources

### Timber products

**Table 66. Plan monitoring questions and indicators for timber products**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-TIMB-01:</b> How are management actions contributing to a sustainable mix of forest products in response to market demands?	<b>FW-DC-TIMB-02, FW-OBJ-01 and 02</b>	<b>IND-TIMB-01.</b> Million board feet/million cubic feet offered and sold annually
<b>MON-TIMB-02:</b> How are management actions contributing to the recovery of economic value of dead or dying trees on suitable lands?	<b>FW-DC-TIMB-02 and 05</b>	<b>IND-TIMB-02.</b> Million board feet/million cubic feet offered and sold annually as salvage harvest

## Economic and Social Environment

**Table 67. Plan monitoring questions and indicators for the social and economic environment**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-S&amp;E-01:</b> To what extent is the Forest providing goods and services for local communities? <b>MON-S&amp;E-02:</b> To what extent is the Forest contributing to desired conditions for a stable and functioning local economy?	<b>FW-DC-S&amp;E-02</b>	<b>IND-S&amp;E-</b> <b>01.</b> Levels of production of multiple uses, including timber products, grazing, recreational visits, wilderness hunting and fishing opportunities, and downhill skiing (as measured through day visits, night visits, local and non-local visits, animal unit months, thousand cubic feet of harvest and sales) <b>02.</b> Number of jobs and thousands of dollars in labor income resulting from Flathead National Forest management <b>03.</b> Land payment revenues (e.g., Secure Rural Schools Act, payment in lieu of taxes, etc.) to state and counties from NFS lands

<sup>38</sup> USDA (2001), 36 CFR Part 294—Special areas, roadless area conservation rule (Washington, DC: USDA Forest Service), retrieved from [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5050459.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5050459.pdf).

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-S&amp;E-03:</b> To what extent do opportunities to connect people, including youth, with nature exist across the Forest?	<b>FW-DC-S&amp;E-03</b> <b>FW-DC-R&amp;E-01 through 04</b>	<b>IND-S&amp;E-</b> <b>04.</b> Number and type of education and youth programs; National Visitor Use Monitoring report IND-REC-1 to 3; visitor center tracking <b>05.</b> Number of youth participating in various Forest education and youth programs, including employment
<b>MON-S&amp;E-04:</b> Is the cost of implementing the forest plan consistent with projections?	<b>FW and GA objectives</b>	<b>IND-S&amp;E-06.</b> Forest annual budget, supplemented by partnerships and other outside funding.

## Cultural resources

**Table 68. Plan monitoring questions and indicators for cultural resources**

Monitoring Question(s)	Plan Component(s)	Indicator(s)
<b>MON-CR-01:</b> To what extent are cultural resource objectives being met, and are they trending towards desired conditions to identify, evaluate, and nominate cultural resources for listing in the National Register of Historic Places?	<b>FW-OBJ-CR-01 through 03</b>	<b>IND-CR-</b> <b>01.</b> Number of submitted cultural resource nominations to the State Historic Preservation Officer, and number of completed historic contexts, overviews, thematic studies, or cultural resources property preservation plans for significant cultural resources identified through inventory <b>02.</b> Number of completed public outreaches or interpretive projects
<b>MON-CR-02:</b> To what extent are plan components ensuring treaty rights are preserved and trending towards desired conditions for consultation with each tribe?	<b>FW-DC-CR-02</b> <b>FW-OBJ-TRIB-01, 02</b>	<b>IND-CR-</b> <b>03.</b> Completion of a cooperatively established tribal consultation protocol <b>04.</b> Number of completed consultations under the tribal consultation protocol

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